WORK

IN A HYPERBARIC ENVIRONMENT

Special preventive measures

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Translation in English

Of the French Legislation

Which remains

The Sole Official Reference Text

French Legislation

SUMMARY

AUTHOR : FRENCH GOVERNMENT

DECREE N°90-277 OF 28th MARCH 1990
relating to the protection of workers operating in a hyperbaric environment.

DECRET N°90-277 DU 28 MARS 1990
relatif à la protection des travailleurs intervenant en milieu hyperbare

DECREE N°90-277 OF 28th MARCH 1990
relating to the protection
of workers operating in a hyperbaric environment

(Journal Officiel of 29th March 1990)

The Prime Minister,
Acting on reports from the Minister of Equipment of Housing, Transport and the Sea, the Minister of Labour, Employment and Occupational Training and the Minister of Agriculture and Forestry,
In consideration of the Labour Code, and in particular articles L. 231-1, L. 231-2 and L. 231-3-1 ;
In consideration of the Social Security Code, and in particular L. 461-2 ;
In consideration of the Rural Code and in particular article 1170 ;
In consideration of Law n°85-542 of 22nd May 1985 amending the decree of 9th January 1852 on the practise of sea fishing ;
In consideration of decree n°63 of 18th January 1943 amended, containing public administration regulations on apparatus pressurized with gas ;
In consideration of decree n°47-1592 of 23rd August 1947 amended, containing public administration regulations concerning special safety measures relating to lifting equipment other than lifts and hoists ;
In consideration of the decree n°68-48 of 8th January 1965 amended, containing public administration regulations for the implementation of the provisions of book II of the Labour Code (section II : Health and Safety of Workers) as regards special measures for protection and hygiene applicable to establishments in which personnel carry out building work, public works or any other work concerning buildings ;
In consideration of decree n°77-196 of the 19th August 1977 made in implementation of the provisions of book II, section III, chapter V (first part : Legislative) of the Labour Code as regard health and safety plans, inter-company health and safety colleges and the setting up of various channels and networks ;
In consideration of decree n°77-1321 of 29th November 1977 laying down special health and safety requirements applicable to work carried out in an establishment by an outside firm ;
In consideration of decree n°79-709 of 7th August 1979 containing public administration regulations concerning safety measures applicable to agricultural establishments using lifts and hoists and certain other lifting equipment :
In consideration of decree n°81-183 of 24th February 1981 regarding an extension to agricultural establishments of the provisions of the decree of 8th January 1965 relating to special protection and hygiene measures applicable to establishments in which personnel carry out building work, public works and all other work concerning buildings ;
In consideration of decree n°82-150 of 10th February 1982 regarding an extension to agricultural establishments of the provisions of decree n°77-1321 of 29th November 1977 laying down special health and safety requirements applicable to work carried out in an establishment by an outside firm ;
In consideration of decree n°82-397 of 11th May 1982 relating to the organisation and operation of agricultural occupational medical services :
In consideration of decree 82-727 of 19th August 1982 regarding an extension of the provisions of decrees n°77-612 of 9th June 1977 and n°77-996 of 19th August 1977 to the heads of agricultural establishments referred to in article L. 231-1 of the Labour Code ;

In consideration of the advice given by the National Commission of Health and Safety at Work in Agriculture dated 6th June 1989 ;
In consideration of the advice of the Council for the Prevention of Occupational Risks, dated 10th July 1989 ;
The Council of State (social section) having been consulted,

Decrees :

SECTION I
FIELD OF APPLICATION - DEFINITIONS
Article 1

The provisions of the present decree shall be applicable in establishments and on sites subject to the provisions of article L.231-1 of Labour Code in which workers are called to operate at a pressure greater than local atmospheric pressure.
However, for activities for which the relative operating pressure remains permanently less than 100 hectopascals (0.1 bar), only the provisions of section III and articles 2, 39, 40 and 41 of the present decree shall be applicable.

Article 2

The operating pressure is the absolute pressure at the level of the respiratory tracts of the worker at the moment when it reaches its maximum value during the period of work.
The relative operating pressure is the operating pressure less the local atmospheric pressure.

SECTION II
CONDITIONS OF ACCESS TO A HYPERBARIC ENVIRONMENT
Article 3

I - Work in a hyperbaric may only be carried out by workers who are holders of a certificate of competence in the field of hyperbaric operations, appropriate to the nature of such operations and who are holders of an individual record book.

II - This certificate of competence shall indicate one of the classes or sub classes of hyperbaric work to which the worker has access and shall mention the activity which he is entitled to practise in the field of hyperbaric operations. The three classes, defined as a function of the operating pressure are as follows :

- class I for a maximum relative pressure not exceeding 4,000 hectopascal (4 bar) ;
- class II for a maximum relative pressure not exceeding 6,000 hectopascal (6 bar) ;
- class III for a maximum relative pressure greater than 6,000 hectopascal (6 bar).

Class I comprises two sub classes :

- class IA for a maximum relative pressure not exceeding 1,200 hectopascal (1.2 bar) ;
- class IB for a maximum relative pressure greater than 1,200 hectopascal (1.2 bar).

A decree issued by the Ministers responsible for Labour, Agriculture and the Sea, shall issue a list of categories of activity as well as the procedures for obtaining the certificate of competence in hyperbaric operations and the conditions under which training corresponding to each of these activities shall be ensured.
III - The individual record specified in I above shall be issued to any worker who is a holder of an aptitude certificate on completion of his initial training. This record book, the characteristics and methods of presentation for which shall be defined by a decree issued by the Ministers responsible for Labour, Agriculture and the Sea, must include, other than details of the classification and mention allocated to the worker, the date on which the last medical fitness record was compiled and the resulting opinion as to fitness, countersigned by the company diving medical doctor.

Article 4

Only persons aged at least 18 and not older than 40 may apply for a certificate of competence in hyperbaric operations. A decree issued by the Ministers responsible for

Labour, Agriculture and the Sea, shall lay down the conditions under which any derogations may be granted for certain hyperbaric activities (1).

SECTION III
BREATHING GASES

Article 5

For the execution of work in a hyperbaric atmosphere in the establishments and sites specified in article L.231-1 of the Labour Code, breathing of compressed air is permitted in accordance with the requirements of article 7 and 10 below, up to a relative pressure of 6,000 hectopascals (6 bars).
Above 6,000 hectopascal (6 bars), specific breathing mixtures must be employed under the conditions laid down in the present section.

Article 6

Air or mixtures breathed in the course of operations must have :
a - for carbon dioxide, a partial pressure of less than 10 hectopascals (10 millibars) ;
b - for carbon monoxide, a partial pressure of less than 5 pascals (0.05 millibar) ;
c - for water vapour, for periods of exposure greater than 24 hours, a relative humidity of between 60 and 80 % ;
d - for oil vapours, a partial pressure expressed as methane of less than 0.5 hectopascal (0.5 millibar) and a concentration of less than 0.5 mg/cm^3 ;
e - for dust, a maximum concentration less than the limits laid down the article R.232-5-5 of the Labour Code ;
f - for dangerous vapours and gases, particularly solvents and cleaning products, partial pressures less than those corresponding to the exposure limit values at atmospheric pressure.
The density of a breathing mixture must not exceed 9 grammes per litre at the operating pressure unless a derogation is granted, particularly for purposes of scientific research, by a decree issued by the Minister concerned.

Article 7

The partial pressure of nitrogen in a respired mixture must be less than 5,600 hectopascals (5.6 bars).

Article 8

Oxygen
I - The breathing of pure oxygen under pressure with individual breathing apparatus shall be reserved for periods of decompression in accordance with the tables defined by a decree issued by the Ministers responsible for Labour and Agriculture or shall be reserved for periods of treatment following accidents connected with high pressures.

II - The partial pressure of oxygen in a breathing mixture must not be less than 160 hectopascals (160 millibars).

III - The partial pressure of oxygen in a breathing mixture must not exceed the following values :
a - During a period of physical activity, excluding the phases of compression and decompression and for continuous periods of exposure not exceeding respectively 3, 4, 5, 6 and 8 hours : 1,600 hectopascals (1.6 bar), 1,400 hectopascals (1.4 bar), 1,200 hectopascals (1.2 bars), 1,000 hectopascals (1 bar) and 900 hectopascals (0.9 bar) ;
b - During the decompression phase in submersion 1,600 hectopascals (1.6 bars) ;
c - During the phase of dry decompression, 2,200 hectopascals (2.2 bars) for decompression during a period less than 24 hours and 800 hectopascals (0.8 bar) for decompression during a period greater than 24 hours ;
d - During phases of compression or rest at saturation, between 300 hectopascals (0.3 bar) and 450 hectopascals (0.45 bar) ;
e - During emergency recompression after a

decompression accident, 2,800 hectopascals (2.8 bars) unless prescribed medically.
The partial pressure of oxygen must be evaluated with a precision of 50 hectopascals (50 millibars).
The partial pressure of oxygen in a hyperbaric working chamber must never exceed 25 % of the total pressure.

Article 9

Diluent gases for oxygen.
The conditions for the use of diluent gases for oxygen and their concentration in a breathing gas may be laid down by a decree issued by the Ministers responsible for Labour and Agriculture.

Article 10

Air and breathing mixtures prepared in the establishment or on site.
Air and mixtures provided by compressors and intended for breathing under pressure must be analysed after any new installation has been assembled and then at least once a year, as well as after an anomaly has been noted or after any repairs to the installation.
These analyses should enable compliance with the provisions of article 6 above to be verified.
Air drawn into compressors must be from a locality which does not present any risk of pollution, particularly from engine exhaust gases, oil or hydrocarbon vapour fogs, carbon dioxide or carbon monoxide.
In addition, for breathing mixtures prepared in the establishment, the employer must verify compliance of these with the provisions of article 7, 8 and 9.

Article 11

Breathing mixtures prepared outside the establishment or site.
Mixtures intended for breathing under pressure may only be sold if accompanied by an analytical guarantee certificate which shall enable the employer to verify the compliance with the provisions of article 6, 7, 8 and 9 above.

Article 12

Adaptation of breathing mixtures to hyperbaric activities.
The employer must provide breathing mixtures suitable, as regards composition and temperature to the working pressure and the phases of compression, decompression and rescue and of any treatment which might take place.
He must in addition, before use, verify by analysis, the conformity of the oxygen content of mixtures with the provisions of article 8.

SECTION IV
COLLECTIVE EQUIPMENT

Article 13

Other than specific equipment suited to a hyperbaric situation and necessary for the work undertaken, collective equipment shall comprise ;
a - means of access to, residence in and evacuation from the hyperbaric situation ;
b - means for monitoring workers in the hyperbaric situation ;
c - means of production, transfer, storage, distribution and control of breathing gases ;
d - means of rescue (resuscitation, fire, recompression).
Decrees issued by the Ministers responsible for Labour, Agriculture and the Sea, may give details of the technical specifications which, for certain hyperbaric situations, this equipment must satisfy.

Article 14

A means of access suited to the hyperbaric situation, or to submersion, must be available in order to enable workers to be pressurized in accordance with the procedures described in the hyperbaric procedure and safety manual laid down in article 29 and for at least one

person to bring assistance to a person under pressure.
A means of evacuation from the hyperbaric situation must be permanently available ;
It must be enable workers who may be injured or unconscious as well as persons assisting them, to be decompressed, and if necessary, to leave the water.

Article 15

Means of supervision.
Any worker operating under pressure must be supervised from a control post situated in a locality under local atmospheric pressure, having means of communication, alarm and rescue and necessary information on the pressure in the working locality, the nature of the breathing gases and the volumes of available gas stocks.

Article 16

Pressure equipment.
I - The use of a bursting disc for protecting pressure chambers which can be manned is prohibited. This protection must be provided by means of a calibrated pressure valve.
In addition, an easily accessible rapid closure valve, placed between the calibrated pressure valve and the chamber concerned, kept in the open position and sealed by means of a wire with a lead seal, must be used to isolate this pressure relief valve.
II - The dates of hydraulic tests must be carried in a conspicuous manner and standardized colour codes must be used on storage containers and piping.
III - The colours of marks carried by storage containers and piping as well as conformity marks on connections used for gas distribution circuits shall be defined by a decree issued by the Ministers responsible for Labour, Agriculture and the Sea.
IV - Premises in which pressurized gases are stored, must comply with the specifications governing protection against fire, laid down in Articles R. 233-14 to R. 233-41 of the Labour Code.

Article 17

The use of single place pressure chambers without an airlock for personnel is forbidden.

Article 18

Decrees issued by the Ministers responsible for Labour, Agriculture and the Sea, may lay down, according to use or destination, the operation requirements applicable to manned pressurized chambers, particularly to recompression chambers, saturation chambers, to hyperbaric oxygen therapy chambers, to diving bells, to airlocks for personnel in tunnel boring and to submerged pressure chambers operating with compressed air.

Article 19

Pressure reducers for converting the gas pressure in a reservoir to a suitable working pressure must be maintained in a good operational state and must be inspected at least once a year.
When the failure of a pressure reducer can bring about a loss of pressure for personnel, the corresponding gas circuit must be protected by a non-return valve.

Article 20

In order to counter the effect of any failure in the supply to a breathing apparatus or a manned pressurised chamber, an emergency gas supply or a compressor with a buffer reservoir must be immediately available.

Article 21

Flexible supply hoses for breathing apparatus may only be used at pressures less than half their service pressure as printed on the hoses. The pressure in flexible operational tubing must be equal to the service pressure of the

other components of the installation.
It must be possible to uncouple connections used on these flexible hoses when under pressure.
All connectors for flexible hoses must have a tensile strength equal to that of the flexible hoses themselves.

Article 22

Compressors and equipment for transferring gas must be lubricated with products which do not give off vapours which are dangerous, within the meaning given in Articles L. 231-6 and L. 231-7 of the Labour Code.
Means must be provided which will enable it to be decided whether a purification device should be exchanged or cleaned when saturated.

Article 23

Means of rescue.
Emergency kits must be available on site in sufficient numbers, comprising at least one oxygen inhaler and a first aid kit.
The employer must in addition ensure that a recompression chamber is available in the case of accident, corresponding to the number of persons operating simultaneously under pressure, as well as personnel qualified to operate this chamber.
The access period to this chamber may in no case exceed two hours ; decrees issued by the Ministers responsible for Labour and Agriculture and the Sea may lay down lower periods according to the nature of exposure to a hyperbaric risk.

Article 24

Risk of fire.
Every provision must be made for the prevention of fire inside and outside chambers.
Fire extinguishers inside manned chambers must be effective at atmospheric pressure.
Fire extinguishers outside pressurized chambers must take account of the special situation of workers under pressure, of the presence of compressed gas and where applicable the presence of oxygen.
Means of survival in a smoke filled atmosphere must be available for workers operating manned chambers.

SECTION V
INDIVIDUAL EQUIPMENT
Article 25

The employer must provide protective clothing suitable for the hyperbaric situation concerned, breathing equipment, emergency breathing equipment and accessories appropriate to methods of operation and rescue and as required, an emergency gas reservoir.

Article 26

Breathing apparatus must provide air or the breathing mixture automatically, without excessive resistance, at a pressure corresponding to that of the level at which the worker is operating.

Article 27

Decrees issued by the Ministers responsible for Labour, Agriculture and the Sea, may specify, in relation to the various hyperbaric situations, the minimum characteristics with which this equipment must comply.

SECTION VI
SAFETY PROCEDURES
Article 28

I - The employer must prepare a manual giving safety procedures in a hyperbaric environment and must put it at the disposal of any worker involved in work under hyperbaric conditions.

II - The employer must define the general rules appropriate to the establishment :

a - The respective functions and roles of various persons taking part in operations, in particular those of the person in charge of the operation specified in article 30 below, of the supervisor, of personnel situated in a hyperbaric environment and of rescue personnel ;
b - The equipment required according to the operating methods employed by the firm and the checks which must be made before they are put into operation ;
c - The procedures decided on by the employer for the various operating methods in particular as regards the choice of gases, compression and decompression tables, operational and rescue procedures and procedures to be followed in the face of accidents connected with hyperbaric operations ;
d - Safety rules to be observed in the course of various types of operation ;
e - Limitations to travelling on board aircraft following hyperbaric operations ;
f - The items defining a site which must be taken into account when operations peculiar to each site are carried out and in particular knowledge of the premises, weather conditions, interference with other operations, operating pressure, outside rescue facilities available and alarm procedures.

III - The hyperbaric safety manual and its successive amendments shall be previously submitted to the medical doctor and to the Health and Safety and Conditions of Work Committee for their opinion, or failing this, to personnel delegates. In addition, it shall be held at the disposal of the inspector who may order the employer to carry out any modifications which are necessary, within a specified time.

Article 29

The employer must make available for any worker involved in hyperbaric operations, a site document defining the methods, normal procedures and rescue procedures relating to the said operation.

Article 30

Any operations carried out in a hyperbaric environment must be directed by a head of operations designated by the employer and capable to carrying out operations in a hyperbaric environment. The employer must provide the head of operations with a copy of the manual covering procedures and safety under hyperbaric conditions.
The head of operations, in accordance with this manual, shall take any measures necessary to ensure the safety of workers on this site operating under pressure, under the responsibility of the employer.

Article 31

Any worker operating under pressure must be monitored continuously until he returns to atmospheric pressure, by a competent person present in a control station as defined in article 15 above ; this person may be, if the nature of the operation permits it, the head of operations referred to in article 30 above.
In addition, at least one person holding a certificate of competence in hyperbaric operations, must be able to operate at any moment in a hyperbaric environment in order to offer assistance to workers under pressure ; a decree issued by the Ministers responsible for Labour, Agriculture and the Sea, may however define conditions under which derogations may be granted to all or part of these requirements and shall lay down, in these circumstances, equivalent measures for guaranteeing the safety of workers under pressure.
In any circumstances, the employer shall be obliged to inform the inspector without delay of derogations which he would be led to consider by virtue of the present article ; he should in addition notify workers concerned in writing of the nature of the equivalent requirements appropriate for guaranteeing their safety.

On each site where hyperbaric operations are carried out, at least one member of personnel must be specially trained to give first aid in cases of emergency and to put into practise the procedures laid down in article 23 above.
When the recompression chamber is not situated on site, the employer must ensure that qualified personnel are also available for operating it.

Article 32

The minimum composition of teams engaged in hyperbaric operations, limitations to the duration and frequency of periods under pressure, methods and procedures governing compression, decompression under normal conditions or in case of accident, the period of exposure to high oxygen pressures, training procedures and criteria concerning the fitness of persons specified in article 30 and 31, as well as the conditions under which derogations may be applied to the provisions thus laid down, shall be defined by means to a decree issued by the Ministers responsible for Labour, Agriculture and the Sea.

SECTION VII
MEDICAL SUPERVISION
OF PERSONNEL
Article 33

I - A worker may only be required to carry out operations in a hyperbaric environment if medical records prepared in application of article R. 241-57 of the Labour Code or of Article 40 of the decree of 11th May 1982 referred to above, certifies that no medical contra-indications exist relating to these operations ; for persons more than 40 years old this record shall be prepared every six months.
II - The worker or employer may question the entries in this fitness record within fifteen days following its issue.
The dispute shall be heard before the inspector. The latter shall give his ruling following the assent of the regional industrial medical inspector who may order additional examinations to be carried out by specialists of his choice at the expense of the employer.
III - Without prejudice to the provisions of article R. 241-51 of the Labour Code or, if an agricultural labourer is involved, of article 33 of the decree of 11th May 1982 referred to above, the employer shall be obliged to have any worker who has been the victim of a hyperbaric incident or who declares himself to be unwell on account of the work in which he is employed, to be examined by the medical doctor.

Article 34

Medical examinations carried out in implementation of the preceding article must include a general clinical examination and supplementary specialized examinations. These examinations shall be carried out at the expense of the employer.
A decree issued by the Ministers responsible for Labour, Agriculture and the Sea shall define recommendations to the medical doctor and the list of supplementary specialized examinations.

Article 35

A special medical record shall be kept by the medical doctor for each worker required to work in a hyperbaric environment.
Reference to this record shall be made in the doctor's ordinary medical record file specified in Article R.241-56 of Labour Code or in Article 39 of the decree of 11th May 1982, referred to above.
This medical record shall contain :
1° A record card relating to the operating conditions of the worker, in which special reference shall be made to the nature of work carried out in a hyperbaric environment, the duration of periods under pressure and other risks to which the worker may be exposed ;
2° The dates and results of analyses and medical examinations carried out in application of Article 33 above, as well as

accidents occurring during work and pathological symptoms.
All medical records must be kept for a period of at least twenty years by the department of occupational medicine.

Article 36

The employer shall be required to provide rapid means of transport enabling a medical doctor to reach the victims of an accident. The employer or head of operations must notify the doctor immediately in the event of an accident.

SECTION VIII
VARIOUS PROVISIONS
Article 37

The individual record book as well as the certificate of competence in hyperbaric operations, defined in Article 3 above, must be, for each worker concerned, kept at the disposal of the inspector and official of the prevention department of the relevant social security organization.
In addition, the employer must present the operating manual defined in Article 28 above as well as operating sheets and reports on tests and checks made in application of the present decree, when asked to do so by the inspector or an official of the prevention department of the relevant social security organization.

Article 38

The following must be displayed on the site where hyperbaric operations are carried out :
a - The name of the person specified in Article 31 for carrying out first aid ;
b - The name and address of the company diving medical doctor and of specialised medical assistance designated by him in case of accident ;
c - The address and telephone number of the recompression centre which is able to act in the case of an accident associated with work under pressure ;
d - The address of the department of occupational medicine where medical examinations are carried out.

Article 39

As regards persons occupied as sailors, the duties allocated by the present decree to the medical doctor shall be carried out by the naval doctor, those allocated to the inspector by the local officer in charge of maritime affairs, those allocated to the medical inspector for occupations and manpower by the chief regional medical officer for maritime affairs, and those allocated to personnel representatives by ship's representatives.

Article 40

Decrees n° 74-657 of 9th July 1974 and n° 74-725 of 11th July 1974 are repealed.
The words « Compressed air - Work in compressed air » which appear in the first paragraph of Article R. 234-9 of the Labour Code are to be deleted.

Article 41

The present decree comes into force on the first day of the seventh month following its publication in the « Journal Officiel » of the French Republic.

Article 42

The Minister for Equipment, Housing, Transport and the Sea, the Minister for Agriculture and Forestry and the Deputy Minister for Equipment, Housing, Transport and the Sea, responsible for the Sea, shall be responsible, as it concerns each of them, for the implementation of the present decree, which shall be published in the « Journal Officiel » of the French Republic.

Issued in Paris, 28th March 1990.

MICHEL ROCARD

In the name of the Prime Minister :
The Minister of Employment and
Labour and Occupational Training,
JEAN-PIERRE SOISSON

The Minister of Equipment,
Housing, Transport and the Sea,
MICHEL DELEBARRE

The Minister of Agriculture and Forestry,
HENRY NALLET

The deputy Minister for Equipment,
Housing, Transport and the Sea,
Responsible for the Sea,
JACQUES MELLICK

FRENCH GOVERNMENT

DECREE OF 28th JANUARY 1991
defining the procedures for safety training of personnel taking part in hyperbaric operations

ARRÊTE DU 28 JANVIER 1991
définissant les modalités de formation à la sécurité des personnes intervenant dans les opérations hyperbares

DECREE OF 28th JANUARY 1991
defining the procedures for safety training of personnel taking part in hyperbaric operations

(Journal Officiel of 2nd March 1991)

The Minister of Agriculture and Forestry, the Minister of Employment, Labour and Occupational Training and the Minister Responsible for the Sea,
In consideration of the Labour Code, in particular Articles L.231-3-1 and R.231-32 to R.231-45 ;
In consideration of decree n° 90-277 of 28th March 1990 relating to the protection of workers operating in a hyperbaric environment, in particular its Articles 3 and 32 ;
In consideration of the advice given by the National Committee for Health and Safety in Agricultural Work ;
In consideration of the advice given by the council for the Prevention of Occupational Risks,
Decree :

SECTION I
LIST OF CATEGORIES OF ACTIVITY IN A HYPERBARIC ENVIRONMENT
Article 1

In accordance with the requirements of paragraph II of article 3 of the decree referred to above, the certificate of competence in hyperbaric working must comprise, in addition to a reference to the class or sub class to which the worker has access, at least one reference relating to the activity carried out under hyperbaric pressure, selected from the following :

Mention A : the activity of diver
Mention B : other underwater activities
Mention C : medical hyperbaric activities
Mention D : other hyperbaric activities.

The list of main activities associated with each of these categories is defined in annex I of the present decree.

Persons whose certificate of competence in hyperbaric operations bears the mention reference A may in addition claim the right to carry out an activity corresponding to categories B, C and D, provided that these persons limit themselves to classes of hyperbaric work to which they have access.
Persons whose competence certificate in hyperbaric operations comprises mention B may carry out a corresponding activity in mention C and D.

SECTION II
PROCEDURES FOR OBTAINING A CERTIFICATE OF COMPETENCE IN HYPERBARIC OPERATIONS
Article 2

I - The competence certificate in hyperbaric operations shall be issued to any competent person, within the meaning of article 33 of the decree referred to above, who has successively completed appropriate training in hyperbaric operations.
II - This training shall be given by an organization approved by the Ministers responsible for Labour and Agriculture, under the conditions defined in article 4 below ; for training organizations for personnel in naval supply firms, approval shall be granted by the Minister responsible for the Sea.
However, for candidates in class I of categories B and D and in classes I and II of mention C, this training may be ensured under the conditions specified in IV below, by the employers themselves as soon as they have authorization from the Regional Director of Employment and Labour, of the Head of the Regional Inspection Department for Employment, Labour and Social Agricultural Policy or from the Regional Director of

Maritime affairs, whichever is appropriate.
At the end of training, the approved organization or the authorized employer shall end the results to the National Institute for Professional Diving and for Operations in an Aquatic and Hyperbaric Environment (I.N.P.P.) who shall prepare the corresponding certificate and individual record book specified on I of article 3 of the decree of 28th March 1990 referred to above, within a period of one month.
III - Persons who are holders of one of the diplomas listed in annex III of the present decree may apply for exemption from all or part of the training. In this case a request shall be addressed to the I.N.P.P. who, under the conditions which they shall lay down, grant the appropriate certificate of competence, in accordance with the requirements of I above.

Article 3

The certificate of competence in hyperbaric operations shall be granted for a period of ten years .
Its period of validity may be extended under the conditions laid down in it, and on the initiative of the I.N.P.P., for successive periods of ten years, following an application as submitted by the holder. This application shall be accompanied by the sections of the individual record, specified in paragraph I of article 3 of the Decree n°90-277 of 28th March 1990 referred to above, which prove the identity, the certification and competence of the applicant, as well as statements giving the nature and duration of employment carried out during the period concerned and for which certification is required. Employers shall be obliged to provide these statements ; other documents proving in particular the nature and duration of employment carried out during the period under consideration may be provided by the person concerned at the request of the aforementioned institute.
Any dispute concerning decisions taken by virtue of the preceding paragraph shall be heard by the Minister responsible for Labour.
Under no circumstances will any extension be granted to a person who has not participated in any employment corresponding to these certificates during the relevant period.

Article 4

The training of workers operating in a hyperbaric environment shall be for the purpose of enabling them to carry out their activities in accordance with the individual and collective safety rules.
To this end, teaching programmes shall distinguish the items which result from access to a particular pressure class or sub class, and consequently, those items of training which are specific to each mention and will be common to all activities.
Joint training shall aim at giving the candidate the theoretical and practical knowledge which is indispensable to his access to, maintenance in, and evacuation from, the hyperbaric medium at a given pressure.
Training relating to each mention shall aim at illustrating the general principles for each hyperbaric class in relation to equipment and procedures peculiar to each activity which is the subject of a particular mention.
Annex II of the present decree shall define the objectives which joint and optional training must satisfy, as a function of the classes and categories concerned.

SECTION III
CONDITIONS FOR THE APPROVAL OF ORGANIZATIONS GIVING TRAINING TO WORKERS OPERATING IN A HYPERBARIC ENVIRONMENT

Article 5

Organizations which are able to provide training of workers operating in a hyperbaric environment with a view to obtaining the certificate of competence in hyperbaric working shall be approved by means of a decree issued by the Ministers responsible for Labour and Agriculture, following consultation with the Committee of the

Council for the Prevention of Occupational Risks which specializes in chemical and biological risks and those resulting from physical environments, and following consultation with the National Health and Safety in Agriculture Committee.
The organization must be able to ensure that applicants for certification shall be competent within the meaning of article 33 of decree n° 90-277 of the 28th March 1990 referred to above. The approved training organization may not train its own personnel, subject to the provisions of article 2, paragraph II.

Article 6

Requests for approval shall be addressed to the Minister responsible for Labour (subsidiary department dealing with conditions of work and protection against occupational risks), 1, place de Fontenoy, 75007 Paris, by the responsible representative of the organization applying for approval, before the 31st October of each year, in order for these applications to take effect on the 1st January of the following year.
For personnel training organizations of naval supply firms, applications for approval shall be addressed to the Minister responsible for the Sea (subsidiary department dealing with seamen), 3, place de Fontenoy, 75707 Paris.
As a temporary measure, applications made during the 30 days following publication of the present decree may result in approval limited to one year.

Article 7

Each application for approval must be accompanied by a dossier including :
1° A document giving the legal status, the name and address of the head office of the organization and the surname and forenames of the responsible person of the organization as well as his level of training, and where appropriate, his university degrees ;
2° A list of the names of persons who will be called upon to give training with, for each of these, the details required in 1° above. These persons must be contractually bound to the organization which will benefit from approval ;
3° The nature of approval requested, indicating the classes, subclasses and categories for which the organization intends to provide training ;
4° The intended detailed training programme which must comply with the guidelines annexed to the present decree as well as the place where it is intended to provide training and details of the conditions governing the selection of candidates ;
5° Details of the duration and frequency of training sessions, as well as the conditions and procedures under which examinations will take place, particularly on the composition of examining board ;
6° The technical and safety procedures which will be put in operation within the framework of this training ;
7° Where appropriate, the dwell times envisaged in a hyperbaric environment for each pressure range ;
8° The fees for this training according to the various options.
If, in the course of the period for which approval is granted, changes take place concerning the training programme, the equipment used, the organization of training sessions and examinations, the list of names of persons carrying out training or the fees levied, the organization shall be obliged to inform the Minister responsible for Labour or the Minister responsible for the Sea of such changes.

Article 8

I - Approval shall be granted for a period of three years on a renewable basis.
At the end of each period of approval, the organization must submit the dossier specified in article 7, with a view to renewing approval, accompanied by details of the training carried out.
II - Inspections may be carried out at any

moment by organizations or persons qualified and designated according to the case concerned, by the Minister responsible for Labour or the Minister responsible for the Sea, with a view to ensuring the quality of the training provided, the conditions under which examinations are carried out and the application of safety regulations during training.
III - Approval may be withdrawn at any time if it appears that the clauses which applied at the time of granting have not been complied with.

SECTION IV
CONDITIONS GEVERNING THE AUTHORIZATION OF ESTABLISHMENTS TO CARRY OUT THEIR OWN TRAINING OF WORKERS OPERATING IN A HYPERBARIC ENVIRONMENT

Article 9

An employer who applies for the authorization referred in paragraph II of article 2 above, must send, as appropriate, to the Regional Director for Employment and Labour, to the Head of the Regional Department for the Inspection of Agricultural Employment and Labour and Social Policy or to the Regional Director for Maritime Affairs, a request indicating :

1° The name and address of the head office of the firm and establishment as well as the place where training will take place ;
2° The surname, forenames and title of the person who is making the application ;
3° The list of names and qualifications of persons he will use to provide training. These persons shall be contractually bound to the person receiving authorization ;
4° The nature of the authorization requested, indicating the classes, subclasses and categories for which it is intended to provide training ;
5° A detailed programme of the intended training which must comply with the guidelines annexed to the present decree as well as the conditions for the selection of candidates ;
6° Details of the duration and frequency of training sessions, as well the conditions and procedures under which examinations are carried out ;
7° The technical and safety procedures which will be put into practise within the framework of training ;
8° Where applicable, the intended duration periods in a hyperbaric environment for each pressure range.

Article 10

Authorization shall be granted, following consultation with the I.N.P.P., as applicable, by the Head of the Regional Department for the Inspection of Agricultural Employment Labour and Social Policy or by the Regional Director for Maritime Affairs, under the conditions that he shall lay down, and within a period of two months counting from submission of the application : this authorization may be revoked.
Inspections may be carried out any time by the inspector with a view to ensuring the quality of training, the conditions under which examinations take place and the safety regulations put into practice.

SECTION V
CHARACTERISTICS AND PROCEDURES FOR THE PRESENTATION OF THE INDIVIDUAL RECORD BOOK

Article 11

The individual record book specified in article 3 of the decree of the 28th March 1990 referred to above, must contain, in addition to a national registration number, at least the following information :

- the surname, forename, date of birth, address, photograph and signature of the holder ;

- date on which the certificate in hyperbaric operations was obtained and the name of the organization which provided training ;
- the class and mention of hyperbaric operation ;
- the date of medical examinations and resulting opinion regarding fitness ;any restrictions on hyperbaric working ;
- the registration of hyperbaric operations carried out by the holder, certified by the head of hyperbaric operations or the employer.

SECTION VI
PROCEDURES GOVERNING THE DESIGNATION AND TRAINING OF THE HEAD OF HYPERBARIC OPERATIONS

Article 12

In any establishment or on any site subject to the provisions of decree n°90-277 referred to above, operations in a hyperbaric environment shall be carried out in accordance with article 30 of the aforementioned decree, under the on-site direction of a head of hyperbaric operations designated by the employer.
The function of this person, under the responsibility of the employer, shall be ensure the safety of workers operating under pressure, that is to say to ensure that protection measures are complied with, in particular those laid down in the hyperbaric safety manual, to take note of dangerous situations or methods of working, to establish normal and rescue procedures, to participate in the safety training of workers operating on a site in application of articles L.231-3-1 and R.231-34 to R.231-45 of the Labour Code and finally, in case of accident, to draw up a circumstantial report.

Article 13

The employer must ensure beforehand that the person he designates is able to carry out his task as head of hyperbaric operation and where necessary provide him with appropriate training.
In any case, written instructions must be drawn up by the employer laying down the scope of this task.

SECTION VII
PROCEDURES FOR THE DESIGNATION AND TRAINING OF THE SUPERVISORY PERSON IN THE HYPERBARIC OPERATIONS CONTROL POST

Article 14

The employer, in accordance with the provisions of article 31 of the decree of 28th March 1990 referred to above, must designate a competent person to supervise the worker or workers operating under pressure.
This person must have previously undergone appropriate training and received written information regarding technical and safety operating conditions.
For operations requiring the employment of workers in mention A, the supervisor in the control post, if he is not himself the holder of a certificate of competence in hyperbaric operations for mention A, must follow a course of training approved by the I.N.P.P.

SECTION VIII
PROCEDURES FOR THE DESIGNATION OF RESCUE PERSONNEL

Article 15

The employer must designate a person who shall be able to rescue workers in difficulty who are operating in a hyperbaric environment ; this person, who shall be the holder of a certificate of competence in hyperbaric operations compatible with the operation being carried out, must be equipped and trained for an immediate rescue operation.

SECTION IX
FINAL PROVISIONS

Article 16

As a temporary measure, within the 24 months following the publication of the present decree, operators having obtained access to work in a hyperbaric environment before the 1st October 1990, and who do not belong to naval supply firms, will be classified by the Minister responsible for Labour, when proposed by a committee presided over by his representative and which shall comprise medical specialists in hyperbaric operations and representatives of organizations who are the most representative of the employers and workers concerned.

In the same way, those who have obtained professional access to work in a hyperbaric environment before the 1st October 1990 and who belong to naval supply firms shall be classified by the Minister responsible for the Sea.

Candidates for classification must provide a dossier giving details of their capacity, addressed to the Minister responsible for Labour or the Minister responsible for the Sea, as the case may be.

The classification this established shall be granted by means of a certificate of competence in hyperbaric working.

Article 17

The Director of Labour Relations, the Director of Operations, Social Policy, and Employment and the Director of Seafarers and General Administration, shall be responsible, as it concerns each of them, for the implementation of the present decree, which will be published in the Journal Officiel of the French Republic.

Issued in Paris, 28th January 1991.

The Minister of Employment,
Labour and Occupational Training,
For and on behalf of the Minister :
The Director of Labour Relations,
O. DUTHEILLET DE LAMOTHE

The Minister of Agriculture and Forestry,
For and on behalf of the Minister :
In the absence of the Director of Operations,
social policy and employment :
Head of department,
J. LENOIR

Deputy Minister for the Sea,
For and on behalf of the Minister :
The Director of Seafarers
and General Administration,
C. BERNET

ANNEX I
INDICATIVE LIST OF ACTIVITIES CARRIED OUT IN A HYPERBARIC ENVIRONMENT

Mention A - Activity of diver

This mention concerns workers whose main activity consists of operating in an underwater environment in order to carry out civil engineering operations, maritime work, work in the oil fields or industrial work, etc.
Taking into account the nature of the work corresponding to mention A and the resulting constraints as regards safety, it is not possible, regarding this mention, to apply for the single subclass IA such as is defined in II of article 3 of the decree of 28th March 1990 referred to above.

Mention B - Other underwater activities

This mention concerns workers whose main occupation is not to carry out underwater work, but who may be called on to carry out their occupation whilst submerged.
By way of example this mention will include the following activities :
-scientific activities (oceanographers, biologists, archaeologists, etc.) ;
-entertainment and media activities (photographers, cameramen, lighting experts, actors, etc.) ;
-security and safety activities (rescue workers, public safety, firemen, etc.) ;
-aquaculture activities (aquaculture workers, sea fishers, coral fishers, oyster farmers, etc.).

Mention C
Medical high pressure activities

This mention concerns personnel whose work it is to operate medical hyperbaric installations (doctors, nurses, nursing auxiliaries, technicians, etc.).

Mention D - Other hyperbaric activities

This mention concerns all other personnel who operate in a hyperbaric environment without being submerged in water (pressure chamber workers, high pressure welders and those who carry out experimental simulated diving operations in a dry environment, etc.).

ANNEX II
TRAINING OBJECTIVES

A - Training in underwater operations

The objectives defined below do not take account of the criteria governing access to a given training programme which may, as circumstances demand, be provided for novices.

1 - MENTION A
1.1 - For class I

1.1.1 - General training
The objectives shall be :
To receive a level of general technical training in the use of the usual industrial documents (plans, planning diagrams, charts, equipment descriptions, procedures) and in the handling of current equipment used on a surface site.
To have a level of theoretical training sufficient for understanding and carrying out necessary calculations using diving data (decompression tables, physical concepts of gases, analyses, chronometric measurements, buoyancy or weighing calculations, etc.).
To be able to take part in team work.
To be a rescue worker, with the resuscitation option.
1.1.2 - Physical training
To be an experienced swimmer with standard scuba diving equipment.
1.1.3 - Specific theoretical training
a - Regulations : knowledge of the relevant French regulations.

b - Physics and physiology of diving :
Knowledge of the laws of physics applicable to diving and to underwater work ;
Knowledge of physiopathological effects and pressure as well as preventive measures ;
Knowledge of operating procedures using decompression tables for diving with air and with superoxygenated mixtures ;
Knowledge of symptoms and emergency procedures applicable on site for accidents directly connected with diving.
c - Equipment and associated safety rules to 40 meters :
Knowledge of equipment used for scuba diving or with a hookah ;
Knowledge of a recompression chamber ;
Knowledge of air compressors (low and high pressure) purification and storage of air, quality criteria for respirable air ;
Knowledge of electrical risks in underwater situations and corresponding safety rules ;
Knowledge of safety rules concerning the operation of the principal underwater equipment ;
Site organization : decompression in water ;
Sailing : boat permit A - limited radio telephonists certificate.
d - Risks and safety rules regarding the use of explosives.

1.1.4 - Practical training
a - A mastery of diving methods, procedures and necessary equipment :
Scuba and hookah using air or a superoxygenated mixture ;
Surface decompression and practical site organization.
b - Use and maintenance of individual equipment :
wet and/or dry clothing,
warm water clothing,
pressure reducers, face masks, helmets with continuous flow and flow on demand,
safety means for emergency surfacing (buoys, life jackets),
underwater telephones,
individual signalling means.
c - Safety in the use of the main equipment to be used for underwater work :

- search,
- cutting and welding,
- means for lifting (safety brake, cranes),
- various types hydraulic apparatus,
- TV, photography, subaquatic metrology,
- Use of water jets under pressure, contamination, decontamination,
- Underwater lighting,
- Explosives.

d - Role of rescue diver.
e - Use of surface equipment :

- Compressors, boiler, gas storage,
- Recompression chamber and gas analyser,
- Small craft, means for recall.

f - Preparation of documents :

- Keeping diving records sheets,
- Preparing technical or accident reports,
- Drawing up technical or accidents reports.

g - Special working conditions (night, low visibility and with current).
h - Practical exercises in safe diving under exceptional conditions :

- Dangerous environment (toxic, hot, polluted, radio active, etc.),
- In a tunnel.

1.2 - For Class II

In addition to training corresponding to the objectives of Class I.
1.2.1 - Theoretical training
Diving from a vessel with dynamic positioning :

- Open wet bell,
- Rescue, resuscitation option,
- Synthetic mixtures based on nitrogen.

1.2.2 - Practical training
Use of open wet bell.
Extension of diving methods in a zone 40 - 60 metres deep, including the role of the rescue diver.
Practical rescue work, resuscitation option.
Use of warm water clothing.

1.3 - For Class III

In addition to the training of class II mention A and effective working experience in this class.

1.3.1 - Theoretical training

Revision of diving theory with supplementary training for diving in synthetic mixtures :

Constitution,

Manufacturing methods,

Corresponding analysis,

Physiology of high pressures (HPNS),

HPNS symptoms in decompression sickness in saturation.

Concepts of decompression and saturation diving :

Knowledge of the method of saturation diving (parametric procedures),

Controls, analytical principles and principles of atmospheric regeneration.

Description of diving equipment with system :

Pressure chamber, diving bell, regeneration, gas production, analyzers,

Individual gas recovery equipment,

Vessels with dynamic positioning,

Hyperbaric evacuation.

Fire safety regulations.

Applicable regulations, knowledge of rules applicable abroad.

1.3.2 - Practical training

Necessary experience to carry out the following operations in safety and under supervision :

Incursion diving in a bell (at least 100 metres),

Saturation diving (at least 100 metres),

Saturation monitoring,

Analysis,

Role of rescue diver in a bell,

Use of equipment at great depths,

Completion of documents associated with deep diving.

2 - MENTION B

2.1 - For sub class IA and for class I

2.1.1 - General training

Technical training in the operation and maintenance of diving equipment.

Theoretical training in concepts of physical chemistry and physiology serving as a basis for diving theory.

The ability to work with a team.

A knowledge of rescue and resuscitation.

A knowledge of how to drive a motor launch.

2.1.2 - Physical training

Training to become an experienced swimmer with standard scuba diving equipment.

2.1.3 - Specific theoretical training

a - Knowledge of the French regulations in force in the field concerned.

b - Physics and physiology of diving.

Knowledge of the law of physics applicable to diving and to underwater work.

Knowledge of the physiological effects of submersion and pressure as well as measures taken to cope with these.

Knowledge of symptoms and emergency procedures applicable on site for accidents directly connected with diving.

c - Safety equipment and regulations.

Knowledge of individual equipment used for scuba diving.

Compressors, quality criteria, respirable air.

Practical organization of a scuba diving operation.

d - The holder of a certificate ought in addition to possess a perfect mastery of the use of decompression tables for diving and a satisfactory knowledge of the use of superoxygenated mixtures. In addition, he or she would know the principles and operation of a recompression chamber as well as the safety rules applicable to it.

2.1.4 - Practical training

a - A complete mastery of the methods of

scuba diving with compressed air down to 12 metres for sub class IA and to 40 metres for class I including night diving, diving with no visibility and diving with the current.
Introduction to safe diving without surface access (tunnels, under ice, etc.).
b - The role of the rescue diver, mastery of rescue signals.

2.2 - For Class II

The same criteria as for class I with an extension of the mastery of safety methods and regulations at 40 - 60 metres.
Rescue diploma (resuscitation option).

2.3 - For Class III

The training objectives are the same as those for class III, mention A but access to this training is via class II, mention B and effective practical experience in this class.

B - Training of workers in hyperbaric environments

1 - MENTION C

1.1 - For Class I

1.1.1 - General training corresponding to medical or paramedical practise under hyperbaric conditions.
1.1.2 - Specific theoretical training.
a - Regulations : knowledge of the relevant regulations (hyperbaric operations, health),
b - Physics and physiology of hyperbaric operations :
Knowledge of the rules of physics applicable to high pressures.
A knowledge of the effects of pressure on man and measures to be taken to cope with these.
A perfect knowledge of the use of decompression of the relevant decompression tables.
Knowledge of symptoms and corresponding emergency procedures in accidents during periods under pressure.
c - Medical principles of high pressures (main items),
d - Equipment used for high pressure medicine.
H.B.O. chambers (hyperbaric oxygen therapy), description, safety rules, type approval.
Breathing apparatus (patients/personnel).
Medical equipment and its use in high pressures (safety regulations).
Fire regulations inside and outside a caisson.
Criteria governing the quality of compressed air and mixtures (analyses).
1.1.3 - Practical training.
a - Preparation, transport and positioning of patients.
b - Use of breathing apparatus (patients and personnel).
c - Operation of pressure chamber (compression, decompression, ventilation).
d - Knowledge of a compressed air production unit, oxygen circulation and mixtures.
e - Use of therapeutic and decompression tables, including breathing of pure oxygen.
f - Supervision of patients up to 4 bar.

1.2 - Class II

The same objectives as for class I but, in addition, supervision of persons compressed to six bar.
A knowledge of the use by patients of oxygen-nitrogen and oxygen-helium mixtures.

1.3 - Class III

In addition to the training in class II and effective working experience in this class :
1.3.1 - Theoretical training.
a - Revision of the theory of periods under high pressure with supplementary knowledge on diving in synthetic mixtures :

- Constitution,
- Manufacturing methods,
- Corresponding analyses,
- Physiology of high pressures (HPNS),
- HPNS symptoms, decompression sickness.

b - Concepts of decompression and saturation diving :
Knowledge of saturation diving (procedures, parameters),
Controls, analytical principles and principles of atmospheric regeneration.
c - Description of equipment in the high pressure diving simulation centre :
Pressure chamber, regeneration, gas production, analyzers,
Fire safety regulations.
d - High pressure medical and physiological research equipment.

2 - MENTION D

2.1 - For Class IA

2.1.1 - Minimum general training corresponding to that for a civil engineering site worker.

2.1.2 - Specific theoretical training.

Certificate holders in this mention must have understood the following elementary concepts :
a - The reasons for work in compressed air,
b - A description of the various types of tunnelling machines with emphasis on what the compression chamber worker should use in the short term,
c - The role of on-site operators, in particular the compression chamber worker, the air-lock superintendent (supervising within the meaning of article 31 of the decree), the unit superintendent (head of operations within the meaning of article 30 of the decree),
d - The composition of the atmosphere and of any pollutants, CO_2, CO, dust,
e - The definition of pressure units,
f - Physical rules governing work under high pressure,
g - Description of the risk connected with high pressure working, their symptoms, prevention and corresponding definitions in particular :
Barotrauma,
Decompression risks,
Quality of respired gas,
Value of medical inspections and a knowledge of the reasons for temporary incapacity,
- Behaviour following a period under pressure, movements, efforts, journeys by air.

h - Statements on the effects of temperature connected with compression and decompression,
i - Special precautions to be taken in a hyperbaric environment for other harmful effects (from noise, electricity, welding, etc.),
j - Behaviour in the case of an accident.

2.1.3 - Practical training.

This must be given in such a way that the candidate has been compressed several times to 1.2 bar, that he has practised the technique of passing through an airlock and has carried out exercises in the evacuation of injured persons and fire fighting and finally that he has a knowledge of the procedures for alerting outside operators.

2.2 - For Class I

In addition to the objectives described for class IA of mention D, training shall emphasize problems connected with decompression and the resulting risks and the procedures for their prevention.

2.2.1 - Theoretical training.

a - Regulations : a knowledge of the regulations applicable to underground sites and to work at high pressures,
b - Physics and physiology of high pressure working :
An elementary knowledge of the concepts of physics applicable to high pressure working,
An understanding of the effects of pressure on man and measures taken to cope with these,
Knowledge of the use of relevant decompression tables, including provisions for successive operations and limitations on movement following a period under high pressure,
Knowledge of the symptoms and emergency procedures corresponding to accidents during periods under pressure, knowledge of treatment procedures.

c - Equipment used for high pressure working on the site concerned or, in a general way, in airlocks and working chambers in a tunnelling machine and submerged pressure chamber :
Breathing equipment (rescue or with oxygen, principles, hygiene),
Equipment used under pressure, special safety rules (hydraulics, welding, cutting, explosives, etc.),
Fire fighting regulations inside and outside transfer airlocks,
Criteria governing the quality of compressed air and mixtures (analyses to be carried out in the airlock - colorimetric tubes),
Knowledge of rescue and first aid.

2.2.2 - Practical training.

a - A knowledge of all the components of a high pressure installation, preparation, starting up an airlock, compression procedures,
b - Use of breathing apparatus (rescue, and where appropriate, with use of oxygen),
c - Knowledge of the behaviour of the compression chamber (compression, decompression, ventilation),
d - Elementary knowledge of a compressed air production unit with, as appropriate, an oxygen circuit,
e - Effective compression to 1.2 bar (sub class IA) and 4 bars (class I) : this compression may form part of tests carries out during the medical fitness examination.

2.3 - For Class II

The same objectives but, in addition, effective compression to 6 bars.
It is imperative to have a knowledge of the role of oxygen in decompression and the consequences for the equipment, as well as a knowledge of safety rules.

2.4 - For Class III

In addition to the training in class II :

2.4.1 - Theoretical training.

a - Revision of the theory concerned with periods under high pressure with additional training in the uses of synthetic mixtures :

- Constitution,
- Manufacturing methods,
- Corresponding analysis,
- High pressure physiology (HPNS),
- HPNS symptoms, decompression sickness,

b - Concept of decompression and saturation diving :

- Knowledge of the method of saturation diving (procedures, parameters),
- Controls, analytical principles and principles of atmospheric regeneration,

c - Principle of transfers under pressure :

- Compression chamber, diving bell, regeneration, gas production, analysers,
- Individual gas recovery equipment,
- Vessels with dynamic positioning,
- Evacuation under high pressure,
- Fire safety regulations,
- Adaptation where necessary of these principles to work in a tunnelling machine,

d - Appropriate regulations. Knowledge of rules applicable abroad.

2.4.2 - Practical training.

The necessary experience to carry out the following operations in safety and under supervision :
a - Operations with saturation at pressures greater than 10 bars,
b - Monitoring of saturation :

- Analysis,
- Regeneration,

c - Knowledge of the manufacture of mixtures,
d - Use of high pressure equipment,
e - Keeping of documents associated with high pressure operations.

ANNEX III

LIST OF DIPLOMAS REFERRED TO IN ARTICLE 2 OF THE PRESENT DECREE

For categories A

a - Diving diplomas
Diving certificate level 4 awarded by members of the Consultative Committee for Diving Education.

State sports instructor certificates, underwater diving option ;
Civil safety certificates in the use of light scuba diving equipment (40) ;
SAF Land Forces certificate CT2 ;
Ship's diver's certificate (mention 40) of the National Navy.
b - Professional diving diploma.
Diver's classification certificate in application of decree n°74-725 of 11th July 1974 ;
CETRAVIM diver's diploma ;
I.N.P.P. diver's diploma ;
SOGETRAM diver's diploma ;
C.G. DORIS diver's certificate ;
Equivalent foreign diplomas subject to additional training on French Regulations, in particular :
Part I, Part II certificate issued by the Health and Safety Executive (HSE) ;
Bell diver certificate or Air Diver certificate issued by the Norwegian Petroleum Directorate (NPD).

For mention B

a - Non-professional diving diplomas.
Diving certificate level 4 ;
Civil safety certificate for diving with light scuba diving equipment (40) ;
SAF Land Forces certificate CT2 ;
Ship's diver's certificate (mention 40) of the National Navy.
b - Professional diving diplomas.
Corresponding I.N.P.P. certificates, obtained before 1st October 1990 ;
State sports instructor certificate, 1st degree (diver mention) ;
Head of Scientific Diving Diploma of the C.N.R.S.

For mention C

I.N.P.P. certificate, Pressure Diver mention obtained before 1st October 1990.
Diplomas in the medicine of high pressures from the universities of :
Paris V
Marseille
Aix-Marseille
Toulouse
Lille
Bordeaux
Strasbourg.

For mention D

Corresponding I.N.P.P. certificates obtained before 1st October 1990.

FRENCH GOVERNMENT

DECREE OF 28th MARCH 1991
Defining recommendations to medical doctors responsible for the medical supervision of workers operating in a hyperbaric environment

ARRÊTE DU 28 MARS 1991
Définissant les recommandations aux médecins de travail chargés de la surveillance médicale des travailleurs intervenant en milieu hyperbare

DECREE OF 28th MARCH 1991
defining recommendations to medical doctors responsible for the medical supervision of workers operating in a hyperbaric environment

The Minister of Employment, Labour and Occupational Training, the Minister of Agriculture and Forestry and the Minister responsible for the Sea,
As proposed by the Director of Labour Relations,
In consideration of the Labour Code, in particular items L. 241-1 and R. 241-48 to R. 241-57 ;
In consideration of decree n°90-277 of 28th March 1990 relating to the protection of workers operating in a hyperbaric environment and notably its articles 33, 34 and 35 ;
In consideration of the decree of 28th January 1991 defining the procedures for safety training of personnel operating in a hyperbaric environment ;
In consideration of the advice of the National Committee for Health and Safety at Work in Agriculture ;
In consideration of the advice of the Council for the Prevention of Occupational risks,
Decree :

Article 1

The annex to the present decree states the recommendations to medical doctors carrying out medical supervision as specified in articles 33, 34 and 35 of the decree of 28th March 1990 referred to above and gives a list of supplementary specialized examinations.

Article 2

The decree of 4th October 1974 laying down the terms for recommendations to doctors carrying out the medical supervision specified by decree n°74-725 of 11th July 1974 relating to special protection measures applicable on sites or establishments in which work is carried out by divers under pressures greater than atmospheric pressure, is repealed.

Article 3

The Director of Labour Relations, the Director of Operations, Political Social Policy and Employment and the Director of Seafarers and of General Administration are made responsible, as it concerns each of them, for the implementation of the present decree, which will be published in the Journal Officiel of the French Republic.

Issued in Paris, 28th March 1991.

The Minister of Employment,
Labour and Occupational Training,
For and on behalf of the Minister :
The Director of Labour Relations,
O. DUTHEILLET DE LAMOTHE

The Minister of Agriculture and Forestry,
For and on behalf of the Minister :
In the absence of the Director of Operations,
social policy and employment :
The Director for Unclassified Labour,
F. PANTALONI

The Minister responsible for the Sea,
For and on behalf of the Minister :
The Director of Seafarers and
General Administration,
A BOROWSKI

ANNEX

Procedures for medical supervision of workers in a hyperbaric environment

The decree of the 28th March 1990 states that workers operating in a hyperbaric environment must benefit from special medical supervision based on a general clinical examination and on supplementary specialized examinations.

By virtue of article 33, 34 and 35 of the aforementioned decree, this supervision must be carried out :
Before work in a hyperbaric environment,
Then, every six months or every year according to whether the workers concerned are more or less than 40 years old,
And when any high pressure incident or accident takes place.
It must in addition by repeated when the worker reports that he is indisposed by virtue of the work he has carried out.
Medical supervision shall aim at determining the medical fitness of workers operating in a hyperbaric environment, adapting it where necessary, and taking account of activities actually carried out, of the conditions, of recommendations or of formal contra-indications.
For this purpose, it will be necessary :
On the one hand, to reveal pre-existing anomalies or factors liable to aggravate the effects of high pressure working on health,
And on the other hand, to detect early stages of illness which are still reversible.
Research into these pathological conditions which may be present, which are more often asymptomatic and noted in young people, shall be justified by the nature of the risk which are attributable to the environment in which the worker has been required to spend his time.
It is for this reason that, although the prescribed examinations should obviously take account of the various factors in the high pressure situation which are liable to cause accidents and particular risks of barotrauma, as well as those due to decompression or to an increase in respiratory resistance, the fact should not be neglected that the worker is called upon to adapt his behaviour to an essentially hostile environment in which certain of his functions may be altered or adversely affected to the point where he is not in a position, under certain circumstances, to ensure his survival.
Thus it will be necessary to investigate pathological conditions carefully which are liable to bring about loss of consciousness or considerable increases in heart rate associated with intensely laboured breathing.
Finally, it is necessary to emphasize that for exposure to a relative pressure greater than 26,000 hectopascals (26 bars), additional examinations must be carried out with regard to those referred to in 1 and 2 below, in particular neurophysical and vestibular examinations.

CONDUCT OF MEDICAL SUPERVISION AND LIST OF EXAMINATIONS

1 - Medical examinations for workers holding a certificate of competence in high pressure working in categories A, B or C

The categories A, B and C are those defined in article 1 of the decree of 28th January 1991 referred to above relating to training procedures for personnel operating in a hyperbaric environment :

- Mention A : Diving activities,
- Mention B : Other underwater activities,
- Mention C : Activities of hyperbaric medical officer.

1.1 - Examination prior to the first assignment to a hyperbaric environment

Whatever the class to which he has access, the worker must, prior to this first assignment to a hyperbaric environment, be subjected to a complete clinical examination and at least the following supplementary examinations :

- An exploratory examination of respiratory function comprising in particular a measure of vital capacity, forced expiratory volume for the first second, maximum breathing capacity per minute, a flow-volume curve for the maximum oxygen consumption by an indirect method,
- An electrocardiogram (12 leads) at rest and during a test at below maximum effort on an ergometric bicycle,

An audiogram with impedance measurement,
An electroencephalogram with intermittent light stimulation and hyperpnoea,
A biological examination comprising in particular a blood count, blood sugar level, examination for uricaemia, total cholesterol determination, triglyceride determination and a test for albumin and blood in the urine,
A radiographic examination comprising a telethorax, an x-ray of the large joints (hips and shoulders from the front, knees from the side with a lower third of the femur and an upper third of the tibia),
A compression test in a pressure chamber at a rate of between 300 hectopascals (0.3 bar) and 3,000 hectopascals (3 bars) per minute up to a minimum relative pressure of 1,200 hectopascals (1.2 bar).
As a general rule, the compression test in a pressure chamber and the electroencephalogram will not be carried out again during periodic examinations.
As a general rule, the initial medical examination must be carried out again for any worker, who during four consecutive years, has not carried out any work under pressure and therefore has not been subjected to a periodical medical examination.

1.2 - Annual medical examination

Whatever the class to which the worker has access, the annual periodic examination shall comprise a clinical examination and certain supplementary examinations carried out prior to assignment, particularly an exploration of respiratory function, an audiogram, an electrocardiogram at rest and with a test at below maximum effort and a biological examination.
On the other hand, an x-ray of the large joints shall only be carried every four years, except in the case of an anomaly.

1.3 - Half-yearly examination

For workers who are more than forty years old, the half-yearly examination shall comprise a clinical examination, with an addition if necessary, of supplementary examinations.

2 - Periodical examinations for workers who hold a certificate of competence in high pressure operations in Mention D (other than medical high pressure workers)

2.1 - For workers in high pressure who are holders of the certificate of competence in high pressure operations, carrying a mention D and belonging to classes I B, II and III as defined in article 3 of the decree of 28th March 1990 referred to above, special medical monitoring shall be carried out in accordance with the recommendations given in 1 above.

2.2 - For high pressure workers belonging to class I A, that is to say for those for which the relative operating pressure will in all circumstances be less than 1,200 hectopascal (1.2 bar), medical supervision shall be identical in principle to that defined in 1 above, but the electroencephalogram, the effort test under below maximum conditions, during the electrocardiogram, and x-ray examinations of the knee will not be required.
Figures for the systolic and diastolic pressures greater than those specified in 3.3 below, will be accepted according to the discretion of the company diving medical doctor.
As regards the reduction in hearing measured in air, the provisions of 3.5 below are not required ; however, the overall reduction in hearing of one ear should not exceed that of the other ear by more than 35 dB.

3 - Recommendations on fitness conditions

In the course of periodical inspections, the fitness criteria listed below must be assessed case by case by the company diving medical

doctor as a function of the age of the worker, his experience in high pressure working and of course the locality in which he is required to work.

3.1 - Morphology

Obvious excess weight should be considered as a contra-indication to exposure to a high pressure environment.

3.2 - Respiratory system

Any clinical, anatomical, radiological or functional anomaly shall call for a specialized examination to be carried out.
The results of the exploration of respiratory function shall be evaluated with respect to the 1983 C.E.C.A. standard ; the lower limit to be taken as a measure of fitness shall be represented by the C.E.C.A. standard x 0.8.
In the adaptation test at less than maximum effort, the maximum oxygen consumption determined with the aid of the Astrand monogramme must be greater than or equal to 40 millimetres per minute and per kilogramme.
As a general rule, the medical doctor should in particular consider the following as factors to be considered as contra-indications to exposure to a hyperbaric environment.
A Tiffeneau index less than 70 %,
Evolutive asthma,
After-effects of thoracotomy,
After-effects of a pulmonary abscess,
A history of spontaneous pneumothorax,
Functional after-effects of a pleural infection,
After-effects of tuberculosis,
Emphysema.

3.3 - Cardio-vascular system

On entry to the profession and apart from any treatment, the systolic arterial pressure must be equal to or less than 150 mm of mercury and the diastolic pressure shall be equal to or less than 90 mm.
Any clinical, anatomical or functional anomaly of the cardio-vascular system, in particular of the right-left communications, shall call for a specialized examination in order to evaluate fitness.

3.4 - Digestive system

As a general rule, the diving medical doctor should in particular consider as factors constituting a contra-indication to exposure to a hyperbaric environment, all pathological digestive processes liable to be recurrent and to involve acute complications, such as evolutive gastroduodenal ulcer, diverticulosis or chronic deterioration of the hepatic metabolism.
For saturation operations, it is advised that these be carried out by workers who have undergone appendicectomy.

3.5 - Ear nose and throat conditions

As a general rule, the diving medical doctor should in particular consider as factors constituting contra-indications to exposure to a hyperbaric environment as follows :

- Ostopongiosis,
- Laryngocele,
- Chronic otitis or sinusitis,
- Lack of initial hearing for each ear exceeding, in tonal audiometry, a value of 25 dB calculated from air conduction curves for the frequencies 500, 1,200, 2,000 and 4,000 Hertz in accordance with the weighting rule defined in table 42 of general regulations for occupational diseases.

However, in the course of his career, a worker exhibiting a loss of hearing greater than this limit may be allowed to remain in his place of work in a hyperbaric environment if a vocal audiometry test reveals an intelligibility curve judged to be compatible with his work, that is to say, a curve having a normal trend whose slope is sufficient for 100 % intelligibility to be reached at 60 dB and a deficit at a threshold of 50 % not exceeding 40 dB.

3.6 - Ophthalmology

Official acuity without correction, colour perception and field of vision must be compatible with the type of occupational activities and the assignments given to the worker in a hyperbaric environment.
As a general rule, the diving medical doctor should in particular consider as factors constituting a contra-indication to exposure to a hyperbaric environment as follows :
Detached retina, even one which has been operated on,
An intra ocular operation scar,
Glaucoma, even open angle,
Keratoconus.

3.7 - Neurology

Operations in a hyperbaric environment require perfect anatomical and functional integrity of the nervous system. It is for this reason that any clinical anomaly which is noted shall call for the carrying out of a specialized examination.
As a general rule, the diving medical doctor should in particular consider the following as factors constituting a contra-indication to exposure to a hyperbaric environment :
Symptoms of epileptic disorders,
Previous cranial traumatism, for closed cranial traumatism, it will be necessary to ensure the benign nature of the accident or the absence of after-effects,
After-effects of meningo-encephalic illness,
Degenerative neuro-muscular diseases,
After-effects of an infectious or traumatic medullary condition.

3.8 - Psychopathology

Questioning during a clinical examination carried out by the diving medical doctor, should enable any behavioural difficulties to be revealed, which, if they were to become apparent in a hyperbaric environment, would have dramatic consequences on the worker or on those around him.
Thus, lack of adaptability of response, signs of bradypsychia should cause the diving medical doctor to carry out supplementary investigations.
The existence of serious neuropsychiatric conflicts associated with significant psychosomatic reactions shall be, under any circumstances, sufficient to justify a declaration of unfitness.

3.9 - Electroencephalographic examination (E.E.G.)

As a general rule, the diving medical doctor should in particular consider the following as factors constituting a contra-indication to exposure to a hyperbaric environment :

- Electroencephalographic signs indicating epilepsy, whether these are spontaneous or produced by intermittent light stimulation or by hyperpnoea,
- Focal signs of a cerebral malady,
- Diffuse or persistence monomorphic or polymorphic theta or delta activities occurring in a subject who is alert or resting,
- Observation of an alpha-like background rhythm with a frequency of less than 7.5 Hertz or the existence of asymmetry in the alpha rhythm frequency between the two hemispheres, greater than 1.5 Hertz.

The diving medical doctor shall not systematically consider the following as being factors constituting contra-indications to exposure to a hyperbaric environment :

- A slow alpha rhythm,
- Non-synchronized traces,
- The observation of slow posterior functional waves in the absence of clinical symptomatology,
- The observation of symmetrical pariero-occipital paroxysms with intermittent light stimulation, if they are generalized and without any clinical effects,
- The observation of symmetrical

anterior delta synchronization after three minutes of hyperpnoea thoroughly carried out with a subject less than 30 years old.

3.10 - Locomotory system

As a general rule, the diving medical doctor shall in particular consider as factors constituting contra-indications to exposure to a hyperbaric environment, the observation of an anomaly in the locomotory system involving significant functional impairment.
Before the first assignment, observation of osteonecrosis could involve a declaration of unfitness ; consequently, the occurrence of juxta-articular dysbaric osteonecrosis should be the subject of continuous supervision.

3.11 - Dermatology

The diving medical doctor shall only consider chronic skin conditions as factors constituting contra-indications to exposure to a hyperbaric environment if they originate in functional disorders.

3.12 - Haematopoietic organs

As a general rule, the diving medical doctor should in particular consider the following as factors constituting a contra-indication to exposure to a hyperbaric environment :
Abnormal blood crasis,

- Sickle cell anaemia,
- Enlarged spleen or spleenectomy with retention on the blood count.

3.13 - Stomatology

For persons holding a certificate bearing the categories A and B, the condition of the buckle cavity and of the teeth should be such as to enable them to use a breathing apparatus with a mouthpiece.

3.14 - Genito-urinary system

An involutive condition may constitute a temporary or final contra-indication seeing that the occurrence of acute episodes (urinary lithiasis) may put the safety of the worker in danger on account of the hyperbaric context.

3.15 - Pregnancy

Pregnancy shall constitute a contra-indication to work in a hyperbaric environment. The diving medical doctor ought in this respect to remind women of childbearing age of the benefit for them and for the child of reporting their pregnancy at an early stage.

3.16 - Metabolic disorders

Any severe metabolic disorder shall constitute a contra-indication, notably diabetes mellitus.

FRENCH GOVERNMENT

DECREE OF 20th AUGUST 1991
prescribing the conditions under which a derogation may be granted as regards the age limit for applying for a certificate of competence in hyperbaric operations

ARRÊTE DU 20 AOUT 1991
fixant les conditions de dérogation à l'âge limite pour postuler au certificat d'aptitude à l'hyperbarie

Journal officiel of the French Republic
30th August 1991, page 21

DECREE OF 20th AUGUST 1991
prescribing the conditions under which a derogation may be granted as regards the age limit for applying for a certificate of competence in hyperbaric operations

Journal Officiel of the French Republic 30th August 1991

The Minister of Agriculture and Forestry, the Minister for Employment, Labour and Occupational Training and the Secretary of State for the Sea,
In consideration of the Labour Code,
In consideration of Decree n°90-277 of 28th March 1990 relating to the protection of workers operating in a hyperbaric environment and in particular its article 4,
In consideration of the decree of 28th January 1991 defining the procedures for safety training of personnel taking part in hyperbaric operations,
In consideration of the decree of 28th January 1991 defining recommendations to doctors responsible for the medical supervision of workers operating in a hyperbaric environment,
In consideration of the advice given by the National Committee for Health and Safety at Work in Agriculture dated 28th June 1991,
In consideration of the advice given by the Council for the Prevention of Occupational Risks (Chemical, Biological and Physical environmental Risks Committee) dated the 19th June 1991,
As proposed by the Director of Labour Relations, by the Director of Operations, Social Policy and Employment and of the Director for Seafarers and General Administration,

Decree :

Article 1

In derogation of the provisions of article 4 of the decree of 28th March 1990 referred to above, the age limit for applying for the first time for a certificate of competence in hyperbaric operations in classes I and II for categories C and D defined in article 1 of the
decree of 28th January 1991 referred to above, shall be extended to 55, subject to the medical fitness of the applicants.

Article 2

The present decree shall be published in the Journal Officiel of The French Republic.

Issued in Paris, 20th August 1991.

The Minister of Employment,
Labour and Occupational Training,
For and on behalf of the Minister :
In the absence of the Director
of Labour Relations :
The Assistant Director of
Labour Conditions
F. BRUN

The Minister of Agriculture and Forestry,
For and on behalf of the Minister :
In the absence of the Director of Operations,
social policy and employment :
The Head of Department
J. LENOIR

The Secretary of State for the Sea,
For and on behalf of
the Secretary of State
The Director of Seafarers
and General Administration,
A. BOROWSKI

Translator's notes :

1) Translation number 14760 refers to sections numbered 10 and 12 in the annexes but in fact the text sent to me ends at 4.4 of Annex II.

FRENCH GOVERNMENT

DECREE OF 15th MAY 1992
defining procedures to be used in a hyperbaric environment, as regards access, work duration, evacuation and organization of work.

ARRÊTE DU 15 MAI 1992
définissant les procédures d'accès, de séjour, de sortie et d'organisation du travail en milieu hyperbare

Journal Officiel of the French Republic
26th June 1992, pp 23-38

ANNEXE I - Definitions

ANNEXE II - Procedures for diving operations with compressed air or with a nitrogen-based mixture

ANNEXE III - Procedures for diving operations with mixed gas with helium based

ANNEXE IV - Procedures with compressed air without diving according to the mention C activity

ANNEXE V - Procedures with compressed air without diving according to mention D activity

ANNEXE VI - Procedures of urgent recompression

DECREE OF 15th MAY 1992
defining procedures to be used in a hyperbaric environment, as regards access, work duration, evacuation and organization of work

The Minister of Labour, Employment and Occupational Training, the Minister of Agriculture and Forestry and the Secretary of State for the Sea,
In consideration of the Labour Code,
In consideration of decree n°90-277 of 28th March 1990 relating to the protection of workers in a hyperbaric environment, and in particular its articles 6, 8, 9, 23 and 32,
In consideration of the decree of 28th January 1991 defining procedure governing the safety training of personnel taking part in hyperbaric operations,
In consideration of the advice given by the National Committee for Health and Safety in Agricultural Work,
In consideration of the advice given by the Council for the Prevention of Occupational Risks,

Decree :

Article 1

The object of the present decree is to define procedures to be used in a hyperbaric environment as regards access, work duration, evacuation and work organization, intended to guarantee the health and safety of workers in relation to available decompression methods and tables.
The technical terms or expressions used for the application of the present are defined on Annex I.

SECTION 1
OPERATING PROCEDURES IN AN UNDERWATER ENVIRONMENT
CHAPTER I
Duration of stay
Article 2

Except in the case of saturation diving or emergency dives resulting from circumstances which endanger human life and taking into account the provisions or article 3 below, the daily period in the water in the course of one or more dives, may not be greater than 3 hours. The decompression time in water must be consistent with the evaluation of the duration of submersion.
This duration may however be extended to six hours a day for an operation, comprising where necessary a successive dive, which does not require decompression stops if the activity carried out in a underwater environment corresponds to that associated with mention B defined in article 1 of the decree of 28th January 1991 referred to above.

Article 3

Except when appropriate protection is used, the daily duration in the water laid down in the first paragraph of article 2 above, should be reduced when work is carried out in a strong swell or in a current.
The daily length of time in the water should also be reduced when the temperature of the water is less than 10°C or greater than 30°C and when the diving clothes used do not ensure satisfactory thermal comfort.
In addition, the daily duration may not exceed 90 minutes when pneumatic percussion tools are used having a mass greater than 20 kilogrammes.

Article 4

The duration of operations carried out during saturation diving shall be evaluated between the unclamping and clamping phase of the pressure chamber, diving bell or diver-carrying submersible, from which the underwater operation is carried out.
This duration may not exceed eight hours, it being understood that the effective time in the water is not extended beyond seven hours.

The length of time at saturation counting from the start of compression until the return to atmospheric pressure may not exceed 30 days. In addition, the number of days of saturation, per twelve month period, may not exceed 100 including compression and decompression.
The interval between two periods of saturation must be a period which is at least equal to that of the first of the two saturation periods, including compression and decompression.

CHAPTER II
Conditions governing various diving methods
Article 5

I - Scuba diving may only be carried out for relative pressures less than 6,000 hPa (6 bars).
The official inspector or local officer in charge of maritime affairs may however authorize scuba diving operations at pressures greater than 6,000 hPa (6 bars) as soon as he has verified that the conditions under which these operations are carried out ensure that the workers concerned have protection which is equivalent to that in a dive carried out at lower pressure.
II - In addition to the diving suit which must comply with the standards in force and must be provided with a reserve gas system or a pressure control on one or more cylinders, the worker must be provided with specific individual equipment which will enable the various diving parameters to be controlled and his thermal equilibrium to be maintained and will enable him to move about without any impediment and to reach the surface in case of emergency.
When the relative operating pressure is greater than 1,200 hPa (1.2 bar) or when the depth of the operations site is not absolutely known by the supervisor present at the control post, a device measuring the depth of the work site must be installed on the surface.
III - The person designated to provide assistance to the submerged diver shall be provided with appropriate equipment and shall be ready to intervene. He should hold a certificate of competence in high pressure operations consistent with the depth and means of diving used for rescue.
If the diver is permanently physically connected to the surface, the diving team need only comprise three persons.
If, on the contrary, the diver is not permanently physically connected to the surface, the dive should be carried out in pairs, so that divers may provide mutual assistance. Under these conditions, the minimum diving team shall consist of four persons.
As regards naval supply firms, the make-up of the diving team shall be defined by a decree from the Minister Responsible for the Sea.
IV - A launch and a means of exit from the water for a unconscious diver must be provided in the immediate proximity of the diving site.
In addition, when diving necessitates decompression stops in the water, a lazy shot rope must be provided which will enable the diver to identify the depth at which he must carry out his decompression stops.
V - In the case of diving in a tunnel, when the provisions of III above cannot be applied, specific safety means must be put into place and the personnel concerned must have received appropriate training.

Article 6

I - Except in the case where assistance needs to be given to persons in danger, surface supplied diving may only be carried out for relative pressures of less than 6,000 hPa (6 bars).
II - In addition to an umbilical, a safety harness necessary for anchoring the diver and specific individual equipment enabling the worker to control the various diving parameters, to maintain his thermal equilibrium, to communicate with the surface and to move about without impediment, the diver must be provided with a self contained breathing gas reserve in order to be able, in

case of emergency, to reach the surface or another source of gas supply, taking into account any decompression stops.
In addition, a gas reserve must be available on the surface in case of any failure in the main supply.
If diving is carried out with a system of heating with lost hot water, a standby means for supplying hot water must be provided to enable the diver to return to the surface, taking into account the necessary decompression time.
A launch and a means of exit from the water for an unconscious diver must be available in the immediate proximity to the diving site.
When diving necessitates decompressions stops in water, a lazy shot must be provided enabling the diving to identify the depth at which he must carry out his decompression stops.
III - The person who is able to provide assistance to the submerged diver must hold a certificate of competence in high pressure working compatible with the depth and the diving equipment used for rescue ; in the event where a rescue operation is provided with scuba diving, means must be installed for connecting the equipment surface and for establishing communications.
IV - The minimum team necessary to ensure surface-supplied diving by one or two divers shall include, on the surface, at least one superintendent of high pressure operations who shall simultaneously provide supervision, assisted by a rescue diver. Under these conditions, the team shall comprise three or four persons, according to the case.
In addition to two divers in the water, the team should comprise an additional assistant on the surface per additional submerged diver.

Article 7

I - The method of diving in an open wet bell may not be put into operation unless the relative operating pressure is less than 9,000 hPa (9 bars) and unless the pressure inside the open wet bell during decompression stops, can be stabilized with a precision of 50 hPa (0.05 bar).
When a diver, who is carrying out a decompression process in an open wet bell with pure oxygen, has not completely emerged, it will be considered, for the purpose of evaluating the period in water and for choosing the permitted partial pressures of oxygen, that he has left the water only if there are two divers in the open wet bell and he is secured in such a way that his head cannot be submerged.
When divers are out of the water for the decompression period, the total duration of the high pressure operation shall be arranged so that the period of decompression shall not exceed 200 minutes. If the open wet bell is only used to carry out decompression, supply and monitoring of the diver may be carried out according to the hookah diving method.
This supply method shall be compulsory when the open wet bell is used on a site where the depth is very much greater than that of the working level, so as to counter any rupture of the suspension cable. In addition, a safety hawser must be connected to the open wet bell.
II - The open wet bell must be equipped with a gas reserve enabling pressurization and evacuation from the water to be carried out, using mixture which can be breathed at depth by divers. If breathing of pure oxygen is provided in the open wet bell, this oxygen shall be stored on board the bell and distributed by means of breathing apparatus provided with a device, such as a vent, for discarding gas to the outside. This oxygen circuit must be marked, installed and degreased in accordance with the piping standards in force.
On the surface, the diving control post must be able to monitor the various submersion parameters of the open wet bell and the diver at the same time, in particular parameters relating to the supply pressure for the umbilical of the open wet bell, if the latter is independent of the supply of the diver or divers.

The handling system and the system for lowering into the water must comply with the regulations relating to lifting equipment for two persons.
III - Apart from the head of hyperbaric operations, the surface supervisor and the rescue diver specified in article 30 and 31 of the decree of 28th March 1990 referred to above, the team necessary for putting into operation the method of diving in an open wet bell must comprise one person in charge of the handling of the bell and one person controlling the umbilical, except when the latter is handled mechanically. Under these conditions, if the head of hyperbaric operations can himself ensure continual supervision on the surface, the team necessary for operating open wet bell diving shall comprise at least five persons.

Article 8

I - Diving with a system shall be compulsory as soon as the relative operating pressure exceeds 9,000 hPa (9 bars) or when the decompression period is greater than 200 minutes.
II - A team in a bell or a diver-carrying submersible shall consist of at least two divers, one of them being in charge of the bell. During the hyperbaric operation, the diver in charge of the bell must be present in the bell or the hyperbaric compartment of the diver-carrying submersible and be continually equipped for providing assistance to the other diver.
On the surface, in addition to the head of hyperbaric operations, the surface supervisor and the rescue diver, the team must include personnel necessary for the satisfactory operation and handling of the diving system.
In addition, when diving necessitates a period in a compression chamber greater than twelve consecutive hours, the team shall be supplemented in order to ensure continual operation of the installation.

CHAPTER III
Preparation for operations
Article 9

Prior to any hyperbaric operation in an underwater environment, the head of operations must carry out a reconnaissance of the site, he must organize the site's installations and buoying where necessary (markers, flags, notice to sailors) and must mark out the site limits.
For each dive, the reserves and composition of gas mixtures to be used must be checked as well as the presence of necessary individual and collective equipment, the layout of circuits and the satisfactory operation of all methods of operation, in particular those relating to safety.

CHAPTER IV
Decompression procedures and tables
Article 10

Under normal conditions of operating in compressed air, decompression of divers must be carried out in accordance with the procedures and tables described in annex II of the present decree, and for operations with heliox mixtures, in accordance with those described in annex III.
Taking into account the actual or equivalent depth at which operations are taking place, the intended diving method and the corresponding decompression procedure, the head of hyperbaric operations must, under the responsibility of the employer, select the most appropriate decompression table from among those published in the annexes in order to guarantee the health and safety of divers.

Article 11

In accordance with the requirements of article 29 of the decree of the 28th March 1990 referred to above, the employer or the head of hyperbaric operations under his responsibility

must, prior to any diving operation, provide workers concerned with a site document defining the methods, normal procedures and safety procedures relating to diving and, in particular, decompression tables.
In addition, a diving record sheet shall be attached to this site document to be filled in for each operation.
The following should appear on this diving record sheet :
The date,
The names of divers and of the surface supervisor,
The successive diving intervals of diving,
The names of the rescue diver and of personnel providing assistance,
The diving locality,
The maximum depth of operations,
The time at which submersion takes place,
The time at which decompression starts,
The type of breathing apparatus and the nature of mixtures used,
The decompression procedure used as well as the nature of the breathing gas,
The time at the end of decompression,
The altitude,
Physical and atmospheric diving conditions such as the speed of current, visibility, the condition of the sea or the temperature.
The diving record sheet must be completed as the operation proceeds, mentioning all incidents.

Article 12

Changes and extrapolations to decompression tables are forbidden.
When operating with scuba equipment, divers must have decompression tables available corresponding to the diving in which they are engaged.

SECTION II
HYPERBARIC OPERATING PROCEDURES WITHOUT SUBMERSION

Article 13

The duration of work in compressed air must not exceed six hours a day, including compression and decompression times. It may however reach eight hours a day when the relative working pressure is less than or equal to 750 hPa (0.75 bar).
For relative working pressures less than 750 hPa (0.75 bar) no decompression stops are to be carried out.
In derogation from the provisions of the first paragraph above, on the occasion of emergency recompressions and of treatment for decompression accidents or for pulmonary excess pressure, the accompanying personnel may remain under pressure during all the period of treatment.

Article 14

Except in the case of emergency recompression, decompression tables and procedures to be employed during operations without submersion are those described in annexes IV and V of the present decree.
For operations at operating pressures greater than 4,800 hPa (4.8 bars) without saturation, the procedures followed must be the subject of prior authorization from the Minister responsible for Labour or Agriculture or the Sea.

Article 15

For saturation operations, the procedures to be used are those described in annex III of the present decree.

SECTION III
PREVENTIVE AND EMERGENCY MEASURES
Article 16

The interval to observed following the end of a hyperbaric operation, before being subjected to an ambient pressure significantly lower than normal pressure in the operating locality, particularly on the occasion of journeys by air, is given, as a function of the various types of operation and of the possible variations in pressure or altitude, by the following table :

TYPE OF OPERATION	*VARIATION IN PRESSURE or altitude*	
	Greater than 500 m (approx. 50 hPa)	Greater than 2,600 m or flight in a commercial aircraft (approx. 250 hPa)
Compressed air without stops	2 hours	4 hours
Compressed air or heliox with stops	12 hours	12 hours
Heliox saturation	12 hours	12 hours
Emergency recompression	24 hours	48 hours

Article 17

If the period of time specified between the alarm and arrival in the recompression chamber is greater than one hour, the total duration of stops must be less than fifteen minutes.

For activities corresponding to mention B laid down in article 1 of the decree of 28th January 1991 referred to above, the employer must specify, in the manual of hyperbaric operations, the safety measures put into effect in relation to the availability of the emergency recompression chamber. In the case of evacuation by air without pressurization, the journey must be carried out at an altitude 300 m above that of the diving location.

For activities corresponding to mention D laid down in article 1 of the decree of 28th January 1991 referred to above, the pressure chamber must be situated on site if the operating pressure which is provided exceeds 1,800 hPa (1.8 bar).

Article 18

In cases of symptoms following a decompression accident, the diving medical doctor shall be alerted. In addition the worker who is victim of the accident must be recompressed with an accompanying person who holds a certificate of competence in hyperbaric operations according to the

emergency procedures described in annex VI of the present decree.

SECTION IV
FINAL PROVISIONS
Article 19

When the saturation diving exceeds the limits defined in the annex, the Minister responsible for Labour must be informed of the procedure provided. The same applies if on this occasion the density should exceed 9 g/l or if the saturation period must be greater than 30

If the operating conditions are such that certain equipment specified by the present decree is of itself a source of risk or are such that by reason of exceptional circumstances connected with the nature of the operation, notably in a tunnel, the pressure limits for various methods, the maximum exposure periods or the specified decompression tables and procedures prove to be unsuitable or even dangerous, other methods or other equipment may be used when these offer better guarantees of safety for the operation concerned, and when the personnel has received appropriate training and the employer has been previously authorized to put them into action by the Minister responsible for Labour Agriculture or the Sea.

Article 20

The Director of Employment and Labour Relations, the Director of Operations, Social Policy and Employment and the Director of Seafarers and General Administration are made responsible, as it concerns each of these, for the implementation of the present decree, which will be published in the Journal Officiel of the French Republic.

Issued in Paris, 15th May 1992.

The Minister of Labour, Employment and Occupational Training,
For and on behalf of Director of Labour Relations,
O. DUTHEILLET DE LAMOTHE

The Minister of Agriculture and Forestry,
For and on behalf of the Director of Operations, Social Policy and Employment,
H.-P. CULAUD

The Secretary of State for the Sea,
For and on behalf of the Secretary of State :
The Director of Seafarers and General Administration,
A. BOROWSKI

ANNEX I

DEFINITIONS

1 - PERSONNEL

Any person operating at pressures greater than atmospheric pressure, within the meaning of Article 1 of the Decree of 28th March 1990 referred to above.

Diver

Any person operating in an underwater environment and subjected to a pressure greater than atmospheric pressure.

High pressure worker or hyperbaric worker

Any person operating without submersion in an environment at a pressure greater than atmospheric pressure.

Surface supervisor (article 31 of the decree of 28th March 1990)

Designated by the employer or his representative on the site, he is, at atmospheric pressure, responsible exclusively for ensuring the safety of persons operating under pressure until they return to atmospheric operations.

Head of hyperbaric operations (article 30 of decree of 28th March 1990)

Designated by the employer to represent him on site, he supervises all hyperbaric operations.

Pressure chamber superintendent/air lock superintendent

The pressure chamber superintendent or air lock superintendent is a technician, whether a diver or not, capable of ensuring the maintenance and operation of hyperbaric chambers and transfer air locks. He checks, and causes to be applied, procedures involving the use of the pressure chamber or air locks under the responsibility of the head of hyperbaric operations, and then holds the post of supervisor.

Bell supervisor

The bell supervisor is the diver who is responsible for controlling the bell during operations. He carries out the functions of rescue diver.

Surface assistant

Any person, whether or not a diver, who assists the head of hyperbaric operations on the surface (sailor, hoist operator, technician, etc.).

Rescue diver or hyperbaric worker (article 31, 2nd paragraph of the decree of 28th March 1990)

Diver or hyperbaric worker not taking part directly in work in progress but remaining in a state of alert and immediately ready to assist any submerged or compressed personnel in difficulty. He must be the holder of a certificate in hyperbaric operations required for the activities in hand.
In the case of diving with system, this function shall be carried out by the bell superintendent.

2 - METHODS AND MEANS

Pressure chamber

Chamber resisting the internal pressure used for maintaining workers under pressure.

Lazy shot rope

Submersible device connected to the surface and enabling the diver to identify the depth at which he must carry out his decompression stops.

Life-line

Device enabling a diver to find his way back to open water and the surface.

Open wet bell

Submersible craft, connected to the surface installation by a supporting cable, having a bubble of breathing mixture and constituting a shelter for the diver in the vicinity of the working locality and during decompression, but not enabling transfer under pressure to surface hyperbaric equipment.

Diving system

Assembly of hyperbaric equipment for underwater operations and handling, enabling divers to remain and transfer under pressure.

Diving bell (normal pressure or hyperbaric)

Manned underwater craft resisting internal and/or external pressure connected to a surface installation by a supporting cable.

A diver-carrying submersible

Submersible having a pressurizable compartment enabling divers to leave and carry out activities in the water.

Transfer under pressure

Procedure for enabling workers to be transferred from one hyperbaric chamber to another without significant pressure variation.

Clamping-unclamping

Operation which consists of connecting (clamping) or disconnecting (unclamping) two hyperbaric chambers within the framework of transferring personnel under pressure.

Incursion diving

Diving in the course of which the diver, whose system has not become saturated with gas, is decompressed to atmospheric pressure immediately after his operations.

Saturation operation

Hyperbaric operation during which the workers system reaches an equilibrium with dissolved gases and for which the decompression curve is independent of time.

Scuba diving

Scuba diving is the method in which the diver carries his reserve of breathing gas on him independently of any other supply source.

Surface-supplied diving

Method of diving without using a diving system in which the diver is directly connected to the surface by his umbilical (see umbilical) which ensures his supply of breathing mixture.

Diving in an open wet bell

Method of underwater operation using an open wet bell.

Diving with a system

Method of diving in which the methods used enable transfer of personnel under pressure between the submerged site and a hyperbaric installation.

Umbilical

Assembly of connecting components (electrical, pneumatic, hydraulic) connecting the surface to an submerged craft.

Heliox

Breathing mixture based on helium and oxygen.

Nitrox

Breathing mixture based on nitrogen and oxygen, except compressed air.

Ariane line

Marked line, unrolled and fixed to the wall of a tunnel, enabling a diver to find the exit even in the absence of visibility or lighting.

Partial pressures

Pressures of each of the gases constituting a mixture, the sum of which is equal to the absolute pressure.

Equivalent depth

An imaginary depth used to determine the decompression procedure from ordinary tables when diving conditions (mixtures, altitude, density of the environment etc.) require corrections to these tables.

ANNEX II

Procedures for diving operations with compressed air or with a nitrogen-based mixture

1 - COMPRESSION PROCEDURES

The rate of descent must not exceed 30 metres per minute.

2 - DECOMPRESSION PROCEDURES

Decompression tables indicating rate of rise as a function or parameters defining the dive : depth, time on the bottom and nature of gas breathed on the bottom.

2.1 - Units

Times are expressed in hours, minutes and seconds (00h00:00). For any event relating to a given dive, the time shall be taken using one watch and always the same watch.

Depths are measured in metres of sea water. The tables may be used for fresh water without modification. In principle, the depth of the diver is that which is measured at the level of his lungs.

Pressures are expressed in hPa and in Bar.

2.2 - Field of validity of tables

Decompression tables take into account standard atmospheric pressure at the surface - rounded to 1,000 hPa (1bar). The tables may accommodate slight local variations in surface pressure and be used without being questioned at altitudes varying between 0 and 300 metres from sea level and for a variation of 0 to 30 hPa (0.03 bar) of barometric pressure.

In case of greater changes in altitude or surface atmospheric pressure, it will be necessary to use the diving method at altitude described in 10 below.

2.3 - Definitions of diving parameters

2.3.1 - Depth of dive

This is the maximum depth reached by the diver during his dive, whatever the time actually spent at this depth.

In the case where work requires the diver to operate at different levels, it will be necessary to organize the dive so that work commences at the deepest level and repeated rises are avoided.

In principle, it is considered that the diver should spend his working time at the specified depth. The tables can accommodate moderate variations in the depth of the diver during work, but the diver should never rise above the level of the first stop.

Even at a shallow depth, during an operation in the decompression zone without stops, the diver must not return to the surface in order to receive tools or instructions. Indeed, this type of « yo-yo » diving, even near to the surface, appreciably increases the risk of a decompression accident.

2.3.2 - Time at the bottom of the dive

This is the time between the moment where the diver leaves the surface (or at the start of compression of the bell) and the moment where he starts to rise (or the bell is decompressed).

2.3.3 - Depth and time entered in the table

Decompression tables are defined for each 3 metre depth starting at 3 metres and generally the time on the bottom is given in 10 minute intervals.

It is however rare for the depth and time at the bottom of a dive to correspond exactly to those given in the tables and it is thus necessary in all cases to select a table where the depth is equal to or immediately greater than the depth of dive and to choose the time on the bottom from this table which is equal to or immediately greater than the time spent on the bottom.

The diver must always use a time from an adjustment table in the case where he exceeds the anticipated time on the bottom. For this reason, the last time available in the table should not normally be used.

2.3.4 - Diving interval

This consists of the interval of time spent on the surface by a diver between two dives. It is estimated between the moment when the diver has finished his decompression until the time he commences a new dive. After a dive, an interval of 12 hours is generally necessary to reach complete desaturation.

The procedures applicable to successive dives are described in 12 below. A single successive dive is permitted.

2.3.5 - Rate of rise at the first stop

The rate of ascent of the diver to the first stop (or to the surface) must be accomplished at a rate of between 9 and 15 metres per minute. The times of ascent indicated in the decompression tables correspond to the rate of ascent of 12 metres per minute.

2.3.6 - Duration of stops

Decompression stop times are indicated for each table. The stop time begins as soon as the diver arrives at the depth for this stop. The last minute of the stop time is used for ascent to the following stop (or to the surface).

Conditions to be complied with during stops :

- Divers must not work during stops,
- Divers and diving superintendents must organize diving so as to avoid any fatiguing exercise during ascent (poor buoyancy or a current require effort from the diver),
- Divers in decompression within a pressure chamber, although they do not have to remain still, should not have to carry out any intense physical activity.

2.3.7 - Stops with oxygen

Breathing with oxygen

Breathing with pure oxygen using a mask enables the elimination of inner gases to be accelerated and hence reduces in decompression time. Decompression tables with stops using oxygen are quite suitable for long and deep dives with air.

As a general rule, the deeper the stops with oxygen, the more effective they are in the process of decompression. It is for this reason the stop at 3 metres is cumulated with the 6 metre stop in all tables using oxygen.

Oronasal mask used for dry decompression

The type of oronasal mask chosen and its application must enable the amount of oxygen actually breathed to be as neat as possible to a 100 % and escapes of oxygen to the atmosphere of the pressure vessel to be as small as possible.

Factors contributing to decompression accidents

When diving or working conditions are difficult, the risk of a decompression accident is higher.

It is an established fact that poor physical condition, nervous tension, poor visibility, cold and accumulated fatigue after weeks of intensive diving, predispose a diver to decompression sickness.

Similarly, a current, uncertain depth control and poor sea conditions make decompression procedures difficult to follow and thus increase the risk of a decompression accident.

All these factors must be taken into consideration when a decompression table is chosen.

In the case where diving conditions are such that they may adversely affect decompression safety, the next longest time on the bottom in the table should be used in order to give the divers an additional margin of safety.

2.3.8 - Rapid rise

In the case of a rise which is too rapid, and if there is no recompression chamber on the site, it will be necessary to return to the half depth within less than three minutes and to carry out a five minute stop. Decompression is renewed, based on the total diving time, including re-descent and the five minute stop at half depth.

3 - RECOMMENDATIONS FOLLOWING DECOMPRESSION

3.1 - Activities following a dive

During the two hours following decompression, it is recommended that divers limit their activities to tasks which do not involve sustained physical effort, and in particular, it is recommended that they avoid running, climbing stairs or participating in intense sports exercises.

3.2 - Diving following a dive

Decompression tables specify a compulsory interval of 12 hours between dives. This period is compulsory before undertaking a second dive with air or nitrox. The only selection to this rule concerns successive dives in air, but in this case, the method described in 12 below must be used.

It is only after having completed his interval following a dive that the diver is, in principle, free from all remaining phenomena from his last dive and may commence another one.

3.3 - Supervision of divers following a dive

When the symptoms of a decompression accident occur, they generally appear within 30 minutes following a return to atmospheric pressure, but however there are situations where they have only appeared after a time which can amount to 10 hours.

A recompression chamber must thus be accessible to the diver during 12 hours following his decompression.

4 - STANDARD AIR TABLES

4.1 - Decompression method

Decompression by stops carried out in water.

4.2 - Mixture at the bottom

Air or nitrox.

4.3 - Diving methods

- Scuba diving,
- Diving with a hookah,
- Diving in an open wet bell or with a diving system.

4.4 - Air table for decompression without stops

Table 1 gives the maximum time on the bottom enabling resurfacing to be carried out without stops, as a function of the depth of dive.
At the end of the time on the bottom, the diver shall immediately rise to the surface, following a rate of rise of between 9 and 15 metres per minute.

TABLE N°1

TEMPS AU FOND MAXIMUM POUR DECOMPRESSION SANS PALIER

DEPTH	INTERVAL BEFORE DIVE		
	12 h 00	6 h 00	4 h 00
7.5 m	Unlimited	Unlimited	Unlimited
9.0 m	360 min	330 min	300 min
10.5 m	270 min	250 min	240 min
12 m	165 min	150 min	135 min
13.5 m	100 min	90 min	90 min
15 m	80 min	70 min	60 min
18 m	50 min	40 min	35 min
21 m	35 min	25 min	20 min
24 m	25 min	20 min	10 min
27 m	20 min	15 min	10 min
30 m	15 min	10 min	5 min
33 m	12 min	7 min	2 min
36 m	10 min	5 min	-
39 m	8 min	3 min	-
42 m	7 min	2 min	-
45 m	6 min	-	-
48 m	5 min	-	-
51 m	5 min	-	-

TABLE N°2

SIMPLIFIED AIR/STANDARD TABLE
« MINITABLE AIR »

Interval before dive : 12 hours

Depth	Maximum depth time in minutes													
												-	-	-
12 m	165	170	180	195	210	240	-	-	-	-	-	-	-	-
15 m	80	90	100	110	115	130	-	-	-	-	-	-	-	-
18 m	50	55	60	70	75	80	-	-	-	-	-	-	-	-
21 m	35	40	45	50	55	60	-	-	-	75	-	-	-	-
24 m	25	30	35	40	45	50	-	-	55	60	-	-	-	-
27 m	20	25	30	33	35	-	-	40	45	48	-	55	-	-
30 m	15	20	25	28	30	-	-	35	38	42	-	47	55	-
33 m	12	15	20	23	-	-	25	30	32	37	-	40	47	-
36 m	10	15	17	20	-	-	22	25	27	32	-	34	40	43
39 m	8	10	15	17	-	-	20	22	24	-	27	30	35	38
42 m	7	10	13	14	-	-	18	20	-	-	24	27	30	33
45 m	6	10	12	13	-	-	15	18	-	-	22	25	28	30
48 m	5	8	10	12	-	-	15	-	-	-	20	23	26	28
51 m	5	7	8	-	-	-	12	-	-	-	18	21	24	25
54 m	-	5	7	-	-	-	10	-	-	-	16	19	-	23
57 m	-	5	6	-	-	-	10	-	-	-	14	17	-	21
60 m	-	-	5	-	-	-	8	-	-	-	12	-	-	18
Stops	Ascent to First stop at 12 m/min (3 m each 15 sec)													
12 m	-	-	-	-	-	-	-	-	-	-	-	-	-	3
9 m	-	-	-	-	-	-	-	-	-	-	3	3	5	5
6 m	-	-	-	-	-	-	3	3	3	3	5	7	10	12
3 m	-	3	5	7	10	15	7	12	15	20	15	20	25	25

4.6 - Air Standard Tables

Set of decompression tables for initial bounce dives to depths ranging from 12 to 60m.

The post-dive interval after a bounce dive using on Air Standard table is generally 12 hours.

However, one (and only one) repetitive dive is possible after short or swallow dives. This is indicated in the tables by the label « POSSIBLE ».

4.7 - Air Standard Repetitive Tables

Calculation procedures for repetitive dives are described in chapter 12.

4.8 - Contingency Procedures

Exceeding the planned bottom time

- Use either the next bottom dive, or the back-up bottom time,
- Or switch to Air/Oxy/6m or Air/Oxy/12 m tables.

Difficult dive conditions (chapter 1.2.10)

- Use the next longer bottom time.

Difficulty in performing the 3 metres stop

- Perform the 3 m stop time at 6 m,
- Or switch to Air/Oxy/6 m table,
- Or switch to surface decompression table.

TABLE N°3

AIR / STANDARD TABLES

Depth 12 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
165	1 :00	-	-	-	-	-	-	1 :00	Possible
170	0 :45	-	-	-	-	-	3	3 :45	Possible
180	0 :45	-	-	-	-	-	5	5 :45	Possible
210	0 :45	-	-	-	-	-	10	10 :45	No
240	0 :45	-	-	-	-	-	15	15 :45	No
270	0 :45	-	-	-	-	-	25	25 :45	No
300	0 :45	-	-	-	-	-	30	30 :45	No
330	0 :45	-	-	-	-	-	35	35 :45	No
360	0 :45	-	-	-	-	-	40	40 :45	No

Depth 15 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
80	1 :15	-	-	-	-	-	-	1 :15	Possible
90	1 :00	-	-	-	-	-	3	4 :00	Possible
100	1 :00	-	-	-	-	-	5	6 :00	Possible
110	1 :00	-	-	-	-	-	7	8 :00	Possible
120	1 :00	-	-	-	-	-	12	13 :00	Possible
130	1 :00	-	-	-	-	-	15	16 :00	Possible
140	1 :00	-	-	-	-	-	20	21 :00	Possible
150	1 :00	-	-	-	-	-	25	26 :00	Possible
160	1 :00	-	-	-	-	-	25	26 :00	No
170	1 :00	-	-	-	-	-	30	31 :00	No
180	1 :00	-	-	-	-	-	35	36 :00	No
210	1 :00	-	-	-	-	-	45	46 :00	No
240	1 :00	-	-	-	-	-	60	61 :00	No
270	1 :00	-	-	-	-	-	70	71 :00	No

AIR/STANDARD TABLES

Depth 18 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
50	1 :30	-	-	-	-	-	-	1 :30	Possible
55	1 :15	-	-	-	-	-	3	4 :15	Possible
60	1 :15	-	-	-	-	-	5	6 :15	Possible
70	1 :15	-	-	-	-	-	7	8 :15	Possible
80	1 :15	-	-	-	-	-	15	16 :15	Possible
90	1 :15	-	-	-	-	-	20	21 :15	Possible
100	1 :15	-	-	-	-	-	25	26 :15	Possible
110	1 :15	-	-	-	-	-	30	31 :15	Possible
120	1 :15	-	-	-	-	-	35	36 :15	Possible
130	1 :00	-	-	-	-	3	40	44 :00	Possible
140	1 :00	-	-	-	-	5	45	51 :00	Possible
150	1 :00	-	-	-	-	7	50	58 :00	Possible
160	1 :00	-	-	-	-	10	50	61 :00	Possible
170	1 :00	-	-	-	-	12	55	68 :00	Possible
180	1 :00	-	-	-	-	15	60	76 :00	No
210	1 :00	-	-	-	-	20	70	91 :00	No

Depth 21 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
35	1 :45	-	-	-	-	-	-	1 :45	Possible
40	1 :30	-	-	-	-	-	3	4 :30	Possible
45	1 :30	-	-	-	-	-	5	6 :30	Possible
50	1 :30	-	-	-	-	-	7	8 :30	Possible
60	1 :30	-	-	-	-	-	15	16 :30	Possible
70	1 :30	-	-	-	-	-	20	21 :30	Possible
80	1 :15	-	-	-	-	3	25	29 :15	Possible
90	1 :15	-	-	-	-	5	30	36 :15	Possible
100	1 :15	-	-	-	-	7	35	43 :15	Possible
110	1 :15	-	-	-	-	10	40	51 :15	Possible
120	1 :15	-	-	-	-	15	45	61 :15	Possible
130	1 :15	-	-	-	-	20	50	71 :15	Possible
140	1 :15	-	-	-	-	25	55	81 :15	Possible
150	1 :00	-	-	-	3	25	60	89 :00	No
180	1 :00	-	-	-	5	40	75	121 :00	No

AIR/STANDARD TABLES

Depth 24 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
25	2 :00	-	-	-	-	-	-	2 :00	Possible
30	1 :45	-	-	-	-	-	3	4 :45	Possible
35	1 :45	-	-	-	-	-	5	6 :45	Possible
40	1 :45	-	-	-	-	-	7	8 :45	Possible
45	1 :45	-	-	-	-	-	10	11 :45	Possible
50	1 :45	-	-	-	-	-	15	16 :45	Possible
60	1 :30	-	-	-	-	3	20	24 :30	Possible
70	1 :30	-	-	-	-	5	30	36 :30	Possible
80	1 :30	-	-	-	-	10	35	46 :30	Possible
90	1 :30	-	-	-	-	15	40	56 :30	Possible
100	1 :15	-	-	-	3	20	45	69 :15	Possible
110	1 :15	-	-	-	3	25	50	79 :15	Possible
120	1 :15	-	-	-	3	30	60	94 :15	Possible
130	1 :15	-	-	-	5	30	65	101 :15	Possible
140	1 :15	-	-	-	10	35	70	116 :15	No
150	1 :15	-	-	-	10	40	75	126 :15	No

Depth 27 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
20	2 :15	-	-	-	-	-	-	2 :15	Possible
25	2 :00	-	-	-	-	-	3	5 :00	Possible
30	2 :00	-	-	-	-	-	5	7 :00	Possible
35	2 :00	-	-	-	-	-	10	12 :00	Possible
40	1 :45	-	-	-	-	3	12	16 :45	Possible
45	1 :45	-	-	-	-	3	15	19 :45	Possible
50	1 :45	-	-	-	-	5	20	26 :45	Possible
60	1 :45	-	-	-	-	7	30	38 :45	Possible
70	1 :45	-	-	-	3	12	35	51 :45	Possible
80	1 :30	-	-	-	3	17	40	61 :30	Possible
90	1 :30	-	-	-	5	25	50	81 :30	Possible
100	1 :30	-	-	-	10	30	55	96 :30	Possible
110	1 :30	-	-	-	12	30	65	108 :30	Possible
120	1 :30	-	-	-	15	35	70	121 :30	Possible
130	1 :15	-	-	-	20	40	75	139 :15	No

AIR/STANDARD TABLES

Depth 30 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
15	2 :30	-	-	-	-	-	-	2 :30	Possible
20	2 :15	-	-	-	-	-	3	5 :15	Possible
25	2 :15	-	-	-	-	-	5	7 :15	Possible
30	2 :15	-	-	-	-	-	10	12 :15	Possible
35	2 :00	-	-	-	-	3	12	17 :00	Possible
40	2 :00	-	-	-	-	5	17	24 :00	Possible
45	2 :00	-	-	-	-	7	20	29 :00	Possible
50	2 :00	-	-	-	-	10	25	37 :00	Possible
60	1 :45	-	-	-	3	15	35	54 :45	Possible
70	1 :45	-	-	-	5	20	40	66 :45	Possible
80	1 :45	-	-	-	10	25	50	86 :45	Possible
90	1 :30	-	-	3	12	30	60	106 :30	Possible
100	1 :30	-	-	3	17	35	65	121 :30	Possible
110	1 :30	-	-	3	20	40	75	139 :30	No

Depth 33 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
12	2 :45	-	-	-	-	-	-	2 :45	Possible
15	2 :30	-	-	-	-	-	3	5 :30	Possible
20	2 :30	-	-	-	-	-	5	7 :30	Possible
25	2 :15	-	-	-	-	3	7	12 :15	Possible
30	2 :15	-	-	-	-	3	12	17 :15	Possible
35	2 :15	-	-	-	-	5	15	22 :15	Possible
40	2 :00	-	-	-	3	7	20	32 :00	Possible
45	2 :00	-	-	-	3	10	25	40 :00	Possible
50	2 :00	-	-	-	5	15	30	52 :00	Possible
60	2 :00	-	-	-	10	20	40	72 :00	Possible
70	1 :45	-	-	3	12	25	50	91 :45	Possible
80	1 :45	-	-	3	15	30	60	109 :45	Possible
90	1 :45	-	-	5	20	35	65	126 :45	Possible
100	1 :45	-	-	10	25	40	75	151 :45	No

AIR/STANDARD TABLES

Depth 36 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
10	3 :00	-	-	-	-	-	-	3 :00	Possible
15	2 :45	-	-	-	-	-	3	5 :45	Possible
20	2 :45	-	-	-	-	-	7	9 :45	Possible
25	2 :30	-	-	-	-	3	12	17 :30	Possible
30	2 :30	-	-	-	-	5	17	24 :30	Possible
35	2 :15	-	-	-	3	10	20	35 :15	Possible
40	2 :15	-	-	-	3	12	25	42 :15	Possible
45	2 :15	-	-	-	5	15	30	52 :15	Possible
50	2 :00	-	-	3	7	20	35	67 :00	Possible
60	2 :00	-	-	3	12	25	45	87 :00	Possible
70	2 :00	-	-	5	15	30	55	107 :00	Possible
80	2 :00	-	-	7	20	35	65	129 :00	Possible
90	1 :45	-	3	12	25	40	75	156 :45	No

Depth 39 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
8	3 :15	-	-	-	-	-	-	3 :15	Possible
10	3 :00	-	-	-	-	-	3	6 :00	Possible
15	3 :00	-	-	-	-	-	5	8 :00	Possible
20	2 :45	-	-	-	-	3	7	12 :45	Possible
25	2 :45	-	-	-	-	5	15	22 :45	Possible
30	2 :30	-	-	-	3	7	20	32 :30	Possible
35	2 :30	-	-	-	5	10	25	42 :30	Possible
40	2 :15	-	-	3	7	15	30	57 :15	Possible
45	2 :15	-	-	3	10	20	35	70 :15	Possible
50	2 :15	-	-	3	10	25	45	85 :15	Possible
60	2 :15	-	-	5	15	30	55	107 :15	Possible
70	2 :00	-	3	10	20	35	65	135 :00	Possible
80	2 :00	-	3	12	25	40	74	157 :00	No

AIR/STANDARD TABLES

Depth 42 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
7	3 :30	-	-	-	-	-	-	3 :30	Possible
10	3 :15	-	-	-	-	-	3	6 :15	Possible
15	3 :00	-	-	-	-	3	5	11 :00	Possible
20	3 :00	-	-	-	-	3	12	18 :00	Possible
25	2 :45	-	-	-	3	7	17	29 :45	Possible
30	2 :45	-	-	-	5	10	25	42 :45	Possible
35	2 :30	-	-	3	7	15	30	57 :30	Possible
40	2 :30	-	-	3	10	20	35	70 :30	Possible
45	2 :30	-	-	5	12	25	40	84 :30	Possible
50	2 :30	-	-	5	15	25	45	92 :30	Possible
60	2 :15	-	3	10	17	30	60	122 :15	Possible
70	2 :15	-	5	12	25	40	75	159 :15	No

Depth 45 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
6	3 :45	-	-	-	-	-	-	3 :45	Possible
10	3 :30	-	-	-	-	-	3	6 :30	Possible
15	3 :15	-	-	-	-	3	7	13 :15	Possible
20	3 :00	-	-	-	3	5	12	23 :00	Possible
25	3 :00	-	-	-	3	7	20	33 :00	Possible
30	2 :45	-	-	3	5	12	25	47 :45	Possible
35	2 :45	-	-	3	7	15	30	57 :45	Possible
40	2 :45	-	-	5	10	20	40	77 :45	Possible
45	2 :30	-	3	5	12	25	45	92 :30	Possible
50	2 :30	-	3	7	15	30	55	112 :30	Possible
60	2 :15	3	5	12	20	35	65	142 :15	No

AIR/STANDARD TABLES

Depth 48 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
5	4 :00	-	-	-	-	-	-	4 :00	Possible
10	3 :45	-	-	-	-	-	5	8 :45	Possible
15	3 :30	-	-	-	-	3	7	13 :30	Possible
20	3 :15	-	-	-	3	7	15	28 :15	Possible
25	3 :15	-	-	-	5	10	20	38 :15	Possible
30	3 :00	-	-	3	7	15	30	58 :00	Possible
35	3 :00	-	-	5	10	20	35	73 :00	Possible
40	2 :45	-	3	7	15	25	45	97 :45	Possible
45	2 :45	-	5	10	17	30	50	114 :45	Possible
50	2 :30	3	5	10	20	30	60	130 :30	Possible
60	2 :30	3	7	15	25	40	75	167 :30	No

Depth 51 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
5	4 :15	-	-	-	-	-	-	4 :15	Possible
10	3 :45	-	-	-	-	3	5	11 :45	Possible
15	3 :30	-	-	-	3	5	12	23 :30	Possible
20	3 :30	-	-	-	5	7	17	32 :30	Possible
25	3 :15	-	-	3	5	12	25	48 :15	Possible
30	3 :15	-	-	5	7	15	35	65 :15	Possible
35	3 :00	-	3	5	10	20	40	81 :00	Possible
40	3 :00	-	5	7	15	25	50	105 :00	Possible
45	2 :45	3	5	10	17	30	55	122 :45	Possible
50	2 :45	3	7	12	20	35	65	144 :15	No

AIR/STANDARD TABLES

Depth 54 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
5	4 :15	-	-	-	-	-	3	7 :15	No
10	4 :00	-	-	-	-	3	7	14 :00	No
15	3 :45	-	-	-	3	5	12	23 :45	No
20	3 :30	-	-	3	5	10	17	38 :30	No
25	3 :30	-	-	5	7	15	30	60 :30	No
30	3 :15	-	3	5	10	20	35	76 :15	No
35	3 :15	-	5	7	12	25	45	97 :15	No
40	3 :00	3	5	10	15	30	55	121 :00	No
45	3 :00	5	7	12	20	35	60	142 :00	No

Depth 57 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
5	4 :30	-	-	-	-	-	3	7 :30	No
10	4 :15	-	-	-	-	3	7	14 :15	No
15	4 :00	-	-	-	3	7	15	29 :00	No
20	3 :45	-	-	3	5	10	20	41 :45	No
25	3 :30	-	3	5	7	15	30	63 :30	No
30	3 :30	-	3	7	10	20	40	83 :30	No
35	3 :15	3	5	7	15	25	50	108 :15	No
40	3 :15	3	7	10	20	30	60	133 :15	No

Depth 60 metres

Minimum depth time	Ascent to stop min :sec	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Air 6 m	Air 3 m	Total decompression min :sec	Repetitive dive
5	4 :45	-	-	-	-	-	5	9 :45	No
10	4 :15	-	-	-	3	5	7	19 :15	No
15	4 :00	-	-	3	5	7	15	34 :00	No
20	4 :00	-	-	5	7	12	25	53 :00	No
25	3 :45	-	3	5	10	20	35	76 :45	No
30	3 :30	3	5	7	12	25	45	100 :30	No
35	3 :30	3	5	10	15	30	55	121 :30	No

5 - AIR/OXY/6 M TABLES

5.1 - Decompression Method

In-water decompression or saturation-diving decompression both with pure oxygen breathing at 6 m.

5.2 - Bottom Mix

Air or Nitrox.

5.3 - Diving Methods

- Surface supplied diving,
- Wet bell diving,
- Saturation diving.

5.4 - Air/Oxy/6 m Tables

Set of decompression tables for initial bounce to depths ranging from 12 m to 60 m.

The post-dive interval after a bounce dive performed with an Air/Oxy/6 m table is generally 12 hours.

5.5 - Repetitive Dives

One (and only one) repetitive dive is possible after short or swallow dive. This is indicated in the tables by the label « POSSIBLE ».

This repetitive dive must follow method described in chapter 12.

5.6 - Contingency Procedures

Exceeding the planned bottom time

- Use either the next bottom time or the back-up bottom time,
- Or switch to Air/Oxy/12 m tables.

Difficult dive conditions

- Use the next longer bottom time.

Oxygen supply failure

- Switch to Air Standard table (if the bottom time permits it),
- Or multiply oxygen stop time by two and perform it on air.

TABLE N°4

AIR/OXY/6 M TABLES

Depth 12 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
180	0 :30	-	-	-	-	-	3	3 :30	Possible
210	0 :30	-	-	-	-	-	5	5 :30	No
240	0 :30	-	-	-	-	-	10	10 :30	No
270	0 :30	-	-	-	-	-	15	15 :30	No
300	0 :30	-	-	-	-	-	20	20 :30	No
330	0 :30	-	-	-	-	-	20	20 :30	No
360	0 :30	-	-	-	-	-	25	25 :30	No

Depth 15 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
90	0 :45	-	-	-	-	-	3	3 :45	Possible
100	0 :45	-	-	-	-	-	3	3 :45	Possible
110	0 :45	-	-	-	-	-	5	5 :45	Possible
120	0 :45	-	-	-	-	-	7	7 :45	Possible
130	0 :45	-	-	-	-	-	7	7 :45	Possible
140	0 :45	-	-	-	-	-	10	10 :45	Possible
150	0 :45	-	-	-	-	-	15	15 :45	Possible
180	0 :45	-	-	-	-	-	20	20 :45	No
210	0 :45	-	-	-	-	-	25	25 :45	No
240	0 :45	-	-	-	-	-	30	30 :45	No
270	0 :45	-	-	-	-	-	35	35 :45	No
300	0 :45	-	-	-	-	-	45	45 :45	No

AIR/OXY/6 M TABLES

Depth 18 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
60	1 :00	-	-	-	-	-	3	4 :00	Possible
70	1 :00	-	-	-	-	-	5	6 :00	Possible
80	1 :00	-	-	-	-	-	7	8 :00	Possible
90	1 :00	-	-	-	-	-	10	11 :00	Possible
100	1 :00	-	-	-	-	-	15	16 :00	Possible
110	1 :00	-	-	-	-	-	15	16 :00	Possible
120	1 :00	-	-	-	-	-	20	21 :00	Possible
130	1 :00	-	-	-	-	-	25	26 :00	Possible
140	1 :00	-	-	-	-	-	30	31 :00	Possible
150	1 :00	-	-	-	-	-	35	36 :00	Possible
180	1 :00	-	-	-	-	-	40	41 :00	No
210	1 :00	-	-	-	-	-	50	51 :00	No
240	1 :00	-	-	-	-	-	60	61 :00	No

Depth 21 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
40	1 :15	-	-	-	-	-	3	4 :15	Possible
45	1 :15	-	-	-	-	-	3	4 :15	Possible
50	1 :15	-	-	-	-	-	5	6 :15	Possible
60	1 :15	-	-	-	-	-	7	8 :15	Possible
70	1 :15	-	-	-	-	-	10	11 :15	Possible
80	1 :15	-	-	-	-	-	15	16 :15	Possible
90	1 :15	-	-	-	-	-	20	21 :15	Possible
100	1 :15	-	-	-	-	-	25	26 :15	Possible
110	1 :15	-	-	-	-	-	25	26 :15	Possible
120	1 :15	-	-	-	-	-	30	31 :15	Possible
130	1 :15	-	-	-	-	-	35	36 :15	Possible
140	1 :15	-	-	-	-	-	40	41 :15	Possible
150	1 :00	-	-	-	-	3	45	49 :00	No
180	1 :00	-	-	-	-	5	60	66 :00	No
210	1 :00	-	-	-	-	5	70	76 :00	No

AIR/OXY/6 M TABLES

Depth 24 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
30	1 :30	-	-	-	-	-	3	4 :30	Possible
35	1 :30	-	-	-	-	-	3	4 :30	Possible
40	1 :30	-	-	-	-	-	5	6 :30	Possible
45	1 :30	-	-	-	-	-	5	6 :30	Possible
50	1 :30	-	-	-	-	-	7	8 :30	Possible
60	1 :30	-	-	-	-	-	15	16 :30	Possible
70	1 :30	-	-	-	-	-	20	21 :30	Possible
80	1 :30	-	-	-	-	-	25	26 :30	Possible
90	1 :30	-	-	-	-	-	30	31 :30	Possible
100	1 :15	-	-	-	-	3	35	39 :15	Possible
110	1 :15	-	-	-	-	3	40	44 :15	Possible
120	1 :15	-	-	-	-	3	45	49 :15	Possible
130	1 :15	-	-	-	-	5	50	56 :15	Possible
140	1 :15	-	-	-	-	10	55	66 :15	No
150	1 :15	-	-	-	-	10	60	71 :15	No
180	1 :00	-	-	-	3	20	75	99 :00	No

Depth 27 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
25	1 :45	-	-	-	-	-	3	4 :45	Possible
30	1 :45	-	-	-	-	-	3	4 :45	Possible
35	1 :45	-	-	-	-	-	5	6 :45	Possible
40	1 :45	-	-	-	-	-	7	8 :45	Possible
45	1 :45	-	-	-	-	-	10	11 :45	Possible
50	1 :45	-	-	-	-	-	15	16 :45	Possible
60	1 :45	-	-	-	-	-	20	21 :45	Possible
70	1 :30	-	-	-	-	3	25	29 :30	Possible
80	1 :30	-	-	-	-	3	30	34 :30	Possible
90	1 :30	-	-	-	-	5	40	46 :30	Possible
100	1 :30	-	-	-	-	10	45	56 :30	Possible
110	1 :30	-	-	-	-	12	50	63 :30	Possible
120	1 :30	-	-	-	-	15	55	71 :30	Possible
130	1 :00	-	-	-	3	20	60	84 :00	No
140	1 :00	-	-	-	3	25	65	94 :00	No
150	1 :00	-	-	-	3	25	70	99 :00	No

AIR/OXY/6 M TABLES

Depth 30 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
20	2 :00	-	-	-	-	-	3	5 :00	Possible
25	2 :00	-	-	-	-	-	3	5 :00	Possible
30	2 :00	-	-	-	-	-	5	7 :00	Possible
35	2 :00	-	-	-	-	-	7	9 :00	Possible
40	2 :00	-	-	-	-	-	15	17 :00	Possible
45	2 :00	-	-	-	-	-	15	17 :00	Possible
50	2 :00	-	-	-	-	-	20	22 :00	Possible
60	1 :45	-	-	-	-	3	30	34 :45	Possible
70	1 :45	-	-	-	-	5	35	41 :45	Possible
80	1 :45	-	-	-	-	10	40	51 :45	Possible
90	1 :30	-	-	-	3	12	45	61 :30	Possible
100	1 :30	-	-	-	3	17	50	71 :30	Possible
110	1 :30	-	-	-	3	20	60	84 :30	Possible
120	1 :30	-	-	-	5	25	65	96 :30	No
130	1 :30	-	-	-	7	30	70	108 :30	No
140	1 :15	-	-	3	10	30	80	124 :15	No

Depth 33 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
15	2 :15	-	-	-	-	-	3	5 :15	Possible
20	2 :15	-	-	-	-	-	3	5 :15	Possible
25	2 :15	-	-	-	-	-	5	7 :15	Possible
30	2 :15	-	-	-	-	-	7	9 :15	Possible
35	2 :15	-	-	-	-	-	10	12 :15	Possible
40	2 :00	-	-	-	-	3	15	20 :00	Possible
45	2 :00	-	-	-	-	3	20	25 :00	Possible
50	2 :00	-	-	-	-	5	30	37 :00	Possible
60	2 :00	-	-	-	-	10	35	47 :00	Possible
70	1 :45	-	-	-	3	12	40	56 :45	Possible
80	1 :45	-	-	-	3	15	45	64 :45	Possible
90	1 :45	-	-	-	5	20	50	76 :45	Possible
100	1 :45	-	-	-	10	25	60	96 :45	No
110	1 :30	-	-	3	12	25	65	106 :30	No
120	1 :30	-	-	3	15	30	75	124 :30	No

AIR/OXY/6 M TABLES

Depth 36 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
15	2 :30	-	-	-	-	-	3	5 :30	Possible
20	2 :30	-	-	-	-	-	5	7 :30	Possible
25	2 :30	-	-	-	-	-	7	9 :30	Possible
30	2 :30	-	-	-	-	-	15	17 :30	Possible
35	2 :15	-	-	-	-	3	15	20 :15	Possible
40	2 :15	-	-	-	-	3	20	25 :15	Possible
45	2 :15	-	-	-	-	5	30	37 :15	Possible
50	2 :15	-	-	-	3	5	35	45 :15	Possible
60	2 :00	-	-	-	3	12	40	57 :00	Possible
70	2 :00	-	-	-	5	15	45	67 :00	Possible
80	2 :00	-	-	-	7	20	55	84 :00	Possible
90	1 :45	-	-	3	12	25	60	101 :45	No
100	1 :45	-	-	3	15	30	70	119 :45	No
110	1 :45	-	-	5	20	30	80	136 :45	No

Depth 39 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
10	2 :45	-	-	-	-	-	3	5 :45	Possible
15	2 :45	-	-	-	-	-	3	5 :45	Possible
20	2 :45	-	-	-	-	-	7	9 :45	Possible
25	2 :45	-	-	-	-	-	10	12 :45	Possible
30	2 :30	-	-	-	-	3	15	20 :30	Possible
35	2 :30	-	-	-	-	5	20	27 :30	Possible
40	2 :15	-	-	-	3	7	25	37 :15	Possible
45	2 :15	-	-	-	3	10	30	45 :15	Possible
50	2 :15	-	-	-	3	10	35	50 :15	Possible
60	2 :15	-	-	-	5	15	45	67 :15	Possible
70	2 :00	-	-	3	10	20	50	85 :00	Possible
80	2 :00	-	-	3	12	25	60	102 :00	No
90	2 :00	-	-	5	15	30	70	122 :00	No
100	1 :45	-	3	7	20	30	80	141 :45	No

AIR/OXY/6 M TABLES

Depth 42 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
10	3 :00	-	-	-	-	-	3	6 :00	Possible
15	3 :00	-	-	-	-	-	5	8 :00	Possible
20	3 :00	-	-	-	-	-	10	13 :00	Possible
25	2 :45	-	-	-	-	3	15	20 :45	Possible
30	2 :45	-	-	-	-	5	20	27 :45	Possible
35	2 :30	-	-	-	3	7	25	37 :30	Possible
40	2 :30	-	-	-	3	10	30	45 :30	Possible
45	2 :30	-	-	-	3	12	35	52 :30	Possible
50	2 :15	-	-	-	5	15	40	62 :15	Possible
60	2 :15	-	-	3	10	17	50	82 :15	Possible
70	2 :15	-	-	5	12	25	60	104 :15	No
80	2 :00	-	3	7	15	25	70	122 :00	No
90	2 :00	-	3	12	20	30	80	147 :00	No

Depth 45 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
10	3 :15	-	-	-	-	-	3	6 :15	Possible
15	3 :15	-	-	-	-	-	7	10 :15	Possible
20	3 :00	-	-	-	-	3	10	16 :00	Possible
25	3 :00	-	-	-	-	3	15	21 :00	Possible
30	2 :45	-	-	-	3	5	20	30 :45	Possible
35	2 :45	-	-	-	3	7	25	37 :45	Possible
40	2 :45	-	-	-	5	10	35	52 :45	Possible
45	2 :30	-	-	3	5	12	45	67 :30	Possible
50	2 :30	-	-	3	7	15	50	77 :30	Possible
60	2 :15	-	3	5	12	20	55	97 :15	No
70	2 :15	-	3	7	15	25	65	117 :15	No
80	2 :15	-	3	12	20	30	75	142 :15	No

AIR/OXY/6 M TABLES

Depth 48 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
10	3 :30	-	-	-	-	-	3	6 :30	Possible
15	3 :30	-	-	-	-	-	7	10 :30	Possible
20	3 :15	-	-	-	-	3	15	21 :15	Possible
25	3 :15	-	-	-	-	5	20	28 :15	Possible
30	3 :00	-	-	-	3	7	25	38 :00	Possible
35	3 :00	-	-	-	5	10	30	48 :00	Possible
40	2 :45	-	-	3	7	15	35	62 :45	Possible
45	2 :45	-	-	5	10	17	40	74 :45	Possible
50	2 :30	-	3	5	10	20	50	90 :30	No
60	2 :30	-	3	7	15	25	60	112 :30	No
70	2 :30	-	5	10	20	30	70	137 :30	No

Depth 51 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
10	3 :45	-	-	-	-	-	5	8 :45	Possible
15	3 :30	-	-	-	-	3	10	16 :30	Possible
20	3 :30	-	-	-	-	3	15	21 :30	Possible
25	3 :15	-	-	-	3	5	20	31 :15	Possible
30	3 :15	-	-	-	5	7	25	40 :15	Possible
35	3 :00	-	-	3	5	10	30	51 :00	Possible
40	3 :00	-	-	5	7	15	40	70 :00	Possible
45	2 :45	-	3	5	10	20	45	85 :45	Possible
50	2 :45	-	3	7	15	20	50	97 :45	No
60	2 :45	-	5	10	15	25	65	122 :45	No
70	2 :30	3	7	12	20	35	80	159 :30	No

AIR/OXY/6 M TABLES

Depth 54 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
5	4 :00	-	-	-	-	-	3	7 :00	No
10	4 :00	-	-	-	-	-	7	11 :00	No
15	3 :45	-	-	-	-	3	10	16 :45	No
20	3 :30	-	-	-	3	5	15	26 :30	No
25	3 :30	-	-	-	5	7	25	40 :30	No
30	3 :15	-	-	3	5	10	35	56 :15	No
35	3 :15	-	-	3	7	12	40	65 :15	No
40	3 :00	-	3	5	10	15	50	86 :00	No
45	3 :00	-	3	7	12	20	55	100 :00	No
50	3 :00	-	5	10	15	25	65	123 :00	No
60	2 :45	3	7	10	20	30	75	147 :45	No

Depth 57 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
5	4 :15	-	-	-	-	-	3	7 :15	No
10	4 :15	-	-	-	-	-	7	11 :15	No
15	4 :00	-	-	-	-	3	15	22 :00	No
20	3 :45	-	-	-	3	5	20	31 :45	No
25	3 :30	-	-	3	5	7	25	43 :30	No
30	3 :30	-	-	3	7	10	35	58 :30	No
35	3 :15	-	3	5	7	15	45	78 :15	No
40	3 :15	-	3	7	10	20	50	93 :15	No
45	3 :00	3	5	7	12	25	55	110 :00	No
50	3 :00	3	5	10	15	25	65	126 :00	No

Depth 60 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Air 12 m	Air 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
5	4 :30	-	-	-	-	-	3	7 :30	No
10	4 :15	-	-	-	-	3	7	14 :15	No
15	4 :00	-	-	-	3	5	15	27 :00	No
20	4 :00	-	-	-	5	7	20	36 :00	No
25	3 :45	-	-	3	5	10	30	51 :45	No
30	3 :30	-	3	5	7	12	40	70 :30	No
35	3 :30	-	3	5	10	15	45	81 :30	No
40	3 :15	3	5	7	15	20	55	108 :15	No

6 - AIR/OXY/12 M TABLES

6.1 - Decompression Method

Decompression stops made in wet bell diver being dry or in bell diver breathing oxygen at 12 m, 9 m and 6 m stops.

6.2 - Bottom Mix

Air or Nitrox.

6.3 - Diving Methods

- Wet bell dive,
- Saturation dive.

6.4 - Air/Oxy/12 m Tables

Set of decompression tables for dives to depths ranging from 15 m to 60 m.

The post-dive interval after a dive using an Air/Oxy/12 m table is generally 12 hours.

6.5 - Repetitive Dive

One (and only one) repetitive dive is possible after short or swallow dive. This is indicated in the tables by the label « POSSIBLE ».

This repetitive dive must be carried out following method described in chapter 12.

6.6 - Contingency Procedures

Exceeding the planned bottom time

- Use either the next bottom time or the back-up bottom time.

Difficult dive conditions

- Use the next longer bottom time.

Oxygen supply failure

- Switch to air standard table (if the bottom time permits it),
- Or multiply oxygen stop times by 2 and perform them on air.

TABLE N°5 - AIR/OXY/12 M TABLES

Depth 15 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
150	0 :15	-	-	-	5	5	5	15 :15	Possible
180	0 :15	-	-	-	5	5	10	20 :15	No
210	0 :15	-	-	-	5	10	10	25 :15	No
240	0 :15	-	-	-	10	10	10	30 :15	No
270	0 :15	-	-	-	10	10	15	35 :15	No
300	0 :15	-	-	-	15	15	15	45 :15	No
330	0 :15	-	-	-	15	15	20	50 :15	No

Depth 18 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
110	0 :30	-	-	-	5	5	5	15 :30	Possible
120	0 :30	-	-	-	5	5	10	20 :30	Possible
130	0 :30	-	-	-	5	10	10	25 :30	Possible
140	0 :30	-	-	-	10	10	10	30 :30	Possible
150	0 :30	-	-	-	10	10	15	35 :30	Possible
180	0 :30	-	-	-	10	15	15	40 :30	No
210	0 :30	-	-	-	15	15	20	50 :30	No
240	0 :30	-	-	-	20	20	20	60 :30	No
270	0 :30	-	-	-	20	20	25	65 :30	No
300	0 :30	-	-	-	25	25	30	80 :30	No

Depth 21 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
80	0 :45	-	-	-	5	5	5	15 :45	Possible
90	0 :45	-	-	-	5	5	10	20 :45	Possible
100	0 :45	-	-	-	5	10	10	25 :45	Possible
110	0 :45	-	-	-	5	10	10	25 :45	Possible
120	0 :45	-	-	-	10	10	10	30 :45	Possible
130	0 :45	-	-	-	10	10	15	35 :45	Possible
140	0 :45	-	-	-	10	15	15	40 :45	Possible
150	0 :45	-	-	-	15	15	15	45 :45	No
180	0 :45	-	-	-	20	20	20	60 :45	No
210	0 :45	-	-	-	20	25	25	70 :45	No
240	0 :45	-	-	-	25	30	30	85 :45	No
270	0 :45	-	-	-	30	35	40	105 :45	No

AIR/OXY/12 M TABLES

Depth 24 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
60	1 :00	-	-	-	5	5	5	16 :00	Possible
70	1 :00	-	-	-	5	5	10	21 :00	Possible
80	1 :00	-	-	-	5	10	10	26 :00	Possible
90	1 :00	-	-	-	10	10	10	31 :00	Possible
100	1 :00	-	-	-	10	10	15	36 :00	Possible
110	1 :00	-	-	-	10	15	15	41 :00	Possible
120	1 :00	-	-	-	15	15	20	51 :00	Possible
130	1 :00	-	-	-	15	20	20	56 :00	Possible
140	1 :00	-	-	-	20	20	20	61 :00	No
150	1 :00	-	-	-	20	20	25	66 :00	No
180	1 :00	-	-	-	25	30	30	86 :00	No
210	1 :00	-	-	-	30	35	35	101 :00	No
240	1 :00	-	-	-	30	40	50	121 :00	No

Depth 27 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
50	1 :15	-	-	-	5	5	5	16 :15	Possible
60	1 :15	-	-	-	5	5	10	21 :15	Possible
70	1 :15	-	-	-	5	10	10	26 :15	Possible
80	1 :15	-	-	-	10	10	15	36 :15	Possible
90	1 :15	-	-	-	10	15	154	41 :15	Possible
100	1 :15	-	-	-	15	15	20	51 :15	Possible
110	1 :15	-	-	-	15	20	20	56 :15	Possible
120	1 :15	-	-	-	20	20	20	61 :15	Possible
130	1 :15	-	-	-	20	25	25	71 :15	No
140	1 :15	-	-	-	25	25	30	81 :15	No
150	1 :15	-	-	-	25	30	30	86 :15	No
180	1 :15	-	-	-	30	40	40	111 :15	No
210	1 :15	-	-	-	30	40	65	136 :15	No

AIR/OXY/12 M TABLES

Depth 30 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
40	1 :30	-	-	-	5	5	5	16 :30	Possible
50	1 :30	-	-	-	5	5	10	21 :30	Possible
60	1 :30	-	-	-	10	10	10	31 :30	Possible
70	1 :30	-	-	-	10	10	15	36 :30	Possible
80	1 :30	-	-	-	15	15	15	46 :30	Possible
90	1 :30	-	-	-	15	20	20	56 :30	Possible
100	1 :30	-	-	-	20	20	25	66 :30	Possible
110	1 :30	-	-	-	20	25	25	71 :30	No
120	1 :30	-	-	-	25	25	30	81 :30	No
130	1 :30	-	-	-	30	30	30	91 :30	No
140	1 :15	-	-	3	30	35	35	104 :15	No
150	1 :15	-	-	3	30	40	45	119 :15	No
180	1 :15	-	-	3	30	40	70	144 :15	No

Depth 33 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
40	1 :45	-	-	-	5	5	5	16 :45	Possible
50	1 :45	-	-	-	5	10	15	31 :45	Possible
60	1 :45	-	-	-	10	15	15	41 :45	Possible
70	1 :45	-	-	-	15	15	15	46 :45	Possible
80	1 :45	-	-	-	15	20	20	56 :45	Possible
90	1 :45	-	-	-	20	20	25	66 :45	Possible
100	1 :45	-	-	-	25	25	25	76 :45	No
110	1 :30	-	-	3	25	30	30	89 :30	No
120	1 :30	-	-	3	30	30	35	99 :30	No

AIR/OXY/12 M TABLES

Depth 36 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
30	2 :00	-	-	-	5	5	5	17 :00	Possible
40	2 :00	-	-	-	5	10	10	27 :00	Possible
50	2 :00	-	-	-	10	15	15	42 :00	Possible
60	2 :00	-	-	-	15	15	15	47 :00	Possible
70	2 :00	-	-	-	15	20	20	57 :00	Possible
80	2 :00	-	-	-	20	20	25	67 :00	Possible
90	1 :45	-	-	3	25	25	30	84 :45	No
100	1 :45	-	-	3	30	30	30	94 :45	No
110	1 :45	-	-	5	30	35	40	111 :45	No

Depth 39 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
30	2 :15	-	-	-	5	5	10	22 :15	Possible
40	2 :15	-	-	-	10	10	10	32 :15	Possible
50	2 :15	-	-	-	15	15	15	47 :15	Possible
60	2 :15	-	-	-	15	20	20	57 :15	Possible
70	2 :00	-	-	3	20	20	25	70 :00	Possible
80	2 :00	-	-	3	25	25	30	85 :00	No
90	2 :00	-	-	5	30	30	30	97 :00	No
100	1 :45	-	3	7	30	35	40	116 :45	No

AIR/OXY/12 M TABLES

Depth 42 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
25	2 :30	-	-	-	5	5	5	17 :30	Possible
30	2 :30	-	-	-	5	5	10	22 :30	Possible
40	2 :30	-	-	-	10	15	15	42 :30	Possible
50	2 :30	-	-	-	15	15	20	52 :30	Possible
60	2 :15	-	-	3	20	20	25	70 :15	Possible
70	2 :15	-	-	5	25	25	30	87 :15	No
80	2 :00	-	3	7	25	30	30	97 :00	No
90	2 :00	-	3	12	30	35	40	122 :00	No

Depth 45 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
20	2 :45	-	-	-	5	5	5	17 :45	Possible
25	2 :45	-	-	-	5	5	10	22 :45	Possible
30	2 :45	-	-	-	5	10	10	27 :45	Possible
40	2 :45	-	-	-	15	15	15	47 :45	Possible
50	2 :30	-	-	3	15	20	20	60 :30	Possible
60	2 :15	-	3	5	20	25	25	80 :15	No
70	2 :15	-	3	7	25	30	30	97 :15	No
80	2 :15	-	3	12	30	35	35	117 :15	No

AIR/OXY/12 M TABLES

Depth 48 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
20	3 :00	-	-	-	5	5	5	18 :00	Possible
25	3 :00	-	-	-	5	5	10	23 :00	Possible
30	3 :00	-	-	-	10	10	10	33 :00	Possible
40	2 :45	-	-	3	15	15	20	55 :45	Possible
50	2 :30	-	3	5	20	20	20	70 :30	Possible
60	2 :30	-	3	7	25	25	30	92 :30	No
70	2 :30	-	5	10	30	30	35	112 :30	No

Depth 51 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
15	3 :15	-	-	-	5	5	5	18 :15	Possible
20	3 :15	-	-	-	5	5	10	23 :15	Possible
25	3 :15	-	-	-	5	10	10	28 :15	Possible
30	3 :15	-	-	-	10	10	15	38 :15	Possible
40	3 :00	-	-	5	15	15	20	58 :00	Possible
50	2 :45	-	3	7	20	25	25	82 :45	No
60	2 :45	-	5	10	25	30	30	102 :45	No
70	2 :30	3	7	12	30	35	40	129 :30	No

AIR/OXY/12 M TABLES

Depth 54 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
15	3 :30	-	-	-	5	5	5	18 :30	No
20	3 :30	-	-	-	5	5	10	23 :30	No
25	3 :30	-	-	-	10	10	10	33 :30	No
30	3 :15	-	-	3	10	10	15	41 :15	No
40	3 :00	-	3	5	15	20	20	66 :00	No
50	3 :00	-	5	7	25	25	25	90 :00	No
60	2 :45	3	7	10	30	30	35	117 :45	No

Depth 57 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
15	3 :45	-	-	-	5	5	5	18 :45	No
20	3 :45	-	-	-	5	10	10	28 :45	No
25	3 :30	-	-	3	10	10	10	36 :30	No
30	3 :30	-	-	3	15	15	15	51 :30	No
40	3 :15	-	3	10	20	20	25	81 :15	No
50	3 :00	3	5	10	25	30	30	106 :00	No
60	3 :00	5	10	12	30	35	40	135 :00	No

Depth 60 metres

Minimum depth time	Ascent to stop min :sec	Air 21 m	Air 18 m	Air 15 m	Oxy 12 m	Oxy 9 m	Oxy 6 m	Total decompression min :sec	Repetitive dive
15	4 :00	-	-	-	5	5	10	24 :00	No
20	4 :00	-	-	-	10	10	10	34 :00	No
25	3 :45	-	-	3	10	10	15	41 :45	No
30	3 :30	-	3	5	15	20	20	66 :30	No
40	3 :15	3	5	10	20	25	25	91 :15	No
50	3 :15	5	7	10	30	30	30	115 :15	No

7 - SURFACE DECOMPRESSION TABLES

7.1 - Decompression Method

Surface decompression method must be used only when in-water decompression risks to endanger the diver : oil, current, temperature, presence of explosives...

This procedure requires recompression process to be started immediately, after the diver gets out the water (surface interval as short as possible and never over four minutes counted from the end of the eventual 9 m stop until dry recompression at 1,200 hPa (1.2 bar). During this interval, physical exertion must be avoided. Once in the chamber, the diver must immediately drink a large amount of non-gaseous water.

7.2 - Bottom Mix

Air or Nitrox.

7.3 - Diving Methods

- Scuba diving,
- Surface-supplied diving,
- Wet bell diving.

7.4 - Surface Decompression Tables

Set of decompression tables for first dives to depths ranging from 12 m to 51 m.

No repetitive dive is allowed. The post-dive interval after a dive using a surface decompression table is twelve hours.

The surface decompression methods are forbidden at altitudes higher than 300 metres.

7.5 - Contingency Procedures

Exceeding the planned bottom time

- Use either the next bottom or the back-up bottom time,
- Or switch to air standard tables (with in-water decompression),
- Or switch to Air/Oxy/6 m tables (with in-water decompression),
- Or to Air/Oxy/12 m tables (with bell diving only).

Difficult dive conditions

- Use the next longer bottom time.

Exceeding the surface interval before recompression

- If the surface interval exceeds four minutes but does not exceed five minutes, switch to the next longer table time,
- If the surface interval exceeds five minutes, consider the dive as a shortened decompression and apply emergency procedure planned for a type 1 decompression accident (annex VI).

Failure of oxygen supply in chamber

- Decompress the divers on air using air standard table for the same depth of dive. Use the maximum table time available for safety.

TABLE N°6

AIR/SURFACE DECOMPRESSION TABLES

Depth 12 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
180	1 :00	-	-	-	3	10	6	20 :00	12h00
210	1 :00	-	-	-	3	10	6	20 :00	12h00
240	1 :00	-	-	-	3	10	6	20 :00	12h00
270	1 :00	-	-	-	3	20	6	30 :00	12h00
300	1 :00	-	-	-	3	25	6	35 :00	12h00
330	1 :00	-	-	-	3	25	6	35 :00	12h00
360	1 :00	-	-	-	3	30	6	40 :00	12h00

Depth 15 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
90	1 :15	-	-	-	3	10	6	20 :15	12h00
100	1 :15	-	-	-	3	10	6	20 :15	12h00
110	1 :15	-	-	-	3	10	6	20 :15	12h00
120	1 :15	-	-	-	3	10	6	20 :15	12h00
130	1 :15	-	-	-	3	10	6	20 :15	12h00
140	1 :15	-	-	-	3	15	6	25 :15	12h00
150	1 :15	-	-	-	3	20	6	30 :15	12h00
180	1 :15	-	-	-	3	25	6	35 :15	12h00

AIR/SURFACE DECOMPRESSION TABLES

Depth 18 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
60	1 :30	-	-	-	3	10	6	20 :30	12h00
70	1 :30	-	-	-	3	10	6	20 :30	12h00
80	1 :30	-	-	-	3	10	6	20 :30	12h00
90	1 :30	-	-	-	3	15	6	25 :30	12h00
100	1 :30	-	-	-	3	20	6	30 :30	12h00
110	1 :30	-	-	-	3	25	6	35 :30	12h00
120	1 :30	-	-	-	3	25	6	35 :30	12h00
130	1 :30	-	-	-	3	30	6	40 :30	12h00
140	1 :30	-	-	-	3	40	6	50 :30	12h00
150	1 :30	-	-	-	3	40	6	50 :30	12h00

Depth 21 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
40	1 :45	-	-	-	3	10	6	20 :45	12h00
45	1 :45	-	-	-	3	10	6	20 :45	12h00
50	1 :45	-	-	-	3	10	6	20 :45	12h00
60	1 :45	-	-	-	3	10	6	20 :45	12h00
70	1 :45	-	-	-	3	15	6	25 :45	12h00
80	1 :45	-	-	-	3	20	6	30 :45	12h00
90	1 :45	-	-	-	3	25	6	35 :45	12h00
100	1 :45	-	-	-	3	35	6	45 :45	12h00
110	1 :45	-	-	-	3	40	6	50 :45	12h00
120	1 :45	-	-	-	3	45	6	55 :45	12h00

AIR/SURFACE DECOMPRESSION TABLES

Depth 24 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
30	2 :00	-	-	-	3	10	6	21 :00	12h00
35	2 :00	-	-	-	3	10	6	21 :00	12h00
40	2 :00	-	-	-	3	10	6	21 :00	12h00
45	2 :00	-	-	-	3	10	6	21 :00	12h00
50	2 :00	-	-	-	3	10	6	21 :00	12h00
60	2 :00	-	-	-	3	15	6	26 :00	12h00
70	2 :00	-	-	-	3	25	6	36 :00	12h00
80	2 :00	-	-	-	3	35	6	46 :00	12h00
90	2 :00	-	-	-	3	40	6	51 :00	12h00

Depth 27 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
25	2 :15	-	-	-	3	10	6	21 :15	12h00
30	2 :15	-	-	-	3	10	6	21 :15	12h00
35	2 :15	-	-	-	3	10	6	21 :15	12h00
40	2 :15	-	-	-	3	10	6	21 :15	12h00
45	2 :15	-	-	-	3	15	6	26 :15	12h00
50	2 :15	-	-	-	3	20	6	31 :15	12h00
60	2 :15	-	-	-	3	30	6	41 :15	12h00
70	1 :30	-	-	3	3	40	6	53 :30	12h00

AIR/SURFACE DECOMPRESSION TABLES

Depth 30 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
20	2 :30	-	-	-	3	10	6	21 :30	12h00
25	2 :30	-	-	-	3	10	6	21 :30	12h00
30	2 :30	-	-	-	3	10	6	21 :30	12h00
35	2 :30	-	-	-	3	15	6	26 :30	12h00
40	2 :30	-	-	-	3	20	6	31 :30	12h00
45	2 :30	-	-	-	3	20	6	31 :30	12h00
50	2 :30	-	-	-	3	25	6	36 :30	12h00
60	1 :45	-	-	3	3	40	6	53 :45	12h00

Depth 33 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
15	2 :45	-	-	-	3	10	6	21 :45	12h00
20	2 :45	-	-	-	3	10	6	21 :45	12h00
25	2 :45	-	-	-	3	10	6	21 :45	12h00
30	2 :45	-	-	-	3	15	6	26 :45	12h00
35	2 :45	-	-	-	3	20	6	31 :45	12h00
40	2 :45	-	-	-	3	25	6	36 :45	12h00
45	2 :00	-	-	3	3	30	6	44 :45	12h00
50	2 :00	-	-	5	3	35	6	51 :00	12h00
60	2 :00	-	-	10	3	45	6	66 :00	12h00

AIR/SURFACE DECOMPRESSION TABLES

Depth 36 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
15	3 :00	-	-	-	3	10	6	22 :00	12h00
20	3 :00	-	-	-	3	10	6	22 :00	12h00
25	3 :00	-	-	-	3	15	6	27 :00	12h00
30	3 :00	-	-	-	3	20	6	32 :00	12h00
35	2 :15	-	-	3	3	25	6	39 :15	12h00
40	2 :15	-	-	3	3	30	6	44 :15	12h00
45	2 :15	-	-	5	3	35	6	51 :15	12h00
50	2 :00	-	3	7	3	40	6	61 :15	12h00

Depth 39 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
10	3 :15	-	-	-	3	10	6	22 :15	12h00
15	3 :15	-	-	-	3	10	6	22 :15	12h00
20	3 :15	-	-	-	3	10	6	22 :15	12h00
25	3 :15	-	-	-	3	15	6	27 :15	12h00
30	2 :30	-	-	3	3	25	6	39 :30	12h00
35	2 :30	-	-	5	3	30	6	46 :30	12h00
40	2 :15	-	3	7	3	35	6	56 :15	12h00

AIR/SURFACE DECOMPRESSION TABLES

Depth 42 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
10	3 :30	-	-	-	3	10	6	22 :30	12h00
15	3 :30	-	-	-	3	10	6	22 :30	12h00
20	3 :30	-	-	-	3	15	6	27 :30	12h00
25	2 :45	-	-	3	3	25	6	39 :45	12h00
30	2 :45	-	-	5	3	30	6	46 :45	12h00
35	2 :30	-	3	7	3	35	6	56 :30	12h00
40	2 :30	-	3	10	3	40	6	64 :30	12h00

Depth 45 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
10	3 :45	-	-	-	3	10	6	22 :45	12h00
15	3 :45	-	-	-	3	10	6	22 :45	12h00
20	3 :00	-	-	3	3	15	6	30 :00	12h00
25	3 :00	-	-	3	3	25	6	40 :00	12h00
30	3 :15	-	3	5	3	30	6	50 :15	12h00

AIR/SURFACE DECOMPRESSION TABLES

Depth 48 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
10	4 :00	-	-	-	3	10	6	23 :00	12h00
15	4 :00	-	-	-	3	10	6	23 :00	12h00
20	3 :15	-	-	3	3	20	6	35 :15	12h00
25	3 :15	-	-	5	3	25	6	42 :15	12h00
30	3 :00	-	3	7	3	35	6	57 :00	12h00

Depth 51 metres

Minimum depth time min	Ascent to stop min :sec	In water			Surface Interval Inferior to	In Chamber		Total decompression min :sec	Interval after dive
		Air 15 m	Air 12 m	Air 9 m		Oxy 12 m	Oxy 12-0		
10	4 :15	-	-	-	3	10	6	23 :15	12h00
15	3 :30	-	-	3	3	15	6	30 :30	12h00
20	3 :30	-	-	5	3	25	6	42 :30	12h00
25	3 :15	-	3	5	3	30	6	50 :15	12h00
30	3 :15	-	5	7	3	40	6	64 :15	12h00

8 - NITROX DIVING

8.1 - Decompression Method

The diver breathes a nitrox mix during the dive. The same nitrox mixture is breathed during the decompression, except for the decompression tables using oxygen, where the diver switches to oxygen breathing at the required stop depth.

The diver is decompressed according to a table of equivalent depth. This equivalent depth is shallower than the actual dive depth and therefore related to a shorter decompression time. The higher the oxygen percentage, the shorter the decompression time.

8.2 - Bottom Mix

The composition or a nitrox mix is set under the form A/B where A indicates the oxygen percentage and B the nitrogen percentage.

Nitrox use is limited to a maximum oxygen partial pressure of 1,600 hPa (1.6 bar) in in-water breathing.

8.3 - Diving Methods

- Scuba diving,
- Surface-supplied diving,
- Wet bell diving,
- Saturation diving.

8.4 - Decompression Tables

There are no specific nitrox tables. The diver is decompressed using an air table, according to the equivalent depth.

The table used can either be an air standard, an Air/Oxy/6 m, an Air/Oxy/12 m or a surface decompression table using oxygen.

The method can be used for an initial bounce dive or a repetitive dive.

8.5 - Post-Dive Interval

Same as for the decompression table selected.

8.6 - Calculation

- Determine dive depth,
- Use table n°7, to determine equivalent depth according to nitrox mixture used,
- Use this equivalent depth to select the decompression table depth.

How to use the table

- Determine dive actual depth,
- Select composition of nitrox mix,
- Read equivalent depth,
- Use equivalent depth to select decompression table.

TABLE N°7

PROCEDURE FOR NITROX DIVING
EQUIVALENT DEPTH METHOD

Real Depth (m)	Nitrox Mix					
	25/75 (m)	30/70 (m)	35/65 (m)	40/60 (m)	45/55 (m)	50/50 (m)
9	9	9	6	6	6	3
10	9	9	9	6	6	3
11	12	9	9	6	6	6
12	12	12	9	9	6	6
13	12	12	9	9	9	6
14	15	12	12	9	9	6
15	15	15	12	9	9	6
16	15	15	12	12	9	9
17	18	15	15	12	9	9
18	18	15	15	12	12	9
19	18	18	15	15	12	9
20	21	18	15	15	12	9
21	21	18	18	15	12	12
22	21	21	18	15	15	12
23	24	21	18	18	15	
24	24	21	18	18	15	
25	24	24	21	18	15	
26	27	24	21	18		
27	27	24	21	21		
28	27	24	24	21		
29	30	27	24	21		
30	30	27	24	21		
31	30	27	24			
32	30	30	27			
33	33	30	27			
34	33	30	27			
35	33	30	30			
36	36	33				
37	36	33				
38	36	33				
39	39	36				
40	39	36				
41	39	36				
42	42	39				
43	42	39				
	Equivalent depth to use for the dive					

9 - MULTI LEVEL DIVING

9.1 - Decompression Method

The aim of these tables is to optimize the decompression time of a dive that has been performed at different depths.

Normally, when a diver designed for multi level diving (table n°8), the diver can be decompressed according to an equivalent depth. As this equivalent depth lies in between the working depths, it is therefore related to a shorter decompression time.

However, the method has the following limitations :

- The levels must be sorted in decreasing depths,
- The last level depth should be deeper than first stop of the final decompression (divers are not allowed to work during decompression stops).

9.2 - Bottom Mix

Air only.

9.3 - Decompression Tables

There are no specific tables for multi level diving. The diver is decompressed according to an equivalent depth using an air decompression table.

The table can either be an air standard, an Air/Oxy/6 m, an Air/Oxy/12 m or a surface decompression table.

9.4 - Post-Dive Interval

Same as for the decompression table selected.

9.5 - Calculation

- Equivalent depth must be calculated before the operation,
- Determine depth and bottom time of each work level,
- Use table n°8 to calculate the equivalent depth,
- If the exact values of times and depths are not mentioned in the table, use the next greater values,
- Always work out the calculation of the equivalent depth before the dive in order to make sure there is an available corresponding decompression table.

How to use the table

- Determine the first working depth D1 and the associate bottom time T1 and enter the table with D1 and T1 and read the coefficient C1,
- Determine the second working depth D2 and the associate bottom time T2 and enter the table with T2 and D2 and read the coefficient C2,
- Add T1 to T2 to obtain the total bottom T3 which can be used to calculate the equivalent depth,
- Add C1 to C2 to obtain the sum of the coefficient C3,
- Use the table to determine the equivalent depth. Find T3 in the time column. Read across to find the coefficient equal to or greater than C3. Read up from this to get the equivalent depth,
- Select the decompression table using this equivalent depth and T3 as bottom time.

TABLE N°8

PROCEDURE FOR MULTI LEVEL DIVING

EQUIVALENT DEPTH METHOD

Time spent to work level (min)	Work level depth														
	9m	12m	15m	18m	21m	24m	27m	30m	33m	36m	39m	42m	45m	48m	51m
5	5	6	8	9	11	12	14	15	17	18	20	21	23	24	26
10	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51
15	14	18	23	27	31	36	41	45	50	54	59	63	68	72	77
20	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102
25	23	30	38	45	52	60	68	75	83	90	98	105	113	120	128
30	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153
40	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204
50	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255
60	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306
70	63	84	105	126	147	168	189	210	231	252	273	294	315	336	357
80	72	96	120	144	168	192	216	240	264	288	312	336	360	384	408
90	81	108	135	162	189	216	243	270	297	324	351	378	405	432	459
100	90	120	150	180	210	240	270	300	330	360	390	420	450	480	
110	99	132	165	198	231	264	297	330	363	396	429	462	495		
120	100	144	180	216	252	288	324	360	396	432	468	504			
130	117	156	195	234	273	312	351	390	429	468	507				
140	126	168	210	252	294	336	378	420	462	504					
150	135	180	225	270	315	360	405	450	495						
180	162	216	270	324	378	432	486	540							
210	189	252	315	378	441	504	567								
240	216	288	360	432	504	576									
270	243	324	405	486	567										
300	270	360	450	540											

10 - ALTITUDE DIVING

10.1 - Decompression Method

Altitude diving requires adaptation of decompression tables due to the variation of surface atmospheric pressure (which gets less as altitude increases).

Note that reading of depth gauges with a closed manometric cell are modified by the variation of the reference pressure due to the difference between the local and normal atmospheric pressures. The depth read at the gauge is shallower than the actual depth.

10.2 - Decompression Tables

The adaptation of the decompression tables is made by the use of an equivalent depth. The time of ascent to first stop, stop times and stop depth are not modified.

The equivalent depth is always deeper than the actual depth and the decompression time is therefore always longer than at sea level.

The method can be used for initial bounce dives or repetitive dives.

10.3 - Post-Dive Interval

Same as for the decompression table selected.

10.4 - Calculation

Always work out the calculation of the equivalent depth before the dive to ensure there is a corresponding decompression table.

- Determine the local altitude in metres (or actual atmospheric pressure in millibar or hPa),
- Determine the actual dive depth in metres,
- Use table to determine the equivalent depth (n°9),
- Use this equivalent depth to select the decompression table.

How to use the table :

- Determine dive actual depth in metres,
- Determine local altitude (or local atmospheric pressure),
- Read equivalent depth,
- Use equivalent depth to select decompression table.

TABLE N°9
PROCEDURE FOR ALTITUDE DIVING
EQUIVALENT DEPTH METHOD

Real Depth (m)	ALTITUDE / ATMOSPHERIC PRESSURE					
	300-500m	500-1000m	1000-1500m	1500-2000m	2000-2500m	2500-3000m
	950mbar	900mbar	850mbar	800mbar	750mbar	700mbar
5	9	9	9	9	12	12
6	9	9	9	12	12	15
7	9	9	12	12	15	15
8	9	12	12	15	15	18
9	12	12	15	15	18	18
10	12	15	15	15	18	21
11	15	15	15	18	18	21
12	15	15	18	18	21	24
13	15	18	18	21	21	24
14	18	18	21	21	24	27
15	18	18	21	24	24	27
16	18	21	21	24	27	30
17	21	21	24	24	27	30
18	21	24	24	27	30	30
19	21	24	27	27	30	33
20	24	24	27	30	30	33
21	24	27	27	30	33	36
22	24	27	30	30	33	36
23	27	27	30	33	36	39
24	27	30	30	33	36	39
25	27	30	33	36	39	42
26	30	30	33	36	39	42
27	30	33	36	39	42	45
28	30	33	36	39	42	45
29	33	36	36	39	45	48
30	33	36	39	42	45	48
31	36	36	39	42	45	51
32	36	39	42	45	48	51
33	36	39	42	45	48	54
34	39	39	42	45	51	54
35	39	42	45	48	51	57
36	39	42	45	48	54	57
37	42	45	48	51	54	60
38	42	45	48	51	54	60
39	42	45	48	54	57	60
40	45	48	51	54	57	
41	45	48	51	54	60	
42	45	48	54	57	60	
43	48	51	54	57		
44	48	51	54	60		
45	48	54	57	60		
46	51	54	57	60		
47	51	54	60			
48	54	57	60			

49 50	54 54	57 57	60			

11 - MUD DIVING

11.1 - Decompression Method

Mud diving requires the adaptation of decompression tables because of the increased density of the liquid.

The method described below allows diving with a mud density varying from 1.1 to 1.4.

11.2 - Diving Methods

Surface supplied diving or scuba diving with lifeline to surface.

11.3 - Decompression Tables

The adaptation of the decompression tables is made by the use of an equivalent depth. The time of ascent to first stop, stop times and stop depths are not modified.

The equivalent depth is always deeper than the actual dive depth and the decompression time is therefore always longer than for sea water diving.

The method can be used for all decompression tables presented in this manual except for surface decompression tables using oxygen.

The tables can be used for initial first dives or repetitive dives, still using an equivalent depth.

11.4 - Post-Dive Interval

Same as for decompression table selected.

11.5 - Calculation

Always work out the calculation of the equivalent depth before the dive in order to ensure there is a corresponding decompression table.

- Determine the mud density,
- Determine the actual dive depth in metres,
- Use table n°10 to determine the equivalent dive depth,
- Use the equivalent depth to select the decompression table.

How to use the table

- Determine dive actual depth in metres,
- Determine mud density,
- Read equivalent depth,
- Use equivalent depth to select decompression table.

TABLE N°10
PROCEDURE FOR MUD DIVING
EQUIVALENT DEPTH METHOD

DEPTH (m)	MUD DENSITY			
	1.1 (m)	1.2 (m)	1.3 (m)	1.4 (m)
5	6	6	9	9
6	9	9	9	9
7	9	9	12	12
8	9	12	12	12
9	12	12	12	15
10	12	15	15	15
11	15	15	15	18
12	15	15	18	18
13	15	18	18	21
14	18	18	21	21
15	18	18	21	21
16	18	21	21	24
17	21	21	24	24
18	21	21	24	27
19	21	24	27	27
20	24	24	27	30
21	24	27	30	30
22	27	27	30	33
23	27	30	30	33
24	27	30	33	36
25	30	33	33	36
26	30	33	36	39
27	30	33	36	39
28	33	36	39	42
29	33	36	39	42
30	33	36	39	42
31	36	39	42	45
32	36	39	42	45
33	39	42	45	48
34	39	42	45	48
35	39	42	48	51
36	42	45	48	51
37	42	45	51	54
38	42	48	51	54
39	45	48	51	57
40	45	48	54	57
41	48	51	54	60
42	48	51	57	60
43	48	54	57	
44	51	54	60	
45	51	54	60	
46	51	57	60	
47	54	57		
48	54	60		

49 50	54 57	60		

12 - REPETITIVE DIVE PROCEDURES

12.1 - Equivalent time method

The equivalent time method is used with air standard, Air/Oxy/6 m and Air/Oxy/12 m, breathing air or nitrox.

It is prohibited with surface decompression tables.

This method can be used for a first repetitive dive after first dives bearing the mention « REPETITIVE DIVE POSSIBLE » in the decompression table.

Equivalent bottom time depends on depth of repetitive dive and the surface interval. It does not depend on the characteristics of preceding dive.

Equivalent time is found in table 11 by reading, at intersection of surface interval and repetitive dive depth columns, the time to be added to actual time which will give bottom equivalent time.

This equivalent time is used to enter the selected decompression table using the repetitive dive actual depth.

If in air standard, Air/Oxy/6 m and Air/Oxy/12 m tables the bottom equivalent time corresponds to an ascent without stop, it is advised, as safety precaution, to make a decompression stop of 3 minutes at 3 metres.

12.2 - Added-Time Method

This method is used with all decompression tables breathing air and/or with oxygen stops, except surface decompression tables. It is less performing method than equivalent time method : it leads to longer decompression durations.

The method is based on the assumption that the two dives constitute one dive only. The first decompression and the surface interval are ignored.

To determine the repetitive dive decompression, the second dive decompression will consider :

- A time equal to the sum of bottom times of the two dives,

and either :

- The deepest depth reached during the two dives especially if it is reached during the second dive,
- Or the equivalent depth determined by the multi-level diving method in table 8, when the second dive is the most shallow of the two.

TABLE N°11

EQUIVALENT TIMES TABLE FOR REPETITIVE DIVE

Repetitive Dive Depth (m)	Surface interval included between :									
	0h00 0h29	0h30 0h44	0h45 0h59	1h00 1h29	1h30 1h59	2h00 2h59	3h00 3h59	4h00 4h59	5h00 5h59	6h00 11h59
12-15	110	90	80	70	60	50	40	30	20	15
15-18	85	70	60	55	50	40	30	20	10	10
18-20	65	55	50	45	40	30	25	15	10	10
21-23	55	45	45	40	35	25	20	15	10	10
24-26	50	40	35	35	25	25	15	15	10	5
27-29	45	35	35	30	25	20	15	10	10	5
30-32	40	30	30	25	25	20	15	10	10	5
33-35	35	30	25	25	20	20	15	10	5	5
36-38	30	25	25	25	20	15	15	10	5	5
39-41	30	25	25	20	20	15	10	10	5	5
42-44	25	25	20	20	15	15	10	10	5	5
45-47	25	20	20	20	15	15	10	10	5	5
48-50	25	20	20	15	15	15	10	10	5	5
51	25	20	20	15	15	10	10	5	5	5
	Length to add to real time to obtain equivalent time.									

ANNEX III

DIVING PROCEDURES
WITH HELIUM MIX

A - BOUNCE DIVES

1 - HELIOX/OXY/6 M TABLES

1.1 - Heliox/Oxy/6m Tables

Set of decompression tables for dives to depths ranging from 30 to 60 m.

The post-dive interval for a dive whose decompression was made using a heliox/oxy/6 m table is twelve hours minimum. No repetitive dive is allowed during this interval whatever breathing gas was used.

1.2 - Diving Methods

SCUBA, surface-supplied or wet-bell diving can be used within the limits of these methods.

1.3 - Decompression Procedures

- Speed of ascent to first stop between 9 and 15 m/min,
- In-water decompression will stops each 3 metres up to 6 metres,
- The last minute of decompression stop duration used to ascend to next stop level,
- At the end of decompression, the diver ascends directly from the 6 m stop to the surface during the last minute of this stop.

1.4 - Dive Mix

1.4.1 - Bottom Mix

Bottom mix is a heliox mix with an oxygen percentage ranging from 0.850 bar (850 hPa) to 1.550 bar (1550 hPa) at working depth of diver. Tables are given for a bottom mix with an oxygen percentage varying by 2% at a time.

1.4.2 - Decompression Mix

The first part of decompression is made with heliox bottom mix. The stop at 6 m and the ascent to the surface is made on pure oxygen breathing.

1.5 - Contingency Procedures

Exceeding the planned bottom time

- Use either the next bottom time or the back-up bottom time,
- Or switch to heliox/oxy/12 m tables.

Difficult dive conditions

Play safe and, in the table, use the time immediately above the one corresponding to the time actually spent.

Oxygen failure

Multiply by two the pure oxygen stop time planned at 6 m and perform it on heliox 20/80 or on air.

TABLE N°1

BOTTOM MIXES FOR HELIOX/OXY/6M TABLES

Dive Depth (m)	Oxygen percentage in the heliox bottom mix					
	28.0-29.9%	26.0-27.9%	24.0-25.9%	22.0-23.9%	20.0-21.9%	18.0-19.9%
30						
33						
36						
39						
42						
45						
48						
51						
54						
57						
60						
63						
66						
69						
72						

HELIOX/OXY/6M TABLES

Depth : 30 metres — Heliox 28-30 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	12 m	-	-	-	-	-	3	3	3	5
28-30%	9 m	-	-	3	3	5	10	10	10	15
Oxygen	6 m	3	5	10	15	20	20	25	30	35
Total decompression		0h06	0h07	0h15	0h20	0h27	0h35	0h40	0h45	0h57

Depth : 30 metres — Heliox 28-30 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	12 m	5	5	10	10					
28-30%	9 m	15	15	15	20					
Oxygen	6 m	40	40	45	50					
Total decompression		1h02	1h02	1h12	1h22					

Depth : 33 metres — Heliox 28-30 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	15 m	-	-	-	-	-	-	-	-	3
	12 m	-	-	-	3	3	5	5	10	10
28-30%	9 m	-	3	3	5	10	10	10	15	15
Oxygen	6 m	3	10	10	15	20	25	30	35	40
Total decompression		0h06	0h15	0h15	0h25	0h35	0h42	0h47	1h02	1h10

Depth : 33 metres — Heliox 28-30 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	15 m	3	3	3	5					
	12 m	10	10	15	15					
28-30%	9 m	15	20	20	25					
Oxygen	6 m	45	50	55	55					
Total decompression		1h15	1h25	1h35	1h42					

Depth : 36 metres — Heliox 28-30 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	15 m	-	-	-	-	3	3	3	5	5
	12 m	-	-	3	3	5	5	10	10	10
28-30%	9 m	-	3	5	5	10	10	15	15	20
Oxygen	6 m	3	10	15	20	25	30	35	40	45
Total decompression		0h06	0h16	0h25	0h30	0h45	0h50	1h05	1h12	1h22

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Depth : 36 metres — Heliox 28-30 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	18 m	-	-	-	3					
Heliox	15 m	5	10	10	10					
28-30%	12 m	15	15	15	15					
	9 m	20	20	25	25					
Oxygen	6 m	50	55	60	65					
Total decompression		1h32	1h42	1h52	2h00					

Depth : 39 metres — Heliox 28-30 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	18 m	-	-	-	-	-	-	3	3	3
Heliox	15 m	-	-	-	3	3	5	5	10	10
28-30%	12 m	-	3	3	5	5	10	10	10	15
	9 m	-	3	5	10	10	15	15	20	20
Oxygen	6 m	5	10	15	20	25	35	40	45	50
Total decompression		0h08	0h19	0h26	0h40	0h45	1h07	1h15	1h30	1h40

Depth : 39 metres — Heliox 28-30 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	18 m	3	5	5	5					
Heliox	15 m	10	10	15	15					
28-30%	12 m	15	15	20	20					
	9 m	20	25	25	30					
Oxygen	6 m	55	60	65	75					
Total decompression		1h45	1h57	2h12	2h27					

Depth : 42 metres — Heliox 28-30 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
	18 m	-	-	-	-	3	3	5	5	5
Heliox	15 m	-	-	3	3	5	5	10	10	10
28-30%	12 m	-	3	5	5	10	10	10	15	15
	9 m	3	5	5	10	10	15	15	20	25
Oxygen	6 m	5	10	15	25	30	35	45	50	55
Total decompression		0h11	0h21	0h31	0h46	1h00	1h10	1h27	1h42	1h52

HELIOX/OXY/6M TABLES

Depth : 42 metres — Heliox 28-30 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	21 m	3	3	3	3					
Heliox	18 m	10	10	10	10					
	15 m	10	15	15	15					
28-30%	12 m	15	20	20	25					
	9 m	25	30	30	35					
Oxygen	6 m	60	70	75	80					
Total decompression		2h05	2h30	2h35	2h50					

Depth : 30 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	12 m	-	-	-	-	3	3	3	5	5
26-28%	9 m	-	-	3	5	5	10	10	10	15
Oxygen	6 m	3	5	10	15	20	25	30	30	35
Total decompression		0h06	0h07	0h15	0h22	0h30	0h40	0h45	0h47	0h57

Depth : 30 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	12 m	10	10	10	15					
26-28%	9 m	15	20	20	20					
Oxygen	6 m	40	45	50	55					
Total decompression		1h07	1h17	1h22	1h32					

Depth : 33 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	15 m	-	-	-	-	-	-	3	3	3
26-28%	12 m	-	-	-	3	5	5	10	10	10
	9 m	-	3	5	5	10	10	15	15	15
Oxygen	6 m	3	10	15	20	20	25	30	35	40
Total decompression		0h06	0h15	0h22	0h30	0h37	0h42	1h00	1h05	1h10

HELIOX/OXY/6M TABLES

Depth : 33 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	15 m	5	5	5	5					
26-28%	12 m	10	15	15	15					
	9 m	20	20	25	25					
Oxygen	6 m	45	50	55	60					
Total decompression		1h22	1h32	1h42	1h47					

Depth : 36 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	15 m	-	-	-	-	3	3	5	5	10
26-28%	12 m	-	-	3	5	5	10	10	10	15
	9 m	-	3	5	10	10	10	15	15	20
Oxygen	6 m	3	10	15	20	25	30	35	40	45
Total decompression		0h06	0h16	0h25	0h37	0h45	0h55	1h07	1h12	1h32

Depth : 36 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	3	3	3	3					
	15 m	10	10	10	15					
26-28%	12 m	15	15	20	20					
	9 m	20	25	25	30					
Oxygen	6 m	55	60	65	70					
Total decompression		1h45	1h55	2h05	2h20					

Depth : 39 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	3	3	3	5
	15 m	-	-	3	3	5	5	10	10	10
26-28%	12 m	-	3	5	5	10	10	10	15	15
	9 m	-	3	5	10	10	15	15	20	20
Oxygen	6 m	5	10	15	25	30	35	40	45	55
Total decompression		0h08	0h19	0h30	0h45	0h57	1h10	1h20	1h35	1h47

HELIOX/OXY/6M TABLES

Depth : 39 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	5	10	10	10					
	15 m	10	15	15	15					
26-28%	12 m	15	20	20	20					
	9 m	25	30	30	35					
Oxygen	6 m	60	65	70	80					
Total decompression		1h57	2h22	2h27	2h42					

Depth : 42 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	21 m	-	-	-	-	-	-	-	3	3
Heliox	18 m	-	-	-	3	3	5	5	5	10
	15 m	-	-	3	5	5	10	10	10	10
26-28%	12 m	-	3	5	5	10	10	15	15	15
	9 m	3	5	5	10	15	15	20	20	25
Oxygen	6 m	5	10	20	25	30	40	45	50	60
Total decompression		0h11	0h21	0h36	0h50	1h05	1h22	1h37	1h45	2h05

Depth : 42 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	21 m	3	3	5	5					
Heliox	18 m	10	10	10	15					
	15 m	15	15	15	20					
26-28%	12 m	20	20	25	25					
	9 m	30	30	35	35					
Oxygen	6 m	65	75	80	85					
Total decompression		2h25	2h35	2h52	3h07					

Depth : 45 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
	21 m	-	-	-	-	3	3	3	5	5
Heliox	18 m	-	-	3	3	5	5	5	10	10
	15 m	-	3	3	5	5	10	10	10	15
26-28%	12 m	-	3	5	10	10	10	15	15	20
	9 m	3	5	10	10	15	20	20	25	30
Oxygen	6 m	5	15	20	30	35	45	50	60	65
Total decompression		0h11	0h29	0h44	1h01	1h15	1h35	1h45	2h07	2h27

HELIOX/OXY/6M TABLES

Depth : 45 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	24 m	3	3	3	3					
Heliox	21 m	10	10	10	10					
	18 m	10	10	15	15					
26-28%	15 m	15	15	20	20					
	12 m	20	25	25	30					
	9 m	30	35	40	40					
Oxygen	6 m	75	80	90	95					
Total decompression		2h45	3h00	3h25	3h35					

Depth : 30 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	12 m	-	-	-	3	3	3	5	10	10
24-26%	9 m	-	3	3	5	10	10	10	15	15
Oxygen	6 m	3	10	10	15	20	25	30	35	40
Total decompression		0h06	0h15	0h15	0h25	0h35	0h40	0h47	1h02	1h07

Depth : 30 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	15 m	3	3	3	3					
Heliox	12 m	10	15	15	15					
24-26%	9 m	20	20	20	25					
Oxygen	6 m	45	45	50	55					
Total decompression		1h20	1h25	1h30	1h40					

Depth : 33 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
	15 m	-	-	-	-	-	3	3	3	5
Heliox	12 m	-	-	3	3	5	10	10	10	10
24-26%	9 m	-	3	5	5	10	10	15	15	20
Oxygen	6 m	3	10	15	20	25	30	35	40	45
Total decompression		0h06	0h15	0h25	0h30	0h42	0h55	1h05	1h10	1h22

Depth : 33 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	15 m	5	10	10	10					
Heliox	12 m	15	15	15	20					
24-26%	9 m	20	25	25	30					
Oxygen	6 m	50	55	60	65					
Total decompression		1h32	1h47	1h52	2h07					

HELIOX/OXY/6M TABLES

Depth : 36 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
	18 m	-	-	-	-	-	-	-	3	3
Heliox	15 m	-	-	-	3	3	5	5	10	10
24-26%	12 m	-	3	3	5	5	10	10	15	15
	9 m	-	3	5	10	10	15	15	20	20
Oxygen	6 m	5	10	15	20	25	35	40	45	50
Total decompression		0h08	0h18	0h25	0h40	0h45	1h07	1h12	1h35	1h40

Depth : 36 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	18 m	3	5	5	5					
Heliox	15 m	10	10	15	15					
24-26%	12 m	15	20	20	20					
	9 m	25	25	30	30					
Oxygen	6 m	55	60	70	75					
Total decompression		1h50	2h02	2h22	2h27					

Depth : 39 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
	18 m	-	-	-	-	3	3	5	5	5
Heliox	15 m	-	-	3	3	5	5	10	10	10
24-26%	12 m	-	3	5	5	10	10	15	15	15
	9 m	3	5	5	10	15	15	20	20	25
Oxygen	6 m	5	10	20	25	30	35	45	50	55
Total decompression		0h11	0h21	0h35	0h45	1h05	1h10	1h37	1h42	1h52

Depth : 39 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	21 m	3	3	3	3					
	18 m	10	10	10	10					
Heliox	15 m	15	15	15	15					
24-26%	12 m	20	20	25	25					
	9 m	30	30	35	35					
Oxygen	6 m	65	70	75	85					
Total decompression		2h25	2h30	2h45	2h55					

HELIOX/OXY/6M TABLES

Depth : 42 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	21 m	-	-	-	-	-	3	3	3	5
	18 m	-	-	-	3	3	5	5	10	10
Heliox	15 m	-	3	3	5	5	10	10	10	15
24-26%	12 m	-	3	5	10	10	10	15	15	20
	9 m	3	5	10	10	15	20	20	25	30
Oxygen	6 m	5	15	20	25	35	40	50	55	65
Total decompression		0h11	0h29	0h41	0h55	1h10	1h30	1h45	2h00	2h27

Depth : 42 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	21 m	5	5	10	10					
	18 m	10	10	15	15					
Heliox	15 m	15	15	20	20					
24-26%	12 m	20	25	25	30					
	9 m	30	35	40	40					
Oxygen	6 m	70	80	85	95					
Total decompression		2h32	2h52	3h17	3h32					

Depth : 45 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
	24 m	-	-	-	-	-	-	-	3	3
	21 m	-	-	-	-	3	3	5	5	10
Heliox	18 m	-	-	3	5	5	5	10	10	10
	15 m	-	3	5	5	10	10	10	15	15
24-26%	12 m	-	3	5	10	10	15	15	20	20
	9 m	3	5	10	15	15	20	25	25	30
Oxygen	6 m	5	15	20	30	40	45	55	60	70
Total decompression		0h11	0h29	0h46	1h08	1h25	1h40	2h02	2h20	2h40

Depth : 45 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120						
Ascent to stop		2	2	2						
	24 m	3	3	5						
	21 m	10	10	10						
Heliox	18 m	10	15	15						
	15 m	15	20	20						
24-26%	12 m	25	25	30						
	9 m	35	40	40						
Oxygen	6 m	80	85	95						
Total decompression		3h00	3h20	3h37						

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Depth : 48 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	3	2	2	2	2
	24 m	-	-	-	-	-	3	3	5	5
	21 m	-	-	-	3	5	5	5	10	10
Heliox	18 m	-	3	3	5	5	10	10	10	10
	15 m	-	3	5	5	10	10	15	15	15
24-26%	12 m	3	5	5	10	10	15	20	20	25
	9 m	3	5	10	15	20	20	25	30	35
Oxygen	6 m	5	15	25	35	40	50	60	70	75
Total decompression		0h14	0h34	0h51	1h16	1h33	1h55	2h20	2h42	2h57

Depth : 48 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
	27 m	3	3							
	24 m	5	10							
	21 m	10	10							
Heliox	18 m	15	15							
24-26%	15 m	20	20							
	12 m	25	30							
	9 m	40	45							
Oxygen	6 m	85	95							
Total decompression		3h25	3h50							

Depth : 51 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	3	3	2	2	2
	27 m	-	-	-	-	-	-	3	3	3
	24 m	-	-	-	3	3	5	5	5	10
	21 m	-	-	3	3	5	5	10	10	10
Heliox	18 m	-	3	3	5	5	10	10	10	15
24-26%	15 m	-	3	5	10	10	10	15	15	20
	12 m	3	5	10	10	15	15	20	25	25
	9 m	3	5	10	15	20	25	30	35	40
Oxygen	6 m	10	15	25	35	45	55	65	75	85
Total decompression		0h20	0h34	0h59	1h24	1h46	2h08	2h40	3h00	3h30

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Depth : 51 metres — Heliox 24-26 % oxygen

Depth time (min)		100								
Ascent to stop		2								
Heliox 24-26%	27 m	5								
	24 m	10								
	21 m	10								
	18 m	15								
	15 m	20								
	12 m	30								
	9 m	45								
Oxygen	6 m	95								
Total decompression		3h52								

Depth : 30 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 22-24%	15 m	-	-	-	-	-	-	-	3	3
	12 m	-	-	-	3	3	5	10	10	10
	9 m	-	3	5	5	10	10	15	15	20
Oxygen	6 m	3	10	15	15	20	25	30	35	40
Total decompression		0h06	0h15	0h22	0h25	0h35	0h42	0h57	1h05	1h15

Depth : 30 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 22-24%	15 m	3	3	5	5					
	12 m	15	15	15	15					
	9 m	20	20	25	25					
Oxygen	6 m	45	50	55	60					
Total decompression		1h25	1h30	1h42	1h47					

Depth : 33 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 22-24%	15 m	-	-	-	-	3	3	5	5	10
	12 m	-	-	3	5	5	10	10	10	15
	9 m	-	3	5	10	10	15	15	20	20
Oxygen	6 m	3	10	15	20	25	30	35	40	45
Total decompression		0h06	0h15	0h25	0h37	0h45	1h00	1h07	1h17	1h32

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Depth : 33 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	18 m	-	3	3	3					
Heliox	15 m	10	10	15	15					
22-24%	12 m	15	15	20	20					
	9 m	25	25	30	30					
Oxygen	6 m	50	60	65	70					
Total decompression		1h42	1h55	2h15	2h20					

Depth : 36 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
	18 m	-	-	-	-	-	3	3	3	5
Heliox	15 m	-	-	3	3	5	5	10	10	10
22-24%	12 m	-	3	5	5	10	10	10	15	15
	9 m	-	5	5	10	15	15	20	20	25
Oxygen	6 m	5	10	15	25	30	35	40	45	55
Total decompression		0h08	0h20	0h30	0h45	1h02	1h10	1h25	1h35	1h52

Depth : 36 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	18 m	5	5	10	10					
Heliox	15 m	10	15	15	15					
22-24%	12 m	20	20	20	25					
	9 m	25	30	35	35					
Oxygen	6 m	60	65	70	80					
Total decompression		2h02	2h17	2h32	2h47					

Depth : 39 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
	21 m	-	-	-	-	-	-	-	3	3
Heliox	18 m	-	-	-	3	3	5	5	10	10
	15 m	-	-	3	5	5	10	10	10	15
22-24%	12 m	-	3	5	5	10	10	15	15	20
	9 m	3	5	10	10	15	20	20	25	30
Oxygen	6 m	5	10	20	25	30	40	45	55	60
Total decompression		0h11	0h21	0h40	0h50	1h05	1h27	1h37	2h00	2h20

HELIOX/OXY/6M TABLES

Depth : 39 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	21 m	3	3	5	5					
	18 m	10	10	15	15					
Heliox	15 m	15	15	20	20					
22-24%	12 m	20	25	25	30					
	9 m	30	35	40	40					
Oxygen	6 m	65	75	80	90					
Total decompression		2h25	2h45	3h07	3h22					

Depth : 42 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
	21 m	-	-	-	-	3	3	3	5	5
	18 m	-	-	3	3	5	5	10	10	10
Heliox	15 m	-	3	5	5	10	10	10	15	15
22-24%	12 m	-	3	5	10	10	15	15	20	20
	9 m	3	5	10	15	15	20	25	25	30
Oxygen	6 m	5	15	20	30	35	45	50	60	70
Total decompression		0h11	0h29	0h45	1h05	1h20	1h40	1h55	2h17	2h32

Depth : 42 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	24 m	3	3	3	3					
	21 m	10	10	10	10					
	18 m	10	15	15	15					
Heliox	15 m	15	20	20	25					
22-24%	12 m	25	25	30	30					
	9 m	35	40	45	45					
Oxygen	6 m	75	85	90	100					
Total decompression		2h55	3h20	3h35	3h50					

Depth : 45 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	24 m	-	-	-	-	-	-	3	3	5
	21 m	-	-	-	3	3	5	5	10	10
	18 m	-	-	3	5	5	10	10	10	10
Heliox	15 m	-	3	5	5	10	10	15	15	15
22-24%	12 m	3	5	5	10	10	15	20	20	25
	9 m	3	5	10	15	20	20	25	30	35
Oxygen	6 m	5	15	25	30	40	50	60	65	75
Total decompression		0h14	0h31	0h51	1h10	1h30	1h52	2h20	2h35	2h57

HELIOX/OXY/6M TABLES

Depth : 45 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
	24 m	5	5							
	21 m	10	10							
	18 m	15	15							
Heliox	15 m	20	20							
22-24%	12 m	25	30							
	9 m	40	45							
Oxygen	6 m	85	95							
Total decompression		3h22	3h42							

Depth : 48 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
	27 m	-	-	-	-	-	-	-	3	3
	24 m	-	-	-	-	3	3	5	5	10
Heliox	21 m	-	-	3	3	5	5	10	10	10
22-24%	18 m	-	3	3	5	5	10	10	10	15
	15 m	-	3	5	10	10	10	15	15	20
	12 m	3	5	10	10	15	15	20	25	25
	9 m	3	5	10	15	20	25	30	35	40
Oxygen	6 m	10	15	25	35	45	55	65	75	85
Total decompression		0h19	0h34	0h59	1h21	1h45	2h05	2h37	3h00	3h30

Depth : 48 metres — Heliox 22-24 % oxygen

Depth time (min)		100								
Ascent to stop		2								
	27 m	3								
	24 m	10								
	21 m	10								
Heliox	18 m	15								
22-24%	15 m	20								
	12 m	30								
	9 m	45								
Oxygen	6 m	95								
Total decompression		3h50								

HELIOX/OXY/6M TABLES

Depth : 51 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	3	2	2	2	2
	27 m	-	-	-	-	-	3	3	5	5
	24 m	-	-	-	3	5	5	5	10	10
	21 m	-	-	3	5	5	5	10	10	10
Heliox	18 m	-	3	5	5	10	10	10	15	15
22-24%	15 m	-	3	5	10	10	15	15	20	20
	12 m	3	5	10	10	15	20	25	25	30
	9 m	3	10	10	15	20	25	35	40	45
Oxygen	6 m	10	20	30	40	50	60	70	80	90
Total decompression		0h20	0h44	1h06	1h31	1h58	2h25	2h55	3h27	3h47

Depth : 54 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	3	3	2	2	2
	30 m	-	-	-	-	-	-	3	3	3
	27 m	-	-	-	3	3	5	5	5	10
	24 m	-	-	3	3	5	5	5	10	10
Heliox	21 m	-	3	3	5	5	10	10	10	15
	18 m	-	3	5	5	10	10	15	15	15
22-24%	15 m	3	5	5	10	10	15	20	20	25
	12 m	3	5	10	15	15	20	25	30	35
	9 m	3	10	15	20	25	30	35	40	45
Oxygen	6 m	10	20	30	40	55	65	75	90	100
Total decompression		0h23	0h49	1h14	1h44	2h11	2h43	3h15	3h45	4h20

Depth : 30 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		2	2	2	2	2	2	2	2	2
Heliox	15 m	-	-	-	-	-	3	3	3	5
20-22%	12 m	-	-	3	3	5	10	10	10	15
	9 m	-	3	5	10	10	10	15	15	20
Oxygen	6 m	3	10	15	20	25	30	35	40	45
Total decompression		0h05	0h15	0h25	0h35	0h42	0h55	1h05	1h10	1h27

Depth : 30 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2						
Heliox	15 m	5	5	10	10					
20-22%	12 m	15	15	20	20					
	9 m	20	25	25	30					
Oxygen	6 m	50	55	60	65					
Total decompression		1h32	1h42	1h57	2h07					

HELIOX/OXY/6M TABLES

Depth : 33 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
	18 m	-	-	-	-	-	-	-	-	3
Heliox	15 m	-	-	-	3	3	5	5	10	10
20-22%	12 m	-	-	3	5	10	10	10	15	15
	9 m	-	3	5	10	10	15	20	20	25
Oxygen	6 m	3	10	15	20	25	35	40	45	50
Total decompression		0h06	0h15	0h25	0h40	0h50	1h07	1h17	1h32	1h45

Depth : 33 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	18 m	3	3	5	5					
Heliox	15 m	10	15	15	15					
20-22%	12 m	15	20	20	25					
	9 m	25	30	30	35					
Oxygen	6 m	55	60	70	75					
Total decompression		1h50	2h10	2h22	2h37					

Depth : 36 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
	18 m	-	-	-	-	3	3	3	5	5
Heliox	15 m	-	-	3	3	5	10	10	10	10
20-22%	12 m	-	3	5	5	10	10	15	15	20
	9 m	3	5	10	10	15	15	20	25	25
Oxygen	6 m	5	10	15	25	30	35	45	50	55
Total decompression		0h11	0h20	0h35	0h45	1h05	1h15	1h35	1h47	1h57

Depth : 36 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	21 m	-	3	3	3					
	18 m	10	10	10	15					
Heliox	15 m	15	15	15	20					
20-22%	12 m	20	25	25	25					
	9 m	30	35	35	40					
Oxygen	6 m	65	70	75	85					
Total decompression		2h22	2h40	2h45	3h10					

HELIOX/OXY/6M TABLES

Depth : 39 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
	21 m	-	-	-	-	-	-	3	3	5
	18 m	-	-	-	3	3	5	10	10	10
Heliox	15 m	-	3	3	5	5	10	10	15	15
20-22%	12 m	-	3	5	10	10	15	15	20	20
	9 m	3	5	10	10	15	20	25	25	30
Oxygen	6 m	5	15	20	25	35	40	50	55	65
Total decompression		0h11	0h28	0h40	0h55	1h10	1h32	1h55	2h10	2h27

Depth : 39 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	21 m	5	5	10	10					
	18 m	10	15	15	15					
Heliox	15 m	15	20	20	20					
20-22%	12 m	25	25	30	30					
	9 m	35	40	40	45					
Oxygen	6 m	70	80	90	95					
Total decompression		2h42	3h07	3h27	3h37					

Depth : 42 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
	24 m	-	-	-	-	-	-	-	3	3
	21 m	-	-	-	-	3	3	5	5	10
	18 m	-	-	3	5	5	5	10	10	10
Heliox	15 m	-	3	5	5	10	10	15	15	15
20-22%	12 m	-	3	5	10	10	15	20	20	25
	9 m	3	5	10	15	20	20	25	30	35
Oxygen	6 m	5	15	20	30	40	45	55	65	75
Total decompression		0h11	0h29	0h45	1h07	1h30	1h40	2h12	2h30	2h55

Depth : 42 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
	24 m	3	3							
	21 m	10	10							
	18 m	15	15							
Heliox	15 m	20	20							
20-22%	12 m	25	30							
	9 m	40	45							
Oxygen	6 m	80	90							
Total decompression		3h15	3h35							

HELIOX/OXY/6M TABLES

Depth : 45 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
	24 m	-	-	-	-	3	3	3	5	5
	21 m	-	-	3	3	5	5	10	10	10
	18 m	-	3	3	5	5	10	10	10	15
Heliox	15 m	-	3	5	5	10	10	15	15	20
20-22%	12 m	3	5	10	10	15	15	20	25	25
	9 m	3	5	10	15	20	25	30	35	40
Oxygen	6 m	5	15	25	35	45	50	60	70	80
Total decompression		0h14	0h34	0h58	1h15	1h45	2h00	2h30	2h52	3h17

Depth : 45 metres — Heliox 20-22 % oxygen

Depth time (min)		100								
Ascent to stop		2								
	27 m	3								
	24 m	10								
	21 m	10								
	18 m	15								
Heliox	15 m	20								
20-22%	12 m	30								
	9 m	45								
Oxygen	6 m	90								
Total decompression		3h45								

Depth : 48 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	27 m	-	-	-	-	-	-	3	3	5
	24 m	-	-	-	3	3	5	5	5	10
	21 m	-	-	3	5	5	5	10	10	10
	18 m	-	3	5	5	10	10	10	15	15
Heliox	15 m	-	3	5	10	10	15	15	20	20
20-22%	12 m	3	5	10	10	15	20	25	25	30
	9 m	3	10	15	20	25	30	35	40	45
Oxygen	6 m	10	15	25	35	50	60	70	80	90
Total decompression		0h19	0h39	1h06	1h30	2h00	2h27	2h55	3h20	3h47

HELIOX/OXY/6M TABLES

Depth 51 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
	30 m	-	-	-	-	-	-	-	3	3
	27 m	-	-	-	-	3	3	5	5	5
	24 m	-	-	3	3	5	5	5	10	10
Heliox	21 m	-	3	3	5	5	10	10	10	15
	18 m	-	3	5	5	10	10	15	15	20
20-22%	15 m	3	3	5	10	10	15	20	20	25
	12 m	3	5	10	15	15	20	25	30	35
	9 m	3	10	15	20	25	30	35	45	50
Oxygen	6 m	10	20	30	40	50	65	75	85	100
Total decompression		0h22	0h47	1h14	1h41	2h05	2h40	3h12	3h45	4h25

Depth : 54 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	
Ascent to stop		4	3	3	3	3	2	2	2	
	30 m	-	-	-	-	-	3	3	5	
	27 m	-	-	-	3	3	5	5	5	
	24 m	-	-	3	5	5	5	10	10	
Heliox	21 m	-	3	3	5	5	10	10	15	
	18 m	-	3	5	10	10	10	15	15	
20-22%	15 m	3	5	5	10	15	15	20	25	
	12 m	3	5	10	15	20	25	30	35	
	9 m	5	10	15	20	30	35	40	45	
Oxygen	6 m	10	20	35	45	55	70	85	95	
Total decompression		0h25	0h49	1h19	1h56	2h26	3h00	3h40	4h12	

Depth : 57 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	
Ascent to stop		4	3	3	3	3	3	2	2	
	33 m	-	-	-	-	-	-	3	3	
	30 m	-	-	-	3	3	5	5	5	
	27 m	-	-	3	3	5	5	5	10	
	24 m	-	3	3	5	5	10	10	10	
Heliox	21 m	-	3	5	5	10	10	10	15	
20-22%	18 m	-	3	5	10	10	15	15	20	
	15 m	3	5	10	10	15	20	20	25	
	12 m	3	5	10	15	20	25	30	35	
	9 m	5	10	15	25	30	35	45	50	
Oxygen	6 m	10	25	35	50	65	75	90	105	
Total decompression		0h25	0h57	1h29	2h09	2h46	3h23	3h55	4h40	

HELIOX/OXY/6M TABLES

Depth : 60 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70		
Ascent to stop		4	3	3	3	3	3	3		
Heliox 20-22%	33 m	-	-	-	-	3	3	5		
	30 m	-	-	-	3	5	5	5		
	27 m	-	-	3	5	5	5	10		
	24 m	-	3	3	5	5	10	10		
	21 m	-	3	5	5	10	10	15		
	18 m	3	3	5	10	10	15	20		
	15 m	3	5	10	15	15	20	25		
	12 m	3	10	15	20	25	30	35		
	9 m	5	10	20	25	35	40	50		
Oxygen	6 m	10	25	40	55	70	85	100		
Total decompression		0h28	1h02	1h44	2h26	3h06	3h46	4h38		

Depth : 36 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 18-20%	21 m	-	-	-	-	-	-	-	-	3
	18 m	-	-	-	-	3	3	5	10	10
	15 m	-	-	3	5	5	10	10	10	15
	12 m	-	3	5	10	10	15	15	20	20
	9 m	3	5	10	10	15	20	25	25	30
Oxygen	6 m	5	10	20	25	30	40	45	55	60
Total decompression		0h11	0h20	0h40	0h52	1h05	1h30	1h42	2h02	2h20

Depth : 36 metres — Heliox 18-20 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 18-20%	21 m	3	3	5	5					
	18 m	10	10	15	15					
	15 m	15	20	20	20					
	12 m	25	25	30	30					
	9 m	35	40	40	45					
Oxygen	6 m	70	75	85	90					
Total decompression		2h40	2h55	3h17	3h27					

HELIOX/OXY/6M TABLES

Depth : 39 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	21 m	-	-	-	-	-	3	3	5	5
18-20%	18 m	-	-	3	3	5	5	10	10	10
	15 m	-	3	5	5	10	10	10	15	15
	12 m	-	3	5	10	10	15	20	20	25
	9 m	3	5	10	15	20	20	25	30	35
Oxygen	6 m	5	15	20	30	35	45	55	60	70
Total decompression		0h11	0h28	0h45	1h05	1h22	1h40	2h05	2h22	2h42

Depth : 39 metres — Heliox 18-20 % oxygen

Depth time (min)		100	110	120						
Ascent to stop		2	2							
	24 m	-	3	3						
Heliox	21 m	10	10	10						
18-20%	18 m	15	15	15						
	15 m	20	20	25						
	12 m	25	30	35						
	9 m	40	45	50						
Oxygen	6 m	80	85	95						
Total decompression		3h12	3h30	3h55						

Depth : 42 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
	24 m	-	-	-	-	-	-	3	3	5
Heliox	21 m	-	-	-	3	3	5	5	10	10
18-20%	18 m	-	-	3	5	5	10	10	10	15
	15 m	-	3	5	5	10	10	15	15	20
	12 m	3	5	5	10	15	15	20	25	25
	9 m	3	5	10	15	20	25	30	35	40
Oxygen	6 m	5	15	25	30	40	50	60	70	80
Total decompression		0h14	0h31	0h50	1h10	1h35	1h57	2h25	2h50	3h17

Depth : 42 metres — Heliox 18-20 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
	24 m	5	5							
Heliox	21 m	10	10							
18-20%	18 m	15	15							
	15 m	20	25							
	12 m	30	35							
	9 m	45	50							
Oxygen	6 m	90	95							
Total decompression		3h37	3h57							

HELIOX/OXY/6M TABLES

Depth : 45 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
	27 m	-	-	-	-	-	-	-	3	3
	24 m	-	-	-	-	3	3	5	5	10
Heliox	21 m	-	-	3	3	5	5	10	10	10
18-20%	18 m	-	3	5	5	10	10	10	15	15
	15 m	-	3	5	10	10	15	15	20	20
	12 m	3	5	10	10	15	20	25	25	30
	9 m	3	10	15	20	25	30	35	40	45
Oxygen	6 m	10	15	25	35	45	55	65	75	85
Total decompression		0h19	0h39	1h05	1h25	1h55	2h20	2h47	3h15	3h40

Depth : 45 metres — Heliox 18-20 % oxygen

Depth time (min)		100								
Ascent to stop		2								
	27 m	3								
	24 m	10								
Heliox	21 m	15								
18-20%	18 m	20								
	15 m	25								
	12 m	35								
	9 m	50								
Oxygen	6 m	100								
Total decompression		4h20								

Depth : 48 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	27 m	-	-	-	-	-	3	3	5	5
	24 m	-	-	-	3	5	5	5	10	10
Heliox	21 m	-	-	3	5	5	10	10	10	15
18-20%	18 m	-	3	5	5	10	10	15	15	20
	15 m	-	3	5	10	10	15	20	20	25
	12 m	3	5	10	15	20	20	25	30	35
	9 m	3	10	15	20	25	30	40	45	50
Oxygen	6 m	10	20	30	40	50	65	75	85	95
Total decompression		0h19	0h44	1h11	1h40	2h07	2h40	3h15	3h42	4h17

HELIOX/OXY/6M TABLES

Depth : 51 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	
Ascent to stop		3	3	3	2	2	2	2	2	
	30 m	-	-	-	-	-	-	3	3	
	27 m	-	-	-	3	3	5	5	5	
	24 m	-	-	3	5	5	5	10	10	
Heliox	21 m	-	3	3	5	5	10	10	15	
18-20%	18 m	-	3	5	10	10	15	15	20	
	15 m	3	5	5	10	15	15	20	25	
	12 m	3	5	10	15	20	25	30	35	
	9 m	3	10	15	20	30	35	40	50	
Oxygen	6 m	10	20	30	45	55	70	80	95	
Total decompression		0h22	0h49	1h14	1h55	2h25	3h02	3h35	4h20	

Depth : 54 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70		
Ascent to stop		4	3	3	3	2	2	2		
	30 m	-	-	-	-	3	3	5		
	27 m	-	-	3	3	5	5	5		
	24 m	-	-	3	5	5	10	10		
Heliox	21 m	-	3	5	5	10	10	15		
18-20%	18 m	-	3	5	10	10	15	15		
	15 m	3	5	10	10	15	20	25		
	12 m	3	5	10	15	20	25	30		
	9 m	5	10	15	25	30	40	45		
Oxygen	6 m	10	20	35	50	60	75	90		
Total decompression		0h25	0h49	1h29	2h06	2h40	3h25	4h02		

Depth : 57 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70		
Ascent to stop		4	3	3	3	3	2	2		
	33 m	-	-	-	-	-	3	3		
	30 m	-	-	-	3	3	5	5		
	27 m	-	-	3	5	5	5	10		
	24 m	-	3	3	5	5	10	10		
Heliox	21 m	-	3	5	5	10	10	15		
18-20%	18 m	3	3	5	10	10	15	20		
	15 m	3	5	10	15	15	20	25		
	12 m	3	10	15	20	25	30	35		
	9 m	5	10	20	25	35	45	50		
Oxygen	6 m	10	25	40	55	70	85	100		
Total decompression		0h28	1h02	1h44	2h26	3h01	3h50	4h35		

HELIOX/OXY/6M TABLES

Depth : 60 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60			
Ascent to stop		4	3	3	3	3	2			
	36 m	-	-	-	-	-	3			
	33 m	-	-	-	3	3	5			
	30 m	-	-	3	3	5	5			
Heliox	27 m	-	-	3	5	5	10			
18-20%	24 m	-	3	5	5	10	10			
	21 m	-	3	5	10	10	15			
	18 m	3	5	5	10	15	15			
	15 m	3	5	10	15	20	25			
	12 m	3	10	15	20	25	30			
	9 m	5	15	20	30	40	45			
Oxygen	6 m	10	25	40	60	75	90			
Total decompression		0h28	1h09	1h49	2h44	3h31	4h15			

Depth : 63 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60			
Ascent to stop		4	3	3	3	3	3			
	36 m	-	-	-	-	3	3			
	33 m	-	-	-	3	5	5			
	30 m	-	-	3	3	5	5			
Heliox	27 m	-	3	3	5	5	10			
18-20%	24 m	-	3	5	5	10	10			
	21 m	3	3	5	10	10	15			
	18 m	3	5	10	10	15	20			
	15 m	3	5	10	15	20	25			
	12 m	3	10	15	20	30	35			
	9 m	5	15	25	30	40	50			
Oxygen	6 m	15	30	45	65	80	100			
Total decompression		0h36	1h17	2h04	2h49	3h46	4h41			

Depth : 66 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50				
Ascent to stop		4	3	3	3	3				
	36 m	-	-	-	3	3				
	33 m	-	-	3	3	5				
	30 m	-	3	3	5	5				
Heliox	27 m	-	3	3	5	5				
18-20%	24 m	-	3	5	5	10				
	21 m	3	3	5	10	10				
	18 m	3	5	10	15	15				
	15 m	3	5	10	15	20				
	12 m	5	10	15	25	30				
	9 m	5	15	25	35	45				
Oxygen	6 m	15	30	50	70	90				
Total decompression		0h38	1h20	2h12	3h14	4h01				

HELIOX/OXY/6M TABLES

Depth : 69 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50				
Ascent to stop		4	4	3	3	3				
	39 m	-	-	-	-	3				
	36 m	-	-	3	3	5				
	33 m	-	-	3	3	5				
	30 m	-	3	3	5	5				
Heliox	27 m	-	3	5	5	10				
18-20%	24 m	-	3	5	10	10				
	21 m	3	5	5	10	15				
	18 m	3	5	10	15	20				
	15 m	3	10	15	20	25				
	12 m	5	10	20	25	35				
	9 m	5	15	25	40	50				
Oxygen	6 m	15	35	55	75	95				
Total decompression		0h38	1h33	2h32	3h34	4h41				

2 - HELIOX/OXY/12 M

2.1 - Heliox/Oxy/12 M Tables

Set of decompression tables for bounce dives to depths ranging from 30 to 78 metres.

The post-dive interval following a dive using a Heliox/Oxy/12 m table is 12 hours minimum. No repetitive dive is allowed during this interval regardless of breathing mixture.

2.2 - Diving Methods

Wet-bell diving only. During decompression in wet-bell, two divers must be present and must be secured in order to avoid accidental head submersion.

2.3 - Decompression Procedures

- Rate of ascent to first stop between 9 and 15 m/min,
- In-water decompression with stops each 3 metres up to 6 metres,
- The last minute of decompression stop duration used to ascend to next stop level,
- At the end of decompression, the diver ascends directly from the 6 m stop to the surface in one minute.

2.4 - Dive Mix

2.4.1 - Bottom Mix

Bottom mix is a heliox mix with an oxygen percentage ranging from 0.850 bar (850 hPa) to 1.550 bar (1550 hPa) at working depth of diver.

2.4.2 - Decompression Mix

- Ascent to first stop is made with heliox bottom mix at whatever depth is this first stop made,
- For stops deeper than 30 m, the diver breathes heliox bottom mix,
- For stops between 30 m and 12 m, the diver breathes air or bottom mix with an oxygen percentage higher than 21 %,
- For stops between 12 m and the surface, the diver breathes oxygen at the mask using following protocol : 25 min oxygen breathing on mask followed by 5 min breathing ambient air in wet-bell dome and so on. If wet-bell was filled with bottom mix, it must be ventilated with air for stops starting at 12 metres.

2.5 - Contingency Procedures

Exceeding the planned bottom time

- Use either the next bottom time or the back-up bottom time.

Difficult dive conditions

- Play safe and, in the table, use the time immediately above the one corresponding to the time actually spent.

Oxygen supply failure

- Use a heliox/oxy/6 m table for 12 m and 9 m stops if bottom time allows it,
- Or multiply by 2 the oxygen stops times and perform them on heliox 20/80 or on air.

TABLE N°2

BOTTOM MIXES FOR HELIOX/OXY/12M TABLES

Dive Depth (m)	Oxygen percentage in the heliox bottom mix					
	26.0-27.9%	24.0-25.9%	22.0-23.9%	20.0-21.9%	18.0-19.9%	17.0-17.9%
30						
33						
36						
39						
42						
45						
48						
51						
54						
57						
60						
63						
66						
69						
72						
75						
78						
81						

HELIOX/OXY/12 M TABLES

Depth : 30 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 26-28%	15 m	-	-	-	-	-	-	-	-	-
Oxygen	12 m	Oxy Air -	Oxy Air -	Oxy Air 5	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10
	9 m	-	3	5	5	10	15+5	15+5	15+5	15+5
	6 m	3	5	5	5	5	5	10	13	23
Total decompression		0h06	0h10	0h17	0h22	0h27	0h42	0h42	0h45	0h55

Depth : 30 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 26-28%	15 m	-	-	-	-					
Oxygen	12 m	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10					
	9 m	15+5	15+5	15+5	15+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	5	5	10	15					
Total decompression		1h07	1h07	1h12	1h17					

Depth : 33 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	-	-	-	-
26-28%	15 m	-	-	-	-	-	-	3	3	3
Oxygen	12 m	Oxy Air -	Oxy Air 3	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 10
	9 m	-	3	5	10	15+5	15+5	15+5	15+5	15+5
	6 m	3	5	5	5	10	10	15	25	25+5
	6 m	-	-	-	-	-	-	-	-	5
Total decompression		0h06	0h13	0h22	0h27	0h42	0h42	0h50	1h00	1h10

Depth : 33 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	-	-	-	-					
26-28%	15 m	3	5	5	5					
Oxygen	12 m	Oxy Air 10	Oxy Air 10	Oxy Air 10	Oxy Air 25+5					
	9 m	15+5	15+5	15+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	5	20	25	5					
Total decompression		1h10	1h27	1h32	1h42					

HELIOX/OXY/12 M TABLES

Depth : 36 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	-	-	-	-
26-28%	15 m	-	-	-	-	3	3	5	5	10
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	3	10	10	10	10	10	10	10
	9 m	3	3	10	10	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	5	10	15	25	25+5	25+5
	6 m	-	-	-	-	-	-	-	5	10
Total decompression		0h11	0h14	0h27	0h27	0h45	0h50	1h02	1h12	1h22

Depth : 36 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	3	3	3	3					
26-28%	15 m	10	10	10	15					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	25+5	25+5	25+5					
	9 m	15+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	20	5	10	15					
Total decompression		1h35	1h50	1h55	2h05					

Depth : 39 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	3	3	3	5
26-28%	15 m	-	-	3	3	5	5	10	10	10
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	5	10	10	10	10	10	10	10
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	10	10	20	25+5	25+5	25+5
	6 m	-	-	-	-	-	-	5	10	25
Total decompression		0h11	0h18	0h30	0h45	0h47	1h00	1h20	1h25	1h42

Depth : 39 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	3	2	2					
Heliox	18 m	5	5	10	10					
26-28%	15 m	10	15	15	15					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	5	15	15	25+5					
	6 m	-	-	-	10					
Total decompression		1h52	2h07	2h12	2h37					

HELIOX/OXY/12 M TABLES

Depth : 42 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
Heliox	21 m	-	-	-	-	-	-	-	3	3
26-28%	18 m	-	-	-	3	3	5	5	5	10
	15 m	-	-	3	5	5	10	10	10	10
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	10	25+5
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	25+5
	6 m	5	5	5	10	20	25	25+5	25+5	25+5
	6 m	-	-	-	-	-	-	10	20	5
Total decompression		0h14	0h23	0h31	0h50	1h00	1h12	1h27	1h40	2h00

Depth : 42 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	21 m	3	3	5	5					
26-28%	18 m	10	10	10	15					
	15 m	15	15	15	20					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	15	15	25+5	25+5					
	6 m	-	-	10	15					
Total decompression		2h15	2h15	2h42	2h57					

Depth : 45 metres — Heliox 26-28 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
Heliox	21 m	-	-	-	-	3	3	3	5	5
26-28%	18 m	-	-	3	3	5	5	5	10	10
	15 m	-	3	3	5	5	10	10	10	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+5	25+5
	9 m	3	10	10	15+5	15+5	15+5	15+5	25+5	25+5
	6 m	5	5	5	10	25	25+5	25+5	25+5	25+5
	6 m	-	-	-	-	-	5	20	5	15
Total decompression		0h14	0h31	0h34	0h51	1h10	1h25	1h40	2h02	2h17

HELIOX/OXY/12 M TABLES

Depth : 45 metres — Heliox 26-28 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 26-28%	24 m	-	3	3	3					
	21 m	10	10	10	10					
	18 m	10	10	15	15					
	15 m	15	15	20	20					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	9 m	-	-	-	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	15	25+5	25+5	25+5					
	6 m	-	10	15	5					
Total decompression		2h22	2h50	3h05	3h25					

Depth : 30 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 24-26%	15 m	-	-	-	-	-	-	-	-	-
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	-	5	10	10	10	10	10	10
	9 m	-	3	5	5	10	15+5	15+5	15+5	15+5
	6 m	3	5	5	5	5	10	10	20	25
Total decompression		0h06	0h10	0h17	0h22	0h27	0h42	0h42	0h52	0h57

Depth : 30 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop										
Heliox 24-26%	15 m									
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	10	10	10					
	9 m	15+5	15+5	15+5	15+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	5	5	20	25					
Total decompression		1h10	1h10	1h25	1h30					

HELIOX/OXY/12 M TABLES

Depth : 33 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 24-26%	15 m	-	-	-	-	-	3	3	3	5
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	3	10	10	10	10	10	10	10
	9 m	3	3	10	10	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	5	10	15	20	25	25+5
	6 m	-	-	-	-	-	-	-	-	5
Total decompression		0h11	0h13	0h27	0h27	0h42	0h45	0h55	1h00	1h12

Depth : 33 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 24-26%	15 m	5	10	10	10					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	10	25+5	25+5					
	9 m	15+5	15+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	15	25	5	10					
Total decompression		1h22	1h37	1h47	1h52					

Depth : 36 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	-	-	3	3
24-26%	15 m	-	-	-	3	3	5	5	10	10
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	3	10	10	10	10	10	10	10
	9 m	3	3	10	15+5	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	5	10	20	25	25+5	25+5
	6 m	-	-	-	-	-	-	-	5	20
Total decompression		0h11	0h14	0h27	0h40	0h45	0h57	1h02	1h20	1h35

Depth : 36 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	3	5	5	5					
24-26%	15 m	10	10	15	15					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	25+5	25+5	25+5					
	9 m	15+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	25	5	15	15					
Total decompression		1h40	1h52	2h07	2h07					

HELIOX/OXY/12 M TABLES

Depth : 39 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	3	3	5	5	5
24-26%	15 m	-	-	3	3	5	5	10	10	10
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	10	10	10	10	10	10	10	10
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	10	10	25	25+5	25+5	25+5
	6 m	-	-	-	-	-	-	5	20	25
Total decompression		0h11	0h23	0h30	0h45	0h50	1h05	1h22	1h37	1h42

HELIOX/OXY/12 M TABLES

Depth : 39 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	21 m	3	3	3	3					
24-26%	18 m	10	10	10	10					
	15 m	15	15	15	15					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+52					
	6 m	5	15	25	5+5					
	6 m	-	-	-	10					
Total decompression		2h05	2h15	2h25	2h40					

Depth : 42 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
Heliox	21 m	-	-	-	-	-	3	3	3	5
24-26%	18 m	-	-	-	3	3	5	5	10	10
	15 m	-	-	3	5	5	10	10	10	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	10	25+5
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	25+5
	6 m	5	5	5	10	20	25+5	25+5	25+5	25+5
	6 m	-	-	-	-	-	5	15	25	5
Total decompression		0h14	0h23	0h31	0h50	1h00	1h25	1h35	1h50	2h07

HELIOX/OXY/12 M TABLES

Depth : 42 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	21 m	5	5	10	10					
24-26%	18 m	10	10	15	15					
	15 m	15	15	20	20					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	15	25+5	25+5	25+5					
	6 m	-	10	15	25					
Total decompression		2h17	2h42	3h02	3h12					

Depth : 45 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
	24 m	-	-	-	-	-	-	-	3	3
Heliox	21 m	-	-	-	-	3	3	5	5	10
24-26%	18 m	-	-	3	5	5	5	10	10	10
	15 m	-	3	5	5	10	10	10	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+5	25+5
	9 m	3	10	15+5	15+5	15+5	15+5	15+5	25+5	25+5
	6 m	5	5	5	10	25	25+5	25+5	25+5	25+5
	6 m	-	-	-	-	-	10	25	5	15
Total decompression		0h14	0h31	0h46	0h53	1h15	1h30	1h52	2h10	2h25

Depth : 45 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	24 m	3	3	5	5					
Heliox	21 m	10	10	10	10					
24-26%	18 m	10	15	15	15					
	15 m	15	20	20	25					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	9 m	-	-	-	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	10	15	25	10					
Total decompression		2h50	3h05	3h17	3h37					

HELIOX/OXY/12 M TABLES

Depth : 48 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	3	2	2	2	2
	24 m	-	-	-	-	-	3	3	5	5
Heliox	21 m	-	-	-	3	5	5	5	10	10
24-26%	18 m	-	-	3	5	5	10	10	10	15
	15 m	-	3	5	5	10	10	15	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	10	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	15+5	25+5	25+5	25+5
	6 m	5	5	10	20	25+5	25+5	25+5	25+5	25+5
	6 m	-	-	-	-	5	20	5	15	25+5
	6 m	-	-	-	-	-	-	-	-	5
Total decompression		0h18	0h31	0h51	1h06	1h28	1h50	2h10	2h27	2h52

Depth : 48 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110	120						
Ascent to stop		2	2	2						
	27 m	-	3	3						
	24 m	5	10	10						
Heliox	21 m	10	10	15						
24-26%	18 m	15	15	15						
	15 m	20	20	25						
Oxygen		Oxy Air	Oxy Air	Oxy Air						
	12 m	25+5	25+5	25+5						
	9 m	25+5	25+5	25+5						
	9 m	-	25+5	25+5						
	6 m	25+5	25+5	25+5						
	6 m	25+5	25+5	25+5						
	6 m	15	5	10						
Total decompression		3h07	3h35	3h50						

Depth : 51 metres — Heliox 24-26 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	3	3	2	2	2
	27 m	-	-	-	-	-	-	3	3	3
	24 m	-	-	-	3	3	5	5	5	10
Heliox	21 m	-	-	3	5	5	5	10	10	10
24-26%	18 m	-	3	3	5	5	10	10	10	15
	15 m	-	3	5	10	10	10	15	15	20
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	10	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	15+5	25+5	25+5	25+5
	6 m	5	5	10	25	25+5	25+5	25+5	25+5	25+5
	6 m	-	-	-	-	10	25	10	25	25+51
	6 m	-	-	-	-	-	-	-	-	5
Total decompression		0h19	0h34	0h54	1h21	1h36	1h58	2h25	2h40	3h15

HELIOX/OXY/12 M TABLES

Depth : 51 metres — Heliox 24-26 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
	27 m	5	5							
	24 m	10	10							
Heliox	21 m	10	15							
24-26%	18 m	15	15							
	15 m	20	25							
Oxygen		Oxy Air	Oxy Air							
	12 m	25+5	25+5							
	9 m	25+5	25+5							
	9 m	25+5	25+5							
	6 m	25+5	25+52							
	6 m	25+5	5+515							
	6 m	5								
Total decompression		3h37	3h57							

Depth : 30 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox										
22-24%	15 m	-	-	-	-	-	-	-	3	3
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	3	10	10	10	10	10	10	10
	9 m	-	3	5	10	15+5	15+5	15+5	15+5	15+5
	6 m	3	5	5	5	10	10	15	20	25+5
	6 m	-	-	-	-	-	-	-	-	5
Total decompression		0h06	0h13	0h22	0h27	0h42	0h42	0h47	0h55	1h10

Depth : 30 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox										
22-24%	15 m	3	3	5	5					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	10	10	25+5					
	9 m	15+5	15+5	15+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	5	15	20	5					
Total decompression		1h10	1h20	1h27	1h42					

HELIOX/OXY/12 M TABLES

Depth : 33 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	-	-	-	-
22-24%	15 m	-	-	-	-	3	3	5	5	10
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	3	10	10	10	10	10	10	10
	9 m	3	3	10	10	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	5	10	10	25	25+5	25+5
	6 m	-	-	-	-	-	-	-	5	5
Total decompression		0h11	0h13	0h27	0h27	0h45	0h45	1h02	1h12	1h17

Depth : 33 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	-	3	3	3					
22-24%	15 m	10	10	15	15					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	25+5	25+5	25+5					
	9 m	15+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	20	5	5	15					
Total decompression		1h32	1h50	1h55	2h05					

Depth : 36 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	3	3	3	5
22-24%	15 m	-	-	3	3	5	5	10	10	10
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	5	10	10	10	10	10	10	10
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	10	10	20	25+5	25+5	25+5
	6 m	-	-	-	-	-	-	5	10	20
Total decompression		0h11	0h17	0h30	0h45	0h47	1h00	1h20	1h25	1h37

Depth : 36 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	5	5	10	10					
22-24%	15 m	10	15	15	15					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	5	10	15	25+5					
	6 m	-	-	-	5					
Total decompression		1h52	2h02	2h12	2h32					

HELIOX/OXY/12 M TABLES

Depth : 39 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	21 m	-	-	-	-	-	-	-	3	3
22-24%	18 m	-	-	-	3	3	5	5	10	10
	15 m	-	-	3	5	5	10	10	10	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	10	25+5
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	25+5
	6 m	5	5	5	10	20	25	25+5	25+5	25+5
	6 m	-	-	-	-	-	-	5	20	5
Total decompression		0h14	0h23	0h30	0h50	1h00	1h12	1h22	1h45	2h05

Depth : 39 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	21 m	3	3	5	5					
22-24%	18 m	10	10	15	15					
	15 m	15	15	20	20					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	15	15	25+51	25+5					
	6 m	-	-	0	15					
Total decompression		2h15	2h15	2h52	2h57					

Depth : 42 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	21 m	-	-	-	-	3	3	3	5	5
22-24%	18 m	-	-	3	3	5	5	10	10	10
	15 m	-	3	5	5	10	10	10	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+5	25+5
	9 m	3	10	10	15+5	15+5	15+5	15+5	25+5	25+5
	6 m	5	5	5	10	25	25+5	25+5	25+5	25+5
	6 m	-	-	-	-	-	5	20	5	15
Total decompression		0h14	0h31	0h35	0h50	1h15	1h25	1h45	2h07	2h17

HELIOX/OXY/12 M TABLES

Depth : 42 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
	24 m	3	3	3	3					
Heliox	21 m	10	10	10	10					
22-24%	18 m	10	15	15	15					
	15 m	15	20	20	25					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+5	25+5	25+5					
	9 m	25+5	25+5	25+5	25+5					
	9 m	-	-	-	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	20	25+5	25+5	25+5					
	6 m	-	10	15	5					
Total decompression		2h30	3h00	3h05	3h30					

Depth : 45 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	24 m	-	-	-	-	-	-	3	3	5
Heliox	21 m	-	-	-	3	3	5	5	10	10
22-24%	18 m	-	-	3	5	5	10	10	10	10
	15 m	-	3	5	5	10	10	15	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+5	25+5
	9 m	3	10	15+5	15+5	15+5	15+5	15+5	25+5	25+5
	6 m	5	5	10	15	25+5	25+51	25+5	25+51	25+52
	6 m	-	-	-	-	5	0	25	0	0
Total decompression		0h14	0h31	0h51	1h00	1h25	1h37	2h00	2h20	2h32

Depth : 45 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110	120						
Ascent to stop		2	2	2						
	24 m	5	5	10						
Heliox	21 m	10	10	10						
22-24%	18 m	15	15	15						
	15 m	20	20	25						
Oxygen		Oxy Air	Oxy Air	Oxy Air						
	12 m	25+5	25+5	25+5						
	9 m	25+5	25+5	25+5						
	9 m	-	-	25+5						
	6 m	25+5	25+5	25+5						
	6 m	25+5	25+5	25+5						
	6 m	10	20	5						
Total decompression		3h02	3h12	3h37						

HELIOX/OXY/12 M TABLES

Depth : 48 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
	27 m	-	-	-	-	-	-	-	3	3
	24 m	-	-	-	-	3	3	5	5	10
Heliox	21 m	-	-	3	3	5	5	10	10	10
22-24%	18 m	-	3	3	5	5	10	10	10	15
	15 m	-	3	5	10	10	10	15	15	20
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	10	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	15+5	25+5	25+5	25+5
	6 m	5	5	10	20	25+5	25+5	25+5	25+51	25+5
	6 m	-	-	-	-	5	25	5	5	25+5
	6 m	-	-	-	-	-	-	-	-	10
Total decompression		0h18	0h34	0h54	1h11	1h30	1h55	2h17	2h30	3h10

Depth : 48 metres — Heliox 22-24 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
	27 m	3	3							
	24 m	10	10							
Heliox	21 m	10	15							
22-24%	18 m	15	20							
	15 m	20	25							
Oxygen		Oxy Air	Oxy Air							
	12 m	25+5	25+5							
	9 m	25+5	25+5							
	9 m	-	25+5							
	6 m	25+5	25+5							
	6 m	25+5	25+5							
	6 m	20	10							
Total decompression		3h20	3h55							

Depth : 51 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	3	2	2	2	2
	27 m	-	-	-	-	-	3	3	5	5
	24 m	-	-	-	3	5	5	5	10	10
Heliox	21 m	-	-	3	5	5	5	10	10	10
22-24%	18 m	-	3	5	5	10	10	10	15	15
	15 m	-	3	5	10	10	15	15	20	20
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	25+5	25+5	25+5
	6 m	5	5	10	25	25+5	25+5	25+5	25+5	25+5
	6 m	-	-	-	-	10	5	15	25+51	25+5
	6 m	-	-	-	-	-	-	-	0	15
Total decompression		0h19	0h34	0h56	1h21	1h43	2h15	2h30	3h12	3h17

HELIOX/OXY/12 M TABLES

Depth : 51 metres — Heliox 22-24 % oxygen

Depth time (min)		100								
Ascent to stop		2								
	30 m	3								
	27 m	5								
Heliox	24 m	10								
	21 m	15								
22-24%	18 m	20								
	15 m	25								
Oxygen		Oxy Air								
	12 m	25+5								
	9 m	25+5								
	9 m	25+5								
	6 m	25+5								
	6 m	25+5								
	6 m	5								
Total decompression		3h55								

Depth : 54 metres — Heliox 22-24 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	3	3	2	2	2
	30 m	-	-	-	-	-	-	3	3	3
	27 m	-	-	-	3	3	5	5	5	10
Heliox	24 m	-	-	3	3	5	5	5	10	10
	21 m	-	3	3	5	5	10	10	10	15
22-24%	18 m	-	3	5	5	10	10	15	15	15
	15 m	3	5	5	10	10	15	20	20	25
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	25+5	25+5	25+5
	9 m	-	-	-	-	-	-	-	-	25+5
	6 m	5	5	10	25+5	25+5	25+5	25+5	25+52	25+52
	6 m	-	-	-	5	25	10	25+5	5+515	5+5
	6 m	-	-	-	-	-	-	5		5
Total decompression		0h22	0h39	0h59	1h34	2h01	2h28	3h05	3h20	3h55

HELIOX/OXY/12 M TABLES

Depth : 30 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		2	2	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	-	-	-	-
20-22%	15 m	-	-	-	-	-	3	3	3	5
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	3	10	10	10	10	10	10	10
	9 m	3	3	10	10	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	5	10	10	15	25	25+5
	6 m	-	-	-	-	-	-	-	-	5
Total decompression		0h10	0h13	0h27	0h27	0h42	0h45	0h50	1h00	1h12

Depth : 30 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	-	-	-	-					
20-22%	15 m	5	5	10	10					
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	10	25+5	25+5					
	9 m	15+5	15+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	5	20	5	5					
Total decompression		1h12	1h27	1h47	1h47					

Depth : 33 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	18 m	-	-	-	-	-	-	-	-	3
20-22%	15 m	-	-	-	3	3	5	5	10	10
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	3	10	10	10	10	10	10	10
	9 m	3	3	10	10	15+5	15+5	15+5	15+52	15+5
	6 m	5	5	5	5	10	15	25	5+5	25+5
	6 m	-	-	-	-	-	-	-	5	15
Total decompression		0h11	0h13	0h27	0h30	0h45	0h52	1h02	1h17	1h30

HELIOX/OXY/12 M TABLES

Depth : 33 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	18 m	3	3	5	5					
20-22%	15 m	10	15	15	15					
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	10	25+5	25+5	25+5					
	9 m	15+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+5	25+5					
	6 m	25	5	15	15					
Total decompression		1h40	1h55	2h07	2h07					

Depth : 36 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
Heliox	18 m	-	-	-	-	3	3	3	5	5
20-22%	15 m	-	-	3	3	5	10	10	10	10
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	-	5	10	10	10	10	10	10	10
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	15+5
	6 m	5	5	5	10	10	25	25+5	25+51	25+52
	6 m	-	-	-	-	-	-	5	5	5
Total decompression		0h11	0h17	0h30	0h45	0h50	1h10	1h20	1h32	1h42

Depth : 36 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	21 m	-	3	3	3					
20-22%										
Heliox	18 m	10	10	10	15					
20-22%	15 m	15	15	15	20					
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+52	25+5	25+5	25+5					
	9 m	5+5	25+5	25+5	25+5					
	6 m	25+5	25+5	25+52	25+5					
	6 m	5	15	5	25+5					
	6 m	-	-	-	10					
Total decompression		2h02	2h15	2h25	2h50					

HELIOX/OXY/12 M TABLES

Depth : 39 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 20-22%	21 m	-	-	-	-	-	-	3	3	5
Heliox	18 m	-	-	-	3	3	5	10	10	10
20-22%	15 m	-	3	3	5	5	10	10	15	15
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	10	25+5
	9 m	3	5	10	15+5	15+5	15+5	15+5	15+5	25+5
	6 m	5	5	5	10	20	25+5	25+5	25+52	25+5
	6 m	-	-	-	-	-	5	15	5	5
Total decompression		0h14	0h25	0h30	0h50	1h00	1h22	1h40	1h55	2h07

Depth : 39 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 20-22%	21 m	5	5	10	10					
Heliox	18 m	10	15	15	15					
20-22%	15 m	15	20	20	20					
ou Air										
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+5	25+52	25+5	25+5					
	9 m	25+5	5+525	25+52	25+52					
	6 m	25+5	+525+	5+525	5+525					
	6 m	15	5	+5	+525					
	6 m	-	10	15						
Total decompression		2h17	2h52	3h02	3h12					

Depth : 42 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox 20-22%	24 m	-	-	-	-	-	-	-	3	3
Heliox	21 m	-	-	-	-	3	2	5	5	10
20-22%	18 m	-	-	3	5	5	5	10	10	10
ou Air	15 m	-	3	5	5	10	10	15	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+5	25+5
	9 m	3	10	15+5	15+5	15+5	15+5	15+5	25+5	25+5
	6 m	5	5	5	10	25	25+5	25+5	25+55	25+5
	6 m	-	-	-	-	-	10	25		15
Total decompression		0h14	0h31	0h45	0h52	1h15	1h30	1h57	2h10	2h25

HELIOX/OXY/12 M TABLES

Depth : 42 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 20-22%	24 m	3	3	5	5					
Heliox 20-22% ou Air	21 m 18 m 15 m	10 15 20	10 15 20	10 15 25	15 20 25					
Oxygen	12 m 9 m 9 m 6 m 6 m 6 m	Oxy Air 25+52 5+5 - 25+52 5+510	Oxy Air 25+5 25+5 - 25+52 5+515	Oxy Air 25+5 25+5 25+52 5+525 +55	Oxy Air 25+5 25+52 5+525 +525+ 5 10					
Total decompression		3h00	3h05	3h32	3h47					

Depth : 45 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox 20-22%	24 m	-	-	-	-	3	3	3	5	5
Heliox 20-22% ou Air	21 m 18 m 15 m	- - -	- 3 3	3 3 5	3 5 5	5 5 10	5 10 10	10 10 15	10 10 15	10 15 20
Oxygen	12 m 9 m 6 m 6 m 6 m	Oxy Air 5 5 5 - -	Oxy Air 10 10 5 - -	Oxy Air 10 15+5 10 - -	Oxy Air 10 15+5 20 - -	Oxy Air 10 15+5 25+5 5 -	Oxy Air 10 15+5 25+5 20 -	Oxy Air 25+5 25+5 25+55 - 	Oxy Air 25+5 25+5 25+51 5 -	Oxy Air 25+5 25+5 25+5 25+51 0
Total decompression		0h18	0h34	0h53	1h05	1h30	1h50	2h15	2h27	3h02

Depth : 45 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
Heliox 20-22%	27 m 24 m	3 10	3 10							
Heliox 20-22% ou Air	21 m 18 m 15 m	10 15 20	15 15 25							
Oxygen	12 m 9 m 9 m 6 m 6 m 6 m	Oxy Air 25+5 25+5 - 25+52 5+5 15	Oxy Air 25+5 25+52 5+525 +525+ 55							
Total decompression		3h15	3h45							

HELIOX/OXY/12 M TABLES

Depth : 48 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
Heliox 20-22%	27 m	-	-	-	-	-	-	3	3	5
	24 m	-	-	-	3	3	5	5	5	10
Heliox	21 m	-	-	3	5	5	5	10	10	10
20-22%	18 m	-	3	5	5	10	10	10	15	15
ou Air	15 m	-	3	5	10	10	15	15	20	20
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	10	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	15+5	25+52	25+5	25+5
	6 m	5	5	10	25	25+5	25+5	5+5	25+52	25+5
	6 m	-	-	-	-	10	25	15	5+55	25+51
	6 m	-	-	-	-	-	-	-		5
Total decompression		0h18	0h34	0h56	1h20	1h40	2h02	2h30	3h00	3h17

Depth : 48 metres — Heliox 20-22 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
Heliox 20-22%	27 m	5	5							
	24 m	10	10							
Heliox	21 m	15	15							
20-22%	18 m	20	20							
ou Air	15 m	25	25							
Oxygen		Oxy Air	Oxy Air							
	12 m	25+52	25+52							
	9 m	5+525	5+525							
	9 m	+5	+525+							
	6 m	25+5	525+5							
	6 m	25+5	20							
	6 m	5								
Total decompression		3h52	4h07							

HELIOX/OXY/12 M TABLES

Depth : 51 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	3	2	2	2	2	2
Heliox	30 m	-	-	-	-	-	-	-	3	3
20-22%	27 m	-	-	-	-	3	3	5	5	5
	24 m	-	-	3	3	5	5	5	10	10
Heliox	21 m	-	3	3	5	5	10	10	10	15
20-22%	18 m	-	3	5	5	10	10	15	15	20
ou Air	15 m	3	3	5	10	10	15	20	20	25
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	25+5	25+5	25+5
	9 m	-	-	-	-	-	-	-	-	25+5
	6 m	5	5	10	25+5	25+5	25+5	25+5	25+52	25+52
	6 m	-	-	-	5	20	5	20	5+515	5+55
	6 m	-	-	-	-	-	-	-		
Total decompression		0h21	0h37	0h59	1h31	1h55	2h20	2h47	3h20	3h55

Depth : 51 metres — Heliox 20-22 % oxygen

Depth time (min)		100								
Ascent to stop		2								
Heliox	30 m	3								
20-22%	27 m	10								
	24 m	10								
Heliox	21 m	15								
20-22%	18 m	20								
ou Air	15 m	25								
Oxygen		Oxy Air								
	12 m	25+5								
	9 m	25+52								
	9 m	5+525								
	6 m	+525+								
	6 m	520								
	6 m									
Total decompression		4h15								

HELIOX/OXY/12 M TABLES

Depth : 54 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	3	2	2	2	2
Heliox 20-22%	30 m	-	-	-	-	-	3	3	5	5
	27 m	-	-	-	3	3	5	5	5	10
	24 m	-	-	3	5	5	5	10	10	10
Heliox	21 m	-	3	3	5	5	10	10	15	15
20-22%	18 m	-	3	5	10	10	10	15	15	20
ou Air	15 m	3	5	5	10	15	15	20	25	25
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	25+5	25+5	25+5
	9 m	-	-	-	-	-	-	-	-	25+5
	6 m	5	5	20	25+5	25+5	25+51	25+5	25+52	25+52
	6 m	-	-	-	5	25	5	25+51	5+525	5+520
	6 m	-	-	-	-	-	-	0		
Total decompression		0h22	0h39	1h09	1h41	2h06	2h35	3h15	3h42	4h17

Depth : 57 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	
Ascent to stop		4	3	3	3	3	3	2	2	
Heliox	33 m	-	-	-	-	-	-	3	3	
20-22%	30 m	-	-	-	3	3	5	5	5	
	27 m	-	-	3	3	5	5	5	10	
	24 m	-	3	3	5	5	10	10	10	
Heliox	21 m	-	3	5	5	10	10	10	15	
20-22%	18 m	-	3	5	10	10	15	15	20	
ou Air	15 m	3	5	10	10	15	20	20	25	
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	
	12 m	5	10	10	10	25+5	25+5	25+5	25+5	
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+5	25+5	
	9 m	-	-	-	-	-	-	-	25+52	
	6 m	5	10	20	25+5	25+5	25+5	25+5	5+525	
	6 m	-	-	-	10	5	25	25+51	+515	
	6 m	-	-	-	-	-	-	5		
Total decompression		0h22	0h57	1h19	1h49	2h26	3h03	3h25	4h10	

HELIOX/OXY/12 M TABLES

Depth : 60 metres — Heliox 20-22 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	
Ascent to stop		4	3	3	3	3	3	3	2	
Heliox	36 m	-	-	-	-	-	-	-	3	
20-22%	33 m	-	-	-	-	3	3	5	5	
	30 m	-	-	-	3	5	5	5	5	
	27 m	-	-	3	5	5	5	10	10	
	24 m	-	3	3	5	5	10	10	10	
Heliox	21 m	-	3	5	5	10	10	15	15	
20-22%	18 m	3	3	5	10	10	15	20	20	
ou Air	15 m	3	5	10	15	15	20	25	30	
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	
	12 m	10	10	10	10	25+5	25+5	25+5	25+5	
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+52	25+5	
	9 m	-	-	-	-	-	-	5+5	25+52	
	6 m	5	10	25	25+52	25+5	25+5	25+52	5+525	
	6 m	-	-	-	5	15	25+5	5+55	+525	
	6 m	-	-	-	-	-	10			
Total decompression		0h30	0h57	1h24	2h11	2h41	3h21	4h08	4h35	

Depth : 36 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	21 m	-	-	-	-	-	-	-	-	3
18-20%										
	18 m	-	-	-	-	3	3	5	5	10
Air	15 m	-	-	3	5	5	10	10	10	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	10	25+5
	9 m	3	5	10	15+5	15+5	15+5	15+52	15+5	25+5
	6 m	5	5	5	10	15	25	5+5	25+52	25+5
	6 m	-	-	-	-	-	-	5	0	5
Total decompression		0h14	0h22	0h30	0h47	0h55	1h10	1h22	1h37	2h05

HELIOX/OXY/12 M TABLES

Depth : 36 metres — Heliox 18-20 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox 18-20%	21 m	3	3	5	5					
	18 m	10	10	10	15					
Air	15 m	15	15	20	20					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+52	25+52	25+52	25+5					
	9 m	5+525	5+525	5+525	25+52					
	6 m	+510	+5	+525+	5+525					
	6 m	-	15	5	+5					
	6 m		-	10	15					
Total decompression		2h10	2h15	2h47	2h57					

Depth : 39 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox 18-20%	21 m	-	-	-	-	-	3	3	5	5
	18 m	-	-	3	3	5	5	10	10	10
Air	15 m	-	3	5	5	10	10	10	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+52	25+5
	9 m	3	5	10	15+5	15+5	15+5	15+52	5+5	25+5
	6 m	5	5	5	10	20	25+5	5+520	25+55	25+5
	6 m	-	-	-	-	-	5			15
Total decompression		0h14	0h25	0h35	0h50	1h07	1h25	1h45	2h07	2h17

Depth : 39 metres — Heliox 18-20 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	24 m	-	3	3	3					
18-20%	21 m	10	10	10	10					
	18 m	10	15	15	15					
Air	15 m	15	20	20	25					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+52	25+52	25+52	25+5					
	9 m	5+5	5+5	5+5	25+52					
	9 m	-	-	-	5+525					
	6 m	25+52	25+52	25+52	+525+					
	6 m	0	5+510	5+515	5					
	6 m	-			5					
Total decompression		2h27	3h00	3h05	3h30					

HELIOX/OXY/12 M TABLES

Depth : 42 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox										
18-20%	24 m	-	-	-	-	-	-	3	3	5
	21 m	-	-	-	3	3	5	5	10	10
	18 m	-	-	3	5	5	10	10	10	15
Air	15 m	-	3	5	5	10	10	15	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+52	25+5
	9 m	3	10	15+5	15+5	15+5	15+5	15+52	5+5	25+5
	6 m	5	5	10	15	25	25+51	5+525	25+51	25+5
	6 m	-	-	-	-	-	0		0	20
Total decompression		0h14	0h31	0h50	1h00	1h15	1h37	2h00	2h20	2h37

Depth : 42 metres — Heliox 18-20 % oxygen

Depth time (min)		100	110	120						
Ascent to stop		2	2	2						
Heliox										
18-20%	24 m	5	5	10						
	21 m	10	10	15						
	18 m	15	15	15						
Air	15 m	20	20	25						
Oxygen		Oxy Air	Oxy Air	Oxy Air						
	12 m	25+52	25+52	25+5						
	9 m	5+5	5+5	25+52						
	9 m	-	-	5+525						
	6 m	25+52	25+52	+525+						
	6 m	5+5	5+5	55						
	6 m	10	20							
Total decompression		3h02	3h12	3h42						

Depth : 45 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	27 m	-	-	-	-	-	-	-	3	3
18-20%	24 m	-	-	-	-	3	3	5	5	10
	21 m	-	-	3	3	5	5	10	10	10
	18 m	-	3	3	5	5	10	10	15	15
Air	15 m	-	3	5	10	10	10	15	15	20
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	10	25+5	25+52	25+5
	9 m	5	10	15+5	15+5	15+5	15+5	25+52	5+5	25+5
	9 m	5	5	10	20	25+55	25+52	5+55	25+51	25+5
	6 m	-	-	-	-	-	5	-	5	25+51
	6 m	-	-	-	-		-		-	0
Total decompression		0h18	0h34	0h53	1h10	1h30	1h55	2h17	2h35	3h10

HELIOX/OXY/12 M TABLES

Depth : 45 metres — Heliox 18-20 % oxygen

Depth time (min)		100	110							
Ascent to stop		2	2							
Heliox 18-20%	27 m	3	5							
	24 m	10	10							
	21 m	10	15							
	18 m	15	20							
Air	15 m	20	25							
Oxygen		Oxy Air	Oxy Air							
	12 m	25+5	25+5							
	9 m	25+5	25+52							
	9 m	-	5+525							
	6 m	25+5	+525+							
	6 m	25+5	5							
	6 m	25	10							
Total decompression		3h25	3h57							

Depth : 48 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
Heliox 18-20%	27 m	-	-	-	-	-	3	3	5	5
	24 m	-	-	-	3	5	5	5	10	10
	21 m	-	-	3	5	5	10	10	10	10
	18 m	-	3	5	5	10	10	10	15	15
Air	15 m	-	3	5	10	10	15	15	20	20
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+52	25+52	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	5+525	5+5	25+5
	6 m	5	5	10	25	25+5	25+55	+515	25+52	25+5
	6 m	-	-	-	-	10	-	-	5+510	25+51
	6 m	-	-	-	-	-				5
Total decompression		0h18	0h34	0h56	1h20	1h42	2h20	2h30	3h12	3h17

HELIOX/OXY/12 M TABLES

Depth : 48 metres — Heliox 18-20 % oxygen

Depth time (min)		100								
Ascent to stop		2								
Heliox	30 m	3								
18-20%	27 m	10								
	24 m	10								
	21 m	15								
	18 m	20								
Air	15 m	25								
Oxygen		Oxy Air								
	12 m	25+52								
	9 m	5+525								
	9 m	+525+								
	6 m	525+5								
	6 m	10								
	6 m									
Total decompression		4h05								

Depth : 51 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
Heliox	30 m	-	-	-	-	-	-	3	3	5
18-20%	27 m	-	-	-	3	3	5	5	5	10
	24 m	-	-	3	3	5	5	10	10	10
	21 m	-	3	3	5	5	10	10	10	15
	18 m	-	3	5	5	10	10	15	15	20
Air	15 m	-	5	5	10	15	15	20	20	25
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+5	25+52	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	25+5	5+5	25+5
	9 m	-	-	-	-	-	-	-	-	25+5
	6 m	5	5	10	25+5	25+52	25+51	25+52	25+52	25+52
	6 m	-	-	-	5	5	0	5+55	5+515	5+55
	6 m	-	-	-	-	-	-			
Total decompression		0h21	0h39	0h59	1h33	2h05	2h27	3h10	3h20	4h02

HELIOX/OXY/12 M TABLES

Depth : 54 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		4	3	3	3	2	2	2	2	2
Heliox	33 m	-	-	-	-	-	-	-	3	3
18-20%	30 m	-	-	-	-	3	3	5	5	5
	27 m	-	-	3	3	5	5	5	10	10
	24 m	-	-	3	5	5	5	10	10	10
	21 m	-	3	5	5	10	10	10	15	15
	18 m	-	3	5	10	10	15	15	20	20
Air	15 m	3	5	10	10	15	15	20	25	25
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	25+5	25+5	25+5	25+52	25+5
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+5	5+5	25+5
	9 m	-	-	-	-	-	-	-	25+52	25+5
	6 m	5	5	20	25+51	25+5	25+51	25+52	5+525	25+52
	6 m	-	-	-	0	5	5	5+515	+55	5+525
	6 m	-	-	-	-	-	-			
Total decompression		0h22	0h49	1h19	1h46	2h25	2h40	3h22	4h05	4h25

Depth : 57 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	
Ascent to stop		4	3	3	3	3	2	2	2	
Heliox	33 m	-	-	-	-	-	3	3	5	
18-20%	30 m	-	-	-	3	3	5	5	5	
	27 m	-	-	3	3	5	5	10	10	
	24 m	-	3	3	5	5	10	10	10	
	21 m	-	3	5	5	10	10	15	15	
	18 m	3	3	5	10	10	15	15	20	
Air	15 m	3	5	10	10	15	20	25	25	
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	
	12 m	5	10	10	10	25+5	25+5	25+5	25+52	
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+5	5+5	
	9 m	-	-	-	-	-	-	-	25+52	
	6 m	5	10	25	25+52	25+5	25+52	25+52	5+525	
	6 m	-	-	-	0	10	5+510	5+520	+520	
	6 m	-	-	-	-	-				
Total decompression		0h25	0h57	1h24	1h59	2h31	3h20	3h45	4h22	

HELIOX/OXY/12 M TABLES

Depth : 60 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70		
Ascent to stop		4	3	3	3	3	2	2		
Heliox	36 m	-	-	-	-	-	3	3		
18-20%	33 m	-	-	-	3	3	5	5		
	30 m	-	-	3	3	5	5	5		
	27 m	-	-	3	5	5	5	10		
	24 m	-	3	3	5	5	10	10		
	21 m	-	3	5	5	10	10	15		
	18 m	3	5	5	10	10	15	20		
Air	15 m	3	5	10	15	15	20	25		
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air		
	12 m	10	10	10	10	25+5	25+5	25+5		
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+5		
	9 m	-	-	-	-	-	-	25+52		
	6 m	5	10	10	25+52	25+5	25+52	5+525		
	6 m	-	-	-	5	15	5+515	+55		
	6 m	-	-	-	-	-				
Total decompression		0h30	0h59	1h27	2h14	2h41	3h30	4h10		

Depth : 63 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60	70		
Ascent to stop		4	3	3	3	3	2	2		
	39 m	-	-	-	-	-	-	3		
Heliox	36 m	-	-	-	-	3	3	5		
18-20%	33 m	-	-	-	3	5	5	5		
	30 m	-	-	3	3	5	5	5		
	27 m	-	3	3	5	5	10	10		
	24 m	-	3	5	5	10	10	10		
	21 m	3	3	5	10	10	15	15		
	18 m	3	5	5	10	15	15	20		
Air	15 m	3	5	10	15	20	25	25		
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air		
	12 m	10	10	10	25+5	25+5	25+5	25+5		
	9 m	5	15+5	15+5	25+5	25+5	25+5	25+5		
	9 m	-	-	-	-	-	-	25+52		
	6 m	5	10	25+5	25+55	25+5	25+52	5+525		
	6 m	-	-	5	-	25+55	5+5	+520		
	6 m	-	-	-			20			
Total decompression		0h33	1h02	1h39	2h29	3h21	3h51	4h30		

HELIOX/OXY/12 M TABLES

Depth : 66 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60			
Ascent to stop		4	3	3	3	3	3			
	39 m	-	-	-	-	-	3			
Heliox	36 m	-	-	-	3	3	5			
18-20%	33 m	-	-	3	5	5	5			
	30 m	-	3	3	5	5	5			
	27 m	-	3	3	5	5	10			
	24 m	-	3	5	5	10	10			
	21 m	3	3	5	10	10	15			
	18 m	3	5	10	10	15	20			
Air	15 m	3	5	10	15	20	25			
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air			
	12 m	10	10	10	25+52	25+5	25+5			
	9 m	10	15+5	15+5	5+5	25+5	25+5			
	9 m	-	-	-	-	-	25+5			
	6 m	5	10	25+5	25+51	25+5	25+52			
	6 m	-	-	10	0	25+5	5+55			
	6 m	-	-	-	-	10				
Total decompression		0h38	1h05	1h52	2h39	3h26	4h16			

Depth : 69 metres — Heliox 18-20 % oxygen

Depth time (min)		10	20	30	40	50	60			
Ascent to stop		4	4	3	3	3	3			
	42 m	-	-	-	-	-	3			
Heliox	39 m	-	-	-	-	3	3			
18-20%	36 m	-	-	3	3	5	5			
	33 m	-	-	3	3	5	5			
	30 m	-	3	3	5	5	5			
	27 m	-	3	3	5	5	10			
	24 m	-	3	5	5	10	10			
	21 m	3	3	5	10	10	15			
	18 m	3	5	10	10	15	20			
Air	15 m	3	5	10	15	20	25			
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air			
	12 m	10	10	10	25+52	25+5	25+5			
	9 m	10	15+5	15+5	5+5	25+5	25+5			
	9 m	-	-	-	-	-	25+52			
	6 m	5	20	25+5	25+51	25+5	5+5			
	6 m	-	-	20	5	25+5	25+52			
	6 m	-	-	-	-	15	0			
Total decompression		0h38	1h16	2h05	2h44	3h36	4h34			

HELIOX/OXY/12 M TABLES

Depth : 39 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	24 m	-	-	-	-	-	-	-	-	3
17-18%	21 m	-	-	-	-	3	3	5	10	10
	18 m	-	-	3	5	5	10	10	10	10
Air	15 m	-	3	5	5	10	10	15	15	15
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	3	10	10	10	10	10	10	25+5	25+5
	9 m	3	5	10	15+5	15+5	15+5	15+52	25+5	25+5
	6 m	5	5	5	10	20	25+55	5+520	25+55	25+51
	6 m	-	-	-	-	-				5
Total decompression		0h14	0h25	0h35	0h52	1h10	1h30	1h52	2h12	2h25

Depth : 39 metres — Heliox 17-18 % oxygen

Depth time (min)		100	110	120	130					
Ascent to stop		2	2	2	2					
Heliox	24 m	3	3	5	5					
17-18%	21 m	10	10	15	15					
	18 m	15	15	15	20					
Air	15 m	20	20	25	25					
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air					
	12 m	25+52	25+52	25+52	25+5					
	9 m	5+5	5+5	5+5	25+5					
	9 m	-	-	-	25+52					
	6 m	25+5	25+5	25+5	5+525					
	6 m	25	25+51	25+51	+55					
	6 m	-	5	5						
Total decompression		2h45	3h05	3h17	3h42					

Depth : 42 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	2	2	2	2	2	2	2	2
Heliox	27 m	-	-	-	-	-	-	-	-	-
17-18%	24 m	-	-	-	-	-	3	3	5	5
	21 m	-	-	3	3	5	5	10	10	10
	18 m	-	3	3	5	5	10	10	10	15
Air	15 m	-	3	5	10	10	10	15	15	20
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	10	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	15+5	25+5	25+5	25+5
	6 m	5	5	10	15	25+5	25+51	25+55	25+51	25+52
	6 m	-	-	-	-	5	5		5	5
Total decompression		0h18	0h33	0h53	1h05	1h27	1h45	2h15	2h27	2h47

HELIOX/OXY/12 M TABLES

Depth : 42 metres — Heliox 17-18 % oxygen

Depth time (min)		100	110	120						
Ascent to stop		2	2	2						
Heliox	27 m	-	3	3						
17-18%	24 m	10	10	10						
	21 m	10	15	15						
	18 m	15	20	20						
Air	15 m	20	25	30						
Oxygen		Oxy Air	Oxy Air	Oxy Air						
	12 m	25+52	25+5	25+5						
	9 m	5+5	25+5	25+5						
	9 m	-	-	25+52						
	6 m	25+5	25+5	5+525						
	6 m	25+5	25+5	+510						
	6 m	15	25							
Total decompression		3h12	3h40	4h00						

Depth : 45 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	27 m	-	-	-	-	-	-	3	3	5
17-18%	24 m	-	-	-	3	3	5	5	10	10
	21 m	-	-	3	5	5	5	10	10	10
	18 m	-	3	5	5	10	10	10	15	15
Air	15 m	-	3	5	10	10	15	15	20	25
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	10	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	15+5	25+5	25+5	25+5
	6 m	5	5	10	20	25+5	25+52	25+51	25+52	25+52
	6 m	-	-	-	-	5	5	0	0	5+515
	6 m	-	-	-	-	-	-	-	-	
Total decompression		0h18	0h34	0h55	1h15	1h35	2h02	2h25	2h50	3h22

Depth : 45 metres — Heliox 17-18 % oxygen

Depth time (min)		100								
Ascent to stop		2								
Heliox	27 m	5								
17-18%	24 m	10								
	21 m	15								
	18 m	20								
Air	15 m	25								
Oxygen		Oxy Air								
	12 m	25+52								
	9 m	5+5								
	6 m	25+5								
	6 m	25+5								
	6 m	25								
Total decompression		3h42								

HELIOX/OXY/12 M TABLES

Depth : 48 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	2	2	2	2	2	2	2
Heliox	30 m	-	-	-	-	-	-	-	3	3
17-18%	27 m	-	-	-	-	3	3	5	5	10
	24 m	-	-	3	3	5	5	10	10	10
	21 m	-	3	3	5	5	10	10	10	15
	18 m	-	3	5	5	10	10	15	15	20
Air	15 m	3	5	5	10	15	15	20	20	25
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	25+5	25+5	25+5
	6 m	5	5	10	25	25+5	25+55	25+51	25+52	25+52
	6 m	-	-	-	-	15	-	5	5+510	5+525
	6 m	-	-	-	-	-		-		
Total decompression		0h21	0h39	0h58	1h20	1h55	2h20	2h47	3h15	3h50

Depth : 48 metres — Heliox 17-18 % oxygen

Depth time (min)		100								
Ascent to stop		2								
Heliox	30 m	3								
17-18%	27 m	10								
	24 m	10								
	21 m	15								
	18 m	20								
Air	15 m	30								
Oxygen		Oxy Air								
	12 m	25+5								
	9 m	25+5								
	9 m	25+5								
	6 m	25+5								
	6 m	25+5								
	6 m	10								
Total decompression		4h10								

HELIOX/OXY/12 M TABLES

Depth : 51 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	90
Ascent to stop		3	3	3	2	2	2	2	2	2
	33 m	-	-	-	-	-	-	-	-	3
Heliox	30 m	-	-	-	-	-	3	3	5	5
17-18%	27 m	-	-	-	3	5	5	5	10	10
	24 m	-	-	3	5	5	5	10	10	10
	21 m	-	3	5	5	10	10	10	15	15
	18 m	-	3	5	10	10	15	15	20	20
Air	15 m	3	5	10	10	15	20	20	25	30
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air
	12 m	5	10	10	10	10	25+5	25+5	25+5	25+5
	9 m	5	10	15+5	15+5	15+5	25+5	25+5	25+5	25+5
	9 m	-	-	-	-	-	-	-	-	25+52
	6 m	5	5	15	25+55	25+5	25+51	25+52	25+52	5+525
	6 m	-	-	-	-	25	5	5+510	5+515	+510
	6 m	-	-	-		-	-			
Total decompression		0h21	0h39	1h11	1h40	2h12	2h45	3h15	3h42	4h15

Depth : 54 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70	80	
Ascent to stop		3	3	3	2	2	2	2	2	
Heliox	33 m	-	-	-	-	-	3	3	3	
17-18%	30 m	-	-	-	3	3	5	5	5	
	27 m	-	-	3	3	5	5	5	10	
	24 m	-	3	3	5	5	10	10	10	
	21 m	-	3	5	5	10	10	15	15	
	18 m	3	3	5	10	10	15	15	20	
Air	15 m	3	5	10	10	15	20	25	25	
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	
	12 m	5	10	10	10	25+5	25+5	25+5	25+5	
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+5	25+5	
	9 m	-	-	-	-	-	-	-	25+52	
	6 m	5	5	20	25+51	25+5	25+51	25+52	5+525	
	6 m	-	-	-	0	5	5	5+515	+55	
	6 m	-	-	-	-	-	-			
Total decompression		0h24	0h52	1h19	1h48	2h25	2h55	3h35	4h05	

HELIOX/OXY/12 M TABLES

Depth : 57 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70		
Ascent to stop		4	3	3	3	2	2	2		
	36 m	-	-	-	-	-	-	3		
Heliox	33 m	-	-	-	-	3	3	5		
17-18%	30 m	-	-	3	3	5	5	5		
	27 m	-	-	3	5	5	5	10		
	24 m	-	3	3	5	5	10	10		
	21 m	-	3	5	5	10	10	15		
	18 m	3	5	5	10	15	15	20		
Air	15 m	3	5	10	15	20	20	25		
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air		
	12 m	5	10	10	10	25+5	25+5	25+5		
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+5		
	9 m	-	-	-	-	-	-	-		
	6 m	5	10	25	25+52	25+5	25+52	25+52		
	6 m	-	-	-	0	10	5+5	5+525		
	6 m	-	-	-	-	-	10			
Total decompression		0h25	0h59	1h27	2h06	2h45	3h20	4h00		

Depth : 60 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60	70		
Ascent to stop		4	3	3	3	3	2	2		
Heliox	36 m	-	-	-	-	-	3	3		
17-18%	33 m	-	-	-	3	3	5	5		
	30 m	-	-	3	3	5	5	5		
	27 m	-	3	5	5	5	10	10		
	24 m	-	3	5	5	10	10	10		
	21 m	-	3	5	10	10	15	15		
	18 m	3	5	10	10	15	15	20		
Air	15 m	3	5	10	15	20	25	30		
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air		
	12 m	10	10	10	10	25+5	25+5	25+5		
	9 m	5	15+5	15+5	15+5	25+5	25+5	25+5		
	9 m	-	-	-	-	-	-	25+52		
	6 m	5	10	25+55	25+52	25+5	25+52	5+525		
	6 m	-	-	-	5	15	5+515	+510		
	6 m	-	-		-	-				
Total decompression		0h30	1h02	1h44	2h19	2h56	3h45	4h20		

HELIOX/OXY/12 M TABLES

Depth : 63 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60			
Ascent to stop		4	3	3	3	3	2			
	39 m	-	-	-	-	-	3			
Heliox	36 m	-	-	-	3	3	5			
17-18%	33 m	-	-	3	3	5	5			
	30 m	-	-	3	5	5	5			
	27 m	-	3	3	5	5	10			
	24 m	-	3	5	5	10	10			
	21 m	3	3	5	10	10	15			
	18 m	3	5	10	10	15	20			
Air	15 m	3	5	10	15	20	25			
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air			
	12 m	10	10	10	25+5	25+5	25+5			
	9 m	5	15+5	15+5	25+5	25+5	25+5			
	6 m	5	10	25+55	25+55	25+5	25+52			
	6 m	-	-	-	-	25+5	5+525			
	6 m	-	-			5				
Total decompression		0h33	1h02	1h47	2h34	3h21	4h05			

Depth : 66 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60			
Ascent to stop		4	3	3	3	3	3			
	39 m	-	-	-	-	3	3			
Heliox	36 m	-	-	-	3	5	5			
17-18%	33 m	-	-	3	3	5	5			
	30 m	-	3	3	5	5	5			
	27 m	-	3	3	5	10	10			
	24 m	-	3	5	5	10	10			
	21 m	3	5	5	10	15	15			
	18 m	3	5	10	15	15	20			
Air	15 m	3	10	10	20	25	30			
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air			
	12 m	10	10	10	25+5	25+5	25+5			
	9 m	10	15+5	15+5	25+5	25+5	25+5			
	9 m	-	-	-	-	-	25+52			
	6 m	5	10	25+51	25+51	25+5	5+525			
	6 m	-	-	0	0	25+5	+510			
	6 m	-	-	-	-	15				
Total decompression		0h38	1h12	1h52	2h49	3h51	4h26			

HELIOX/OXY/12 M TABLES

Depth : 69 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50	60			
Ascent to stop		4	4	3	3	3	3			
	42 m	-	-	-	-	-	3			
Heliox	39 m	-	-	-	3	3	5			
17-18%	36 m	-	-	3	3	5	5			
	33 m	-	-	3	3	5	5			
	30 m	-	3	3	5	5	10			
	27 m	-	3	5	5	10	10			
	24 m	3	3	5	10	10	15			
	21 m	3	5	5	10	15	15			
	18 m	3	5	10	15	20	25			
Air	15 m	3	10	15	20	25	30			
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air			
	12 m	10	10	10	25+5	25+5	25+5			
	9 m	10	15+5	15+5	25+5	25+5	25+5			
	9 m	-	-	-	-	-	25+52			
	6 m	5	20	25+52	25+51	25+5	5+525			
	6 m	-	-	0	5	25+5	+525			
	6 m	-	-	-	-	15				
Total decompression		0h41	1h23	2h12	3h02	3h56	5h01			

Depth : 72 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50				
Ascent to stop		4	4	3	3	3				
	42 m	-	-	-	-	3				
Heliox	39 m	-	-	3	3	5				
17-18%	36 m	-	-	3	3	5				
	33 m	-	3	3	5	5				
	30 m	-	3	3	5	5				
	27 m	-	3	5	5	10				
	24 m	3	3	5	10	10				
	21 m	3	5	10	10	15				
	18 m	3	5	10	15	20				
Air	15 m	3	10	15	20	25				
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air				
	12 m	10	10	10	25+5	25+5				
	9 m	10	15+5	15+5	25+5	25+5				
	9 m	-	-	-	-	25+5				
	6 m	5	20	25+52	25+52	25+5				
	6 m	-	-	5	5	25+55				
	6 m	-	-	-	-					
Total decompression		0h41	1h26	2h25	3h14	4h21				

HELIOX/OXY/12 M TABLES

Depth : 75 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50				
Ascent to stop		4	3	3	3	3				
	45 m	-	-	-	-	3				
	42 m	-	-	-	3	3				
Heliox	39 m	-	-	3	3	5				
17-18%	36 m	-	3	3	5	5				
	33 m	-	3	3	5	5				
	30 m	-	3	5	5	10				
	27 m	3	3	5	10	10				
	24 m	3	3	5	10	15				
	21 m	3	5	10	10	15				
	18 m	3	5	10	15	20				
Air	15 m	5	10	15	20	30				
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air				
	12 m	10	10	25+5	25+5	25+5				
	9 m	10	15+5	25+5	25+5	25+5				
	9 m	-	-	-	-	25+5				
	6 m	5	25	25+55	25+52	25+5				
	6 m	-	-	-	5+5	25+51				
	6 m	-	-		10	0				
Total decompression		0h46	1h34	2h37	3h39	4h44				

Depth : 78 metres — Heliox 17-18 % oxygen

Depth time (min)		10	20	30	40	50				
Ascent to stop		4	3	3	3	3				
	45 m	-	-	-	3	3				
Heliox	42 m	-	-	3	3	5				
17-18%	39 m	-	-	3	3	5				
	36 m	-	3	3	5	5				
	33 m	-	3	3	5	5				
	30 m	-	3	5	5	10				
	27 m	3	3	5	10	10				
	24 m	3	5	5	10	15				
	21 m	3	5	10	15	15				
	18 m	3	10	10	20	25				
Air	15 m	5	10	15	25	30				
Oxygen		Oxy Air	Oxy Air	Oxy Air	Oxy Air	Oxy Air				
	12 m	10	10	25+5	25+5	25+5				
	9 m	10	15+5	25+5	25+5	25+5				
	9 m	-	-	-	-	25+5				
	6 m	5	25	25+55	25+52	25+5				
	6 m	-	-	-	5+5	25+5				
	6 m	-	-		15	25				
Total decompression		0h47	1h41	2h40	4h02	5h06				

3 - HELIOX / BELL TABLES

3.1 - Heliox / Bell Tables

Set of decompression tables for bounce dives to depth ranging from 30 to 90 m.

The time interval for a new dive having used Heliox/Bell table, is 12 hours. No repetitive dive is authorised during this interval regardless of breathing mixture.

3.2 - Diving Methods

Bell bounce dive with transfer under pressure (TUF) into saturation system.

3.3 - Decompression Procedures

- Up to the first stop decompression rate must be kept between 9 and 15 m/min,
- Ascent is made with stops every 3 m in the bell or in the chamber,
- The last minute of the stop is used to decompress to next stop depth.

3.4 - Dive Mixtures

- Bottom mix is a heliox mix with an oxygen partial pressure (pO2) ranging from 850 hPa (0.850 bar) to 1550 hPa (1.550 bar) at working depth of diver,
- The first part of decompression is made with heliox bottom mix until first stop is reached,
- On reaching first stop, diver breathes on mask in the bell a heliox mix with an oxygen percentage of 20 to 22 %,
- The chamber is pressurized with a heliox mix having an oxygen percentage of 20 to 22 % until the transfer depth is reached. After the TUP, decompression continues in the chamber (keeping the oxygen percentage between 20 to 22 %),
- From the 12 m stop up to the surface, decompression continues with the diver breathing oxygen on mask with interruptions of 5 minutes breathing oxygen on mask with interruptions of 5 minutes breathing ambient bell atmosphere for 25 minutes breathing on mask.

3.5 - Contingency Procedures

Exceeding the planned bottom time

- Use either the next bottom time or the back-up bottom time,
- Or switch to heliox/Oxy/12 m tables.

Difficult dive conditions

- Play safe and, in the table, use the time immediately above the one corresponding to the time actually spent.

Oxygen supply failure

- Multiply by 2 the oxygen stop time and perform it on heliox 20/80 or an heliox 50/50.

Delayed TUP

- If diver is not ready to be transferred at the exact time when oxygen stop is supposed to start, diver can stay 10 minutes at 12 metres breathing bottom mix or heliox 20/80 waiting to be transferred into the chamber. This 10 minutes delay will not be accounted as being part of the decompression duration and will not make it necessary to modify the initial decompression protocol,
- If for any reason, the TUP is delayed for more than 10 minutes, the diver must wait at 12 m until his transfer and resume his decompression using a new table calculated for a dive adding the extra time spent at 12 m to initial bottom time.

TABLE N°3

BOTTOM MIXES FOR HELIOX/BELL TABLES

Dive Depth (m)	Oxygen percentage in the heliox bottom mix						
	22-24 %	20-22 %	18-20 %	16-18 %	14-16 %	12-14 %	10-12 %
30							
33							
36							
39							
42							
45							
48							
51							
54							
57							
60							
63							
66							
69							
72							
75							
78							
81							
84							
87							
90							
93							
96							
99							
102							
105							
108							
111							
114							
117							
120							

HELIOX/BELL TABLES

Depth : 75 metres Heliox 22-24% oxygen

Depth time (min)				
Ascent to stop				
Decompression				
Heliox 22-24 %				
Oxygen				
Total decompression				

B - SATURATION DIVING

The following instructions are applicable in heliox saturation diving operations with storage depths (living depths) ranging from 10 to 180 m.

- Between 10 m and 195 m for excursion dives of standard depth range,
- Between 10 m and 210 m for excursion dives of maximum depth range.

For uniformity's safe all pressures and immersions are expressed by their equivalent depth in metres. 10 m will therefore mean either an actual depth of 10 metres or a pressure of 1000 hPa (1 bar).

I - Chambers Procedures

1 - Chamber Mixtures

1.1 - Mixtures Used For Chamber Operations

Mixtures used for saturation diving must be in conformity with directives of article 6 of French Décret dated 28 March 1990.

1.2 - Mixtures Used For Chamber Pressurisation

For chamber pressurisation to the storage depth (living depth) and to ensure an oxygen partial pressure in conformity with above décret, heliox 2/98 will be used as well as a small quantity of another heliox mix richer in oxygen.

2 - Chamber Pressurisation Procedure

Maximum pressurisation rate depends on the storage depth :

- 3 m/min from surface to storage depth if final depth does not exceed 100 metres,
- 1 m/min from surface to storage depth is final depth exceed 100 metres and is inferior to 180 metres.

3 - Post-Pressurisation Stabilisation

No stabilisation period is necessary after an initial or intermediate pressurisation not exceeding 180 metres. As soon as they arrive at storage depth, divers can proceed immediately to perform :

- A standard excursion dive ascending or descending,
- A maximum excursion dive ascending or descending,
- An intermediate or final decompression.

4 - Control Of Chamber Environmental Parameters

4.1 - Chamber Depth

Chamber depth must be controlled at +/- 0.5 metre.

4.2 - Chamber Atmosphere

The atmosphere breathed by divers must be in conformity with above décret.

5 - Chamber Decompression Procedures

5.1 - Preparing For Decompression

Chamber decompression can be started when oxygen partial pressure reaches the prescribed value and when divers have completed their eventual stabilisation period after an excursion dive :

- After an excursion dive of standard depth range, divers can immediately start an intermediate of final decompression,
- After an excursion dive of maximum depth range, divers must spend 12 hours at storage depth prior to starting an

intermediate or final decompression.

5.2 - Decompression Procedure

The chamber decompression is started with an ascent of one metre completed in 10 minutes. This ascent will allow the eventual pressing of the door between the chamber and the bell.

The remaining chamber decompression is continuous. In case of delay incurred in the decompression, no attempt must be made to make up for time lost by accelerating the decompression.

5.3 - Chamber Decompression With An Oxygen Partial Pressure Of 600 hPa (0.6 bar)

This procedure must be used for a final decompression from storage depths not exceeding 155 m.

The decompression procedure is :

- From storage depth to 15 m, the oxygen partial pressure of chamber must be kept between 575 hPa (0.575 bar) and 600 hPa (0.600 bar). The corresponding ascent rate is 45 min/m,
- From 15 m to surface, oxygen rate must be kept between 21 and 24 %. The corresponding ascent rate is 60 min/m.

This procedure must not be used for intermediate decompression. If some divers have started decompression with an oxygen partial pressure of 600 hPa (0.6 bar) and if operational imperatives should cause its interruption, the chamber oxygen rate must be left to decrease with the metabolic consumption of the divers down to the value recommended at storage depth. After that, final decompression must be carried out with an oxygen partial pressure of 500 hPa (0.5 bar).

5.4 - Chamber Decompression With An Oxygen Partial Pressure Of 500 hPa (0.5 bar)

This procedure must be used for a final decompression from storage depths exceeding 155 m or for intermediate decompression.

The decompression procedure is :

- From storage depth to 15 m, the oxygen partial pressure of chamber must be kept between 500 hPa (0.5 bar) and 525 hPa (0.525 bar). The corresponding ascent rate is 50 min/m,
- From 15 m to surface, oxygen rate must be kept between 21 and 24 %. The corresponding ascent rate is 60 min/m.

5.5 - Stabilisation Period After An Intermediate Decompression

After an intermediate decompression, divers must observe a stabilisation period of 12 hours prior to starting either :

- An ascending excursion dive whether standard or maximum,
- A descending maximum excursion dive.

On the other hand, divers have no delay to observe after an intermediate decompression prior to starting :

- A descending standard excursion dive,
- An intermediate pressurisation,
- Another intermediate final decompression.

II - Bell Procedures

1 - Applications

These procedures are applicable also in operations conducted with a diver-carrying submersible.

Excursion dives made from a bell permit divers to ascend or descend from storage depth to working depth. During an excursion dive, the storage depth pressure must not be decreased. Decompression must be interrupted when an excursion dive is deemed necessary.

During an excursion dive, storage depth pressure may be increased.

2 - Bell Mixtures

Bottom mix is used for :

- Bell pressurisation from storage depth to bottom depth,
- Diver's breathing during their incursion dives.

The bottom mix must be a heliox mix whose oxygen partial pressure must be in conformity with regulations in article 7 of above décret.

3 - Different Types Of Excursion Dives

3.1 - Ascending And Descending Excursions

There are two types of excursions

- The ascending excursions which are dives at depths shallower than that of storage depth,
- The descending excursions which are dives at depths deeper than that of storage depth.

In certain cases, both ascending and descending excursions may be combined within the same dive.

3.2 - Excursion Depths Range

Excursions are characterised by the pressure difference existing between the storage depth and the working depth which is called the excursion depth range or the excursion depth amplitude. The authorised excursion depth rage increases the depth but is always limited at 30 m. There are two types of authorised excursion depth range :

- The standard excursions allowing a moderate depth range increase and requiring no stabilisation period after the dive,
- The maximum excursions allowing a greater depth range but requiring a stabilisation period after the dive.

In certain cases, standard and maximum excursion dives may be combined.

3.3 - Excursion Bottom Time

Bottom time for standard and maximum excursion dives are not limited.

4 - Standard Excursion Dives

4.1 - Aim

Standard excursion dives are used in routine operations. These dives allow only moderate depth range increase but are very flexible to carry out.

4.2 - Limits

The authorised amplitudes of standard excursion depth range are described in table n°4.

4.3 -Stabilisation Periods

Theoretically, standard excursions require no stabilisation period after the dive. It is possible to start an intermediate or final decompression immediately after a standard excursion.

5 - Maximum Excursion Dives

5.1 - Aim

Maximum excursion dives are used in specific operation. These dives allow a greater depth range but entail certain limitations.

5.2 - Limitations

The authorised maximum excursion depth range increases are described in table n°4.

5.3 - Stabilisation Periods

Theoretically, a maximum excursion is followed by a stabilisation period of 12 hours. After a maximum excursion, divers must spend 12 hours at storage depth prior to starting an intermediate or final decompression.

6 - Bell Depth During Excursion Dives

The depth of the bell must be kept within the limits of standard excursion dives.

7 - Regulations In Selecting Type Of Excursion Dive

Theoretically, several ways exist to carry out a specific operation. In practise, will be chosen the ways which the most will reduce the amplitude of ascents during the dive and the amplitude of decompressions during the saturation.

For a given dive, the choice will be :

- Descending excursions rather than ascending ones,
- Standard excursions rather than maximum ones,
- In the course of a dive, an ascending excursion followed by a descending excursion, rather than a descending excursion followed by an ascending excursion.

Work planning will be arranged so as to avoid repeated ascents for the divers. They must not make more than one re-ascent in a maximum excursion during one bell dive.

When storage depths modifications are necessary, preferable select :

- A change of storage depth by an intermediate pressurisation rather than by decompression, or by planning working levels of increasing depths rather than decreasing depths,
- A complete intermediate decompression rather than a shorter one followed by an ascending excursion.

TABLE N°4
STANDARD AND MAXIMUM HELIOX EXCURSIONS

LIFE LEVEL (m)	STANDARD DESCENDING EXCURSION (m)	STANDARD ASCENDING EXCURSION (m)	MAXIMUM DESCENDING EXCURSION (m)	MAXIMUM ASCENDING EXCURSION (m)
10	15	9	Forbidden	Forbidden
11	16	9	Forbidden	Forbidden
12	17	9	Forbidden	Forbidden
13	18	9	Forbidden	Forbidden
14	19	9	Forbidden	Forbidden
15	21	10	Forbidden	Forbidden
16	22	11	Forbidden	Forbidden
17	23	12	Forbidden	Forbidden
18	24	13	Forbidden	Forbidden
19	25	14	Forbidden	Forbidden
20	27	15	34	Forbidden
21	28	15	35	Forbidden
22	29	16	36	Forbidden
23	30	17	37	Forbidden
24	31	18	38	Forbidden
25	32	19	39	Forbidden
26	33	20	40	Forbidden
27	34	20	41	Forbidden
28	35	21	42	Forbidden
29	36	22	43	Forbidden
30	37	23	45	Forbidden
31	38	24	46	Forbidden
32	39	25	47	Forbidden
33	40	26	48	Forbidden
34	41	27	49	20
35	42	28	50	21
36	43	29	51	22
37	44	30	52	23
38	45	31	53	24
39	46	32	54	25
40	48	33	56	26
41	49	34	57	27
42	50	35	58	28
43	51	36	59	29
44	52	37	60	30
45	53	38	61	30
46	54	39	62	31
47	55	40	63	32
48	56	40	64	33
49	57	41	65	34
50	58	42	67	35
51	59	43	68	36
52	60	44	69	37

STANDARD AND MAXIMUM HELIOX EXCURSIONS

LIFE LEVEL (m)	STANDARD DESCENDING EXCURSION (m)	STANDARD ASCENDING EXCURSION (m)	MAXIMUM DESCENDING EXCURSION (m)	MAXIMUM ASCENDING EXCURSION (m)
53	61	45	70	38
54	62	46	71	39
55	63	47	72	40
56	64	48	73	40
57	65	49	74	41
58	66	50	75	42
59	67	51	76	43
60	69	52	78	44
61	70	53	79	45
62	71	54	80	46
63	72	55	81	47
64	73	56	82	48
65	74	57	83	49
66	75	58	84	50
67	76	59	85	50
68	77	60	86	51
69	78	60	87	52
70	79	61	89	53
71	80	62	90	54
72	81	63	91	55
73	82	64	92	56
74	83	65	93	57
75	84	66	94	58
76	85	67	95	59
77	86	68	96	60
78	87	69	97	60
79	88	70	98	61
80	90	71	100	62
81	91	72	101	63
82	92	73	102	64
83	93	74	103	65
84	94	75	104	66
85	95	76	105	67
86	96	77	106	68
87	97	78	107	69
88	98	79	108	70
89	99	80	109	70
90	100	80	111	71
91	101	81	112	72
92	102	82	113	73
93	103	83	114	74
94	104	84	115	75
95	105	85	116	76

STANDARD AND MAXIMUM HELIOX EXCURSIONS

LIFE LEVEL (m)	STANDARD DESCENDING EXCURSION (m)	STANDARD ASCENDING EXCURSION (m)	MAXIMUM DESCENDING EXCURSION (m)	MAXIMUM ASCENDING EXCURSION (m)
96	106	86	117	77
97	107	87	118	78
98	108	88	119	79
99	109	89	120	80
100	111	90	122	80
101	112	91	123	81
102	113	92	124	82
103	114	93	125	83
104	115	94	126	84
105	116	95	127	85
106	117	96	128	86
107	118	97	129	87
108	119	98	130	88
109	120	99	131	89
110	121	100	133	90
111	122	100	134	90
112	123	101	135	91
113	124	102	136	92
114	125	103	137	93
115	126	104	138	94
116	127	105	139	95
117	128	106	140	96
118	129	107	141	97
119	130	108	142	98
120	132	109	144	99
121	133	110	145	100
122	134	111	146	100
123	135	112	147	101
124	136	113	148	102
125	137	114	149	103
126	138	115	150	104
127	139	116	151	105
128	140	117	152	106
129	141	118	153	107
130	142	119	155	108
131	143	120	156	109
132	144	120	157	110
133	145	121	158	110
134	146	122	159	111
135	147	123	160	112
136	148	124	161	113
137	149	125	162	114
138	150	126	163	115

STANDARD AND MAXIMUM HELIOX EXCURSIONS

LIFE LEVEL (m)	STANDARD DESCENDING EXCURSION (m)	STANDARD ASCENDING EXCURSION (m)	MAXIMUM DESCENDING EXCURSION (m)	MAXIMUM ASCENDING EXCURSION (m)
139	151	127	164	116
140	153	128	166	117
141	154	129	167	118
142	155	130	168	119
143	156	131	169	120
144	157	132	170	120
145	158	133	171	121
146	159	134	172	122
147	160	135	173	123
148	161	136	174	124
149	162	137	175	125
150	163	138	177	126
151	164	139	178	127
152	165	140	179	128
153	166	140	180	129
154	167	141	181	130
155	168	142	182	130
156	169	143	183	131
157	170	144	184	132
158	171	145	185	133
159	172	146	186	134
160	174	147	188	135
161	175	148	189	136
162	176	149	190	137
163	177	150	191	138
164	178	151	192	139
165	179	152	193	140
166	180	153	194	140
167	181	154	195	141
168	182	155	196	142
169	183	156	197	143
170	184	157	199	144
171	185	158	200	145
172	186	159	201	146
173	187	160	202	147
174	188	160	203	148
175	189	161	204	149
176	190	162	205	150
177	191	163	206	150
178	192	164	207	151
179	193	165	208	152
180	195	166	210	153

C - POST-DECOMPRESSION PROCEDURES

1 - Physical Exertion After A Dive

After their decompression, divers must not involve into prolonged physical activities such as jogging, stair climbing, or intense sport activities. During the two hours following the end of their decompression, no assignments must be given to them which require significant physical efforts.

2 - Post-Dive Diving

It is only after the end of the post-dive interval that theoretically the diver has eliminated all residual consequences of last dive and can again dive.

Decompression tables impose a compulsory time interval of 12 hours between two dives. This delay is compulsory prior to a second dive on air or nitrox. The only exception are repetitive dives on air, and in this case, the method to follow is described in chapter 12.

After a saturation dive, divers will have to wait 24 hours prior to diving on air, nitrox or heliox.

3 - Post-Dive Surveillance Of Divers

Symptoms of decompression accidents when they occur, appear generally within 30 minutes after return to atmospheric pressure. However, these symptoms can still appear 10 hours or more after. Therefore, a recompression chamber must be available during the 12 hours following the end of the decompression.

1 - Description

Medical treatments decompression after operations in compressed air without submersion fall into two categories :

- Decompression conducted with tables and procedures with submersion (Annex II) in which the word « dive » must be replaced by the word « operation ». The whole annex is applicable. Furthermore, and only in the case of medical emergency, a second repetitive operation is authorised,
- Decompression conducted after a surveillance operation of hyperbaric oxygen therapy treatment (long exposure at low pressure tending patients) for which specific tables appear in table 1.

2 - Specific Mention C Tables - Hyperbaric Oxygen Therapy

2.1 - Tables

The chamber decompression rate is 1 m/min. Time of ascent to first stop or of return to atmospheric pressure must not be counted in the calculation of time spent under pressure.

In tables labelled « oxygen outlet », attendants must breathe oxygen on mask from 12 m until their return to atmospheric pressure.

Nevertheless, for operations at 12 m with oxygen outlet, attendants can make the 3 m stop at 12 m. They start breathing oxygen on mask for an appropriate duration of time till the end of the operation, then are directly decompressed to atmospheric pressure still breathing oxygen on mask and not making a 3 m stop.

2.2 - Repetitive Operations Procedures

Decompression tables for Mention C activities allow a repetitive operation when the mention « possible » appears in the repetitive dive column.

Except in the case of medical emergency, only one repetitive operation is authorised.

The method for selecting repetitive operations decompressions is based on equivalent time and is described in Annex II, Chapter 12. Multi level operations procedure (Annex II, Chapter 9) can also be used.

3 - Second Repetitive Operation

In case of emergency, a third operation can be conducted. It is limited to moderate-type operations, i.e. corresponding to following characteristics

- Pressure of initial does not exceed 3 bars,
- Pressure of first repetitive operation does not exceed 1.8 bar,
- Pressure of second repetitive operation does not exceed 1.5 bar,
- For each of the three operations, actual bottom time does not exceed the values presented in table n°2.

The method to use for a second repetitive operation is based on equivalent time and is described in Annex II, chapter 12.

The decompression table to use is the Air Standard table or the table for hospital practitioners. As a safety precaution, indicated air stops at 0.6 b and 0.3 b will be performed breathing pure oxygen on mask.

ANNEX V

PROCEDURES FOR OPERATIONS IN COMPRESSED AIR WITHOUT SUBMERSION (MENTION D)

1 - Compression Tables

Compression must be performed in such a way that all compressed persons may correctly equalise their ears and not exceed 3000 hPa/min (3 bars/min).

The compression of any person that does not correctly equalise his ears must be immediately stopped and eventually a slight decompression should be performed to eliminate the pain until correct equalisation is achieved.

In case this equalisation is impossible, the concerned person must be decompressed and must not participate in the operation.

2 - Decompression Tables

Decompression tables for operations in compressed air without submersion indicate the procedures to follow according to the operation conditions (pressure level, duration).

In case operation conditions are such that they can endanger, decompression safety and in order to provide an extra safety margin, use the available bottom time immediately above the table.

2.1 - Initial Or Repetitive Operation

Time interval after the operation is the time spent on surface by attendant between two operations. It is measured from the time of end of decompression to the time a new compression begins.

An operation is called « initial operation » when no exposure under pressure has been made in the 12 hours preceding this operation.

A repetitive operation is an operation whose time interval surface is under 12 hours. Such an operation is authorised only when the pressure remains at all times under 2100 hPa (2.1 bar).

When the highest pressure exceeds 750 hPa (0.75 bar) only one repetitive operation every 12 hours is allowed, and the time interval prior to a new operation must then be longer than 12 hours.

After a repetitive operation, decompression calls for a specific procedure.

This decompression must be performed taking as working time the sum of working times of the first and second operations supposed to be at the same pressure. When the two operations are not made at the same pressure, select the highest pressure reached during the two operations, or eventually apply the calculation method for multi level dives (annex II, chapter 9).

2.2 - Operation Pressure

Pressures during operations are measured in pressures relative to atmospheric pressure. Decompression tables use a standard

TABLE N°1

DEPTH (m)	PRESSURE (bar)		PRESSURE (hPa)	
	Relative	Absolute	Relative	Absolute
0	0.0	1.0	0	1000
3	0.3	1.3	300	1300
6	0.6	1.6	600	1600
9	0.9	1.9	900	1900
12	1.2	2.2	1200	2200
15	1.5	2.5	1500	2500
18	1.8	2.8	1800	2800
21	2.1	3.1	2100	3100
24	2.4	3.4	2400	3400
27	2.7	3.7	2700	3700
30	3.0	4.0	3000	4000
33	3.3	4.3	3300	4300
36	3.6	4.6	3600	4600
39	3.9	4.9	3900	4900
42	4.2	5.2	4200	5200
45	4.5	5.5	4500	5500
48	4.8	5.8	4800	5800
51	5.1	6.1	5100	6100
54	5.4	6.4	5400	6400
57	5.7	6.7	5700	6700
60	6.0	7.0	6000	7000

Slight variations can be applied to the tables starting at the atmospheric pressure level and can be used with no modification :

- At altitudes ranging between 0 and 300 metres above sea level,
- And for a barometric pressure variation of 0 to 50 hPa (0.05 bar).

If local pressure does not enter within these limits, an altitude correction must be applied as described in Annex II, chapter 10.

The unit of pressure used is the bar (1000 hPa). Table n°1 gives equivalence between pressures (in bar and hPa) and submersion depths below the surface of the underground water-table.

atmospheric pressure on surface of 1000 hPa (1 bar).

2.3 - Duration Of Operation

The duration of an operation is the time elapsed from the beginning of pressurisation in the chamber (or in the lock) up to the beginning of decompression.

The time are expressed in hours and minutes (00h00). All events relative to a given operation should be measured by one watch only.

2.4 - Selection Of Decompression Table

Decompression tables are established for working pressures going up to 4.8 bars in 0.15 bar increments. Above 4.8 bars the procedure to apply must be specifically authorised by the Labour Ministry.

Pressures and working times of an operation seldom correspond exactly with those of the tables. Therefore, it is recommended :

- To select table whose pressure is equal to the actual working pressure or immediately above it,
- To use in this table the time equal to the actual working time or the time immediately above it.

The person operating under pressure must always have on hand a back-up table in case the planned working time is exceeded. It is the reason why for each pressure, the last time is given in a separate table (tables n°4 and n°5).

2.5 - Re-Ascent To The First Stop

At the beginning of decompression, the person operating is decompressed to the pressure of the first stop or the surface at a constant rate. This decompression must be performed at a maximal rate of 1000 hPa/min (1 bar/min). The value given in the table corresponds to 300 hPa (0.3 bar/min).

2.6 - Duration Of Decompression Stops

The duration of the stop starts when the person operating reaches the pressure of the stop.

The durations of decompression stops are indicated in each table.

The last minute of the stop time is used to decompress to the pressure of the next stop (or to atmospheric pressure).

2.7 - Decompression With Stops Breathing Oxygen

2.7.1 - Aim

Breathing pure oxygen on mask accelerates the elimination of inert gases and consequently reduce decompression time. Decompression tables with oxygen stops are well-adapted to long or/and high pressure operations.

As a rule, the deeper are oxygen stops the more efficient is the decompression process. This is why the stop at 300 hPa (0.3 bar) is cumulated with the stop at 600 hPa (0.6 bar) in all tables using pure oxygen breathing.

2.7.2 - Limits

The use of hyperbaric oxygen is limited for toxicity reasons. Decompression tables use pure oxygen breathing on mask at 1200, 900 and 600 hPa (1.2, 0.9, 0.6 bar). In this instance, no 300 hPa (0.3 bar) stop is made.

2.7.3 - Oxygen Breathing Method

The use of oxygen increases the risk of fire. For this reason, the percentage of oxygen in a hyperbaric atmosphere is limited to 25 %, and

it is advisable to continuously check the oxygen ratio in the decompression lock during oxygen breathing on mask.

Masks used for oxygen breathing must be equipped with a dump valve to prevent an exercise entry of oxygen in the locks.

The lock ventilation system permits to keep the oxygen ration as close as possible of 21 %.

For similar reasons during the use of pure oxygen in decompression, all grease presenting a risk of fire because of high oxygen partial pressures must be strictly prohibited in the decompression lock.

2.7.4 - Interruptions

Decompressions using oxygen stops require, every 25 minutes, periodic interruptions of 5 minutes while the person operating breathes the ambient air. These 5 minutes interruptions are included in the stop time.

2.7.5 - Decompression Logging

Strict use of procedures is the basis of safe decompression.

A good record-keeping allows a clear control of decompression procedures.

Decompression report should show the following data :

- Date of operation,
- Names of participating persons and of the operation supervisor (his signature on the report),
- Location of operation,
- Pressure of operation,
- Surface interval of participants,
- Time of pressurisation (time of beginning of decompression for the maximal time under pressure allowed for each person),
- Type of work to be performed,
- Time of beginning of decompression,
- Decompression procedure used and description of gases breathed by participants, times of arrival and departure for each stop,
- Names of surface attendants, etc.

The report should be used as a working document and filled in during the dive.

2.7.6 - Decompression Accidents Factors

Extreme conditions and hard work are often the cause of decompression accidents.

There is evidence that poor physical condition, stress, cold, hyperthermia, fatigue accumulated after weeks of intensive operations make the person operating more susceptible to decompression sickness.

All these factors should be taken into consideration when selecting a decompression table.

When the operation's conditions are such that they can endanger the decompression safety, use the next longer bottom time available in the table to provide the persons operating with an extra safety margin.

3 - Post Decompression Procedures

3.1 - Post Decompression Activities

Persons coming out of a decompression should not indulge in hard physical activity such as running, stair climbing, table tennis, callisthenics, etc. Likewise, these persons should not be assigned to physically demanding tasks for at least two hours.

3.2 - Post Decompression Surveillance

The symptoms of decompression accidents generally become apparent within a half hour after surfacing to atmospheric pressure, but

cases have occurred as long as 10 hours afterwards. The person should therefore, in compliance with the décret, remain within immediate reach of a therapeutic chamber for at least 12 hours after the end of his decompression.

ANNEX VI

EMERGENCY RECOMPRESSION

Emergency recompression tables must be applied :

- When an incident or accident causes the omission of part of the decompression even if no symptom becomes apparent,
- When a symptom of decompression accident becomes apparent, even after a normal decompression.

These tables must be applied in the therapeutic chamber whose availability is required by the present regulation and according to the decision of the doctor assigned as per article 38, paragraph b of décret.

Emergency table n°1 is used when occurs a significant omission in the decompression and in the case of painful symptoms of type I.

Emergency table n°2 is used when neurological symptoms of type II become apparent and in case of pulmonary overpressure.

TABLE N°1

EMERGENCY RECOMPRESSION TABLE FOR TYPE I DECOMPRESSION ACCIDENTS					
Pressure Relative bar	Duration	Gas Breathed		Modalities (*)	Cumulated Times
		Victim	Attendant		
1.2	120 min	Oxygen	Air	4 periods	2 h 00
1.2 to 0	30 min	Oxygen	Oxygen	Continuous	2 h 30

(*) Period = 1 period corresponds to mask breathing on oxygen during 25 minutes then breathing ambient air during 5 minutes.

Continuous = Continuous mask breathing

TABLE N°2

EMERGENCY RECOMPRESSION TABLE FOR TYPE II DECOMPRESSION ACCIDENTS OR FOR PULMONARY OVERPRESSURE					
Pressure Relative bar	Duration	Gas Breathed		Modalities (*)	Cumulated Times
		Victim	Attendant		
3	60 min	Heliox 50/50**	Air	Continuous	1 h 00
3 to 2.4	30 min	Heliox 50/50**	Air	1 Period	1 h 30
2.4	30 min	Heliox 50/50**	Air	1 Period	2 h 00
2.4 to 1.8	30 min	Heliox 50/50**	Air	1 Period	2 h 30
1.8	60 min	Oxygen	Air	2 Periods	3 h 30
1.8 to 1.2	30 min	Oxygen	Air	1 Period	4 h 00
1.2	180 min	Oxygen	Oxygen	6 Periods	7 h 00
1.2 to 0	30 min	Oxygen	Oxygen	Continuous	7 h 30

(*) Period = 1 period corresponds to mask breathing on suroxygenated mix or oxygen during 25 minutes, then breathing ambient air during 5 minutes.

Continuous = Continuous mask breathing.

(**) Heliox 50/50 = For treatment of accidents occurring in compressed air, a mixture of 50 % nitrogen/50 % oxygen may eventually be used.

ORDER OF 22 DECEMBER 1995 RELATING TO THE SAFETY TRAINING METHODS OF SOME MARINE EQUIPMENT COMPANIES OPERATING IN A HYPERBARIC ENVIRONMENT

Ministry of Equipment, Lodging, Transport and Tourism

Order of 22 December 1995 relating to the safety training methods of seamen of some marine equipment companies operating in a hyperbaric environment

NOR : EQUH9501874A

The Minister for Equipment, Lodging, Transport and Tourism,
Having regard to decree n°90-277 of 28 March 1990 relating to the protection of workers operating in a hyperbaric environment, in particular articles 31 and 32 ;
Having regard to the order of 28 January 1991 defining the safety training methods for personnel involved in hyperbaric operations ;
Having regard to the order of 28 March 1991 defining the recommendations to company doctors responsible for the medical supervision of workers operating in a hyperbaric environment ;
Having regard to the order of 20 August 1991 stating the conditions for derogation from the age limit to apply for a certificate in hyperbarics ;
Having regard to the order of 15 May 1992 defining the procedures for access, time spent, departure and organisation of work in a hyperbaric environment, in particular article 5 ;
Having regard to the opinion of the specialised committee for marine vocational training of 23 November 1995,

Orders :

Article 1

These provisions shall apply to seamen who hold a professional seaman's record and carry out one of the specific subaquatic activities described in article 3, for which the special conditions and measurements of equivalent effect are fixed relating to the definition of diving crews, diving procedures and training to guarantee safety during activities carried out in a hyperbaric environment.

Article 2

To benefit from the provisions in annex I of this order relating to the definition of diving crews and procedures, seamen who hold a hyperbaric certificate, mention B, which states the specific qualifying option obtained as defined in article 3 below, must also hold an individual diver's record in accordance with the provisions stated in article 3 of the aforementioned decree of 28 March 1990, issued by the I.N.P.P. under the conditions stated in the third paragraph of article 2 - II of the aforementioned order of 28 January 1991 (1).

Article 3

There are five specific qualifying options attached to the hyperbaric certificate, mention B :
Sub-marine harvests : for the harvest of authorised animal and vegetable species other than coral ;
Marine cultivation : for farming and farming production ;
Immersed farming structures : for the installation and maintenance of immersed structures for marine cultivation ;
Diving from vessels : for seamen on board commercial, fishing and pleasure vessels ;
Coral fishing : for the harvest of authorised coral species.

Article 4

The Sub-marine harvests and Marine cultures options are the subject of an examination

defined in annex III (1).
The immersed farming structures, Diving from vessels, and Coral fishing options are the subject of an examination defined in annex III following a supplementary training course, defined in annex II, given by an organisation approved in accordance with the provisions of article 2, paragraph II of the aforementioned order of 28 January 1991 (1).

Article 5

The head of the department for seamen and general administration is responsible for the enforcement of this order, which will be published in the Journal Officiel of the French Republic.

Paris, 22 December 1995

For the Minister and by delegation :
In absence of the Head
of the department for seamen and
general administration :
The Chief Administrator
of Maritime Affairs
G. GASC

(1) The annexes mentioned in articles 2 and 4 of this order can be consulted at the Ministry of Equipment, Lodging, Transport and Tourism (seamen and general administration department, bureau of maritime education [GM/2], telephone : (1) 44.49.83.31 and at the seamen's health and safety office [GM/3], telephone : (1) 44.49.83.39 , 3, Place de Fontenoy - 75700 Paris 07SP.

ANNEX I

Definition of Diving crews and Procedures

ANNEX II

Supplementary Training Course to Mention B

ANNEX III

Examination regulations

ANNEX I

To the order of 22 December 1995

DEFINITION OF DIVING CREWS AND PROCEDURES

Chapter I :

- Sub-marine harvests,
- Marine cultivation,
- Immersed farming structures,
- Diving from vessels.

Chapter II :

- Coral fishing.

CHAPTER 1

SUB-MARINE HARVESTS
MARINE CULTIVATION
IMMERSED FARMING STRUCTURES
DIVING FROM VESSELS

1 - COMPOSITION OF CREWS
On sites involving sub-aquatic operations, the minimum composition of crews carrying out the activities stated above is fixed as follows :

1.1 - For operations up to relative pressure of 1200 hPa :
On the surface, the crew can comprise one person with a hyperbaric certificate, class I mention B, and with the appropriate marine training in handling the support vessel, this person combines the duties of head of hyperbaric operations and rescue diver ;
In diving, it can be reduced to one person not linked to the surface.
These provisions require that personnel on the surface and diving have appropriate equipment allowing :

- The rescue diver to be permanently linked to the boat during his rescue operation ;
- Any diver in difficulty to be recovered and pulled on board.

1.2 - For operations at relative pressure greater than 1200 hPa :
1.2.1 - On the surface, the crew comprises at least :

- One seaman, with proof of appropriate marine training in handling the support vessel, carrying out the duties of head of hyperbaric operations ;
- And one rescue diver, holder of a hyperbaric certificate in the class in which the operation is taking place.

1.2.2 - In diving, it can be reduced to one diver permanently linked to the surface.

2 - SPECIAL PROCEDURE (Diving from vessel)

For divers on board fishing or commercial vessels, intervening in an emergency and not on site, for a diving time which does not involve the use of decompression stoppages, the presence of a therapeutic chamber accessible in less than two hours is not required.

CHAPTER 2

CORAL FISHING

1 - Composition of diving crews

The minimum composition of diving crews for coral fishing is defined as follows.

1.1 - On the surface, it can be reduced to one person, with a hyperbaric certificate, class I mention B with the appropriate marine training in handling the support vessel, instructed by the employer in the special procedures for coral fishing ; this person will combine the duties of head of hyperbaric operations and rescue diver ;

1.2 - In diving, it can be limited to one person not linked to the surface.

These provisions require that personnel on the surface and in diving wear the appropriate equipment following :

The rescue diver to be linked permanently to the boat during his rescue operation ;
The diver in difficulty to be recovered and pulled on board.

Descent to the bottom is made along a buoy rope guide with a buoy on the surface.

During ascent, the diver releases a recovery buoy to which he remains tied, and which the support vessel hauls in to carry out the stoppages.

2 - OPERATION PROCEDURES

2.1 - Limits of operation

For coral fishing, diving with aqualungs can be carried out up to relative pressure of 9000 hPa (9 bars).
Above relative pressure of 6000 hPa (6 bars), synthetic respiratory mixtures must be used in accordance with section III of decree n°90-277 of 28 March 1990.
Decompression is carried out for operations :
2.1.1 - Up to relative pressure of 6000 hPa, with the Air/Oxy/6 m or Air/Oxy/12 m tables appearing in annex II to the order of 15 May 1992 ;
2.1.2 - From 6000 to 9000 hPa relative pressure, with the Heliox/Turret tables appearing in annex III of the said order or the Tri-Mixtures tables appearing in the appendix to this annex.

The surface decompression procedure is prohibited for any operation above 6000 hPa.

2 - COMPOSITION OF MIXTURES

Two tri-mixtures are used (see tables) :

- From 60 to 70 metres, a mixture containing 18 % oxygen, 67 % nitrogen and 15 % helium, prepared by mixing 15 % helium and 85 % air,
- From 75 to 90 metres, a mixture containing 15 % oxygen, 55 % nitrogen and 30 % helium, prepared by mixing 30 % helium and 70 % air.

These mixtures, which are hypoxic at atmospheric pressure, should not be breathed on the surface for longer than the time necessary for immersion which should be done without delay.

2.3 - USE OF DIVING TABLES

2.3.1 - The time at the bottom begins from immersion. The duration of the ascent to the

first stoppage is given in the table and is part of the decompression table. It should be strictly observed.
During the stoppages, the divers breathe :

- the bottom mixture or air up to 12 metres,
- then pure oxygen from 12 metres to the surface.

2.3.2 - The duration of the stoppage change is :

- ONE MINUTE when the divers are breathing the bottom mixture or air,
- THREE MINUTES when the divers are breathing pure oxygen.

2.3.3 - The time spent in changing the mixtures is not included in the decompression. A stoppage only begins when the diver is actually breathing the prescribed mixture.
2.3.4 - The table shows for each dive the total duration of decompression, including stoppage changes.
2.3.5 - For each depth, the last line of time spent at the bottom, in italics, should not be used for a programmed dive. It is an emergency decompression which can only be used exceptionally in the event of accidentally exceeding the time spent on the bottom or in the event of a rapid ascent, according to the procedure defined in section 5 below.

2.4 - SUCCESSIVE DIVES
Successive dives are forbidden.
The interval between two dives (from the moment of immersion) cannot be less than 24 hours.

2.5 - RAPID ASCENT
2.5.1 - In the event of an ascent at a speed greater than the set speed, the diver must reimmerse himself, if he is fit and healthy, in less than three minutes at the semi-depth where he has a stoppage of five minutes. The decompression is resumed by applying the emergency table given for the longest time spent at the bottom at the depth of the first dive.
2.5.2 - If the diver cannot reimmerse himself in less than three minutes, if he shows signs of a diving accident, or if he does not feel in sufficient physical condition to return to the semi-depth, he must be considered to be an accident victim and treated as such.

2.6 - INTERRUPTION OF STOPPAGES
2.6.1 - Stoppages with air or bottom mixture
When circumstances mean that the progress of the air or bottom mixture stoppages has to be interrupted, the diver must, if he is fit and healthy, reimmerse himself in less than three minutes at the depth of the stoppage he has just left. From this depth he applied the decompression given in the emergency table if the time spent at the bottom has been exceeded for the depth of the dive made.

If the diver cannot reimmerse himself in less than three minutes, if he shows signs of a diving accident, or if he does not feel in sufficient physical condition to reimmerse himself, he must be considered to be an accident victim and treated as such.

2.6.2 - Oxygen stoppages
When the diver has to interrupt his pure oxygen stoppages, he must, if he is fit and healthy, reimmerse himself in less than three minutes at a depth of 12 metres and recommence all of the oxygen stoppages.

If the diver cannot reimmerse himself in less than three minutes, if he shows signs of a diving accident, or if he does not feel in sufficient physical condition to reimmerse himself, he must be considered to be an accident victim and treated as such.

2.7 - THERAPEUTIC REIMMERSION
Therapeutic reimmersion is forbidden.

2.8 - EMERGENCY RECOMPRESSION
In the event of signs of a decompression accident, apply the provisions in annex VI of the order of 15 May 1992.

APPENDIX

COMPOSITION OF TERNARY MIXTURES

FOR DIVING WITH AN AQUALUNG (OPEN CIRCUIT)

60-90 M SECTION

(8 TABLES)

The composition of the mixtures is given in percentage of volume.

[8 tables follow]

APPENDIX

WITH AN AQUALUNG (OPEN CIRCUIT)

Partial pressures breathed (in bars) at different depths							
60 m		70 m		75 m		90 m	
PiO2	PiN2	PiO2	PiN2	PiO2	PiN2	PiO2	PiN2
1.3	4.7	1.4	5.4				
				1.3	4.7	1.5	5.5

ATION (IN MINUTES) PF STOPPAGES								TOTAL DURATION OF DECOMPRESSION (MIN)
m Mixture				Oxygen				
24 m	21 m	18 m	15 m	12 m	9 m	6 m	3 m	
					3	3	5	25
				3	3	4	10	37
		3	7	4	7	12	22	73
		7	7	5	10	12	29	88
	3	6	7	9	9	18	30	101
7	7	14	16	14	20	23	37	163
7	12	14	19	17	20	24	41	181
13	13	17	34	17	20	30	45	217

ATION (IN MINUTES) PF STOPPAGES								TOTAL DURATION OF DECOMPRESSION (MIN)
m Mixture				Oxygen				
24 m	21 m	18 m	15 m	12 m	9 m	6 m	3 m	
					3	3	5	26
				3	3	4	20	48
		6	7	4	9	12	26	83
	4	6	7	7	10	15	30	99
	7	7	10	9	10	21	30	114
7	11	14	18	17	20	23	41	181
11	13	17	34	17	20	30	45	222

ATION (IN MINUTES) PF STOPPAGES								TOTAL DURATION OF DECOMPRESSION (MIN)
m Mixture				Oxygen				
24 m	21 m	18 m	15 m	12 m	9 m	6 m	3 m	
					3	4	5	28
				3	3	4	23	52
	4	6	7	5	10	12	29	94
	7	7	8	9	9	18	31	100
4	6	6	14	9	10	24	31	125
11	12	16	34	17	20	24	46	219

ATION (IN MINUTES) PF STOPPAGES								TOTAL DURATION OF DECOMPRESSION (MIN)
m Mixture				Oxygen				
24 m	21 m	18 m	15 m	12 m	9 m	6 m	3 m	
				3	3	3	7	35
			7	3	3	8	26	57
1	6	6	7	7	10	13	30	102
5	5	6	11	9	10	21	30	119
5	5	9	14	9	14	24	30	136
11	12	24	34	17	20	33	46	245

ATION (IN MINUTES) PF STOPPAGES								TOTAL DURATION OF DECOMPRESSION (MIN)
m Mixture				Oxygen				
24 m	21 m	18 m	15 m	12 m	9 m	6 m	3 m	
		3	4	5	5	8	15	61
1	3	6	7	4	9	12	25	90
4	5	6	7	8	10	16	30	109
5	5	6	14	9	10	24	30	129
5	6	11	15	9	17	24	30	145
14	28	31	36	17	26	36	71	336

ATION (IN MINUTES) PF STOPPAGES								TOTAL DURATION OF DECOMPRESSION (MIN)
m Mixture				Oxygen				
24 m	21 m	18 m	15 m	12 m	9 m	6 m	3 m	
5	6	11	17	9	14	24	30	150
6	13	15	17	14	19	24	35	184
12	13	21	36	17	20	29	45	255

ATION (IN MINUTES) PF STOPPAGES								TOTAL DURATION OF DECOMPRESSION (MIN)
m Mixture				Oxygen				
24 m	21 m	18 m	15 m	12 m	9 m	6 m	3 m	
5	6	14	17	9	17	24	30	160
12	13	29	36	17	20	33	52	283

ANNEX II

To order of 22 December 1995

SUPPLEMENTARY TRAINING COURSE TO MENTION B
TERMS OF REFERENCE AND PROGRAMMES

CHAPTER I
SPECIALITY : IMMERSED
FARMING STRUCTURES

1 - TERMS OF REFERENCE OF EMPLOYMENT

- To train and qualify seamen in techniques of subaquatic operations on immersed farming sites in closed water and at sea, for installation or maintenance,
- This specialisation is given in class I, mention B.

2 - TERMS OR REFERENCE OF TRAINING

A - Theoretical knowledge

Knowledge Decree 90.277 of 28.03.1990 and orders of 28.01.1991, 28.03.1991, 15.05.1992, order of ... stating the composition of the diving crew for marine equipment companies - Be able to know and interpret the different legislative texts relating to safety in a subaquatic environment and in particular the provisions of annex I of this order.

Knowledge sub-marine pneumatic, hydraulic and pyrotechnic tools - Be able to describe and know the use of sub-marine tools used to remove sand, anchor, lift, cut, solder, in the required safety conditions.

Knowledge sub-marine tools - Be able to carry out the current maintenance of these different pieces of equipment.

Knowledge personal equipment - Be able to know the constituent parts, to carry out the assembly, disassembly and replacement of defective parts.

Knowledge collective equipment - Be able to know the regulations relating to the equipment .

Knowledge communications - Be able to know the different types of sub-marine means of communication.

Knowledge navigation-positioning - Be able to set a point on a sea chart from its geographical coordinates.

Knowledge sea charts - Be able to locate zones allocated to sub-marine farming cultivation.

- Knowledge tides - currents - Be able to explain the relation between current and range, to calculate a water depth and to estimate the importance of currents.
- Knowledge marine meteorology - Be able to know the vocabulary and read the measuring instruments, recognise a meteorological situation and predict its development.
- Knowledge buoyage - search - Be able to study buoyage in an area allocated to marine cultivation and know the methods of search on the bottom from a known point.
- Knowledge diving accidents - Be able to know the symptoms of different diving accidents, be able to react correctly and follow an emergency and evacuation procedure, be able to know emergency treatment at the scene, and be able to know the emergency procedures.

B -Practical knowledge

- Knowledge seamanship in diving - Be able to recognise the different kinds of rope and steel lines. Tie the following knots while diving :
  - n bowline hitch,
  - n reef knot,
  - n sheet bend,
  - n fisherman's bend,
  - n carrick bend,
  - n round turn and two half hitches.

  Coil - stopper - slack - turn - tighten.

  Notions of resistance of lines and ropes.
- Knowledge wet and dry clothing - Be able to know and use the different types of protective clothing against the cold, wet or dry type.
- Knowledge diving with an aqualung and surface supply line - Be able to carry out and gradually become used to increasing immersion with aqualung or surface supply line, with work and effort. Know and prevent breathlessness during work.
- Knowledge sub-marine tools - Be able to use the different tools, and carry out lifting,

cutting soldering, sealing, clearing...
Knowledge sub-marine filming - Be able to use different types of cameras, watertight units, sub-marine lighting and take photographic and video films.
Knowledge marine cultivation site - Be able to install and disassemble sub-marine ropes and cages.
Knowledge communications - Be able to know how to use the different methods of sub-marine communication.

3 - TRAINING PROGRAMME
The training course comprises two weeks of classes at 35 hours per week of teaching based on the following distribution :

Disciplines	*Total Hours*
1 - Regulations - Operation procedures	*8 h*
2 - Technical instruction	*12 h*
3 - Safety - Emergency procedures	*4 h*
4 - Workshop - Practical exercises	*201 h*
5 - Practical work - Hyperbaric operations	*26 h*
TOTAL	*70 h*

CHAPTER II
SPECIALITY :
« DIVING FROM VESSEL »

1 - TERMS OF REFERENCE OF EMPLOYMENT
Train and qualify seamen on board fishing, commercial and pleasure vessels for subaquatic operations linked to the current services of a vessel, and for repair and safety techniques,
This speciality is given in classes I and II, mention B.

2 - TERMS OF REFERENCE OF TRAINING
A - Theoretical Knowledge
Knowledge Decree 90.277 of 28.03.90, Orders of 28.01.91, 28.03.91, 15.05.92, Sea Order stating the composition of the diving crew in marine equipment companies - Be able to know and interpret the different statutory texts relating to safety in a hyperbaric environment and in particular the provisions of ANNEX I of this order,
Knowledge Sub-marine pneumatic, hydraulic and pyrotechnic tools - Be able to know the principles of operation of equipment for soldering, cutting, lifting, sealing, filling, brushing,
Knowledge search under hull and filling - Be able to know the methods of searching under the hull by day and night - Be able to know the different types of damage which may occur on quick works - Be able to know the methods of filling a breach,
Knowledge construction of the hull of a vessel - Be able to define the characteristics of a vessel,
Knowledge partitioning - Be able to locate the different parts of a vessel - Be able to justify and define partitioning procedures,
Knowledge propelling apparatus - Steering apparatus - Be able to know the different types of tail shafts and propellers - Be able to know the different types of rudder blades,
Knowledge filters - Be able to know the different types of filters according to their intended use,

- Knowledge stabilisation - Bilge keels - Be able to know the different types of stabilisation bars and bilge keels,
- Knowledge sub-marine filming - Be able to know the different types of photo and video cameras, used in watertight units, and sub-marine lighting for filming,
- Knowledge personal and collective equipment - Be able to know the different types of diving equipment, personal and collective, such as aqualung, air line,
- Knowledge means of communication - Be able to know the means of communication, ensure maintenance and know the related regulations,
- Knowledge diving accidents - Be able to know the symptoms of diving accidents, be able to react correctly, give immediate treatment and provide emergency evacuation procedure - Be able to know emergency procedures.

B - Practical Knowledge

- Knowledge seamanship in diving - Be able to tie the following knots under water :
  - bowline hitch,
  - reef knot,
  - sheet bend,
  - fisherman's bend,
  - carrick bend,
  - round turn and two half hitches,

  Be able to know the different types of rope and steel lines,
- Knowledge dry and wet clothing - Be able to know, use and maintain different protective clothing against the cold, dry or wet,
- Knowledge aqualung, surface supply line -Be able to use aqualung, surface supply line in diving, with work, at increasing depths day and night,
- Knowledge communications - Be able to know the different types of sub-marine means of communication - Be able to know

how to combat breathlessness and prevent it, Knowledge sub-marine tools - Be able to use the different sub-marine tools in diving and carry out soldering, cutting, sealing, filling, brushing, sectioning of rope or steel lines,	• Knowledge search - Orientation - Be able to carry out various search methods on the bottom and under the hull, • Knowledge hull inspection - Be able to carry out a reconnaissance by day and night, give exact positioning and carry out sub-marine filming.
3 - Training Programme a - DIVING FROM VESSELS CLASS I - MENTION B The training course comprises one week of classes at 35 hours teaching per week and based on the following distribution :	a - DIVING FROM VESSELS CLASS II - MENTION B The training course comprises one week of classes at 35 hours teaching per week and based on the following distribution :

Disciplines	*Total Hours*	*Disciplines*	*Total Hours*
1 - Regulations - Operation procedures	*4 h*	1 - Regulations - Operation procedures	*5 h*
2 - Technical instruction	*6 h*	2 - Technical instruction	*5 h*
3 - Safety - Emergency procedures	*3 h*	3 - Safety - Emergency procedures	*5 h*
4 - Workshop - Practical exercises	*6 h*	4 - Workshop - Practical exercises	*4 h*
5 - Practical work - Hyperbaric operations	*16 h*	5 - Practical work - Hyperbaric operations	*16 h*
TOTAL	*35 h*	*TOTAL*	*35 h*

CHAPTER III
SPECIALITY : CORAL FISHING

1 - TERMS OF REFERENCE OF EMPLOYMENT
Train and qualify fishermen in techniques of free diving necessary for harvesting coral,
This specialisation is given in classes II and III,
Access to class III is subject to significant prior experience of the work in class II, in this activity, within mentions A and B.

2 - TERMS OF REFERENCE OF TRAINING
A - Theoretical Knowledge

For Class II

Knowledge Decree 90.277 of 28 March 90 - Order of 28 January 91 - Order of 28 March 91 - Order of 15 May 92 - Sea order stating the composition of diving crew for marine equipment companies - Be able to know the general text defining the methods of the protection of workers operating in a hyperbaric environment and in particular articles 3 and 32 of the decree - Know the conditions for medical skills - Know the safety training procedures - Know the methods and procedures for access for time spent and departure from a hyperbaric environment and in particular annex I of the Sea Order,
Knowledge personal diving equipment, clothing, accessories, bottles, surface supply lines, head equipment - Be able to know how to use the different protective clothing against the cold and the accessories necessary for diving,
Knowledge collective equipment, compressors, recompression chambers - Be able to know and know how to use and maintain gas compressors - Be able to know how to operate a therapeutic chamber,
Knowledge safety equipment - Be able to know and know how to operate the different safety and call procedures,

- Knowledge decompression tables from the Ministry of Labour - Be able to know how to read, interpret and implement the decompression tables for air and oxygen,
- Knowledge emergency procedures in the event of an accident, different types of diving accidents - Be able to know reactions in the event of a diving accident, know how to use emergency procedures and possibly recompress an accident victim in a chamber,
- Knowledge biology, ecology and utilisation of coral - Be able to know how to recognise the different varieties of usable coral, their way of life, growth, reproduction, know the coral environment, pollution, protected areas, its use in jewellery.

For Class III

- Knowledge synthetic respiratory mixtures, Nitrogen, Oxygen, Helium - Be able to know the physiological bases concerning each gas with limits of use,
- Knowledge constitution of mixtures - Be able to know the constitution of the different synthetic binary or tri-mixtures,
- Knowledge making binary tri-mixtures - Be able to know the different methods for making the mixtures from the gases used, Safety instructions, types of superchargers,
- Knowledge analysis equipment - Be able to know how to use the different types of gas analyser, Calibration,
- Knowledge physio pathology of high pressures - Be able to know the signs of the high pressure nervous syndrome (S.N.H.P.), Recognise the symptoms of decompression disease after deep diving,
- Knowledge procedures and reactions in the event of an accident - Be able to know how to react in the event of an accident and know emergency procedures to be used, Know the treatment to be given immediately.

B - Practical Knowledge

For Class II

Knowledge independent diving at 60 metres - Be able to carry out and gradually become used to immersions up to a depth of 60 metres,

Knowledge monitoring of diving - Be able to apply the texts and special provisions for safety and rescue stated in ANNEX I to this order,

Knowledge surface supply line - Be able to use the surface supply line for decompression in open water, with different types of mixtures or pure oxygen,

Knowledge abnormal ascent, decompression accident - Be able to know how to react in the event of an abnormal ascent and carry out emergency recompression in a chamber, Monitor therapeutic decompression in a chamber, know the emergency and rescue procedures,

For Class III

- Knowledge diving at 90 metres - Be able to carry out and gradually become used to immersions with respiratory mixtures up to 90 metres depth,
- Knowledge making mixtures - Be able to make ternary respiratory mixtures by adding helium to air or binary mixtures : helium - oxygen,
- Knowledge control of mixtures - Be able to use gas analyzers to control mixtures made or supplied by an outside company,
- Knowledge emergency procedures - Be able to application and implementation of emergency procedures.

3 - Training Programme

a - CORAL FISHING CLASS II - MENTION B

The training course comprises three weeks of classes at 35 hours per week of teaching and based on the following distribution :

Disciplines	*Total Hours*
1 - Regulations - Operation procedures	*10 h*
2 - Technical instruction	*20 h*
3 - Safety - Emergency procedures	*5 h*
4 - Workshop - Practical exercises	*25 h*
5 - Practical work - Hyperbaric operations	*45 h*
TOTAL	*105 h*

b - CORAL FISHING CLASS III - MENTION B

The training course comprises three weeks of classes at 35 hours per week of teaching and based on the following distribution :

Disciplines	*Total Hours*
1 - Regulations - Operation procedures	*8 h*
2 - Technical instruction	*12 h*
3 - Safety - Emergency procedures	*10 h*
4 - Workshop - Practical exercises	*22 h*
5 - Practical work - Hyperbaric operations	*53 h*
TOTAL	*105 h*

ANNEX III

To order of 22 December 1995

EXAMINATION REGULATIONS

1 - Immersed farming structures (class I, mention B)

2 - Diving from vessels
  a - class I - mention B
  b - class II - mention B

3 - Coral fishing
  a - class II - mention B
  b - class III - mention B

4 - Sub-marine harvests - Sub-marine cultivation

SPECIALITY :

IMMERSED FARMING STRUCTURES

The examination to obtain the hyperbarics certificate CLASS I - MENTION B comprises written, oral and practical tests marked from 0 to 20. The nature, duration and coefficients of these tests are given in the table below :

Disciplines	*Duration*	*Coefficient*
Written tests		
n Regulations	20’	1
n Emergency procedures	20’	1
n Safety and equipment		
Total	20’	2
		4
Practical tests		
n Safety exercises		
n Organisation	2 h	2
Total	2 h	2
		4
Oral tests		
n Rescue safety		
Total	30’	2
		2
General Total		10

SPECIALITY :

DIVING FROM VESSELS

The examination to obtain the hyperbarics certificate CLASS I - MENTION B comprises written, oral and practical tests marked from 0 to 20. The nature, duration and coefficients of these tests are given in the table below :

Disciplines	*Duration*	*Coefficient*
Written tests		
n Regulations	20’	1
n Emergency procedures	20’	1
n Safety and equipment	20’	2
Total		4
Practical tests		
n Safety exercises	2 h	2
n Organisation	2 h	2
Total		4
Oral tests		
n Rescue safety	30’	2
Total		2
General Total		10

SPECIALITY :

DIVING FROM VESSELS

The examination to obtain the hyperbarics certificate CLASS II - MENTION B comprises written, oral and practical tests marked from 0 to 20. The nature, duration and coefficients of these tests are given in the table below :

Disciplines	*Duration*	*Coefficient*
Written tests		
n Regulations	20’	1
n Emergency procedures	20’	1
n Safety and equipment	20’	2
Total		4
Practical tests		
n Safety exercises	2 h	2
n Organisation	2 h	2
Total		4
Oral tests		
n Rescue safety	1 h	2
Total		2
General Total		10

SPECIALITY :

CORAL FISHING

The examination to obtain the hyperbarics certificate CLASS II - MENTION B comprises written, oral and practical tests marked from 0 to 20. The nature, duration and coefficients of these tests are given in the table below :

Disciplines	*Duration*	*Coefficient*
Written tests		
n Regulations	20’	1
n Emergency procedures	20’	1
n Safety and equipment	20’	2
Total		4
Practical tests		
n Safety exercises	2 h	2
n Organisation	2 h	2
Total		4
Oral tests		
n Rescue safety	1 h	2
Total		2
General Total		10

SPECIALITY :

CORAL FISHING

The examination to obtain the hyperbarics certificate CLASS III - MENTION B comprises written, oral and practical tests marked from 0 to 20. The nature, duration and coefficients of these tests are given in the table below :

Disciplines	*Duration*	*Coefficient*
Written tests		
n Regulations	20’	1
n Emergency procedures		
n Safety and equipment	20’	1
Total		
	20’	2
		4
Practical tests		
n Safety exercises		
n Organisation		
Total	4 h	2
	2 h	2
		4
Oral tests		
n Rescue safety		
Total		
	1 h	2
		2
General Total		10

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General Texts
Ministry of Labour and Solidarity

Decree of 24th March 2000 modifying the Decree of 28th January 1991 relating to the definition of procedures for safety training of personnel taking part in hyperbaric operations.

The Minister of Labour & Solidarity, the Minister of Agriculture & Fisheries and the Minister of Equipment, Transportation & Lodging,

In consideration of the Order N° 92/51/CEE of 18th June 1992 relating to a second general system of approval for the professional qualifications in complement of Order 89/48/CEE;

In consideration of Decree N° 90-277 of 28th March 1990 relating to the protection of workers operating in a hyperbaric environment, in particular Decree's articles 3 and 32;

In consideration of the Decree of 28th January 1991 defining the procedures for safety training of personnel taking part in hyperbaric operations;

In consideration of the Recommendation given by the Council for the Prevention of Occupational Risks,

In consideration of the Recommendation given by the National Committee for Health and Safety in Agricultural Work,

are decreeing :

Article 1.– Paragraph III of Art. 2 of Decree of 28th January 1991 is abrogated and replaced by the following paragraph:

"III.- Persons who are holders of one of the training certificates listed in annex III of the present decree may apply for exemption from all or part of the training. To this end, a request should be addressed from the place of residence, according to the case, to either the Regional Director of Labour & Employment, or to the Head of Regional Labour & Employment Inspection and Agricultural Social Policies, or to the Regional Director of Maritime Affairs, who will issue an attestation of equivalence to the appropriate certificate in conformity with instructions of above paragraph I, and after endorsement from INPP to be notified within one month.

The equivalence to the Certificate of competence is assessed by examining the applicant's qualifications and his professional experience in connection with the applicant's activities and the type of hyperbaric work to be performed. In view of this, the applicant should constitute a file with documents supporting the qualifications and acquired experience to justify his request.

When the assessment of the documents shows that the applicant's professional competence is insufficient in matters of health and safety and does not reach the level of the requested certificate, the involved Regional Director will inform the applicant, and he will offer him either to submit to a test liable to validate his acquired competence and experience or to follow an adaptation course in order to complete his skills. Disputes over this decision will be submitted to the Minister of Labour who will

adjudicate and notify his decision within one month. In default of this notification, the dispute is deemed rejected and a contentious appeal can be implemented.

According to the level and category requested and after having chosen one of the two options, the applicant contacts an approved Training Centre as mentioned in paragraph II of the present article to work out the selected option. If successful, an Equivalence Certificate to the appropriate Certificate is issued by the involved Regional Director."

Article 2.- Annex III of Decree of 28th January 1991 is modified as follows :
1. After the annex title and before subtitle:"For categories A" are inserted a I and II as follows:

"I. - General Dispositions:
All diplomas, Certificates or Qualifications obtained by Training courses, which are issued by the competent Authority of a State member of the European Union, or of a State part of the European Economic Space, are entitled to Equivalence of all or parts of training courses defined in present Decree. This equivalence is assessed in conformity with procedure mentioned in article 2.III.
II.- Specific Dispositions :"

2. In the 'b' concerning Categories A, the following words:
"Equivalent foreign diplomas or certificates subject to additional training on French regulations, in particular:

- Part I, Part II certificate issued by the Health and Safety Executive (HSE);
- Bell Diver certificate or Air Diver certificate issued by the Norwegian Petroleum Directorate (NPD)."are suppressed. They are replaced by the following words :

"Equivalent foreign diplomas or certificates issued by a State not mentioned in "I" of the present annex, with a complement of training on French Regulations."

Article. 3. The Director of Labour Relations, the Director of Operations, of Social Affairs & Employment, and the Director of Maritime Affairs and Seafarers, shall be responsible, each one in his own Directorate, of the implementation of the present Decree which will be published in the Journal Officiel of the French Republic.

Issued in Paris, 24th March 2000

The Ministry of Labour and Solidarity