Regulations of 1 January 2005 No. 8 on the working environment, health and safety of persons working on board ship

Legal basis: Laid down by the Norwegian Maritime Authority on 1 January 2005 under the Act of 9 June 1903 No. 7 relating to Public Control of the Seaworthiness of Ships, etc. and the Seamen's Act of 30 May 1975 No. 18 section 13 (3). Legal basis amended to Act of 16 February 2007 No. 9 relating to ship safety and security (Ship Safety and Security Act) sections 2, 6, 7, 8, 21, 22, 28, 28a, 29, 30, 45 and 47, cf. Formal Delegation of 16 February 2007 No. 171, Formal Delegation of 31 May 2007 No. 590 and Formal Delegation of 19 August 2013 No. 1002.
EEA references: EEA Agreement Annex XVIII point 5 (Directive 83/477/EEC amended by Directive 2003/18/EC), point 8 (Directive 89/391/EEC), point 10 (Directive 89/655/EEC amended by Directive 2001/45/EC), point 11 (Directive 89/656/EEC), point 12 (Directive 90/269/EEC), point 14 (Directive 90/394/EEC amended by Directive 97/42/EC), point 14a (Directive 2004/37/EC amended by Directive (EU) 2014/27), point 15 (Directive 2000/54/EC amended by Directive (EU) 2019/1833), point 16 (Directive 91/383/EEC articles 3 and 4), point 16h (Directive 98/24/EC), point 16j (Directive 2000/39/EC), point 16ja (Directive 2002/44/EC). For chapter 8 of these Regulations, cf. EEA Agreement Annex XVIII point 16d (Directive 92/85/EEC). For chapter 11 of these Regulations, cf. EEA Agreement Annex XVIII point 14a (Directive 2004/37/EC amended by Directive (EU) 2014/27), point 15 (Directive 2000/54/EC amended by Directive (EU) 2019/1833). For chapter 15 of these Regulations, cf. EEA Agreement Annex XVIII point 16jb (Directive 2003/10/EC). For chapter 16 of these Regulations, cf. EEA Agreement Annex XVIII point 16je (Directive 2006/25/EC).
Amendments: Amended by Regulations of 6 July 2005 No. 800, 13 January 2006 No. 28 (EEA reference), 22 February 2006 No. 264, 28 June 2006 No. 784, 4 July 2006 No. 959 (EEA reference), 30 November 2006 No. 1330, 20 December 2006 No. 1588 and 29 June 2007 No. 1006 (i.a. legal basis), 27 June 2008 No. 744, 27 March 2009 No. 390, 8 May 2009 No. 494, 9 October 2009 No. 1258, 27 April 2010 No. 606, 26 November 2010 No. 1515, 19 August 2013 No. 1036, 30 June 2014 No. 922, 20 December 2017 No. 2379, 13 July 2018 No. 1191, 23 January 2024 No. 165, 26 June 2025 No. 1372.

Chapter 1
General provisions

Section 1-1
Objective

The objective of these Regulations is to ensure that work and off-duty time on board is arranged and organised so that the safety and physical and mental health of the persons working on board is ensured in accordance with the technological and social development of society. These Regulations shall furthermore ensure that the safety and health of persons working on board is protected against risks arising or likely to arise from exposure to chemicals and biological agents in the working environment.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 1-2
Scope of application

(1) These Regulations shall apply to any person working on board a Norwegian ship, including fishing vessels, unless the person concerned only works on board while the ship is in port or only carry out inspections on board. The same applies to mobile offshore units unless otherwise provided by the Working Environment Act and the regulations currently in force relating to health, environment and safety in the petroleum activities.

(2) The provisions of Chapters 1-6, including Chapters 14-16, are general provisions on the working environment, safety and health. Chapters 7-13 contain additional provisions.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 8 May 2009 No. 494, 27 April 2010 No. 606, 26 November 2010 No. 1515 (in force on 1 December 2010), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 1-3
Duties

(1) The company, the employer, the master and other persons working on board shall see to, ensure and contribute to compliance with these Regulations in accordance with the provisions relating to responsibility laid down in the Ship Safety and Security Act and these Regulations. The safety and health of persons working on board shall be ensured in all matters associated with work or off-duty time on board.

(2) The company shall see to that the personnel of the company's land-based organisation responsible for ensuring the compliance with the provisions of these Regulations on board, has the necessary competency, including a minimum amount of training as described in section 5-14.

(3) Persons working on board shall under no circumstances incur expenses as a result of safety and health measures on board.

(4) The responsibility of the company under these Regulations is not affected by the obligations incumbent on persons working on board and their representatives. This also applies to obligations incumbent on other activities on board.
Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 1-4
Duties concerning safety and health in other activities on board

(1) If other activities are carried out on board, these shall be coordinated with the operation of the vessel in general and be organised in accordance with these Regulations.

(2) The person in charge of other activities on board and that person's employer are also required to ensure that the activities which are their responsibility are organised in accordance with these Regulations.

Section 1-5
Exemptions

(1) The Norwegian Maritime Authority may, when acceptable in terms of health and protection and not contravening international requirements, in special cases decide to grant exemptions from these Regulations.

(2) The Norwegian Maritime Authority may demand that the company submits a statement from a competent person or body in connection with an application for exemption from these Regulations.

(3) The Norwegian Maritime Authority may impose special conditions on such exemptions.

Section 1-6
Safety Management System

(1) For vessels required to have a Safety Management System under the regulations concerning a Safety Management System for passenger ships and cargo ships currently in force, the company shall ensure that the requirements laid down in these Regulations are complied with through the Safety Management System.

(2) For vessels which are not subject to the first paragraph, the company should prepare a uniform, overall plan to ensure that the requirements laid down in these Regulations are complied with.

Chapter 2
Provisions concerning the working environment, safety and health

Section 2-1
General guidelines for the working environment, safety and health

(1) The following general guidelines shall form the basis for the implementation of the provisions of these Regulations:

a. risk factors are to be eliminated;
b. any risk which cannot be eliminated shall be individually assessed;
c. any risk shall be counteracted at the source;
d. technical progress shall be taken into account;
e. common protective measures of a technical nature, or measures, methods or procedures related to the organisation of the work shall, if possible, have priority before individual protective measures.

(2) The necessary arrangements shall be made for persons working on board to be given a reasonable opportunity for professional and personal development through their work.

(3) Particular attention shall be given to organising work and off-duty time on board so as to create social and environmental conditions that are conducive to health, well-being and welfare for the persons working on board.
Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 2-2
Risk assessment

(1) Hazards on board shall be identified. When the hazard has been identified, an assessment of the risk represented by the hazard shall be made. Such risk assessment shall be made on a regular basis and:

a. whenever new working equipment or new technology is introduced, and

b. whenever other modifications are made to the organisation or planning of work, which may affect the health and safety of persons working on board.

(2) The results of the risk assessment shall be documented in writing.

(3) If a risk to the safety and health of persons working on board is identified, the necessary measures shall be taken to eliminate or reduce the hazards.

(4) If a risk cannot be avoided in any other way, appropriate personal protective equipment shall be made available and shall be used.

(5) For any person working on board who is pregnant, has recently given birth or is breastfeeding, an additional, special risk assessment shall be made pursuant to section 8-4.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 2-3

Arrangement and organisation of work

(1) The measures and working methods applied shall ensure the best possible level of protection and a continuous improvement of the safety and health of persons working on board, and shall be integrated in all activities on board. Planning and assessment of the working environment and implementation of the necessary preventive measures shall take place in cooperation with the persons working on board. The following elements shall, among other things, be ensured:

a. the work shall be arranged and organised with due regard to the age, competence and other qualifications of the individual;
b. the work shall be adapted to the individual, particularly with regard to the design of the workstation, the choice of equipment and methods, and with the aim of facilitating monotonous and repetitive work;
c. the persons charged with directing and supervising work on board shall have the necessary qualifications and an awareness of hazards, etc. associated with the work;
d. effective supervision to ensure that work is carried out in a safe and appropriate manner in terms of health;
e. the persons who are put to work have been given the possibility of sufficient rest.

(2) In addition, for any person working on board who is pregnant, has recently given birth or is breastfeeding, special arrangement and organisation of work shall be ensured pursuant to section 8-5.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 2-4

Consultation of persons working on board

Persons working on board or their safety representative shall be consulted and have the right to make proposals in connection with any issue which may affect their health or safety.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 2-5

Information to persons working on board

(1) It shall be ensured that persons working on board are given and have understood the necessary information about safety and health hazards.

(2) Documentation concerning the risk assessment specified in section 2-2 shall be available at all times to persons working on board or their safety representative.

(3) Persons working on board shall be informed of all measures taken to improve safety and health on board.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 2-6

Training of persons working on board

(1) Every person working on board shall receive the necessary training:

a. to be able to carry out their work safely and properly;
b. before being given access to areas involving serious or specific risks;
c. whenever new technology is introduced.

(2) Training shall be repeated regularly, and in the case of a modified or new risk.

(3) Training completed shall be documented in writing.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 2-7

Medical examination/health

(1) Measures shall be taken to ensure that persons working on board undergo the necessary medical examination relevant to the safety and health hazards to which they will be exposed on board.

(2) Persons working on board shall undergo consecutive medical examinations when exposed to risks that may develop into long-term health injuries.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 2-8

(Repealed as from 1 July 2008, cf. Regulation of 27 June 2008 No. 744.)

Chapter 3
Personal protective equipment

Section 3-1

Provisions on personal protective equipment

(1) This chapter prescribes minimum requirements for the use of personal protective equipment.

(2) Personal protective equipment shall be used when a risk cannot be eliminated or sufficiently limited by means of common protective measures of a technical nature or by means of measures, methods or procedures relating to the organisation of work.

Section 3-2

Definitions

(1) Personal protective equipment is equipment which the persons working on board shall wear or carry in order to protect themselves against one or more hazards likely to endanger their safety and health, and any appurtenances or accessories serving that purpose.

(2) The definition in the first paragraph does not cover:

a. ordinary working clothes and uniforms not specially designed to protect the safety and health of persons working on board;
b. emergency help and rescue equipment;
c. sporting equipment and other equipment used in connection with leisure activities;
d. portable devices for detecting and signalling risks and harmful factors.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 26 June 2025 No. 1372.

Section 3-3

Requirements for personal protective equipment

(1) All personal protective equipment shall:

a. be appropriate to the hazards it is designed to prevent, without itself causing a risk;
b. be suited to existing conditions at the place of work;
c. take the health of persons working on board into consideration;
d. fit the persons working on board, if necessary following adjustments.

(2) The protective equipment shall be maintained, repaired and replaced so as to be in good working order at all times.

(3) Protection and safety equipment shall, when not in use, be stored in separate lockers on board.

(4) If a person working on board has to use several types of protective equipment simultaneously, the equipment shall be capable of being combined without reducing the protective effect of the individual items of equipment.

(5) If circumstances require personal protective equipment to be used by several persons working on board, appropriate measures shall be taken to ensure the health and hygiene of those persons working on board.

(6) The conditions for use of personal protective equipment shall be determined on the basis of the seriousness of the risk, the special conditions of the individual worker’s working condition and the protective characteristics of the equipment.

(7) Personal protective equipment shall be used only for the purposes specified and in line with the appurtenant instructions and user manuals.

(8) In addition to the equipment which is required by other regulations, any vessel shall, in order to carry out work requiring special safety equipment, carry on board an adequate number of the following equipment:

a. safety belts/safety harnesses;

b. helmets, tight-fitting goggles, face screens, ear protectors;
c. boiler suits, oil skins, gauntlets, work vests/flotation vests;
d. safety boots, self-contained breathing apparatus and filter masks.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 3-4
Procurement of personal protective equipment

(1) Personal protective equipment shall satisfy the requirements of the regulations currently in force concerning the construction, design and production of personal protective equipment, and shall carry CE marking.

(2) If personal protective equipment has to be procured in a port outside the European Economic Area and equipment carrying CE marking cannot be obtained within a reasonable period of time or without involving undue delays and costs, other equivalent equipment may be procured.

Section 3-5
Information and training

(1) Persons working on board shall receive prior information about the risks against which the personal protective equipment protects.

(2) Persons working on board shall receive and shall have understood the necessary information about the use of personal protective equipment.

(3) Persons working on board shall receive the necessary training and practice in the use of personal protective equipment.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 4
Work equipment

Section 4-1
Provisions on work equipment

This chapter prescribes minimum safety and health requirements in connection with the use of work equipment by the persons working on board.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 4-2
Definitions

For the purpose of this Chapter, the following definitions shall apply:

a. "*Work equipment*": Any machinery, apparatus, tools or installations used for work.
b. "*Use of work equipment*": Any work operation involving the use of work equipment, including starting and stopping of equipment, operating, transporting, installing, assembling, repairing, modifying, maintaining, servicing and cleaning.

Section 4-3
General obligations

(1) Work equipment shall be designed and arranged so that persons working on board when using the equipment are protected against injury to life or health, including accidents, injuries from strain and exposure which may cause health injuries in the long term.

(2) The choice of work equipment shall take account of working conditions and the nature of the work so that hazards to the safety and health of persons working on board are limited as far as possible.

(3) When work equipment cannot be used without a hazard to the safety and health of persons working on board, necessary measures shall be taken to limit the risk as far as possible.

(4) Work equipment shall be used only for the work operations and under the conditions for which it is intended.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 4-4

Inspection and maintenance of work equipment

(1) If safety is dependent on the installation and assembly of work equipment, an inspection shall be carried out before the equipment is put into service.

(2) Work equipment exposed to loads which cause deterioration likely to result in hazardous situations shall undergo adequate inspection to identify and counteract such hazards.

(3) Inspections referred to in the first and second paragraphs shall be documented.

(4) Work equipment shall undergo maintenance regularly to ensure its proper working condition.

Section 4-5

Work equipment involving special risk

The use of work equipment which may involve a special risk of injury to life and health shall be subject to written job instructions and the necessary measures to ensure that:

a. its use is restricted to persons working on board having this as their task and having received the necessary training;
b. work equipment is not put into service if defects or wear may cause hazards during use.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 4-6

Information to persons working on board

(1) Persons working on board shall be given and shall have understood the information necessary for the safe use of work equipment.

(2) Information shall be provided in particular about:

a. hazards associated with irregularities which may arise;
b. precautions to be taken on the background of experience with the use of the work equipment;
c. the hazards which may be associated with use of the work equipment with regard to other persons working on board present in the work area.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 4-7

Training of persons working on board

(1) Persons working on board shall be given the necessary training, practice and instruction in the use of work equipment.

(2) Persons working on board having duties relating to inspection of work equipment shall be given the necessary training, practice and instruction to be able to carry out those duties.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 5
Safety representatives and working environment committees

Section 5-1

Election of safety representatives

(1) A safety representative shall be elected by and from among those who are employed on board in connection with the ordinary operation of the vessel.

(2) One safety representative shall be elected on vessels having 3–7 persons working on board, unless a majority of the persons working on board decides that safety and environmental work on board shall be ensured without an elected safety representative.

(3) There shall be at all times not less than:

a. one safety representative on vessels having 8–14 persons working on board;
b. two safety representatives on vessels having 15–39 persons working on board;
c. three safety representatives on vessels having not less than 40 persons working on board.

(4) When persons other than the company's employees are also engaged in activities on board, there shall be one safety representative when the number of such persons is 4 to 14, and two safety representatives when the number of

such persons is not less than 15. A safety representative elected under this provision is additional to the safety representative elected under the second and third paragraphs.

(5) The safety representative should preferably be elected from among subordinate personnel having experience in a vocational field. Where there are more than one safety representative on board, these should be elected from among various trade groups. The master, the head of other activities on board, a head of department or health personnel are not eligible as safety representative.

(6) A head of department may be elected safety representative on a vessel having 3 to 7 persons working on board when the safety representative cannot be elected from among subordinate personnel. The master is not eligible as safety representative.

(7) The master, assisted by an elected representative, shall arrange for the election of safety representatives. The safety representative shall be elected by majority vote. Details of the election shall be entered in the vessel's log book.

(8) In the event that a person working on board refuses to be elected safety representative, the master shall appoint the safety representative. A safety representative who was to have been elected under the provisions of the fourth paragraph shall be appointed following consultation with the head of the activity concerned.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-2

Election of safety representatives on vessels in local operation

(1) Where a company has several vessels in local operation, including ferries and high speed vessels, one safety representative shall be elected on every vessel having 3 to 7 persons working on board. On board vessels having more than 7 persons working on board, the provisions of section 5-1 shall apply.

(2) The safety representative has the right and the obligation, as far as practicable, to intervene temporarily in matters concerning the working environment on another of the company's vessels in local operation. This applies only when that vessel is without a safety representative on board as a consequence of a shift schedule, illness, etc.

(3) In cases of doubt, the Norwegian Maritime Authority will decide which vessels are subject to the provisions concerning local operation.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-3

Election of senior safety representative

(1) Where there is more than one safety representative on board at the same time, a senior safety representative shall be elected by and from among these. In the event of a tie vote, a revote shall be taken among those who gained most votes. If the tie continues the senior safety representative shall be elected by the working environment committee.

(2) The senior safety representative is responsible for co-ordinating the activities of the safety representatives. The senior safety representative shall decide the distribution of fields of competence among the safety representatives.

(3) The provisions prescribed for the safety representative otherwise apply correspondingly to the senior safety representative.

Section 5-4

Election of senior safety representative for vessels in local operation

(1) For vessels engaged in local operation and having a safety representative under section 5-2, a senior safety representative shall be elected for every four of the company's vessels. Similar types of vessel and groups of vessels having the same trade area shall be taken into account as far as practicable.

(2) The senior safety representative shall be elected by and from among the safety representatives. In the event of a tie vote, a revote shall be taken among those who gained most votes. If the tie continues the senior safety representative shall be elected by the working environment committee. A head of department elected safety representative under section 5-1 sixth paragraph shall not, as far as practicable, be elected senior safety representative.

(3) The senior safety representative is responsible for co-ordinating the activities of the safety representatives on the vessels for which that person is senior safety representative.

(4) The provisions prescribed for the safety representative otherwise apply correspondingly to the senior safety representative.

Section 5-5

Term of office for safety representatives

(1) Safety representatives shall be elected for a period of one year. Prior to elections it may be decided that the term of office will be two years. If a safety representative terminates his service on board a new safety representative shall be elected as soon as possible.

(2) On vessels with shift schedules or fixed rota work, an elected safety representative continues when he re-enters service on board. This applies in the event that a safety representative was otherwise to have been elected in accordance with the last sentence of the first paragraph.

(3) The term of office of a safety representative appointed by the master may be up to six months at a time.

Amended by Regulation of 29 June 2007 No. 1006 (in force on 1 July 2007).

Section 5-6

Tasks of the safety representative

(1) The safety representative shall safeguard the interests of persons working on board in matters relating to the working environment on board. The safety representative shall ensure that work on board is carried out in such a way that due consideration is given to the safety and health of the persons working on board, and if necessary make proposals for new protection measures.

(2) The safety representative should participate in the development of procedures and job specifications of importance to the safety and health of the persons working on board. The safety representative should also participate in risk assessments referred to in section 2-2 and verify that the necessary measures are taken in accordance with that provision.

(3) The safety representative shall in particular ensure that:

a. work equipment, technical devices, chemical substances and work processes do not expose persons working on board to hazards;
b. protective devices and personal protective equipment are in proper working order and are used;
c. persons working on board are given the necessary instruction, practice and training;
d. work is otherwise organised so that persons working on board are able to perform it in a safe and proper manner in terms of health and safety.

(4) If the safety representative is made aware of matters which may cause an accident or health injury, the safety representative shall immediately do his utmost to avert the hazard. In the event that this is not possible, the safety representative shall without delay notify the master or his representative of the matter. The master shall respond to the safety representative's notification. If the notification has received no attention within a reasonable period of time, the safety representative shall notify a Norwegian authority, such as a Norwegian foreign service mission or the Norwegian Maritime Authority. The master and the working environment committee should be informed prior to such notification.

(5) In connection with personal accidents such as death and occupational and health injury, the safety representative shall as soon as possible write a statement of his assessment of the case and any protective measures taken to avert such injury. The statement shall be signed by the safety representative, or the senior safety representative, if appropriate. The statement shall be written on the form specified for that purpose and sent to the competent authority.

(6) The safety representative shall, if possible, participate at supervisory visits and other inspections or surveys, including internal control and audits relating to the environment on board. The master shall notify the safety representative of such visits and make the necessary arrangements for the safety representative to participate. The safety representative shall personally decide whether it is possible to participate. If participation at such visits is not possible, the safety representative shall inform the master of the reason.

(7) The safety representative shall keep an accident prevention log in which he shall make entries concerning his work, such as instructions and requests. The same applies to requests made to the master. The accident prevention log shall be submitted to meetings of the working environment committee.

(8) The accident prevention log shall be kept available on board for not less than three years after the last entry was made.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-7

Right to temporarily stop hazardous work

(1) If, in the opinion of the safety representative, a work operation may cause immediate hazard to the life and health of a person working on board and the hazard cannot be averted in any other way, the safety representative shall stop the work temporarily. Work shall be stopped only to the extent deemed necessary by the safety representative to avert hazard or prevent a more dangerous situation from arising. Where safety routines have been established and specify a procedure for stopping work operations, that procedure shall be followed as far as practicable. The safety representative shall as soon as possible notify the master, who shall decide whether the work operation is to continue.

(2) A safety representative who stops work temporarily under the provisions of the first paragraph, shall not be liable for any damage or loss resulting from such stoppage.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-8

Duty to establish a working environment committee

(1) On vessels required to have a safety representative under section 5-1 and having not less than eight persons working on board, a working environment committee shall be established in accordance with the provisions of section 5-9.

(2) Companies having ships required to have a safety representative under section 5-2 shall establish at least one working environment committee in accordance with the provisions of section 5-10.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-9

Composition of the working environment committee

(1) The working environment committee shall be composed of the senior safety representative, where such shall be elected, and up to three safety representatives, as well as the master, the chief engineer, the steward and a safety officer, if appropriate. If, in addition to the senior safety representative, there are more than three safety representatives on board, the three safety representatives to form part of the committee shall be elected by the safety representatives. Where someone other than the company is also engaged in activities on board with not less than four persons working on board, the head of such activities shall also sit on the committee.

(2) Where the number of persons working on board and their composition is such that it is not possible to form a working environment committee as provided in the first paragraph, the working environment committee shall consist of the senior safety representative, where such shall be elected, and the safety representatives, as well as the master.

(3) The various occupational groups on board should be represented on the committee, and the heads of department shall be permitted to join the committee. The size of the committee should not exceed 10–12 persons, depending on the number of occupational groups and the number of persons working on board. The committee shall elect its own chairman and may also appoint a secretary. Insofar as it is deemed appropriate, the committee may assign specific tasks to some of its members in the fields of training, instruction and other matters falling within the competence of the committee. Other persons working on board may be summoned to the meetings of the committee as needed.

(4) On vessels having established a safety committee or similar, the working environment committee may be adjusted to this so as to ensure an even representation of subordinate crew and officers.

(5) A nurse or other health personnel may participate in committee work only in a free and independent capacity as non-voting members or as secretaries.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-10

Composition of the working environment committee on vessels in local operation

(1) The working environment committee shall consist of the senior safety representatives or up to three safety representatives in the absence of senior safety representatives, a representative of the company administration and two masters. In addition, a committee representative may be elected from among the chief engineers. Other persons working on board may be summoned to committee meetings as needed.

(2) The working environment committee shall elect its own chairman, and may also appoint a secretary. Insofar as it is deemed appropriate, the committee may assign specific tasks to some of its members in the fields of training, instruction and other matters falling within the competence of the committee.

(3) The working environment committee shall also discuss matters relating to protection work on those of the company's vessels in local operation which do not have a safety representative.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-11

Tasks of the working environment committee

(1) The working environment committee shall work to ensure safe and proper conditions on board with regard to health, and shall for this purpose in particular concern itself with:

a. matters relating to internal accident prevention and the health and welfare of persons working on board;
b. matters relating to training, instruction and information of importance to prevent occupational and health injuries during work and off-duty time;
c. identification of workplaces and working conditions presenting a risk of accidents and health injuries, including an examination of the risk assessment referred to in section 2-2 to determine whether this assessment is adequate to reveal the hazards to which persons working on board are exposed;
d. seek to reveal causes of disease and death which may be associated with the environment on board, and discuss proposals for preventive measures;

e. active efforts to make sure protection work is incorporated into the planning of work;
f. ensuring that new employees are given appropriate guidance and training relating to protection and special risks to which the person in question may be exposed;
g. discussing matters of importance to the well-being of those on board, social relations, leisure activities, etc.

(2) The working environment committee shall examine new and modified procedures and job descriptions of importance to the safety and health of persons working on board, and make proposals for improvements where this is considered necessary.

(3) The committee shall review all reports of health injuries, occupational accidents and near-accidents, and ensure that measures are taken to prevent repetition. The committee shall also review supervisory reports.

(4) The committee shall hold not less than six meetings per year. In addition, the committee should hold at least as many open meetings concerning protective measures for all employees on board.

(5) The committee shall keep a special protocol in which entries regarding the committee's activities shall be made and signed by all members. The protocol shall be kept available on board for not less than three years after the last entry was made.

(6) Safety representatives and members of the working environment committee shall familiarise themselves with applicable regulations, instructions and rules concerning safety and environmental work.

(7) Meetings of the committee may be convened at the request of two members to discuss matters relating to the working environment, safety and health.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-12
Duty of confidentiality

(1) The working environment committee is bound by a duty of confidentiality in cases concerning personal matters or the operational or business secrets of the company or other enterprise, and also where the committee decides that the duty of confidentiality shall apply.

(2) In cases where the working environment committee is bound by the duty of confidentiality, any person participating in the discussion of the case is required to prevent unauthorised persons from gaining access to or knowledge of information brought to their attention.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 26 June 2025 No. 1372.

Section 5-13
Time required for safety and environmental work

(1) The safety representatives and members of the working environment committee shall be given the time necessary to carry out their tasks appropriately, without encroaching on the mandatory rest periods of those working on board, and generally within normal working hours. If a person is required to interrupt their work, they shall notify their immediate superior.

(2) The master and the company shall ensure that the responsibility of a safety representative or member of the working environment committee does not involve any loss of earnings for the persons working on board, or any other deterioration of their working conditions or terms of employment.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013), 26 June 2025 No. 1372.

Section 5-14
Training

(1) Safety representatives and members of the working environment committee shall be given the training necessary for them to discharge their duties in a satisfactory manner. The expenses of such training shall be covered by the company.

(2) The training shall:
a. include an introduction to safety and environmental work;
b. provide knowledge of ergonomics, noise, lighting, climate and welfare-related measures;
c. provide knowledge of accident prevention, including preventive measures, the use of personal protective equipment, etc.;
d. provide knowledge of risk assessment of work operations as an essential part of accident prevention;
e. provide an introduction to and information about the Ship Safety and Security Act, the Ship Labour Act and these Regulations;
f. provide an introduction to the structure and role of the Norwegian Maritime Authority, also in relation to other authorities concerned.

(3) The duration of the training shall be not less than 40 hours. Training of shorter duration than 40 hours may be agreed on if the parties jointly consider this to be appropriate with regard to the character and scope of the problems. The training shall be documented.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 27 March 2009 No. 390, 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 5-15

Duty to provide information, and annual report

(1) Safety representatives and members of the working environment committee are required to provide information to Norwegian foreign service missions and the Norwegian Maritime Authority. The same applies in connection with inquiries regarding extracts from the accident prevention log or protocol.

(2) Safety representatives and members of the working environment committee shall have access to the information necessary to discharge their duties. All vessels should have on board literature about protection work, to be kept available to all personnel.

(3) The working environment committee shall by 31 January every year produce a joint report of the safety and environmental work on board for the previous calendar year. The report shall be submitted to the Norwegian Maritime Authority on request. When an inspection is carried out by the Norwegian Maritime Authority, the report for the previous year must be presented. The annual report shall be written on a form specified by the Norwegian Maritime Authority.

(4) On vessels in local operation having established a working environment committee under section 5-10, every committee shall submit a joint annual report.

(5) On vessels where no working environment committee has been established, the senior safety representative and the master shall produce the annual report in accordance with the provisions of the third paragraph. Where there is no safety representative, the master shall produce the annual report.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 27 March 2009 No. 390.

Chapter 6
The duty to cooperate for persons working on board

Title amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 6-1

The cooperation of persons working on board

Planning and evaluation of the working environment and the implementation of necessary preventive measures shall take place in cooperation with the persons working on board.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 6-2

Duties of persons working on board

(1) Each individual person working on board has a duty to comply with orders and instructions, including to accept assignments, show caution and otherwise in every way cooperate to safeguard life, health and welfare in accordance with these Regulations.

(2) Any person working on board shall use the required protective equipment and otherwise cooperate to prevent accidents and health injuries.

(3) Off-duty time shall be organised so that the person working on board is rested and otherwise fit to carry out his work.

(4) If a person working on board becomes aware of defects or deficiencies which may involve a risk to life or health, he shall, unless the risk cannot be averted, notify the person responsible on board or the safety representative as soon as possible.

(5) Any person working on board has a duty to cooperate with the company, the master and other persons working on board to ensure a good and appropriate environment and to achieve the objectives laid down in these Regulations.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 6-3

The right of persons working on board to stop hazardous work

(1) If work, in the opinion of a person working on board, cannot continue without a risk to life or health, that work shall be stopped in accordance with section 5-7 first paragraph. The person working on board shall as soon as possible notify the master, who shall decide whether work is to continue.

(2) A person working on board who stops work as provided in the first paragraph shall not be liable for any damage or loss resulting from such stoppage.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 7
Special provisions concerning the manual handling of objects

Section 7-1

Provisions on the manual handling of objects

This Chapter prescribes minimum safety and health requirements for the manual handling of objects.

Section 7-2

Definitions

Manual handling of objects includes any lifting, putting down, pushing, pulling, carrying or moving of an object which, due to its nature, weight or adverse ergonomical condition, may cause back injury or other injury to persons working on board.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 7-3

Organisation of work

(1) The necessary measures shall be taken, or the appropriate aids shall be used, in particular mechanical equipment, to avoid manual handling of objects.

(2) In all cases where manual handling of objects cannot be avoided, the work shall be organised so that handling can be effected safely and without injury to persons working on board.

(3) The organisation of work shall be subject to an assessment of safety and health aspects, taking into consideration the nature, weight and shape of the object and the organisation of the working environment and the task to be accomplished. Special consideration shall be given to the following aspects, inter alia:

a. there should be sufficient space for the work operation;
b. the working surface should be even and not too slippery for the footwear of the persons working on board;
c. the working area should afford the persons working on board the possibility of handling objects at the appropriate height or in the correct position;
d. temperature, humidity and ventilation may affect safety;
e. persons working on board should themselves have an influence on the rate of work and not be exposed to long-lasting and/or frequent physical strain which may cause injury.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 7-4

Information and training

(1) The persons working on board or their safety representative shall be informed of the risk involved in manual handling of objects and of all measures taken in that connection.

(2) The persons working on board or their representatives shall be given general directions, and, when possible, accurate information about:

a. the weight of an object;
b. the centre of gravity or the heaviest side, if the weight is unevenly distributed.

(3) Persons working on board shall receive the necessary training in the correct handling of objects.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 8
Special provisions concerning persons working on board who are pregnant, have recently given birth and are breastfeeding

Title amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 8-1
Scope of application

This chapter shall apply to any person working on board who:

a. is pregnant;
b. has recently given birth;
c. is breastfeeding;

with the exceptions and special provisions set out in the Regulations currently in force on the scope of application of the Ship Labour Act.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 8-2
Definitions

For the purpose of this Chapter, the following definition shall apply:

"Injury": Any harmful effect on the health of a pregnant person, her foetus or breastfeeding.

Section 8-3
Information to the master or the company

Where a person working on board falling within the scope of section 8-1 (a), (b) or (c) has informed the master or the company of her condition, a risk assessment shall be made pursuant to section 8-4 and the measures to be taken shall be considered pursuant to section 8-5.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 8-4
Risk assessment

(1) The master or the company shall ensure that a special assessment is made of the probability of any harmful factors of the working environment posing a risk of injury to a person working on board who falls within the scope of section 8-1 (a), (b) or (c). The assessments shall be repeated at regular intervals and whenever there is any change in conditions which may influence the risk of injury to the person working on board.

(2) Where such risk is identified, the master or the company shall ensure that any harmful factors are determined, assess the overall risk of injury and decide which protective and safety measures to take.

(3) The person working on board shall be notified of the results of the assessment.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 8-5
Arrangement and organisation of work

(1) Where the assessment prescribed by section 8-4 reveals that there is a risk of injury, the master or the company shall ensure that such risk is eliminated by modifying, as necessary, both the working conditions and the hours of work.

(2) If the measures referred to in the first paragraph are not possible or cannot reasonably be implemented, a person working on board who wants to be assigned other work within the company shall, where possible, be transferred to such other work.

(3) If the measures referred to in the first and second paragraphs are not possible to implement, the company shall document this in writing.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 8-6

Pregnant persons' right to leave of absence

(1) If the measures referred to in section 8-5 cannot reasonably be implemented, a person working on board who falls within the scope of section 8-1 (a), (b) or (c) shall be granted leave of absence for such period as is necessary to eliminate risk of injury.

(2) Otherwise, reference is made to the Regulations currently in force on right of leave in cases of pregnancy, childbirth, adoption, etc.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 9
Special provisions concerning measures for safety and protection

Section 9-1

Use of safety and protective equipment for special work operations

(1) Work outboard while the ship is underway must only take place when it is absolutely necessary. The officer of the watch shall be informed of the work, and shall ensure that adequate safety measures are taken.

(2) During mooring, loading/unloading, and when working in cargo holds, engine rooms, tanks, as well as in places where objects might fall down, protective helmets and safety boots shall be used.

(3) When using tools, machinery, power sprayers, etc. which present a risk of injury to the eyes, protective goggles shall be used if no other protective measures offer sufficient safety.

(4) When products which can be hazardous to health are used for cleaning, instructions for use shall be available. Necessary personal protective equipment such as helmets, face screens, large aprons, gauntlets, suitable safety boots, etc. shall always be used.

(5) If repairs have to be carried out in places where there may be a danger of asbestos dust or dust from materials containing asbestos, protective measures shall be taken during the work, requiring respiratory protection, screening of the working space, ventilation, etc.

Section 9-2

Safety measures related to the use of high-pressure equipment, paint spraying gear, sand blasting equipment, flushing arrangement, etc.

(1) During work where harmful dust or gases may occur, the respiratory organs shall be protected. During spraying of paint, etc. in enclosed spaces, adequate continuous ventilation shall be provided.

(2) Directions for the use of spraying pistols, spraying apparatus, etc. shall be available.

(3) Locking of the spraying pistol trigger in open position shall not be possible. The valve shall be secured against inadvertent release, e.g. by means of a loop.

(4) High pressure hoses and equipment connected to these shall be certified for the working pressure and the liquids for which they are to be used. Damaged high-pressure hoses shall not be used.

(5) Heavy spraying equipment with high pressure and heavy recoil must be fastened to a support, which will be so arranged as to remain in the same position even if the spraying equipment is dropped. If the spraying equipment is to be used for flushing through pipelines, etc. the jet nozzle must be attached to the pipeline before the water pressure is turned on.

(6) Persons working on board engaged in sand blasting shall be equipped with the necessary protective equipment, such as tight-fitting goggles, helmets, face screens, fresh air equipment, etc. Air from compressors shall be purified through filters. Persons working on board who will be engaged in the process of sand blasting or operating high pressure spraying equipment or high-pressure flushing equipment, shall be trained for operating the equipment.

(7) Directions for use shall be attached to the high pressure spraying and high-pressure flushing equipment. Instructions for the use of the equipment shall furthermore be available on board, where the elements of risk during use of high-pressure apparatus and flushing equipment shall be stressed. The instructions for the use of the equipment must be strictly followed.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 9-3

Securing of machinery, etc.

(1) Movable parts on machinery, etc. shall be provided with adequate protective arrangements. The inside of lids, covers or other protection that is normally kept closed, as well as dangerous parts of machinery, should be painted in a conspicuous yellow colour. The marking shall not be visible when the protective arrangement is in place.

(2) When machinery or gear is stopped for maintenance or repairs, etc. adequate precautions shall be taken against inadvertent starting.

Section 9-4

Work at a height

(1) When work is carried out where there may be a risk of falling down, a safety harness with attached line shall be used. If the work takes place where a safety harness or belt cannot be used, a net or other equally safe precautions shall be provided when this is necessary to prevent accidents.

(2) Ladders must be so positioned as to ensure their stability during use. Suspended ladders must be attached in a secure manner, so that they cannot be displaced and so that swinging is prevented.

(3) The bearing components of scaffolding must be prevented from slipping, whether by attachment to the bearing surface, provision of an anti-slip device or any other means of equivalent effectiveness, and the load-bearing surface must have a sufficient capacity. It must be ensured that the scaffolding is stable.

(4) Depending on the type of work equipment selected, it shall be decided which measures are suited to minimise the risk that persons working on board are exposed to. Where necessary, safety arrangements for fall prevention shall be assembled. Such arrangements shall be designed in such a way, and have the strength to prevent or stop falls, and to the greatest possible extent prevent the injury of persons working on board.

(5) The requirements of Annex 1; Provisions on work equipment for temporary work at a height, shall otherwise apply.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 9-5

Use of safety and protective equipment for special work operations on board fishing vessels

In addition to the provisions of sections 9-1 to 9-4, the following provisions shall apply:

a. When working on deck on board vessels with only one person on board, a safety harness or a belt with a line attached should be used, unless conditions on board make such use dangerous or particularly difficult.

b. Protective helmets shall be worn during mooring, loading and unloading, when the power block arrangement, etc. is used, during work on the trawl deck and in cargo holds, engine rooms and tanks, and also when work is carried out in other places where objects may fall down. Protective boots shall be worn where there is a risk of foot injuries.

c. Persons working on an exposed deck shall be equipped with work vests/flotation vests.

d. Warning signs shall be displayed in places presenting a special risk to persons.

e. Overall rainwear used shall have a conspicuous colour.

f. On vessels of an overall length of 15 metres and above, a reliable communications system shall be arranged between the wheelhouse and working deck.

g. Manoeuvring devices for winches, seine drums, drying tumblers, power block and other lifting and/or hoisting devices shall automatically revert to the neutral position (stop) when they are not used, and they shall be capable of being secured in the neutral position. From the manoeuvring position it shall be possible to observe any tricing and the lifting and hoisting device, or TV surveillance of these devices shall be arranged.

h. The operation of devices referred to in paragraph 3 shall be carried out by persons over 18 years of age.

i. Pull-in equipment for fishing tackle shall have appropriate safety devices to prevent accidents, including emergency stop devices. Emergency stop shall be so arranged that the pull-in equipment stops if a person is pulled towards it.

Section 9-6

Gas hazard assessment, etc.

(1) Before anyone enters tanks, cargo holds, narrow enclosed spaces, tunnels or other spaces where there is a risk of gas exposure or oxygen deficiency, necessary inspections must be conducted to ensure the safety of the air within those spaces. Measurements shall be taken at various heights, with repeated measurements as required.

(2) Entry into enclosed spaces suspected of having hazardous atmospheres shall only be allowed for the purpose of conducting atmospheric measurements or ensuring the safety of the ship and its crew members. Personnel entering such

spaces shall wear a self-contained breathing apparatus and carry portable gas detection equipment, and they shall be suitably trained.

(3) Inspections pursuant to the first paragraph shall be conducted by a person who has documented training in this task. The person conducting the inspection shall also determine the frequency of subsequent inspections and necessary corrective measures.

(4) To conduct inspections pursuant to this paragraph, the following shall be on board:

a. one or more appropriate approved portable gas detectors capable of measuring oxygen levels, flammable gases, flammable vapours, hydrogen sulphide and carbon monoxide;
b. an approved self-contained breathing apparatus with an adequate number of compressed air reservoirs or a specialised filling unit for primary receivers.

(5) The presence of other toxic gases shall be risk-assessed, and equipment for measuring such gases shall be available on board.

Added by Regulation of 23 January 2024 No. 165.

Section 9-7

Safety measures in connection with inspections, work, etc.

(1) Prior to entering enclosed spaces where there is a risk of gas exposure or oxygen deficiency, thorough ventilation must be conducted using either natural or mechanical methods. Continuous ventilation shall be maintained throughout inspection and work activities.

(2) All persons involved shall use a suitable communication system.

(3) When personnel are within enclosed spaces, the following conditions shall be met:

a. A designated person equipped with radio communication equipment shall be stationed continuously at the entrance.
b. Self-contained breathing apparatus, rescue equipment and a pocket resuscitation face mask shall be available at the entrance.

(4) Personnel trained in the use of self-contained breathing apparatus and rescue procedures from enclosed spaces shall be readily available, prepared to respond promptly, and informed of the ongoing activities. The person referred to in the third paragraph (a) shall not perform this task.

Added by Regulation of 23 January 2024 No. 165.

Section 9-8

Drills and training, etc.

(1) Drills for entry into and rescue from enclosed spaces shall be planned and carried out in a safe manner.

(2) Every drill for entry into and rescue from enclosed spaces shall include the following:

a. inspection and use of personal protective equipment necessary for entry,
b. inspection and use of communication equipment and procedures;
c. inspection and use of instruments for atmospheric measurements within enclosed spaces;
d. inspection and use of life-saving appliances and procedures;
e. simulation of first aid and resuscitation techniques.

Added by Regulation of 23 January 2024 No. 165.

Section 9-9

Danger charts, etc.

(1) All doors, hatches, manhole covers, etc. providing access to spaces where there is a risk of gas exposure or oxygen deficiency shall be clearly marked with signs or posters informing of the hazards present in the respective space.

(2) In locations where signs or posters are susceptible to damage or soiling, the door, hatch, manhole cover, etc. shall be painted in the same colour as the signs.

(3) Warning signs and adhesive posters shall be in accordance with Norwegian Standard NS 6033, or NS-ISO 3864-1 and NS-ISO 3864-3, and have Norwegian and English text clearly expressing the following:

FARE		DANGER
OKSYGENMANGEL		LACK OF OXYGEN
	(symbol)	
FARE		DANGER

GIFTIG GASS		POISON GAS
	(symbol)	
FARE		DANGER
EKSPLOSIV ATMOSFÆRE		EXPLOSIVE ATMOSPHERE
	(symbol)	

(4) If the working language on board is not Norwegian, the warning signs must be in the working language used on board.

Added by Regulation of 23 January 2024 No. 165.

Section 9-10

Ventilation in cargo holds, etc. when using vehicles with internal combustion engines

(1) Vehicles and other machinery operated by an internal combustion engine shall only be used in cargo spaces or other spaces when those spaces are provided with efficient mechanical ventilation. The ventilation shall remain in operation for as long as the vehicles and other machinery with an internal combustion engine is used in these spaces. It shall be ensured that petrol engines, propane engines and diesel engines are correctly adjusted and properly maintained.

(2) Vehicles and other machinery with an internal combustion engine shall not be abandoned with the engine running.

(3) In spaces where equipment referred to in the first paragraph is used, there shall be signs or posters warning of the risk of exhaust fume poisoning.

(4) On ships where vehicles and other machinery as referred to in the first paragraph are to be used in cargo holds, there shall be on-board instruments capable of measuring carbon monoxide (CO) concentration.

(5) The measuring instruments required pursuant to the fourth paragraph shall be used during loading and unloading and in the event of suspected exhaust gas presence in the spaces.

Added by Regulation of 23 January 2024 No. 165.

Chapter 10
Ban on the use of asbestos and certain noxious and health hazardous substances

Section 10-1

Ban on the use of asbestos on board ship

(1) On vessels constructed on or after 1 July 1987 all use of asbestos is prohibited, except premanufactured asbestos packings and friction coating, etc. which need no adapting work on board.

(2) On existing vessels all asbestos in need of repairs or renewal shall be replaced with equivalent materials as mentioned in the first paragraph.

Section 10-2

Ban on certain chemicals

The following chemicals are not permitted for use on board ship:

a. 2-naphthylamine and salts of 2-naphthylamine (CAS No. 91-59-8);
b. 4-aminobiphenyl and salts of 4-aminobiphenyl (CAS No. 92-67-1);
c. benzidine and salts of benzidine (CAS No. 92-87-5);
d. 4-nitrobiphenyl (CAS No. 92-93-3).

Chapter 11
Provisions on the protection of persons working on board against exposure to chemicals and biological agents

Title amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-1

Scope of application

(1) This Chapter covers all situations where chemicals and biological agents are used on board ship or present in the working environment, including production, handling, storage, disposal, destruction, and waste treatment.

(2) This Chapter also applies to carriage of chemicals unless specifically provided that only chemicals for use on board are covered or other legislation gives stricter or more specific provisions.

Section 11-2

Definitions

For the purposes of this Chapter, the following definitions shall apply:

a. *Biological agents*: Micro-organisms, including those which have been genetically modified, cell cultures, human endoparasites and prions that can cause infections, allergies or toxic effects in humans.

b. *Biological limit value for lead*: The binding maximum value for the concentration of lead in a person's blood.

c. *Cell culture*: The result of in-vitro growth of cells derived from multicellular organisms.

d. *Exposure*: The harmful effects of chemicals and biological agents to which persons working on board are exposed or risk being exposed.

e. *Endoparasites*: Parasites which live in the human body during the whole or parts of their life cycle.

f. *Limit value*: The maximum value for the average concentration of a chemical in the breathing zone of a person working on board for a fixed reference period of eight hours.

g. *Containment*: Barriers used to prevent unintended contact between biological agents and humans or the environment.

h. *Chemical agent or chemical*: Any element or compound, on its own or admixed, which may pose a risk to the safety or health of persons working on board, as it occurs in the natural state or as produced, used or released, including release as waste, by any work activity, whether or not produced intentionally.

i. *Carcinogenic chemicals and processes*: Any chemical which meets the criteria for classification as carcinogenic under the Regulations of 16 June 2012 No. 622 on the classification, labelling and packaging of substances and mixtures, cf. Regulation (EC) No 1272/2008 Annex I Part 3.

j. *Living biological agents:* Any cellular or non-cellular microbiological entity capable of replication or transfer of genetic material.

k. *Micro-organism*: Microbiological entity, cellular or non-cellular, capable of replication or transfer of genetic material.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 20 December 2017 No. 2379 (in force on 1 January 2018), 23 January 2024 No. 165.

Section 11-3

Provisions on the protection of persons working on board against exposure to chemicals and biological agents

(1) Exposure of persons working on board to biological agents shall be avoided.

(2) If it is not possible to avoid exposure, such exposure shall be reduced to a level which is sufficiently low to give adequate protection to the safety and health of the persons working on board concerned.

(3) The quantities of chemicals to be used on board shall be as small as possible and chemicals which may be injurious to health shall not be used where non-injurious processes and substances are available. If such substitution is not possible, processes and substances which are less injurious to health of persons working on board shall be used instead.

(4) A biological agent injurious to health shall not be used when another biological agent is available which under the same conditions of use and according to existing knowledge is either non-injurious or less injurious to the health of persons working on board.

(5) Common protective measures of a technical nature or measures, methods or procedures related to the organisation of work shall be preferred wherever possible to individual protective measures.

(6) The number of persons working on board engaged in work operations or otherwise running the risk of exposure to chemicals and biological agents shall not be greater than necessary.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-4

Risk assessment

(1) Any exposure to chemicals and biological agents which poses a health risk to persons working on board shall be identified. The following shall, inter alia, be described:

a. the chemicals and biological agents that persons working on board are exposed to;

b. how, and during which activities and in which areas the exposure occurs;

c. the concentrations involved;
d. the duration of exposure;
e. the number of persons working on board susceptible to exposure.

(2) When such exposure has been identified, an assessment of the risk posed by the exposure shall be made. The risk assessment shall be performed on the basis of all available information, including:

a. information on dangerous properties of chemicals;
b. information from the supplier on safety and health risks;
c. information on the risk group of each biological agent;
d. information on human diseases that may be caused by the biological agents;
e. information from competent authorities;
f. information on recommended protective measures and effects of measures taken;
g. knowledge that a medical condition found in a person working on board at a special medical examination or otherwise may be directly attributed to that person's work;
h. information on the conditions on board in general.

(3) For activities involving exposure to several different chemicals and biological agents, the risk shall be assessed on the basis of the aggregate and combined risk of the chemicals and biological agents.

(4) The risk assessment shall be performed at regular intervals and whenever there is a change in conditions which may affect the exposure to chemicals and biological agents for persons working on board.

(5) The risk assessment and its results shall be documented in writing, available to the persons working on board and submitted to the Norwegian Maritime Authority on request.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-5

Arrangement and organisation of work, etc.

(1) Where a risk to the safety or health of persons working on board is identified, necessary measures to remove or reduce such risk shall be taken before work has begun. Steps shall be taken to ensure, inter alia:

a. the availability of written instructions to ensure safe routines for the storage, handling and carriage of chemicals and biological agents on board;
b. the use of suitable methods of measurement and measuring equipment that will identify possible chemical exposure risks;
c. the availability of necessary protective arrangements and personal protective equipment and that such arrangements and equipment are in good working order and adapted to the working situation in each case;
d. the implementation of necessary technical control measures;
e. the availability of first-aid equipment and other equipment to prevent or mitigate injuries to persons working on board in the event of incidents and accidents.

(2) The ventilation system shall be so designed and dimensioned as to keep the concentration of chemicals at a safe level.

(3) Warning and safety notices shall be used to indicate areas, including piping and tanks, where there is a risk of exposure to chemicals.

(4) Written instructions shall be set up to collect, handle and examine samples from persons and animals which may contain biological agents hazardous to health.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 23 January 2024 No. 165.

Section 11-6

Hygienic measures

(1) Measures shall be taken to ensure that persons working on board do not eat, drink or smoke in areas where there is a risk of exposure to chemicals and biological agents.

(2) Floors, walls and other surfaces in areas which may be contaminated by chemicals shall be cleaned at regular intervals.

(3) Persons working on board shall have at their disposal suitable and satisfactory toilets and washrooms where, if appropriate, eyewash water and antiseptic skin care products shall be available.

(4) Personal protective equipment and working clothes which may be contaminated by chemicals and biological agents shall if necessary be taken off when the persons working on board leave the workplace and be kept separately from other clothes until disinfected, cleaned or, where necessary, destroyed.

(5) Containers or similar arrangements for contaminated working clothes or protective equipment shall be conspicuously marked.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-7

Medical examination

(1) Where the risk assessment shows that, despite the protective measures taken, there remains a risk to the safety or health of a person working on board, they shall receive an appropriate medical examination.

(2) The medical examination shall take place before the person working on board commences work and at regular intervals thereafter. The doctor decides the frequency and content of the examination on the basis of the nature, degree and duration of the exposure and the health condition of the person working on board. Steps shall be taken to ensure that the person working on board is provided with the necessary information about the need for future medical examinations.

(3) If the medical examination shows that a person working on board suffers from a condition which may be attributed to exposure to chemicals or biological agents on board, measures shall be taken to examine the health condition of all persons working on board who have endured similar exposure.

(4) Any person working on board who is to work with lead and lead compounds shall undergo a compulsory medical examination before commencing such work. The medical examination shall include a clinical examination and measurement of the lead content of the blood. Measurement of the lead content of the blood shall be performed every three months. If three consecutive checks show a lead content of the blood which is lower than 0.5 micromol per litre of blood for women in their fertile age and 1.0 micromol per litre of blood for other persons working on board, checks of the lead content of the blood may be made once a year as long as the exposure level and the working conditions remain the same.

(5) Persons working on board shall be offered safe and effective vaccination against biological agents to which they may be exposed. Persons working on board shall be provided with information on the advantages and disadvantages of such vaccination.

(6) Where a medical examination is carried out as mentioned in this provision, the journal shall be available for at least ten years after the end of exposure. For persons vworking on board exposed to carcinogenic chemicals or to any other special health risk, the journal shall be available for at least 60 years after the last known exposure.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-8

Measures in the event of non-anticipated exposure

(1) An emergency preparedness plan shall be prepared for unforeseen situations and accidents which may cause abnormally high exposure. Upon use of biological agents, such an emergency preparedness plan shall be prepared for biological agents which, pursuant to section 13-1, are classified as Group 3 or Group 4 biological agents. The same requirement also extends to cases otherwise, which are considered to pose a risk of unforeseen situations and accidents which may lead to the dissemination of biological agents that can cause serious infection or disease. The emergency preparedness plan shall be prepared on the basis of the risk assessment and shall contain, inter alia:

a. information on special hazards which may arise in unforeseen situations and accidents;
b. guidance for incident alerting and measures to be taken to manage the situation;
c. guidance for use of external assistance or rescue service.

(2) If an unforeseen situation or accident arises or occurs, the emergency preparedness plan shall be put into effect immediately. The persons working on board shall as soon as possible be informed about the situation, the cause of the exposure and the measures taken.

(3) Emergency preparedness plans shall be available to the persons working on board and the external rescue service.

(4) Drills in accordance with the emergency preparedness plan shall be conducted at regular intervals.

(5) The Norwegian Maritime Authority shall immediately and as quickly as possible be informed about any accident or incident which may have brought about the dissemination of a biological agent that could cause human disease.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-9

Register of persons working on board exposed to chemicals and biological agents

(1) A register shall be kept for each ship of persons working on board who, through use or otherwise are, or may be, exposed to:

a. carcinogenic chemicals;
b. other chemicals which according to the risk assessment pose a special health risk;
c. biological agents classified pursuant to section 13-1 as Group 3 or 4.

(2) The register shall identify the chemicals and biological agents to which the person working on board is exposed and provide information on how the person working on board has been exposed, and the duration and degree of the exposure.

(3) The register shall be available for at least 60 years after the end of exposure for persons working on board who have been exposed to chemicals, and for at least ten years after the end of exposure for persons working on board who have been exposed to biological agents.

(4) The register shall be available for at least 60 years if the exposure to biological agents may cause infection:

a. by biological agents known to be capable of provoking lasting or hidden infections;
b. which on the basis of existing knowledge cannot be identified before the disease breaks out several years later;
c. which has a particularly long incubation period before the outbreak of the disease;
d. which leads to a disease that sometimes flares up again over a longer period in spite of the treatment received, or which may lead to serious accompanying diseases in the longer term.

(5) Any person working on board entered in the register shall be informed of this and have access to information relating to their case. If the employment relationship is terminated or if the person working on board so requires, such information shall be provided in writing.

(6) Doctors carrying out medical examinations as specified in section 11-7 shall be informed of and have access to the information mentioned in the first paragraph.

(7) The register shall be forwarded to the Norwegian Maritime Authority if the company discontinues its activity.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-10

Storage, handling and carriage of waste which may contain chemicals or biological agents

(1) Measures shall be taken to ensure that the collection, storage and removal of waste is carried out without health risk to persons working on board.

(2) Such waste shall be stored in containers which are unambiguously and conspicuously marked and, where necessary, completely tight.

(3) Chemical waste shall be safely disposed of or delivered to approved reception facilities for special waste.

(4) Where necessary, biological waste shall be rendered harmless by appropriate pre treatment.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 11-11

Training and information

(1) Steps shall be taken to ensure that persons working on board are provided with and have understood the necessary training and information so that exposure may be avoided or reduced to the greatest possible degree. The training shall be provided on the basis of all available information and written instructions drawn up to establish safe routines for the storage, handling and carriage of chemicals and biological agents on board.

(2) The training and information shall give special consideration to the following:

a. the use of records of substances and products, including identification of the health hazardous substances used and stored on board and the risk of exposure;
b. the health hazards that biological agents may constitute;
c. precautionary measures to be taken to avoid exposure;
d. information on measurements made of the contamination of the working atmosphere and their results;
e. rules on hygiene;
f. identification of the protective equipment to be used and how to use it;
g. measures to be taken and emergency preparedness plans to be put into effect in the event of unforeseen situations and accidents and incidents.

(3) The training shall be provided before commencing work and it shall be repeated at regular intervals and adapted to new or changed conditions.

(4) Completed training shall be documented in writing.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 12
Special provisions concerning the protection of persons working on board against exposure to chemicals

Title amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 12-1

Records of substances and products

(1) Records of substances and products shall be kept which show the chemicals to be used on board.

(2) The records of substances and products shall contain all information on the chemicals which is necessary for their intended use. Such information may include, inter alia, health, environment and safety product data sheets, other information provided by the supplier, information from competent authorities and relevant literature.

(3) The records of substances and products shall be kept readily accessible to the persons working on board.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 12-2

Marking

(1) Chemicals for use on board shall be appropriately marked. The marking shall be in accordance with the information in the health, environment and safety product data sheets and shall exhibit, inter alia:

a. the technical name, substance/product name and an indication of its contents;
b. the hazard class and hazard symbol;
c. a warning against hazards and necessary precautions;
d. the name and address of the manufacturer.

(2) If chemicals are stored in a separate and locked room, the storage room shall be conspicuously marked with the hazard classes and hazard symbols of the chemicals stored.

(3) Marking as specified in this provision shall be in a language or languages understood by the persons working on board concerned.

(4) Instructions shall be prepared which ensure that the requirements pursuant to this provision are complied with at all times.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 12-3

Packaging

Chemicals for use on board shall be stored in their original packaging or other equivalent and marked packaging. If the original packaging is damaged or the chemical is re-packaged, the new packaging must be of a chemical-resistant type which cannot give rise to confusion.

Section 12-4

Measurement of contamination of the working atmosphere

(1) Measurements of the contamination of the working atmosphere shall be made at regular intervals and invariably in the event of any change that may influence the exposure of persons working on board to chemicals.

(2) Measurements shall be made so as to be capable of identifying any exposure to persons working on board.

(3) Measurements of contamination and their results shall be documented in writing.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 12-5

Limit values for pollutants in the working atmosphere

(1) For pollution in the working atmosphere, the limit values set out in attachment 2 to these Regulations shall not be exceeded.

(2) The biological limit value for lead that must not be exceeded is 0.5 micromoles per litre of blood for women in their fertile age and 1.5 micromoles per litre of blood for others who work on board.

(3) For a working period of 12 hours, the limit levels for pollutants in the working atmosphere shall be corrected by a safety factor of 0.6.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 23 January 2024 No. 165.

Section 12-6

Measures in the event of exceeded limit values for pollutants in the working atmosphere

(1) Where a limit value or administrative norm is exceeded preventive and protective measures shall immediately be taken to improve the situation.

(2) The persons working on board concerned shall immediately be informed of such incidents.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 23 January 2024 No. 165.

Section 12-7

Special measures for work with carcinogenic chemicals

(1) Where possible, carcinogenic chemicals and processes shall be kept within a closed system.

(2) If it is not technically possible to use a closed system, measures shall be taken to ensure that the exposure is a low as possible and not exceeding a safe level.

Section 12-8

Special measures for sandblasting work

Sand and other agents for use in sandblasting on board ship shall contain maximum 1% by weight of quartz or other crystalline silica.

Section 12-9

Special measures in connection with flammable and explosion hazardous chemicals and volatile chemicals

(1) Measures shall be taken to prevent the occurrence of dangerous concentrations of flammable chemicals or dangerous quantities of reactive chemicals.

(2) If measures as referred to in the first paragraph are not practicable, measures shall be taken to avoid ignition sources which may cause fire or explosion or any other condition which may cause reactive chemicals to lead to dangerous situations.

(3) Measures shall be taken to prevent injuries to persons working on board in the event of fire or explosion or any other dangerous situation likely to be caused by reactive chemicals.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 12-10

Records

(1) Separate records shall be kept of chemical agents used on board. The records shall contain information on purchases, storage conditions and quantities of the following chemicals:

a. organic solvents and detergents of any kind;
b. strong/concentrated alkalis;
c. insecticides and rat poisons;
d. cooling media for refrigerating systems;
e. antifreezes;
f. strong/concentrated acids;
g. hydrazine hydrate;
h. filmtec membrane preservative;
i. carcinogenic chemicals and other chemicals which according to the risk assessment pose a special health risk.

(2) The records shall in each case identify the person to whom a chemical agent is handed out, the quantity involved and the intended use of the chemical. The worker shall acknowledge receipt by signature, confirming that they have been informed of the health risks associated with use and of the necessary protective measures.

(3) The persons working on board shall have access to the information contained in the records.

(4) The records shall be available for at least three years.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 26 June 2025 No. 1372.

Section 12-11

Change of work

(1) Where necessary to protect the health of a person working on board, they shall be assigned tasks and duties that do not involve exposure to chemicals.

(2) Persons working on board engaged in work with lead or lead compounds shall be assigned other work for a period of at least three months if the following limit values are exceeded:

a. Women in their fertile age working on board with lead content of the blood exceeding 0.75 micromol per litre of blood or with three consecutive quarterly checks showing a lead content per litre of blood in the 0.5–0.75 range shall be assigned other work until the lead content of the blood has decreased to less than 0.5 micromol per litre of blood.
b. Other persons working on board with lead content of the blood exceeding 2.0 micromol per litre of blood or with three consecutive quarterly checks showing a lead content per litre of blood in the 1.5–2.0 range shall

be assigned other work until the lead content of the blood has decreased to less than 1.5 micromol per litre of blood.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 13
Special provisions concerning the protection of persons working on board against exposure to biological agents

Section 13-1
Classification of biological agents

(1) Living biological materials are classified into four risk groups, according to their level of risk of infection:

a. *Infection risk group 1:* a biological agent that is unlikely to cause infectious disease in humans.

b. *Infection risk group 2:* a biological agent that can cause infectious disease in humans and be a hazard to those who work on board; it is unlikely to spread to the community, and there are usually effective preventive measures (prophylaxis) or treatments (antibiotics) available.

c. *Infection risk group 3:* a biological agent that can cause severe infectious disease in humans and present a serious hazard to those who work on board; it may present a risk of spreading to the community, but there are usually effective preventive measures (prophylaxis) or treatments (antibiotics) available.

d. *Infection risk group 4:* a biological agent that causes severe infectious disease in humans and is a serious hazard for those who work on board; it may present a high risk of spreading to the community, and there are usually no effective preventive measures (prophylaxis) or treatments (antibiotics) available.

(2) Annex 3 contains a list of biological agents classified into risk groups 2, 3 or 4. When working with micro-organisms not included in that list an assessment of risk group shall in each case be made on the basis of the criteria laid down in the first paragraph.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 23 January 2024 No. 165.

Section 13-2
Warning notices

(1) Areas where there is a risk of any biologically determined health hazard shall be marked with the following



warning notice:

(2) The symbol is black on a yellow background surrounded by a black triangle.

Section 13-3
Notification to the Norwegian Maritime Authority

(1) Advance notification to the Norwegian Maritime Authority is required for first-time use of biological agents which pursuant to section 13-1 are classified as Group 2, Group 3 or Group 4 biological agents.

(2) The first paragraph notwithstanding, advance notification to the Norwegian Maritime Authority is required for first-time use of any new Group 4 biological agent and first-time use of any new Group 3 biological agent if the classification is made pursuant to section 13-1, second paragraph.

(3) The notification shall be submitted not later than 30 days before the commencement of work.

(4) The notification shall contain the following information:

a. name and address of the company;

b. name and call sign of the vessel;

c. name and position of the person or persons who are responsible for health, environment and safety on board;

d. the nature of the biological agent;

e. the result of the risk assessment performed pursuant to section 11-4;

f. planned protection and safety measures.

(5) A new notification shall be submitted if changes are made which affect health, safety and the environment on board, and which renders the content of an earlier notification obsolete.

Section 13-4

Measures for the containment of biological agents

(1) Such containment measures as are provided in sections 13-5 and 13-6 and necessary to limit the risk of exposure shall be taken.

(2) On vessels with laboratories where persons working on board are or may be exposed to biological agents, or where animals used for experiments which have been intentionally infected with Group 2, Group 3 or Group 4 biological agents are handled, or which are suspected to be carriers of such agents, the following containment measures shall be taken to limit to the greatest possible degree the risk of infection:

a. at least containment level 2 for activities associated with Group 2 biological agents;
b. at least containment level 3 for activities associated with Group 3 biological agents;
c. at least containment level 4 for activities associated with Group 4 biological agents.

(3) In laboratories the purpose of which is not to carry out work involving biological agents, but where nevertheless materials are handled which may contain biological agents that may cause human diseases, at least containment level 2 shall be chosen.

(4) Containment levels 3 or 4 shall be applied in cases where, on the basis of existing knowledge or suspicion, those levels are deemed necessary.

(5) For industrial processes where Group 2, Group 3 and Group 4 biological agents are used, the following measures shall be taken:

a. those containment principles that follow from the second paragraph of this provision;
b. any measure that competent authorities have decided relative to industrial use of biological agents in risk groups 2, 3, or 4;
c. for activities to which this provision applies where it has not been possible to make a final classification of a biological agent but there are indications that the planned use may constitute a serious health hazard for the persons working on board, the work shall be carried out in facilities which at least conform to containment level 3.

(6) In isolation units where there are persons or animals that are or are presumed to be infected by Group 3 or Group 4 biological agents, such containment measures as are mentioned in column A of section 13-5. and deemed necessary in the risk assessment shall be taken.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 13-5

Containment measures in laboratories

Containment measures relative to containment level in laboratories:

	A	*B*		
	Containment measure	*Containment level*		
		2	*3*	*4*
1.	Work premises shall be separated from any other activity in the same building	No	Recommended	Yes
2.	Air intakes and outlets of workplace shall be filtered by means of absolute filters or similar equipment	No	Yes, outlet airstream	Yes, outlet airstream
3.	Only designated persons working on board shall be permitted to enter	Recommended	Yes	Yes, by way of air lock
4.	Workplace shall have shut-off arrangements which enable disinfection	No	Recommended	Yes
5.	Disinfection procedures shall be specified	Yes	Yes	Yes
6.	Workplace pressure shall be lower than atmospheric pressure	No	Recommended	Yes
7.	Effective control of carriers, e.g. rodents and insects, shall be ensured	Recommended	Yes	Yes
8.	Surfaces shall be watertight and easy to clean	Yes, workbench surface	Yes, workbench and floor surfaces	Yes, workbench, wall, floor and ceiling surfaces

9.	Surfaces shall withstand acids, alkaline substances, solvents and disinfectants	Recommended	Yes	Yes
10.	Biological agents shall be kept in a safe place	Yes	Yes	Yes, in a place with entry control-
11.	There shall be an observation window or similar arrangement making it possible to watch persons on the inside	Recommended	Recommended	Yes
12.	Each individual laboratory shall have a complete set of equipment	No	Recommended	Yes
13.	Handling of infected material and all animals shall take place in a safety room, in an isolated compartment or in any other suitable enclosure	Where necessary	Yes, if the infection is airborne	Yes
14.	Incineration plant for destruction of dead animals shall be available	Recommended	Yes (available)	Yes, on location

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 13-6

Containment measures for industrial processes

Containment measures relative to containment level for industrial processes:

	Containment measure	*Containment level*		
		2	*3*	*4*
1.	Viable micro-organisms shall be contained in a system that physically shuts the work operation off from the surrounding environment	Yes	Yes	Yes
2.	Gases emitted from the shut-off system shall be so treated as to	reduce spreading to a minimum	avoid spreading	avoid spreading
3.	Sampling, transferring of substances to a shut-off system and transferring viable microorganisms to another shut-off system shall be so performed as to	reduce spreading to a minimum	avoid spreading	avoid spreading
4.	Liquid media shall not be removed from the shut-off system unless the viable micro-organisms are	rendered inert by recognised methods	rendered inert by recognised chemical or physical methods	rendered inert by recognised chemical or physical methods
5.	Shut-off mechanisms shall be so designed as to	reduce spreading to a minimum	avoid spreading	avoid spreading
6.	Shut-off systems			
6.1.	Shut-off systems shall be placed in a shut-off zone	Optional	Optional	Yes, zone designed for the purpose
6.2.	Biological danger warning notice shall be posted	Optional	Yes	Yes
6.3.	Only designated workers shall be permitted to enter	Optional	Yes	Yes, by way of air lock

6.4.	Personnel shall wear protective clothing	Yes, working clothes	Yes	All clothes must be changed
6.5.	Personnel shall have access to decontamination units and sanitary facilities	Yes	Yes	Yes
6.6.	Personnel shall take a shower before leaving the zone	No	Optional	Yes
6.7.	Waste water from washes and showers shall be collected and treated to render micro-organisms inert before it is let out	No	Optional	Yes
6.8.	The controlled zone shall have sufficient ventilation to reduce air pollution to a minimum	Optional	Optional	Yes
6.9.	The controlled zone shall have a pressure that is lower than the atmospheric pressure	No	Optional	Yes
6.10.	The intake and outlet airstreams of the controlled zone shall be filtered by means of an absolute filter	No	Optional	Yes
6.11.	The controlled zone shall be so designed as to be capable of containing the whole content of the shut-off system in the event of system overflow	No	Optional	Yes
6.12.	The controlled zone shall have shut-off mechanisms enabling decontamination by gas	No	Optional	Yes
6.13.	Wastewater treatment shall take place before final emptying	rendered inert by recognised methods	rendered inert by recognised chemical or physical methods	rendered inert by recognised chemical or physical methods

Chapter 14
Provisions concerning the protection against mechanical vibration

Chapter added by Regulation of 6 July 2005 No. 800.

Section 14-1
Scope of application

This Chapter covers activities in which persons working on board are or are likely to be exposed to risks from mechanical vibration during their work and stay on board.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-2
Definitions

For the purposes of this Chapter, the following definitions shall apply:

a. "*Hand-arm vibration*": The mechanical vibration that, when transmitted from work equipment to the human hand-arm system, entails risks to the health and safety of workers, in particular vascular, bone or joint, neurological or muscular disorders;

b. "*Whole-body vibration*": The mechanical vibration that, when transmitted to the whole body, entails risks to the health and safety of workers, in particular trauma of the spine;

c. "*Daily exposure value*": The energy equivalent mean value of the frequency-weighted acceleration throughout the working day, normalised to an eight-hour reference period (A(8)).

$$A(8) = A(T)\sqrt{\frac{T}{8}}$$

where A(T) equals the daily exposure to vibration throughout a working day of a total duration of T hours. For hand-arm vibration A(T) is determined pursuant to NS-EN ISO 5349-1 (2001), Chapters 4 and 5 and Annex A. For whole-body vibration A(T) is determined pursuant to NS ISO 2631-1 (1997), Chapters 5 to 7 and Annexes A and B as the daily exposure value in the axial direction giving the highest value where frequency-weighted acceleration values for a sitting, lying or standing person are employed;

d. "*Daily exposure limit value, A(8)*": The daily exposure value which shall not be exceeded;

e. "*Daily exposure action value*": The daily exposure value which requires the implementation of measures intended to reduce risk to a minimum.

Section 14-3
Exemptions

There may be exemptions from the provisions of section 14-9.

Exemptions may be granted from the provisions on whole-body vibration. Such exemptions shall take into consideration that the technical state of the art on board and the specific characteristics of the workplace are such that it is not possible to comply with the exposure limit value, despite the technical and/or organisational measures taken.

Exemptions may be granted in cases where:

a. the exposure of a person working on board to mechanical vibration is usually below the action values, but varies markedly from one work period to the next and may occasionally exceed the limit value;

b. the exposure value averaged over 40 hours is less than the limit value; and

c. there is evidence showing that the risks from the pattern of exposure to the work are lower than those from exposure at the limit value.

Before an exemption from the second and third paragraphs is granted, the opinion of the two sides of industry shall be heard or presented. Exemptions pursuant to this provision shall be accompanied by conditions which guarantee that the risks resulting from vibration are reduced to a minimum and that the persons working on board concerned are subject to increased health surveillance. Exemptions may not be granted for a longer period than four years.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-4
Limit values

Hand-arm vibration:

The daily exposure limit value for an eight-hour reference period, A(8), is set to 5 m/s^2.

Whole-body vibration:

The daily exposure limit value for an eight-hour reference period, A(8), is set to 1.1 m/s^2.

Section 14-5
Action values

Hand-arm vibration:

The daily exposure action value for an eight-hour reference period, A(8), is set to 2.5 m/s^2.

Whole-body vibration:

The daily exposure action value for an eight-hour reference period, A(8), is set to 0.5 m/s^2.

Section 14-6
Risk assessment

The exposure of persons working on board to mechanical vibration shall be assessed. Measurements of the level of exposure to vibration shall be carried out if necessary. Assessments and measurements shall be repeated on a regular basis. The risk assessments and the measurements shall be repeated on a regular basis and shall be carried out by qualified personnel with competency in vibration measurements and assessments of these. If the company lacks qualified personnel, the employer shall use external services or persons.

The results from the vibration measurements and the risk assessments shall be stored in order to allow the information to be applied at a later time.

The level of exposure to mechanical vibration may be assessed by means of observation of specific work operations and reference to relevant information on the probable magnitude of the vibration corresponding to the equipment or the types of equipment used in the particular conditions of use, including such information provided by the manufacturer of

the equipment. The assessment pursuant to this provision shall not require the use of specific measurement apparatus or appropriate methodology.

The risk assessment shall take particular account of:

a. the level, type and duration of exposure, including any exposure to periodically intermittent vibration or repeated shocks;
b. the exposure limit values and the exposure action values;
c. any effects concerning the health and safety of persons working on board at particularly sensitive risk;
d. any indirect effects on the safety of persons working on board resulting from interactions between mechanical vibration and the workplace or other work equipment;
e. information provided by the manufacturers of work equipment;
f. the existence of replacement equipment designed to reduce the levels of exposure to mechanical vibration;
g. specific working conditions such as low temperatures, etc.;
h. the extension of exposure on board to whole-body vibration beyond normal working hours;
i. appropriate information obtained from health surveillance, including published information, as far as possible.

Amended by Regulations of 30 November 2006 No. 1330 (in force on 1 December 2006), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-7

Vibration measurements

If measurements are carried out as a basis for the risk assessment, the measurement values shall be representative of the exposure of persons working on board to vibration. Methods and equipment shall be adapted to ambient factors and the particular characteristics of the vibration to be measured.

Measurements of hand-arm vibration shall be carried out in accordance with NS-EN-ISO-5349-2 (2001). In the case of devices which need to be held with both hands, measurements shall be made on each hand. It is the highest value in the two measurement series that indicates the exposure level of the person working on board.

Measurements of whole-body vibration shall be carried out in accordance with NS-ISO-2631-1 (1997).

Amended by Regulations of 30 November 2006 No. 1330 (in force on 1 December 2006), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-8

Measures in the event of exceeded action values

If the action values are exceeded, the necessary technical and organisational measures shall be implemented to reduce risks to a minimum. The following shall in particular be provided:

a. alternative working methods that require less exposure to mechanical vibration;
b. the choice of work equipment of appropriate ergonomic design and, taking account of the work to be done, producing the least possible vibration;
c. the provision of auxiliary equipment that reduces the risk of injuries caused by vibration, such as seats that effectively reduce whole-body vibration and handles which reduce the vibration transmitted to the hand-arm system;
d. appropriate maintenance programmes for work equipment, the workplace and workplace systems;
e. the design and layout of workplaces and work stations;
f. adequate information and training to instruct persons working on board to use work equipment correctly and safely in order to reduce their exposure to mechanical vibration to a minimum;
g. limitation of the duration and intensity of the exposure;
h. appropriate work schedules with adequate rest periods;
i. the provision of protective clothing to protect exposed persons working on board from cold and damp.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-9

Measures in the event of exceeded limit values

If the limit values are exceeded, the necessary measures to reduce exposure to below the limit values shall be implemented immediately.

The cause of exceeded limit values shall be investigated, and the necessary corrective measures shall be implemented.

Section 14-10

Medical examination

Where the risk assessment shows that the person working on board is exposed to vibration exceeding the action values set out in section 14-5, and such exposure poses a risk to their health, they shall be offered an appropriate medical

examination. A person working on board shall also be offered an appropriate medical examination if the exposure is of a type that can be directly linked to an identifiable health injury or disease, it is likely that the injury or disease will occur under special work conditions, and techniques for detecting such injuries and diseases have been tested.

The medical examination shall be able to uncover any health effects caused by vibration and form the basis of preventive measures or other measures which may reduce the risk of a health injury for the person working on board.

The doctor decides the frequency and content of the examination on the basis of the nature, degree and duration of the exposure and the health condition of the person working on board.

The person working on board shall be informed of the result of the medical examination. If further medical examinations following the end of the exposure are necessary, the person working on board shall be informed.

Amended by Regulations of 30 November 2006 No. 1330 (in force on 1 December 2006), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-11

Medical examination follow-up

If the medical examination uncovers illness or other adverse health effects which the doctor thinks may be caused by exposure to vibration at the workplace:

a. the risk assessment shall be reviewed, including taking the advice of competent health personnel or public authority into consideration;
b. measures necessary to remove or reduce the risk of work which exposes the person working on board to vibration shall be implemented;
c. the person working on board shall be informed;
d. the person working on board shall be assigned other work pursuant to section 14-12;
e. the employer shall introduce continued health surveillance and ensure that the health condition of all persons working on board who have endured similar exposure are examined. In such cases, the doctor, qualified occupational health personnel or the Norwegian Maritime Authority may recommend that exposed persons undergo a medical examination.

Amended by Regulations of 30 November 2006 No. 1330 (in force on 1 December 2006), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-12

Change of work

Where necessary to protect the health of a person working on board, the company shall as far as practicable ensure that persons working on board are assigned other work within the organisation where there is no risk of health hazardous exposure to vibration.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-13

Information and training

The person working on board and the safety representative shall receive training and information in accordance with the result of the risk assessments. They shall receive information and training in regard to:

a. preventive measures to remove the risk of mechanical vibration or to reduce the risk to a minimum;
b. limit values and action values;
c. the results of the assessments and measurements carried out and the potential injury arising from the work equipment in use;
d. why and how to detect and report signs of injury;
e. the circumstances in which persons working on board are entitled to health surveillance;
f. safe working practices to minimise exposure to mechanical vibration.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 14-14

Transitional provisions

The implementation of the provisions of section 14-9 concerning work equipment shall apply as of 6 July 2005 at the earliest, if the work equipment used was at the disposal of the persons working on board prior to 6 July 2007, and the equipment is incapable of complying with exposure limit values, even when taking account of the latest technical developments and organisational measures.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 15
Provisions concerning the protection against noise

Chapter added by Regulation of 22 February 2006 No. 264, amended by Regulation of 30 June 2014 No. 922.

Section 15-1
Definitions

1. *"A-weighted equivalent continuous sound level LAeq(T)"*: A-weighted sound pressure level of a continuous steady sound that, within a measurement time interval, T, has the same mean square sound pressure as a sound under consideration which varies with time. It is expressed in decibels A (dB(A)) and is given by the following equation:

$$L_{Aeq,T} = 10\log\frac{1}{T}\int_0^T \frac{pa(t)^2}{p_0^2}\cdot dt$$

where: T = measurement time
p_a (t) = A-weighted instantaneous sound pressure
p_0 = 20 μPa (the reference level).

2. *"A-weighted sound pressure level or noise level"*: The quantity measured by a sound level meter in which the frequency response curve is weighted according to the A-weighting curve (see IEC 61672-1).
3. *"Navigating bridge wings"*: The parts of the vessel's navigating bridge extending out towards the vessel's sides.
4. *"C-weighted equivalent continuous sound level $L_{Ceq}(T)$"*: C-weighted sound pressure level of a continuous steady sound that, within a measurement time interval, T, has the same mean square sound pressure as a sound under consideration which varies with time. It is expressed in decibels C (dB(C)) and is given by the following equation:

$$L_{Ceq,T} = 10\log\frac{1}{T}\int_0^T \frac{pc(t)^2}{p_0^2}\cdot dt$$

where: T = measurement time
p_c (t) = C-weighted instantaneous sound pressure
p_0 = 20 μPa (the reference level).

5. *"C-weighted sound pressure level or noise level"*: The quantity measured by a sound level meter in which the frequency response is weighted according to the C-weighting curve (see IEC 61672-1 (2002-05)).
6. *"C-weighted peak sound level, L_{Cpeak}"*: C-weighted maximum instantaneous sound pressure level. It is expressed in decibels C (dB(C)) and is given by the following equation:

$$L_{Cpeak} = 10\log\frac{p_{peak}^2}{p_0^2}$$

where: p_{peak} = C-weighted maximum instantaneous sound pressure
p_0 = 20 μPa (the reference level).
7. *"Daily noise exposure level ($L_{ex,8h}$) (dB(A) re. 20 μPa)"*: Time-weighted average of the noise exposure levels for a nominal eight-hour working day as defined by international standard ISO 1999:1990, point 3.6. It covers all noises present at work, including impulsive noise.
8. *"Daily noise exposure level ($L_{ex,24h}$)"* represents the equivalent noise exposure level for a period of 24 hours.

$L_{ex,24h} = L_{Aeq}, T + 10\log(T/T_0)$
where: T is the effective duration on board
T_0 is the reference duration 24 h.

The total equivalent continuous A-weighted sound pressure level (L_{Aeq} T) shall be calculated by using the different noise levels (L_{Aeq}, T_i) and associated time periods with the following equation:

$$L_{Aeq,\ T} = 10log\left[\frac{1}{T}\sum_{i=1}^{n}\left(T_i \times 10^{0.1L_{Aeq,T_i}}\right)\right]$$

where:
L_{Aeq},T_i is the equivalent continuous A-weighted sound pressure level, in decibels, averaged over time interval T_i,

$$T = \sum_{i=1}^{n} T_i$$

$L_{ex,24h} = L_{Aeq,24h}$ when the persons working on board are on board the vessel for a period of 24 hours.

9. *"Dynamically supported craft"*: A craft which is operable on or above water and which has characteristics different from those of conventional displacement ships. Within the aforementioned generality, a craft which complies with either of the following characteristics:
   .1 the weight, or a significant part thereof, is balanced in one mode of operation by other than hydrostatic forces;
   .2 the craft is able to operate at speeds such that the function $\frac{v}{\sqrt{gL}}$ is equal to or greater than 0.9, where "v" is the maximum speed, "L" is the water-line length and "g" is the acceleration due to gravity, all in consistent units.
10. *"Exposure limit values"*: Exposure limit values which require immediate actions if they are exceeded.
11. *"High-speed craft"*: Craft as defined in the International Convention for the Safety of Life at Sea, regulation X/1.
12. *"Hearing loss"*: Hearing loss is evaluated in relation to a reference auditory threshold defined conventionally in ISO Standard 389-1(1998). The hearing loss corresponds to the difference between the auditory threshold of the subject being examined and the reference auditory threshold.
13. *"Hearing protector"*: A device worn to reduce the level of noise reaching the ears. Passive noise-cancelling headsets block noise from reaching the ear. Active noise-cancelling headphones generate a signal that cancels out the ambient noise within the headphone.
14. *"Impulsive noise"*: High-intensity noise of short time duration.
15. *"Integrating sound level meter"*: A sound level meter designed or adapted to measure the level of the mean squared time averaged A-weighted and C-weighted sound pressure.
16. *"Continuously manned spaces"*: Spaces in which the continuous or prolonged presence of persons working on board is necessary for normal operational periods.
17. *"Sound"*: Energy that is transmitted by pressure waves in air or other materials and is the objective cause of the sensation of hearing.
18. *"Sound pressure level L_p"*: Sound pressure level expressed in decibel (dB), or a sound or noise given by the following equation:

$$L_p = 10\log\frac{p^2}{p_0^2}$$

where: p = sound pressure, in Pascal
p_0 = 20 μPa (the reference level).

19. *"Peak sound pressure (p_{peak})"*: Maximum value of the 'C'-frequency weighted instantaneous sound pressure.
20. *"Machinery spaces"*: Any space which contains steam or internal-combustion machinery, pumps, air compressors, boilers, oil fuel units, major electrical machinery, oil filling stations, thrusters, refrigerating, stabilizing, steering gear, ventilation and air conditioning machinery, etc., and trunks to such spaces.
21. *"Dredger"*: A vessel undertaking operations to excavate bottom sediment, where the vessel has permanently installed excavation equipment.
22. *"Pile driving vessel"*: A vessel undertaking operations to install pilings in the seabed.
23. *"Accommodation spaces"*: Cabins, offices (for carrying out ship's business), hospitals, messrooms, recreation rooms (such as lounges, smoke rooms, cinemas, gymnasiums, libraries and hobbies and games rooms) and open recreation areas to be used by persons working on board.
24. *"Noise"*: For the purpose of this chapter all sound which can result in hearing impairment, or which can be harmful to health or be otherwise dangerous or disruptive.
25. *"Noise level"*: See A-weighted sound pressure level in paragraph 2 of this section.
26. *"Noise induced hearing loss"*: A hearing loss, originating in the nerve cells within the cochlea, attributable to the effects of sound.
27. *"Action limit values"*: Exposure limit values which requires actions to be taken in order to reduce the health risk and unfortunate strain to a minimum.
28. *"Duty stations"*: Those spaces in which the main navigating equipment, the ship's radio or the emergency source of power are located or where the fire recording or fire control equipment is centralised and also those spaces used for galleys, main pantries, stores (except isolated pantries and lockers), mail and specie rooms, workshops other than those forming part of the machinery spaces and similar such spaces.
29. *"Weekly noise exposure level ($L_{ex,8h}$)"*: Time-weighted average of the daily noise exposure levels for a nominal week of five eight-hour working days as defined by international standard ISO 1999:1990, point 3.6 (note 2).
30. *"Weighted sound reduction index, R_w"*: A single number value expressed in decibels (dB) which describes the overall sound insulation performance (in laboratory) that walls, doors or floors provides (see ISO 717-1:1997 as amended by 1:2006).

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-2

Systematic prevention of noise

(1) The work shall be planned and carried out in such a manner as to protect the persons working on board against noise. Measures shall be taken at source as far as practicable with regard to technical improvements, or by limiting the duration and intensity of sound exposure in other ways.

(2) Technical devices shall be arranged, used and maintained in such a way that unnecessary noise does not arise.

(3) Risks arising from exposure to noise shall be reduced based on the general principles or prevention set out in chapter 2 of these Regulations, taking into account in particular:

a. other working methods that require less exposure to noise;
b. the choice of appropriate work equipment, taking account of the work to be done, emitting the least possible noise, including the possibility of making available to persons working on board work equipment with the aim or effect of limiting exposure to noise;
c. the design and layout of workplaces and work stations;
d. adequate information and training to instruct persons working on board to use work equipment correctly in order to reduce their exposure to noise to a minimum;
e. noise reduction by technical means:
    i) reducing airborne noise, e.g. by shields, enclosures, sound-absorbent coverings;
    ii) reducing structure-borne noise, e.g. by damping or isolation;
f. appropriate maintenance programmes for work equipment, the workplace and workplace systems;
g. organisation of work to reduce noise:
    i) limitation of the duration and intensity of the exposure;
    ii) appropriate work schedules with adequate rest periods.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-3

Risk assessment

(1) Risk assessments of the noise levels to which the persons working on board are exposed, shall be carried out. The requirements of this chapter for noise limits, noise measurements, methods of measurement, measuring equipment and personnel to carry out the measurements, are a part of such risk assessment. The risk assessments shall be updated on a regular basis, and new risk assessments shall always be carried out when significant changes affect the noise exposure or when the results of health surveillance show it to be necessary.

(2) The risk assessments shall give particular attention to the following:

a. the level, type and duration of exposure, including any exposure to impulsive noise;
b. the exposure limits and action values for noise exposure laid down in section 15-18;
c. any effects concerning the health and safety of persons working on board belonging to particularly sensitive work groups;
d. as far as technically achievable, any effects on the health and safety of persons working on board, resulting from interactions between noise and work-related ototoxic substances, and between noise and vibrations;
e. any indirect effects on the health and safety of persons working on board, resulting from interactions between noise and warning signals or other sounds that need to be observed in order to reduce the risk of accidents;
f. information on noise emission provided by manufacturers of work equipment used on board;
g. the existence of alternative work equipment designed to reduce the noise emission;
h. exposure to noise beyond normal working hours;
i. appropriate information obtained following health surveillance, including published information, as far as possible;
j. the availability of hearing protectors with adequate attenuation characteristics.

(3) The risk assessments shall be kept readily accessible to all persons working on board in order for the information to be applied at a later point in time.

(4) When preparing the individual risk assessments, the Act of 15 June 2018 No. 38 relating to the processing of personal data shall apply.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014), amended by Regulations of 13 July 2018 No. 1191.

Section 15-4

Measuring equipment

(1) Measurement of sound pressure levels shall be carried out using precision integrating sound level meters that meet the requirements of this chapter. Such meters shall be manufactured to IEC 61672-1(2002-05) type/class 1 standard as applicable. Standards other than IEC 61672-1(2002-05) may be applied if the company provides documentary evidence for the Norwegian Maritime Authority showing that the standard is equivalent. Sound level meters type/class 1 manufactured according to IEC 651/IEC 804 may be used until 1 July 2016.

(2) Octave filter set, either used alone or in conjunction with a sound level meter, shall conform to IEC 61260 (1995). Standards other than IEC 61260 (1995) may be applied if the company provides documentary evidence for the Norwegian Maritime Authority showing that the standard is equivalent. “Octave filter set” means octave-band and fractional-octave-band filters.

(3) Sound calibrators shall comply with the standard IEC 60942 (2003-01) and shall be approved by the manufacturer of the sound level meter used.

(4) Calibrator and sound level meter shall be verified at least every two years by a Norwegian standard laboratory or a competent laboratory accredited according to ISO/IEC 17025:2005/Cor 1:2006.

(5) A microphone wind screen shall be used when taking readings outside, e.g. on navigating bridge wings or on deck, and below deck where there is any substantial air movement.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-5

Noise measurement

(1) For vessels covered by section 15-19 the measurement of noise levels in all spaces specified in section 15-19 second paragraph shall be carried out upon completion of the construction of the vessel, or as soon as practicable thereafter. The measurements shall take place under the operating conditions specified in section 15-7, and shall be recorded in a survey report, cf. section 15-28.

(2) Measurements of the A-weighted equivalent continuous sound level, $L_{Aeq(T)}$ shall be made, and measurements of the C-weighted equivalent continuous sound level, $L_{Ceq(T)}$ and the C-weighted peak sound level L_{Cpeak} shall be made in spaces where $L_{Aeq(T)}$ exceeds 85 dB(A).

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-6

Personnel to carry out noise measurements

(1) Persons conducting noise measurements shall have:

a. knowledge in the field of noise, sound measurements and handling of used equipment;

b. training concerning the procedures specified in this chapter.

(2) The measuring institutes or experts shall prove their competence with view to noise measurements.

(3) Testing institutions which support a quality management system according to ISO 17020/25 are considered to fulfil the requirements of the first and second paragraphs.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-7

Operating conditions at sea trials

(1) The course of the vessel shall be as straight as possible. The actual conditions during the measurements shall be recorded in the noise survey report, cf. section 15-28.

(2) Noise measurements shall be taken at normal service speed and, unless otherwise provided in this section, no less than 80% of the maximum continuous rating (MCR). Controllable pitch and Voith-Schneider propellers, if any, shall be in the normal seagoing position. For special vessel types and for vessels with special propulsion and power configurations, such as diesel-electric systems, due consideration may be given to actual ship design or operating parameters when applying the requirements of this and the second paragraph.

(3) All machinery, navigation instruments, radio and radar sets, etc., normally in use at normal seagoing condition and levels, including squelch shall operate throughout the measurement period. However, neither energised fog signals nor helicopter operations shall take place during the taking of these measurements.

(4) Measurements in spaces containing emergency diesel engine driven generators, fire pumps or other emergency equipment that would normally be run only in emergency, or for test purposes, shall be taken with the equipment operating.

(5) Mechanical ventilation, heating and air-conditioning equipment shall be in normal operation, taking into account that the capacity shall be in accordance with the design conditions.

(6) For thrusters, measurements shall be made at 40% thruster power and the ship's speed shall be appropriate for thruster operation. Measurements shall be taken at positions around such machinery when in operation and in adjacent accommodation spaces and duty stations. If such equipment is intended for continuous operation, e.g. stabilisers, measurements shall be made. If such systems are intended for short temporary use only, for instance during port manoeuvres, measurements are only relevant for ensuring compliance with section 15-18 on noise exposure.

(7) In case of vessels with Dynamic Positioning (DP), which is intended for use in normal working condition, additional noise measurements at DP mode shall be made at control stations, duty stations and accommodation spaces to ensure that the maximum noise level limits in these spaces are not exceeded. Such measurements shall be carried out with at least 40% load on the DP thruster system.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-8

Environmental conditions during noise measurements

(1) During the measurement only noise sources related to the vessel, such as machinery and propulsion, shall be taken into account. Noise from wind, waves, ice, alarms, public address systems (PA system) etc. are not included.

(2) The following conditions shall be recorded in the noise survey report, cf. section 15-28:

a. water depth which is less than five times the draught, or when there are large reflecting surfaces in the vessel's vicinity;
b. the meteorological conditions such as wind and rain, as well as sea state, which influence the measurements;
c. wind force exceeding 4 and wave height of more than 1 m.

(3) Care shall be taken to see that noise from extraneous sound sources, such as people, entertainment, construction and repair work, does not influence the noise level on board the vessel at the positions of measurement.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-9

Measuring procedures

(1) During noise level measurement, only persons necessary for the operation of the ship and persons taking the measurements shall be present in the space concerned.

(2) Sound pressure level readings shall be taken in decibels using an A-weighting (dB(A)) and C-weighting (dB(C)) filter and if necessary also in octave bands between 31.5 and 8,000 Hz.

(3) The noise level measurements shall be taken with the integrating sound level meter using spatial averaging, cf. section 15-14 second paragraph, and over a time period until stable readings are found or at least 15 s in order to represent the average value from variations due to irregular operation or variations in the sound field. Readings shall be made only to the nearest decibel. If first decimal of the dB reading is 5 or higher, the reading shall be made to nearest higher integer.

(4) For a vessel which is not yet put into operation, compliance with the requirements of section 15-19 can be verified on the basis of sea trial measurements of noise levels by calculation of the expected noise exposure of each category of crew members in accordance with the method prescribed in section 15-10.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-10

Determination of noise exposure

In addition to the continuous sound level measurements, the noise exposure level of persons working on board shall be determined based upon ISO 9612:2009.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-11

Calibration and measurement uncertainties

(1) The sound level meter shall be calibrated with the calibrator referred to in section 15-4 third paragraph before and after measurements are taken.

(2) The uncertainty of measurements on board vessels depends on several factors, for example, measurement techniques and environmental conditions. Measurements made in conformity with this chapter with few exceptions result in reproducibility standard deviation of the equivalent continuous A-weighted sound pressure level equal to or less than 1.5 dB.

(3) Deviations of 1 to 3 dB(A) from the noise level limits are accepted for up to 15% of the number of cabins, including hospitals, and for up to 20% of the area of public spaces and offices on board.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-12

Points of measurement

(1) Measurements shall be taken with the microphone at a height of between 1.2 m (seated person) and 1.6 m (standing person) from the deck. Measurements shall not be taken closer than 0.5 m from the boundaries of a space. The microphone positions shall be as specified in the third paragraph and sections 15-13 to 15-15. Measurements shall be taken at positions where the personnel work, including at communication stations.

(2) The noise level shall be measured at all points where work is carried out. Additional measurements shall be performed in spaces containing duty stations if variations in noise level are thought to occur in the vicinity of the duty stations.

(3) When measuring noise levels, the microphone should, where possible, not be placed within a 30° angle away from the direction of the gas stream and not less than a distance of 1 m from the edge of the intake or exhaust opening of engines, ventilation, air conditioning and cooler systems, and as far as possible from reflecting surfaces.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-13

Measurements in machinery spaces

(1) Measurements shall be taken at the principal working and control stations of the persons working on board, in the machinery spaces and in the adjacent control rooms, if any, special attention being paid to telephone locations and to positions where voice communication and audible signals are important.

(2) Where it is not possible to take measurement further away than 1 m from operating machinery, or from decks, bulkheads or other large surfaces, or from air inlets, measurement shall be taken at a position midway between the machinery and adjacent reflecting surface.

(3) Measurements from machinery which constitutes a sound source should be taken at 1 m from the machinery.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-14

Measurements in navigation spaces and accommodation spaces

(1) Measurements shall be taken on both navigating bridge wings.

(2) One measurement shall be taken in the middle of the space. The microphone shall be moved slowly horizontally and/or vertically over a distance of 1 m +/- 0.5 m, taking into account the measurement criteria in section 15-12 first paragraph.

(3) The number of measurement cabins shall be not less than 40 per cent of the total number of cabins. Cabins which are obviously affected by noise, i.e. cabins adjacent to machinery or casings, must be considered in any case.

(4) For vessels with a large number of cabins for the persons working on board, such as passenger/cruise ships, it will be acceptable to reduce the number of measurement positions. The selection of cabins to be tested shall be representative for the group of cabins being tested by selecting those cabins in closer proximity to noise sources.

(5) On open deck, measurements shall be taken in any areas provided for the purpose of recreation.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-15

Measurements in normally unoccupied spaces

(1) In addition to the spaces referred to in sections 15-12 to 15-14, measurements shall be taken:

a. in all locations with unusually high noise levels where persons working on board may be exposed, even for relatively short periods; and

b. at intermittently used machinery locations.

(2) Noise levels need not be measured for normally unoccupied spaces, holds, deck areas and other spaces which are remote from sources of noise.

(3) In cargo holds, at least three microphone positions in parts of holds where personnel are likely to carry out work shall be used.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-16

Limitation of noise exposure

(1) Persons working on board shall not be exposed to noise exceeding the exposure limit values set out in section 15-18.

(2) If exposures above the exposure limit values are detected, the company shall:

a. take immediate action to reduce the exposure to below the exposure limit values;

b. identify the reasons why overexposure has occurred; and

c. amend the protection and prevention measures in order to avoid any recurrence.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-17

Measures in the event of exceeded action values

(1) If the upper exposure action values referred to in section 15-18 are exceeded, necessary technical and/or organisational measures shall be established and implemented, so that the noise exposure is eliminated at source or reduced to a minimum.

(2) The measures shall be developed on the basis of the risk assessments carried out pursuant to section 15-3, taking into account in particular the measured referred to in section 15-2 third paragraph.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-18

Exposure limit values and exposure action values

(1) The exposure limits in respect of the daily noise exposure levels and peak sound pressure are $L_{ex,8h}$ = 87 dB(A) and P_{peak} = 200 Pa (140 dB(C) in relation to 20 μPa).

(2) When applying the exposure limit values, the determination of the effective exposure shall take account of the attenuation provided by the individual hearing protectors worn by the persons working on board.

(3) The action values in respect of the daily noise exposure levels and peak sound pressure are:

a. upper exposure action values: $L_{ex,8h}$ = 85 dB(A) and p_{peak} = 140 Pa (137 dB(C) in relation to 20 μPa);
b. lower exposure action values: $L_{ex,8h}$ = 80 dB(A) and p_{peak} = 112 Pa (135 dB(C) in relation to 20 μPa).

(4) The exposure action values shall not take account of the effect of any hearing protectors.

(5) When assessing the levels of noise to which the persons on board are exposed, the weekly noise exposure level may, for the purposes of applying the exposure limits and the exposure action values, be used in place of the daily noise exposure level, for activities where daily noise exposure varies markedly from one working day to the next, on the condition that:

a. the weekly noise exposure level as shown by adequate monitoring does not exceed the exposure limit value of 87 dB(A); and
b. appropriate measures are taken in order to reduce the risk associated with these activities to a minimum.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-19

Noise level limits

(1) This section applies to vessels of 1,600 gross tonnage and upwards, the keel of which is laid or which are at a similar stage of construction on or after 1 January 2014.

(2) The noise level limits (dB(A)) in the below table shall not exceed the values specified for the various spaces:

Designation of rooms and spaces	*Vessel size*	
	1,600 up to 10,000 GT	*≥10,000 GT*
1 Work spaces		
Machinery spaces	110	110
Machinery control rooms	75	75
Workshops other than those forming part of machinery spaces	85	85
Non-specified work spaces, incl. open deck workspaces that are not machinery spaces, and open deck workspaces where communication is relevant	85	85
2 Navigation space		
Navigating bridge and chartrooms	65	65
Look-out posts, incl. navigating bridge wings and windows	70	70
Radio rooms with radio equipment operating but not producing audio signals	60	60

Radar rooms	65	65
3 Accommodation spaces		
Cabins and hospitals	60	55
Messrooms	65	60
Recreation rooms	65	60
Open, external recreation areas	75	75
Offices	65	60
4 Service spaces		
Galleys, without food processing equipment operating	75	75
Serveries and pantries	75	75
5 Normally unoccupied spaces		
Spaces referred to in section 15-15	90	90

(3) The noise level limits specified in the second paragraph shall be regarded as maximum levels and not as desirable levels. Where reasonably practicable, it is desirable for the noise level to be lower than the maximum levels specified.

(4) Before the vessel is put in service, the noise level limits shall be assessed by the equivalent continuous sound level measurement for the spaces specified in the second paragraph. In large rooms with many measurement positions the individual positions shall be compared to the noise level limits.

(5) The noise level limit for machinery spaces of 110 dB(A) pursuant to the second paragraph assumes that hearing protectors giving protection meeting the requirements for hearing protectors in section 15-22 are worn.

(6) For vessels not put in service, the noise level limits pursuant to the second paragraph are considered fulfilled if the sea trial measurements pursuant to section 15-9 fourth paragraph show that the persons working on board are not exposed to an $L_{ex(24)}$ exceeding 80 dB(A). That is to say, that within each day or 24-hour period the equivalent continuous noise exposure does not exceed 80 dB(A).

(7) For vessels designed for and employed on voyages of short duration, or on other services involving short periods of operation of the vessel, the noise level limits for accommodation spaces and service spaces pursuant to the second paragraph only applies with the vessel in the port condition. This is provided that the periods under such conditions are adequate for the rest and recreation for the persons working on board. “Voyages of short duration” means voyages where the vessel is not generally underway for periods long enough for the persons working on board to require sleep, or long off-duty periods, during the voyages. “Port condition” means the condition in which all machinery solely required for propulsion is stopped.

(8) The following vessels are exempt from the requirements of this section:

a. high-speed craft;
b. fishing vessels;
c. dynamically supported craft;
d. manned barges;
e. mobile offshore units;
f. ships belonging to the Norwegian Armed Forces and ships used in such service;
g. pile driving vessels;
h. dredgers; and
i. ships not propelled by mechanical means.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-20

Noise level limits on high-speed craft

(1) The noise level in public spaces and spaces for the persons working on board shall be kept as low as possible to enable the public address system to be heard (PA system), and shall in general not exceed 75 dB(A).

(2) The maximum noise level in the wheelhouse shall in general not exceed 65 dB(A).

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-21

Use of hearing protectors

(1) If the risks arising from exposure to noise cannot be prevented by other means, appropriate and properly fitting individual hearing protectors shall be made available to the persons working on board, under the conditions set out below:

a. where noise exposure exceeds the lower exposure action values, the company shall make individual hearing protectors available to the persons working on board;

b. where noise exposure matches or exceeds the upper exposure action values, individual protectors shall be used.

(2) Individual hearing protectors shall be in accordance with section 15-22, and shall be so selected as to eliminate the risk to hearing or to reduce the risk to a minimum.

(3) The company shall see to that hearing protectors are worn, and is responsible for checking the effectiveness of the measures taken in compliance with the first and second paragraphs.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-22

Technical requirements for hearing protectors

(1) Hearing protectors shall be of a type such that they can reduce sound pressure levels to 85 dB(A) or less.

(2) Selection of suitable hearing protectors shall be in accordance with the HML method described in ISO 4869-2:1994.

(3) Noise-cancelling technology may be used if the headset(s) have equivalent performance to hearing protectors in their unpowered condition.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-23

Warning notices

(1) Where the noise level in machinery spaces (or other spaces) is greater than 85 dB(A), entrances to such spaces shall carry a warning notice comprising symbol and supplementary sign in the working language of the vessel, corresponding to the example of warning notice and signs of this section.

(2) The areas in question shall also be delimited and access to them restricted where this is technically feasible and the risk of exposure so justifies.

Signs at the entrance to noisy rooms (example in English)

80–85 dB(A)	HIGH NOISE LEVEL – USE HEARING PROTECTORS
85-110 dB(A)	DANGEROUS NOISE – USE OF HEARING PROTECTORS MANDATORY
110-115 dB(A)	CAUTION: DANGEROUS NOISE – USE OF HEARING PROTECTORS MANDATORY – SHORT STAY ONLY
>115 dB(A)	CAUTION: EXCESSIVELY HIGH NOISE LEVEL – USE OF HEARING PROTECTORS MANDATORY – NO STAY LONGER THAN 10 MINUTES



Entire chapter amended by Regulation of 30 June 2014 No. 922.

Section 15-24

Health surveillance and hearing examination

(1) Any person working on board whose exposure to noise exceeds the upper exposure action values set out in section 15-18 third paragraph (a), has the right to have their hearing checked. The hearing examination shall be conducted by a doctor or by another suitable qualified person under the supervision of a doctor.

(2) Any person working on board whose exposure to noise exceeds the lower exposure action values set out in section 15-18 third paragraph (b) shall be offered preventive hearing examination where the risk assessments and measurements to be carried out pursuant to section 15-3 indicate a risk to health.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-25

Follow-up of health surveillance

(1) Where, as a result of the health surveillance, a person working on board is found to have identifiable hearing damage, a doctor, or a specialist if the doctor considers it necessary, shall assess whether the damage is likely to be the result of exposure to noise at work.

(2) Where the hearing damage is the result of exposure to noise at work, the company shall:

a. ensure that the person who has sustained the hearing injury is informed by a doctor or another suitably qualified person of the result concerning them personally;
b. review the risk assessment carried out pursuant to section 15-3;
c. review the measures provided to eliminate or reduce risks pursuant to sections 15-2, 15-21 and 15-22;
d. take into account the advice of the occupational healthcare professional or other suitably qualified person or the competent authority in implementing any measures required to eliminate or reduce risk in accordance with sections 15-2, 15-21 and 15-22, including the possibility of assigning the person suffering from the hearing damage to alternative work where there is no risk of further exposure; and
e. arrange systematic health surveillance and provide for a review of the health status of any other persons working on board who has been similarly exposed.

Entire chapter amended by Regulations of 30 June 2014 No. 922 (in force on 1 July 2014), 26 June 2025 No. 1372.

Section 15-26

Information and training

(1) Where the noise level on board entails that some of the persons working on board are exposed to noise at work at or above the lower exposure action values, the company shall ensure that information and training is provided for the persons working on board, and, if applicable, their safety representatives, relating to risks resulting from exposure to noise.

(2) The information and training pursuant to the first paragraph shall in particular include:

a. the nature of such risks;
b. the measures taken pursuant to this chapter in order to eliminate or reduce to a minimum the risks from noise, including the circumstances in which the measures apply;
c. the exposure limit values and the exposure action values laid down in section 15-18;
d. the results of the assessments and measurements of the noise carried out in accordance with section 15-3 together with an explanation of their significance and potential risks;
e. the correct use of hearing protectors;
f. why and how to detect and report signs of hearing damage;
g. the circumstances in which persons working on board are entitled to health surveillance and the purpose of health surveillance, cf. section 15-24; and
h. safe working practices to minimise exposure to noise.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-27

Acoustic insulation between accommodation spaces

(1) Consideration shall be given to the acoustic insulation between accommodation spaces in order to make rest and recreation possible even if activities are going on in adjacent spaces, e.g. music, talking, cargo handling.

(2) The airborne sound insulation properties for bulkheads and decks within the accommodation shall comply at least with the following weighted sound reduction index (R_w) according to ISO Standard 717-1:1996 as amended (1:2006), part 1:

Cabin to cabin	$R_w = 35$

Messrooms, recreation rooms, public spaces and entertainment areas to cabins and hospitals	$R_w = 45$
Corridor to cabin	$R_w = 30$
Cabin to cabin with communicating door	$R_w = 30$

(3) The airborne sound insulation properties shall be determined by laboratory tests in accordance with ISO 10140-2:2010.

(4) The following vessels are exempt from the requirements of this section:

a. vessels the keel of which is laid or which are at a similar stage of construction before 1 July 2014;
b. vessels of less than 1,600 gross tonnage;
c. high-speed craft;
d. fishing vessels;
e. dynamically supported craft;
f. manned barges;
g. mobile offshore units;
h. ships belonging to the Norwegian Armed Forces and ships used in such service;
i. pile driving vessels;
j. dredgers; and
k. ships not propelled by mechanical means.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-28

Survey report

(1) A noise survey report shall always be carried on board and be accessible for the persons working on board.

(2) The report shall comprise information on the noise levels in the various spaces on board, and shall show the reading at each specified measuring point. The points shall be marked on a general arrangement plan, or on accommodation drawings attached to the report, or shall otherwise be identified.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Section 15-29

Exemptions

(1) The Norwegian Maritime Authority may upon application grant exemptions from one or more of the requirements of this chapter when it is acceptable in terms of health and protection, and it is documented that compliance with the requirement(s) will not be possible despite applicable and reasonable technical noise reductions measures. The Norwegian Maritime Authority may demand that the company submits a statement from a competent person or body in connection with the application, and may impose specific conditions for the exemption. Before such exemption is granted, the company shall document that:

a. the need for speech communication and for hearing audible alarms has been ensured;
b. the noise level does not hinder concentration when clear-headed decisions are to be made in control stations, navigation and radio spaces and manned machinery spaces;
c. the persons working on board are protected from excessive noise levels which may give rise to noise-induced hearing loss;
d. there is an acceptable degree of comfort in rest, recreation and other spaces;
e. appropriate conditions for recuperation from the effects of exposure to high noise levels have been provided; and
f. the exposure limit values and the upper exposure action value pursuant to section 15-18 are not exceeded.

(2) In exceptional cases, the Norwegian Maritime Authority may upon application grant exemptions from sections 15-16 and 15-21, where, because of the nature of the work, the full and proper use of hearing protectors would be likely to cause greater risk to health or safety than not using such protectors. Such exemptions may only be granted after consultation with the employers' and employees' organisations, and with Norwegian health authorities if applicable. The exemption shall include conditions ensuring that the health risks are reduced to a minimum, and that the persons affected by the exemption receive increased health surveillance. Such exemption shall furthermore be reviewed every four years, and shall be withdrawn if the justifying conditions for the exemption are no longer present.

Entire chapter amended by Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

Chapter 16
Provisions concerning the protection against artificial optical radiation

Chapter added by Regulation of 27 April 2010 No. 606.

Section 16-1
Scope of application

This Chapter shall apply to all Norwegian ships where persons working on board are or are likely to be exposed to artificial sources of optical radiation during their work and stay on board.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 16-2
Definitions

For the purposes of this Chapter, the following definitions shall apply:

a. "*Exposure limit values*": Limits on exposure to optical radiation which are based directly on established health effects and biological considerations. Compliance with these limits will ensure that persons working on board exposed to artificial sources of optical radiation are protected against all known adverse health effects;

b. "*Non-coherent radiation*": Any optical radiation other than laser radiation;

c. "*Irradiance (E) or power density*": The radiant power incident per unit area upon a surface expressed in watts per square metre (Wm^{-2}),

d. "*Artificial source of optical radiation*": Any electromagnetic radiation in the wavelength range between 100 nm and 1 mm which is not emitted from the sun. The spectrum of optical radiation is divided into ultraviolet radiation, visible radiation and infrared radiation:

   1) Ultraviolet radiation: optical radiation of wavelength range between 100 nm and 400 nm. The ultraviolet region is divided into UVA (315–400 nm), UVB (280–315 nm) and UVC (100–280 nm);
   2) Visible radiation: optical radiation of wavelength range between 380 nm and 780 nm.
   3) Infrared radiation: optical radiation of wavelength range between 780 nm and 1 mm. The infrared region is divided into IRA (780–1 400 nm), IRB (1 400–3 000 nm) and IRC (3 000 nm–1 mm);

e. "*Laser*": (light amplification by stimulated emission of radiation): Any device which can be made to produce or amplify electromagnetic radiation in the optical radiation wavelength range primarily by the process of controlled stimulated emission;

f. "*Laser radiation*": Optical radiation from a laser;

g. "*Level (exposure)*": The combination of irradiance, radiant exposure and radiance to which a worker is exposed;

h. "*Radiance (L)*": The radiant flux or power output per unit solid angle per unit area, expressed in watts per squaremetre per steradian ($Wm^{-2}\ sr^{-1}$);

i. "*Radiant exposure (H)*": The time integral of the irradiance, expressed in joules per square metre (Jm^{-2}).

Added by Regulation of 27 April 2010 No. 606, amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 16-3
Exposure limit values

For exposure to artificial optical radiation other than laser radiation, the limit values set out in Annex 4 to these Regulations shall not be exceeded.

For exposure to laser radiation, the limit values set out in Annex 5 to these Regulations shall not be exceeded.

Added by Regulation of 27 April 2010 No. 606, amended by Regulation of 23 January 2024 No. 165.

Section 16-4
Identification of exposure and assessment of risks

The extent to which persons working on board are likely to be exposed to artificial sources of optical radiation shall be identified and documented., and any risks to their health and safety arising from artificial optical radiation shall be assessed. Assessment, calculation and measurement of exposure in accordance with section 16-5 shall be a part of the risk assessment.

The risk assessment shall take particular account of:

a. the level, wavelength range and duration of exposure to artificial sources of optical radiation;

b. the exposure limit values;

c. any effects concerning the health and safety of persons working on board belonging to particularly sensitive risk groups;
d. any possible effects on the health and safety of persons working on board resulting from workplace interactions between optical radiation and photosensitising chemical substances;
e. any indirect effects such as temporary blinding, explosion or fire;
f. the existence of replacement equipment designed to reduce the levels of exposure to artificial optical radiation;
g. appropriate information obtained from health surveillance, including published information, as far as possible;
h. multiple sources of exposure to artificial optical radiation;
i. a classification applied to a laser as defined in accordance with the relevant IEC standard and, in relation to any artificial source likely to cause damage similar to that of a laser of class 3B or 4, any similar classification;
j. information provided by the manufacturers of optical radiation sources and associated work equipment.

The risk assessment shall be updated on a regular basis, particularly with regard to changes which affect the exposure to artificial sources of optical radiation or organisation of work which may affect the risk, or if the results of health surveillance show it to be necessary.

Documentation from the risk assessment shall be kept readily accessible to everyone working on board in order for the information to be applied at a later point in time.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 16-5

Assessment, calculation and measurement of exposure

The levels of exposure to optical radiation to which persons working on board are likely to be exposed, shall be assessed and, if necessary, measured and/or calculated so that the measures needed to restrict exposure to the applicable limits can be identified and put into effect.

The assessment, calculation and/or measurement shall be planned and carried out by competent personnel with expertise in artificial optical radiation.

The methodology applied in assessment, calculation and measurement shall follow the standards of:

1. the International Electrotechnical Commission (IEC) in respect of laser radiation and
2. the recommendations of the International Commission on Illumination (CIE) and the European Committee for Standardisation (CEN) in respect of artificial optical radiation, other than laser radiation.

In exposure situations which are not covered by these standards and recommendations, assessment, measurement and/or calculations shall be carried out using available international or national science-based guidelines.

The assessment may take account of data provided by the manufacturers of the equipment when it is covered by relevant EU Directives.

The results of assessments and any calculations and measurements shall be kept readily accessible to everyone working on board in order for the information to be applied at a later point in time.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 16-6

Systematic prevention of exposure

The work shall be planned and carried out in such a way that the risks arising from exposure to artificial optical radiation is eliminated or reduced to a minimum. Taking account of technical progress, preventive measures shall be incorporated to reduce the risks at source.

Section 16-7

Measures

Where the risk assessment indicates any possibility that the exposure limit values may be exceeded, an action plan comprising technical and/or organisational measures shall be devised and implemented.

The measures shall prevent the exposure exceeding the limit values, taking into account in particular:

a. other working methods that reduce the risk from optical radiation;
b. the choice of equipment emitting less artificial optical radiation, taking account of the work to be done;
c. technical measures to reduce the emission of artificial optical radiation, including the use of shielding, enclosures or similar;
d. appropriate maintenance programmes for work equipment, workplaces and workstation systems;
e. the design and layout of workplaces and workstations;
f. limitation of the duration and level of the exposure;
g. the availability of appropriate personal protective equipment;

h. the instructions of the manufacturer of the equipment.

The measures shall be adapted to the requirements of persons working on board belonging to particularly sensitive risk groups.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 16-8

Special measures to be taken in the event of exceeded exposure limit values

Persons working on board shall under no circumstances be exposed to levels above the exposure limit values. If the risk assessment still indicates that the exposure limit values are exceeded, despite the measures taken by the company, the company shall take immediate action to reduce exposure below the exposure limit values. The company shall identify the reasons why the exposure limit values have been exceeded and shall adapt measures accordingly in order to prevent them being exceeded again.

On the basis of the risk assessment, the areas of the ship where workers could be exposed to levels of optical radiation from artificial sources exceeding the exposure limit values shall be indicated by appropriate signs. The areas in question shall be identified, and access to them limited where this is technically possible.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 16-9

Information and training

Persons working on board who may be exposed to artificial optical radiation at work and their representatives shall receive any necessary information and training relating to the outcome of the risk assessment, concerning in particular:

a. measures taken to implement this Chapter;
b. the exposure limit values and the associated potential health risks;
c. the results of the assessments, calculations and measurements;
d. how to detect adverse health effects of exposure and how to report them;
e. the circumstances in which persons working on board are entitled to health surveillance;
f. safe working practices to minimise risks from exposure;
g. proper use of appropriate personal protective equipment.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 16-10

Medical examination

A medical examination shall be made available to the persons working on board concerned where:

a. exposure to artificial optical radiation exceeds the limit values;
b. a person working on board is found to have an identifiable disease or adverse health effect which is considered by a doctor or occupational health professional to be the result of exposure to artificial optical radiation at work.

In both cases, the following shall apply:

1. The medical examination shall be carried out by, or under the supervision of, a doctor or an occupational health professional.
2. The doctor or the occupational health professional decides the frequency and content of the examination on the basis of the nature, degree and duration of the exposure and the health condition of the person working on board.

The risk assessment shall be available to the person carrying out the medical examination.

The medical examination shall detect any adverse health effects caused by artificial optical radiation, and give grounds for preventive measures in the organisation.

The person working on board shall be informed of the result of the medical examination and receive information and advice regarding any health surveillance which he should undergo following the end of exposure. If medical examinations are required after the exposure is terminated, the person working on board shall be informed.

The company shall be informed of any significant findings of the health surveillance, taking into account any medical confidentiality.

It must be ensured that:

a. the risk assessment carried out is reviewed;
b. the measures provided for to eliminate or reduce risks are implemented and later reviewed, including taking into account the advice of the occupational health professional or the competent authority;
c. continued health surveillance and a review of the health status is arranged, and that a medical examination is offered to any other person working on board who has been similarly exposed.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Chapter 17
Concluding provisions

Amended by Regulation of 6 July 2005 No. 800 (formerly chapter 14), 22 February 2006 No. 264 (formerly chapter 15).

Section 17-1
Entry into force

These Regulations enter into force on 1 January 2005. As of the same date, the following is repealed:

1. Regulation of 4 August 2000 No. 808 concerning the working environment, health and safety of workers on board ship;
2. Regulation of 11 January 2001 No. 21 concerning protection of workers on ships against exposure to chemical agents;
3. Regulation of 11 January 2001 No. 20 concerning protection of workers on ships against exposure to biological agents;
4. Chapter 6 Special measures for safety and protection of the Regulations of 15 June 1987 No. 507 concerning safety measures, etc. on passenger ships, cargo ships and lighters;
5. Sections 6-17 to 6-20 of Chapter 6 Protection of the crew of the Regulations of 13 June 2000 No. 660 concerning the construction, operation, equipment and surveys of fishing vessels 15 m in overall length (LOA) and over.

Amended by Regulation of 6 July 2005 No. 800 (formerly section 14-2), 22 February 2006 No. 264 (formerly section 15-2), 29 June 2007 No. 1006 (in force on 1 July 2007, formerly section 16-2).

Annex 1

Provisions on the use of work equipment for temporary work at a height

1. *General provisions*

1.1. If, pursuant to Article 6 of Directive 89/391/EEC and Article 3 of Directive 2001/45/EEC, temporary work at a height cannot be carried out safely and under appropriate ergonomic conditions from a suitable surface, the work equipment most suitable to ensure and maintain safe working conditions must be selected. Collective protection measures shall be given priority over personal protection measures. The dimensions of the work equipment shall be appropriate to the nature of the work to be performed and to the foreseeable stresses and allow passage without danger.

The most appropriate means of access to temporary workplaces at a height must be selected according to the frequency of passage, the height to be negotiated and the duration of use. The choice made shall permit evacuation in the event of imminent danger. Passage in either direction between a means of access and platforms, decks or gangways must not give rise to any additional risks of falling.

1.2. Ladders may be used as workstations for work at a height only under circumstances in which, given paragraph 4.1., the use of other, safer work equipment is not justified because of the low level of risk and either the short duration of use or existing features on site that the employer cannot alter.

1.3. Rope access and positioning techniques may be used only under circumstances where the risk assessment indicates that the work can be performed safely and where the use of other, safer work equipment is not justified.

Taking the risk assessment into account and depending in particular on the duration of the job and the ergonomic constraints, provision shall be made for a seat with appropriate accessories.

1.4. Depending on the type of work equipment selected on the basis of the foregoing, the appropriate measures for minimising the risks to persons working on board inherent in this type of equipment shall be determined. If necessary, provision shall be made for the installation of safeguards to prevent falls. These must be of suitable configuration and sufficient strength to prevent or arrest falls from a height and, as far as possible, to preclude injury to persons working on board. Collective safeguards to prevent falls may be interrupted only at points of ladder or stairway access.

1.5. When the performance of a particular task requires a collective safeguard to prevent falls to be temporarily removed, effective compensatory safety measures shall be taken. The task may not be performed until such measures have been taken. Once the particular task has been finished, either definitively or temporarily, the collective safeguards to prevent falls shall be reinstalled.

1.6. Temporary work at a height may be carried out only when the weather conditions do not jeopardise the safety and health of persons working on board.

2. *Specific provisions regarding the use of ladders.*
   2.1. Ladders shall be so positioned as to ensure their stability during use. Portable ladders shall rest on a stable, strong, suitably-sized, immobile footing so that the rungs remain horizontal. Suspended ladders shall be attached in a secure manner and, with the exception of rope ladders, so that they cannot be displaced and so that swinging is prevented.
   2.2. The feet of portable ladders shall be prevented from slipping during use by securing the stiles at or near their upper or lower ends, by any anti-slip device or by any other arrangement of equivalent effectiveness. Ladders used for access shall be long enough to protrude sufficiently beyond the access platform, unless other measures have been taken to ensure a firm handhold. Interlocking ladders and extension ladders shall be used so that the different sections are prevented from moving relative to one another. Mobile ladders shall be prevented from moving before they are stepped on.
   2.3. Ladders shall be used in such a way that a secure handhold and secure support are available to persons working on board at all times. In particular, if a load has to be carried by hand on a ladder, it must not preclude the maintenance of a safe handhold.
3. *Specific provisions regarding the use of scaffolding*
   3.1. When a note of the calculations for the scaffolding selected is not available or the note does not cover the structural arrangements contemplated, strength and stability calculations shall be carried out unless the scaffolding is assembled in conformity with a generally recognised standard configuration.
   3.2. Depending on the complexity of the scaffolding chosen, an assembly, use and dismantling plan shall be drawn up by a competent person. This may be in the form of a standard plan, supplemented by items relating to specific details of the scaffolding in question.
   3.3. The bearing components of scaffolding shall be prevented from slipping, whether by attachment to the bearing surface, provision of an anti-slip device or any other means of equivalent effectiveness, and the load-bearing surface shall have a sufficient capacity. It shall be ensured that the scaffolding is stable. Wheeled scaffolding shall be prevented by appropriate devices from moving accidentally during work at a height.
   3.4. The dimensions, form and layout of scaffolding decks shall be appropriate to the nature of the work to be performed and suitable for the loads to be carried and permit work and passage in safety. Scaffolding decks shall be assembled in such a way that their components cannot move in normal use. There shall be no dangerous gap between the deck components and the vertical collective safeguards to prevent falls.
   3.5. When parts of a scaffolding are not ready for use, for example during assembly, dismantling or alteration, they shall be marked with general warning signs in accordance with the national provisions transposing Directive 92/58/EEC and be suitably delimited by physical means preventing access to the danger zone.
   3.6. Scaffolding shall be assembled, dismantled or significantly altered only under the supervision of a competent person and by persons working on board who shall have received appropriate and specific training in the operations envisaged, addressing specific risks in accordance with Article 7 of Directive 89/655/EEC, and more particularly in:
      a. understanding of the plan for the assembly, dismantling or alteration of the scaffolding concerned;
      b. safety during the assembly, dismantling or alteration of the scaffolding concerned;
      c. measures to prevent the risk of persons or objects falling;
      d. safety measures in the event of changing weather conditions which could adversely affect the safety of the scaffolding concerned;
      e. permissible loads;
      f. any other risks which the abovementioned assembly, dismantling or alteration operations may entail.

      The person supervising and the persons working on board concerned shall have available the assembly and dismantling plan referred to in paragraph 3.2., including any instructions it may contain.
4. *Specific provisions regarding the use of rope access and positioning techniques*
   4.1. The use of rope access and positioning techniques shall comply with the following conditions:
      a. The system shall comprise at least two separately anchored ropes. One as a means of access, descent and support (work rope) and the other as backup (security rope).
      b. Persons working on board shall be provided with and use an appropriate harness and be connected by it to the security rope.
      c. The work rope shall be equipped with a device for safe ascent and descent, as well as an automatic locking system to prevent the worker from falling if they lose control of their movements. The security rope shall be equipped with a mobile fall prevention system which follows the movements of the person working on board.
      d. The tools and other accessories to be used by a person working on board shall be secured to the harness or seat of the person working on board or by some other appropriate means.
      e. The work shall be properly planned and supervised, so that a person working on board can be rescued immediately in an emergency.
      f. In accordance with Article 7 of Directive 89/655/EEC, the persons working on board concerned shall receive adequate training specific to the operations envisaged, in particular rescue procedures.

In exceptional circumstances where, in view of the assessment of risks, the use of a second rope would make the work more dangerous, the use of a single rope may be permitted, provided that appropriate measures have been taken to ensure safety in accordance with national legislation and/or practice.

Amended by Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Annex 2

List of exposure limit values for pollutants in the working atmosphere

The list includes remarks as follows:

A: Chemicals that can cause allergic reactions or other hypersensitivity reactions in the eyes or respiratory organs, or cause allergic reactions when in contact with skin.
E: The EU has established indicative exposure limit values for the substance.
G: The EU has established binding exposure limit values for the substance.
H: Chemicals that can be absorbed through the skin.
K: Chemicals classified as carcinogenic.
M: Chemicals classified as mutagenic.
R: Chemicals classified as toxic to reproduction.
S: Short-term exposure limit: the average concentration of a chemical substance in an employee's breathing zone that must not be exceeded over a given reference period. The reference period is 15 minutes unless otherwise specified.
T: The ceiling value: a momentary value indicating the maximum concentration of a chemical substance in the breathing zone, which must not be exceeded.

Cas. No.	***Name***	***ppm***	***mg/m³***	***Remark***	***Last amended***
75-07-0	Acetaldehyde	25	45	K	
60-35-5	Acetamide	10	25	K	
67-64-1	Acetone	125	295	E	
75-05-8	Acetonitrile	30	50	HE	2007
	Acetylene tetrabromide, see 1,1,2,2-Tetrabromoethane				
	Acetylene tetrachloride, see 1,1,2,2-tetrachloro ethane				
50-78-2	Acetylsalicylic acid		5		
	AES wool	0.5 fibre/cm³		2007	
	Acrolein, see Acrylaldehyde				
107-02-8	Acrylaldehyde	0.02	0.05	HE	2018
		0.05	0.12	S	
79-06-1	Acrylamide		0.03	HKMG	2020
107-13-1	Acrylonitrile	2	4	H K	
79-10-7	Acrylic acid	10	29	AE	2018
		20	59	S	
309-00-2	Aldrin		0.25	H	
	Allyl alcohol, see 2-Propen-1-ol				
107-11-9	Allylamine	2	5		
	Allyl (2,3-Epoxypropyl) ether, see 1-Allyloxy-2,3-epoxypropane				
	Allyl glycidyl ether, see 1-Allyloxy-2,3-epoxypropane				
	Allyl chloride, see 3-Chloropropene				
106-92-3	1-Allyloxsy-2,3-epoxypropane	5	22	TA	

2179-59-1	Allyl Propyl Disulfide	2	12		
7429-90-5	Aluminium powder (pyrotechnics)		5		
	Aluminium-soluble salts (calculated as Al)		2		
	Aluminium alkyls		2		
1344-28-1	Aluminium oxide		10		
	Aluminium welding fumes		5		
141-43-5	2-Aminoethanol	1	2.5	HE	2007
	2-Aminopropane, see 2-Propylamine				
504-29-0	2-Aminopyridine	0.5	2		
106-49-0	4-Aminotoluene	1	4.5	HKE	2021
		2	8.9	S	
61-82-5	Amitrole		0.2	E	2018
	Ammate, see Ammonium sulfamate				
7664-41-7	Ammonia	15	11	E	2012
		50	36	S	
12125-02-9	Ammonium chloride		10		
7773-06-0	Ammonium sulphamate		10		
	Amorphous silicon dioxide				
	Respirable dust		1.5		
625-16-1	tert-Amyl acetate	50	260	E	
	iso-Amyl alcohol, see 3-Methyl-1-butanol				
62-53-3	Aniline	1	4	HKAE	2021
		2	8	S	
	o-Anisidine and p-Anisidine, see 2-Methoxyaniline and 4-Methoxyaniline				
	Anon, see Cyclohexanone				
	Antimony and antimony compounds (calculated as Sb)		0.5	K	
7803-52-3	Antimony hydride	0.05	0.25	K	
	ANTU, see 1-Naphthylthiourea				
	Arsenic, arsenic acid and inorganic arsenic compounds (except arsenic hydride) (calculated as As), inhalable		0.005	KHG	2021
7784-42-1	Arsenic hydride	0.003	0.01	K	
	Arsenic, see arsenic hydride				
	Asbestos, all forms	0.1 fibre/cm^3	GK		
8052-42-4	Asphalt (fumes)		5		
1912-24-9	Atrazine		5	K	
111-40-0	3-azapentane-1,5-diamine	1	4	HA	

	3-azapentane-1,5-diol see 2,2'-iminodiethanol				
86-50-0	Azinphos-methyl		0.2	H	
	Aziridine, see ethyleneimine				
	Barium and barium compounds (except barium sulphate) (calculated as Ba)		0.5	E	
17804-35-2	Benomyl	0.8	10		
71-43-2	Benzene	0.2	0.66	HKM	2020
	1,2-benzenediamine, see o-phenylenediamine				
108-46-3	1,3-benzendiol	10	45	E	2007
108-98-5	Benzenethiol	0.5	2		
	1,2,4-Benzenetricarboxylic acid 1,2-anhydride, see benzene-1,2,4-tricarboxylic acid 1,2-anhydride				
552-30-7	Benzene-1,2,4-tricarboxylic acid 1,2-anhydride	0.005	0.04	A	
106-51-4	1,4-benzoquinone	0.1	0.4		
94-36-0	Benzoyl peroxide		5	A	
85-68-7	Benzyl butyl phthalate (BBP)		1	RE	2007
	Benzyl chloride, see α-chlorotoluene				
	Beryllium and Beryllium compounds (calculated as Be), inhalable		0.00002	KAG	2021
			0.0002	S	
92-52-4	Biphenyl	0.2	1		
	Bis (2,3-epoxypropyl) ether, see 2,2’-[oxybis(methylene)] bisoxirane				
80-05-7	Bisphenol A, inhalable		2	ARE	2018
	Bis (2-chloroethyl), see 2,2’-Dichlordiethyl ether				
	Bis-chloromethyl ether, see 1,1’-Dichloromethyl ether				
	Lead and inorganic lead compounds (calculated as Pb) (dust and fumes)		0.05	GR	
301-04-2	Lead acetate (calculated as Pb)		0.05	KR	
7446-27-7	Lead phosphate (calculated as Pb)		0.05	KR	
7758-97-6	Lead chromate (calculated as Cr(VI))		0.001	KRG	2021
1335-32-6	Lead subacetate (calculated as Pb)		0.05	KR	
	Lead tetraethyl, see Tetraethyl lead				
	Lead tetramethyl, see Tetramethyl lead				
	Hydrocyanic acid, see Hydrogen cyanide				
	Cotton dust, total dust		0.2		
	Borax, see Sodium tetraborate decahydrate				
1303-86-2	Boric oxide		10		

10294-33-4	Boron tribromide	1	10	T	
7637-07-2	Boron trifluoride	1	3	T	
7726-95-6	Bromine	0.1	0.7	E	
74-96-4	Bromoethane	5	22	H	
	Bromoform, see Tribromomethane				
	Bromoethylene, see Vinyl bromide				
74-97-5	Bromochloromethane	100	525		
	2-Bromo-2-chloro-1,1,1-trifluorethane, see Halothane				
74-83-9	Bromomethane	5	20	HK	
7789-30-2	Bromine pentafluoride	0.1	0.7		
75-63-8	Bromotrifluoromethane	500	3050		
106-99-0	1,3-Butadiene	1	2.2	KG	2020
110-65-6	but-2-yne-1,4-diol		0.5	AE	2018
106-97-8	Butane	250	600		
71-36-3	Butan-1-ol	25	75	HT	2007
78-92-2	Butan-2-ol	25	75	HT	2007
431-03-8	2, 3-Butanedione	0.02	0.07	AE	2018
		0.1	0.36	S	
	Butanol (all isomers)	25	75	HT	2007
78-93-3	Butanone	75	220	E	
1338-23-4	2-Butanone peroxide		1	T	
109-79-5	Butanethiol	0.5	1.5		
	2-butenal, see (E)-2-butenal				
123-73-9	(E)-2-butenal	2	6	H	
111-76-2	2-butoxy-ethanol	10	50	HE	
2426-08-6	1-butoxy-2,3-epoxypropane	5	27	A	
112-34-5	2-2(butoxyethoxy) ethanol	10	68	E	2007
112-07-2	2-butoxyethyl acetate	10	65	HE	
	Butyl acetate (all isomers)	50	241		2021
		150	723	S	
	n-Butyl acetate	50	241	E	2021
		150	723	S	
	iso-butyl acetate	50	241	E	2021
		150	723	S	
	sec-butyl acetate	50	241	E	2021
		150	723	S	

141-32-2	Butyl acrylate	2	11	AE	2007
	Butylamine (all isomers)	5	15	HT	
	Butyl ethyl ketone, see 3-heptanone				
	Butyl (2,3-epoxypropyl) ether, see 1-butoxsy-2,3-epoxypropane				
	Butyl glycidyl ether, see 1-butoxsy-2,3-epoxypropane				
	Butyl glycol, see 2-butoxyethanol				
1189-85-1	tert-butyl chromate (calculated as CrO3)		0.1	HT	
138-22-7	Butyl lactate	5	25		
	Butyl mercaptan, see Butanethiol				
97-88-1	Butyl methacrylate	10	59	A	2007
1634-04-4	Tert-Butyl Methyl Ether (MTBE)	50	183.5	E	2011
		100	367	S	
	p-tert-Butyl toluene, see 1-Methyl-4-tert-butyl benzene				
2425-06-1	Captafol		0.1		
133-06-2	Captan		5	K	
1333-86-4	Carbon Black (lampblack)		3.5		
	Cellosolve, see 2-ethoxyethanol				
	Cellosolve acetate, see 2-ethoxyethyl acetate				
21351-79-1	Cesium hydroxide		2		
420-04-2	Cyanamide	0.6	1	HE	2007
	Cyanides (calculated as CN)		5	H	
506-77-4	Cyanogen chloride	0.25	0.6	T	
13121-70-5	Cyhexatin		5		
	Cyklo-, see cyclo				
50-29-3	DDT		1	K	
17702-41-9	Decaborane	0.05	0.3	H	
	Decanes and other higher aliphatic hydrocarbons	40	275		
8065-48-3	Demeton	0.01	0.1	H	
867-27-6	Demeton-O-methyl	0.05	0.5	H	
57041-67-5	Desflurane	5	35		2010
	Diacetone alcohol, see 4-Hydroxy-4-methyl-2-pentanone				
	1,2-Diaminobenzen, see o-Phenylenediamine				
	1,3-Diaminobenzen, see m-Phenylenediamine				
	1,4-Diaminobenzen, see p-Phenylenediamine				
	Diatomaceous earth (natural kieselguhr)				
	Respirable dust		1.5		

333-41-5	Diazinon		0.1	H	
334-88-3	Diazomethane	0.2	0.4	K	
	Dibenzoyl peroxide, see Benzoyl peroxide				
19287-45-7	Diborane	0.1	0.1		
	Dibrome, see Dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate				
75-61-6	Dibromodifluoromethane	50	430		
106-93-4	1,2-Dibromoethane	0.01	0.1	HKG	2021
102-81-8	2-(dibutylamino)ethanol	2	14	H	
	Dibutyl phosphate (all isomers)	1	5		
84-74-2	Dibutyl phthalate		3		
460-19-5	Dicyan	10	22		
60-57-1	Dieldrin		0.25		
	Diesel exhaust (measured as elemental carbon)		0.05	KG,	2021
	Diethanolamine, see 2,2' iminodiethanol	3	15		
109-89-7	Diethylamine	5	15	E	2007
100-37-8	2-(diethylamino)ethanol	10	50	H	
111-96-6	Diethylene glycol dimethyl ether			HR	
	Diethylenetriamine, see 3-zapentane-1,5-diamine				2000
60-29-7	Diethyl ether	100	300	E	2007
84-66-2	Diethyl phthalate		3		
117-81-7	Di-2-ethylhexyl phthalate (DEHP)		1	R	2007
	Diethyl ketone, see Pentane-3-on				
	Diphenyl, see biphenyl				
122-39-4	Diphenylamine		5		
101-84-8	Diphenyl ether	1	7	E	2018
		2	14	S	
101-68-8	Diphenylmethane-4,4’-diisocyanate (MDI)	0.005	0.05	A	
	Difluorodibromomethane, see Dibromodifluoro-methane				
75-71-8	Difluorodichloromethane	500	2475		
75-45-6	Difluorochloromethane	500	1750	E	
76-12-0	1,2-Difluoro-1,1,2,2-tetrachloro-ethane	250	2085		
1314-56-3	Diphosphorus pentoxide		1	E	
	Diglycidyl ether, see 2,2’-[oxybis(methylene)] bisoxirane				
120-80-9	1,2-dihydroxybenzene	5	20		
	1,3-dihydroxybenzene, see 1,3-benzenediole				
	Diisobutyl ketone, see 2,6-dimethyl-4- heptanone				

	Diisocyanates	0.005		A	
108-18-9	Diisopropylamine	5	20	H	
108-20-3	Diisopropyl ether	125	525		
7572-29-4	Dichloroacetylene	0.1	0.4	T	
95-50-1	1,2-Dichlorobenzene	20	122	HE	2012
		50	306	S	
106-46-7	1,4-Dichlorobenzene	2	12	HKE	2018
		10	60	S	
111-44-4	2,2'-Dichlorodiethyl ether	5	30	HK	
542-88-1	1,1'-Dichlorodimethyl ether	0.001	0.005	K	
118-52-5	1,3-Dichloro-5,5-dimethylhydantoin		0.2		
75-34-3	1,1-Dichloroethane	50	200	HE	
107-06-2	1,2-Dichloroethane	0.25	1	HKG	2021
75-35-4	1,1-Dichloroethene	1	4	HKE	2018
		3	12	S	
540-59-0	1,2-Dichloroethene	100	395		
	1,2-Dichloroethylene, see 1,2-Dichloroethene				
94-75-7	2,4-Dichlorophenyloxyacetic acid		5		
136-78-7	2-(2,4-Dichlorophenoxy) ethyl sulphate		5		
75-09-2	Dichloromethane	15	50	HKE	2018
		45	150	S	
	Dichloromonofluoromethane, see Fluorodichloromethane				
594-72-9	1,1-Dichloro-1-nitroethane	2	12	HT	
78-87-5	1,2-Dichloropropane	40	185		
75-99-0	2,2-Dichloropropane acid	1	6		
542-75-6	1,3-Dichloropropene	1	5	H	
	2,2-Dichloropropionic acid, see 2,2-Dichloropropane acid				
	1,2-Dichloro-1,1,2,2-tetrafluoroethane, see 1,1,2,2-Tetrafluoro-1,2-dichloroethane				
62-73-7	Dichlorvos	0.1	1	HK	
85-00-7	Diquat dibromide		0.5		
109-87-5	Dimethoxymethane	500	1550		
127-19-5	N,N-Dimethylacetamide	10	35	HE	
124-40-3	Dimethylamine	2	4	E	2000
121-69-7	N,N-Dimethylaniline	5	25	H	
108-84-9	1,3-Dimethylbutyl acetate	25	150		
300-76-5	Dimethyl-1,2-dibromo-2,2-Dichloroethyl phosphate		3		

115-10-6	Dimethyl ether	200	384	E	2007
598-56-1	Dimethylethylamine	2	6		
68-12-2	N,N-Dimethylformamide	2	6	HRG	2022
		10	30	S	2022
131-11-3	Dimethyl phthalate		3		
108-83-8	2,6-Dimethyl-4-heptanone	20	120		
57-14-7	1,1-Dimethylhydrazine	0.01	0.02	HAK	
	1,2-Dimethylhydrazine	0.01	0.02	HK	
77-78-1	Dimethyl sulphate	0.01	0.05	HK	
	Dinitrobenzene (all isomers)	0.15	1	H	
10024-97-2	Dinitrogen oxide	50	90	R	2000
534-52-1	4,6-Dinitro-o-cresol		0.2	H	
	Dinitrotoluene (all isomers)		0.15	HK	
123-91-1	1,4-Dioxane	5	18	HKE	2011
		10	36	S	
117-84-0	Dioctyl phthalate		3		
138-86-3	Dipentene	25	140	A	
	Dipropylene glycol methyl ether, see (2-Methoxymethylethoxy) propanol				
	Dipropylene ketone, see Heptane-4-one				
	Disul, see 2-(2,4-Dichlorophenoxy) ethyl sulphate				
97-77-8	Disulfiram		2		
10025-67-9	Disulphur dichloride	1	6		
5124-30-1	Dicyclohexylmethane-4,4’diisocyanate	0.005	0.05	A	
77-73-6	Dicyclopentadiene	5	30		
298-04-4	Di-Syston		0.1	H	
330-54-1	Diuron		5	K	
	Divinylbenzene (all isomers)	10	53		
	Dursban, see Chlorpyriphos				
64-19-7	Acetic acid	10	25	AE	2018
		20	50	S	
108-24-7	Acetic anhydride	5	20	T	
	Extraction benzene (largely n-hexane)	50	175		
	Extraction benzene (unspecified)	100	500		
115-29-7	Endosulfan		0.1	H	
72-20-8	Endrin		0.1	H	
13838-16-9	Enflurane	0.3	2.3	R	2000

	Epichlorohydrine, see 1-chloro-2,3-epoxypropane				
	EPN, see O-ethyl O-4-nitrophenyl phenylthiophosphonate				
	1,2-Epoxy-3-phenoxypropane, see Phenyl glycidyl ether				
	1,2-Epoxypropane, see 1,2-Propylene oxide				
556-52-5	2,3-Epoxy-1-propanol	25	75	A	
	2,3-Epoxypropyl phenyl ether, see Phenyl glycidyl ether				
4016-14-2	2,3-Epoxypropyl isopropyl ether	25	120		
64-17-5	Ethanol	500	950		
	Ethanolamine, see 2-Aminoethanol				
107-21-1	1,2-Ethandiol	20	52	HE	2012
		40	104	S	
628-96-6	1,2-Ethanediol dinitrate	0.03	0.18	H	
75-08-1	Ethanethiol	0.5	1		
	Ether, see Diethyl ether				
110-80-5	2-Ethoxyethanol	2	8	HRE	2011
111-15-9	2-Ethoxyethyl acetate	2	11	HRE	2011
141-78-6	Ethyl acetate	200	734	E	2018
		400	1468	S	
140-88-5	Ethyl acrylate	5	21	HAKE	2011
		10	42	S	
75-04-7	Ethylamine	2	4	E	2000
	Ethyl-sec-amyl ketone, see 5-Methyl-3-heptanone				
100-41-4	Ethyl benzene	5	20	HKE	2000
	Ethyl bromide, see Bromoethane				
107-15-3	Ethylenediamine	10	25	A	
	Ethylene dibromide, see 1,2-Dibromoethane				
	Ethylene dichloride, see 1,2-Dichloroethane				
	Ethylene glycol, see 1,2-Ethanediol				
	Ethylene glycol dinitrate, see 1,2-Ethandiol nitrate				
	Ethylene glycol monobutyl ether, see 2-Butoxyethanol				
	Ethylene glycol monoethyl ether, see 2-Ethoxyethanol				
	Ethylene glycol monoethyl ether acetate, see 2-Etoxy ethylacetate				
	Ethylene glycol monomethyl ether, see 2-Methoxyethanol				
	Ethylene glycol monomethyl ether acetate, see 2-Metoxyethyl acetate				
151-56-4	Ethylenimine	0.5	1	HK	

	Ethylene chlorohydrine, see 2-Chloroethanol				
75-21-8	Ethylene oxide	1	1.8	HKG	2020
109-94-4	Ethyl formate	50	150		
	Ethyl glycol, see 2-Ethoxyethanol				
	Ethyl glycol acetate, see 2- Ethoxyethyl acetate				
104-76-7	2-Ethylhexanol	1	5.4	E	2018
		10	54	S	
	Ethylidene chloride, see 1,1-Dichloroethane				
16219-75-3	5-Ethylidene-2-norbornene	5	25	T	
	Ethyl chloride, see Chloroethane				
97-63-2	Ethyl methacrylate	50	250	A	
	Ethylmercaptan, see Ethanethiol				
	Ethyl methanoate, see Ethyl formate				
100-74-3	N-Ethylmorpholine	5	23	H	
	O-ethyl-O-(4-nitrophenyl) phenyl monothiophosphonate, see O-ethyl-O-4-nitrophenyl phenyl thiophosphonate				
2104-64-5	O-ethyl-O-4-nitrophenyl phenyl thiophosphonate		0.5	H	
78-10-4	Ethyl silicate	5	44	E	2018
108-95-2	Phenol	1	4	HE	2011
		3	12	S	
92-84-2	Phenothiazine		5	H	
	1,2-Phenylenediamine, see o-Phenylenediamine				
	1,3-Phenylenediamine, see m-Phenylenediamine				
	1,4-Phenylenediamine, see p-Phenylenediamine				
	Phenyl ether, see Diphenyl ether				
108-45-2	m-Phenylenediamine		0.1	HA	
95-54-5	o-Phenylenediamine		0.1	HAK	
	p-Phenylenediamine		0.1	HA	
638-21-1	Phenylphosphine	0.05	0.25	T	
122-60-1	Phenyl glycidyl ether	1	5	A	
100-63-0	Phenylhydrazine		0.6	A	
	Phenyl mercaptan, see Benzenethiol				
98-82-8	2-Phenylpropane, see Cumene				
98-83-9	2-Phenylpropene	50	240	E	
14484-64-1	Ferbam		5		
12604-58-9	Ferrovanadium		1		
7782-41-4	Fluorine	0.1	0.2	E	

	Fluorides (calculated as F), see Inorganic fluorides				
	Fluorine monoxide, see Oxygen difluoride				
75-43-4	Fluorodichloromethane	10	42		
75-69-4	Fluorotrichloromethane	500	2800		
	Hydrofluoric acid, see Hydrogen fluoride				
298-02-2	Phorate		0.05	H	
50-00-0	Formaldehyde	0.3	0.37	AKG	2021
		0.6	0.74	S	
		1	1.2	T	
75-12-7	Formamide	10	18	H	
	Fosdrin, see Mevinphos				
7803-51-2	Phosphine	0.1	0.15	E	
7723-14-0	Phosphorous (yellow)		0.1		
	Phosphoroxychloride, see Phosphoryl chloride				
10026-13-8	Phosphorus pentachloride		1	E	
	Phosphorus pantaoxide, see Diphosphorous(V) oxide				
1314-80-3	Phosphorus pentasulphide		1	E	
7664-38-2	Phosphoric acid		1	E	
	Phosphoric acid anhydride, see Diphosphorous(V) oxide				
7719-12-2	Phosphorous trichloride	0.2	1.5		
10025-87-3	Phosphoryl chloride	0.01	0.064	E	2021
		0.02	0.13	S	
75-44-5	Phosgene	0.05	0.2	TE	2012
	Freon 11, see Fluorodichloromethane				
	Freon 12, see Difluorodichloromethane				
	Freon 21, Fluorodichloromethane				
	Freon 22, see Difluorochloromethane				
	Freon 112, see				
	1,2-Difluoro-1,1,2,2-tetrachloro-ethane				
	Freon 113, see 1,2,2-trifluoro-1,1,2-trichloroethane				
	Freon 114, see 1,1,2,2-tetrafluoro-1,2-dichloroethane				
626-17-5	m-Phthalodinitrile		5		
85-44-9	Phthalic acid anhydride		2	A	
98-01-1	2-Furaldehyde	2	8	H	
	Furfural, see 2-Furaldehyde				
98-00-0	Furfuryl alcohol	5	20	H	

7782-65-2	Germanium tetrahydride	0.2	0.6		
	Glass fibre/polyester, total dust		5		
	Mica				
	Total dust		6		
	Respirable dust		3		
111-30-8	Glutaraldehyde	0.2	0.8	AT	
	Glutaraldehyde (activated by alkaline)		0.25	T	
55-63-0	Glycerol trinitrate	0.01	0.09	HE	2018
		0.02	0.19	S	
	Glycidol, see 2,3-Epoxy-1-propanol				
	Graphite, natural				
	Total dust		5		
	Respirable dust		2		
	Graphite, synthetic				
	Total dust		10		
	Respirable dust		4		
7440-58-6	Hafnium		0.5		
151-67-7	Halothane	0.02	0.2	R	2000
	HDI, see Hexane-1,6-diisocyanate				
684-16-2	Hexafluoroacetone	0.1	0.7	H	
	Hexahydro-1,3,5-trinitro-1,s-triazine,				
	see Perhydro-1,3,5-trinitro-1,3,5-triazine				
87-68-3	Hexachlorobutadiene	0.02	0.24	H	
67-72-1	Hexachloroethane	1	10	H	
1335-87-1	Hexachloronaphthalene		0.2	H	
77-47-4	Hexachlorocyclopentadiene	0.01	0.1		
	Hexamethylene diisocyanate, see Hexane-1,6-diisocyanate				
100-97-0	Hexamethylenetetramine		3		
110-54-3	n-Hexane	20	72	RE	2007
	Hexane (except n-Hexane)	250	1050		
124-09-4	Hexanediamine	0.5	1	HT	2007
822-06-0	Hexane-1,6-diisocyanate	0.005	0.035	A	
	2-Hexanone, see Hexane-2-one				
591-78-6	Hexane-2-one	1	4	H	
	sec-Hexyl acetate, see 1,3-Dimethylbutyl acetate				
	Hexylene glycol, see 2-Methyl-2.4-pentandol				

76-44-8	Heptachlor		0.5	H	
142-82-5	Heptane	200	800	E	
123-19-3	Heptane-4-one	25	115		
110-43-0	2-Heptanone	25	115	HE	
106-35-4	3-Heptanone	20	95	E	2014
		50	250	S	
	4-Heptanone, see Heptane-4-one				
302-01-2	Hydrazine	0.01	0.01	AHKG	2020
10035-10-6	Hydrogen bromide	2	7	STE	2014
74-90-8	Hydrogen cyanide	0.9	1	HE	2018
		4	5	S	
61788-32-7	Hydrogenated terphenyl	2	19	E	2018
		5	48	S	
7664-39-3	Hydrogen fluoride	0.6	0.5	HE	2010
		1.8	1.5	S	
	Hydrogen phosphide, see Phosphine				
7647-01-0	Hydrogen chloride	5	7	TE	
7722-84-1	Hydrogen peroxide	1	1.4		
05/07/7783	Hydrogen selenide	0.01	0.05	E	
7783-06-4	Hydrogen sulphide	5	7	E	2011
		10	14	T	
123-31-9	Hydroquinone		0.5	AK	
868-77-9	2-Hydroxyethyl methacrylate	2	11	A	2007
123-42-2	4-Hydroxy-4-methyl-2- pentanone	25	120		
999-61-1	2-Hydroxypropylacrylate	0.5	2.9	HA	
	Refractory ceramic fibres	0.1 fibre/cm^3	KG		2020
111-42-2	2,2'-Iminodiethanol	3	15		
	2,2'-Iminodi(ethylamine), see 3-Azapentane-1,5-diamine				
95-13-6	Indene	10	45		
	Indium and Indium compounds (calculated as In)		0.1		
	Isoamyl acetate, see (3-Methylbutyl) acetate				
	Isoamyl alcohol, see 3-Methyl-1-butanol				
	Isobutyl acetate, see Butyl acetate (all isomers)				
97-86-9	Isobutyl methacrylate	50	300	A	
	Isocyanates, see diisocyanates				
26675-46-7	Isoflurane	2	15	R	2010

78-59-1	Isophorone	5	25	T	
4098-71-9	Isophorone diisocyanate	0.005	0.045	A	
26952-21-6	Isooctan-1-ol	25	135		
	Isooctyl alcohol, see Isooctan-1-ol				
78-78-4	Isopentane	250	750	E	2007
123-92-2	Isopentyl acetate	50	260	E	
	Isopropanol, see 2-propanol				
109-59-1	2-Isopropoxyethanol	20	80		
	2-Isopropoxypropane, see Diisopropyl ether				
108-21-4	Isopropyl acetate	100	420		
	Isopropylamine, see 2-Propylamine				
768-52-5	Isopropylaniline	2	11	H	
	Isopropyl glycidyl ether, see 2,3-Epoxypropyl isopropyl ether				
1309-37-1	Iron(III)oxide (calculated as Fe)		3		
13463-40-6	Iron pentacarbonyl	0.01	0.08		
	Iron salts (calculated as Fe)		1		
7553-56-2	Iodine	0.1	1	T	
74-88-4	Iodomethane	1	5	H	
	Iodoform, see Triiodomethane				
	Cadmium and inorganic Cadmium compounds (except cadmium sulphate) (calculated as Cd), inhalable		0.001	KG	2021
1306-19-0	Cadmium oxide (calculated as Cd), inhalable		0.001	KG	2021
			0.02	T	
151-50-8	Potassium cyanide	0.9	1	HE	2018
		4	5	S	
1310-58-3	Potassium hydroxide		2	T	
156-62-7	Calcium cyanamide		0.5		
1305-62-0	Calcium hydroxide		1	E	2018
	Respirable dust		4	S	
1305-78-8	Calcium oxide		1	E	2018
	Respirable dust		4	S	
8001-35-2	Camphechlor		0.5	H	
76-22-2	Camphor (synthetic)	2	12		
105-60-2	ε-Caprolactam	10	40	E	2012
63-25-2	Carbaryl		5	H	
1563-66-2	Carbofuran		0.1	H	

124-38-9	Carbon dioxide	5000	9000	E	
75-15-0	Carbon disulphide	5	15	HRE	2011
630-08-0	Carbon monoxide	20	23	RE	2018
		100	117	S	
558-13-4	Carbon tetrabromide	0.1	1.4		
	Carbon tetrachloride; see Tetrachloromethane				
353-50-4	Carbonyl fluoride	2	5		
	Carbonyl chloride, see Phosgene				
13466-78-9	δ-Carene	25	140	A	
	Catechol, see 1,2-Dihydroxybenzene				
463-51-4	Ketene	0.5	0.9		
	Quinone, see 1,4-Benzoquinone				
	Steatite				
	Total dust		6		
	Respirable dust		3		
7782-50-5	Chlorine	0.5	1.5	E	2007
		1	3	T	
107-20-0	Chloroacetaldehyde	1	3	T	
532-27-4	α-Chloroacetophenone	0.05	0.3		
79-04-9	Chloroacetyl chloride	0.05	0.2	H	
108-90-7	Chlorobenzene	5	23	E	2007
2698-41-1	o-Chlorobenzylidenemalononitrile	0.05	0.4	H	
	Chlorobromomethane, see Bromochloromethane				
57-74-9	Chlordane		0.5	H	
	Chlorodifluoromethane, see Difluorochloromethane				
10049-04-4	Chlorine dioxide	0.1	0.3		
106-89-8	1-Chloro-2,3-epoxypropane	0.5	1.9	HAKG	2021
55720-99-5	Chlorinated diphenyl oxide		0.5	H	
	Chlorinated camphene, see Toxaphene				
75-00-3	Chloroethane	100	270	KE	2007
107-07-3	2-Chloroethanol	1	3	HT	
	Chloroethene, see Vinyl chloride				
74-87-3	Chloromethane	20	40	KE	2021
		40	80	S	
	Chloromethylbenzene, see α-Chlorotoluene				
100-00-5	1-Chloro-4-nitrobenzene		1	H	

600-25-9	1-Chloro-1-nitropropane	2	10		
	Chloroform, see Trichloromethane				
	Chloropicrin, see Trichloronitromethane				
126-99-8	2-Chloroprene	1	3.6	H	
107-05-1	3-Chloropropene	1	3	H	
2921-88-2	Chlorpyrifos		0.2	H	
2039-87-4	o-Chlorostyrene	25	140		
100-44-7	α-Chlorotoluene	1	5	KT	
95-49-8	o-Chlorotoluene	25	125	H	
7790-91-2	Chlorotrifluoride	0.1	0.4		
7440-50-8	Copper				
	Smoke		0.1		
	Dust		1		
	Cobalt (fumes) and inorganic Cobalt compounds (calculated as Co, except Co(II))		0.02	AR	2000
	Cobalt, Co(II) compounds (fumes) and inorganic (calculated as Co)		0.02	AKR	2000
	Cobalt hydrocarbonyl (calculated as Co)		0.1		
	Cobalt carbonyl (calculated as Co)		0.1		
1319-77-3	Cresols (all isomers)	5	22	HE	
14464-46-1	Cristobalite				
	Total dust		0.15	K	
	Respirable dust		0.05	KG,	2021
	Chromium and Cr2 ± and Cr3 ± compounds (calculated as Cr)		0.5	E	
	Chromic acid and chromates (calculated as Cr(VI)), see hexavalent chromium compounds				
	Crotonaldehyde, see (E)-2-butenal				
	(E)-crotonaldehyde, see (E)-2-butenal				
	Coal dust				
	Total dust		4		
	Respirable dust		1.5		
	Cumene, see 1-Methylethyl benzene				
14808-60-7	Crystalline silica (SiO2), α-quartz				
	Total dust		0.3	K	
	Respirable dust		0.05	KG,	2021
	Mercury and Mercury compounds (except alkyl compounds) (calculated as Hg)		0.02	AE	2007

	Biological limit value for urine	30 µg Hg/g creatinine			
	Mercury, alkyl compounds (calculated as Hg)		0.01	AH	
	Limonene, see d-Limonene, i-Limonene and Dipentene				
5989-27-5	d-Limonene	25	140	A	
5989-54-8	i-Limonene	25	140		
58-89-9	Lindane		0.5	H	
7580-67-8	Lithium hydride, inhalable		0.02	SE	2018
	Soldering wire with resin-containing core (calculated as formaldehyde)		0.1		
	Laughing gas, see Dinitrogen oxide				
1309-48-4	Magnesium oxide		10		
121-75-5	Malathion		5	H	
108-31-6	Maleic acid anhydride	0.2	0.8	A	
7439-96-5	Manganese and inorganic Manganese compounds (calculated as Mn)				2018
	Inhalable fraction		0.2	E	
	Respirable fraction		0.05	E	
12079-65-1	Manganese cyclopentadienyl tricarbonyl (calculated as Mn)		0.1	H	
64-18-6	Formic acid	5	9	E	
	MDI, see Diphenylmethane-4,4’-diisocyanate				
	Flour dust, inhalable		3	A	2000
	Mercaptoacetic acid, see Thioglycolic acid				
108-67-8	Mesitylene (trimethylbenzenes)	20	100	E	
	Mesityl oxide, see 4-methyl-3-penten-2-one				
79-41-4	Methacrylic acid	20	70		
	Methacrylic acid methyl ester, see Methyl methacrylate				
67-56-1	Methanol	100	130	HE	
74-93-1	Methanethiol	0.5	1		
90-04-0	2-Methoxyaniline	0.1	0.5	HK	
104-94-9	4-Methoxyaniline	0.1	0.5	H	
109-86-4	2-Methoxyethanol	1	3.1	HRE	2011
111-77-3	2-(2-Methoxyethoxy)ethanol	10	50	HRE	2007
110-49-6	2-Metoxyethyl acetate	1	4.9	HRE	2011
150-76-5	4-Methoxyphenol		5		
72-43-5	Methoxychlor		5		
34590-94-8	(2-Methoxymethylethoxy) propanol	50	300	HE	
107-98-2	1-Methoxy-2-propanol	50	180	HE	

108-65-6	1-Methoxy-2-propyl acetate	50	270	HE	
1589-47-5	2-Methyloxy-1-propanol	20	75	HR	
70657-70-4	2-Methoxy-1-propyl acetate	20	110	HR	
16752-77-5	Methomyl		2.5	H	
79-20-9	Methyl acetate	100	305		
	Methylacetylene, see Propyne				
	Methyl acetylene-Propadien mixture	500	900		
96-33-3	Methyl acrylate	5	18	HAE	2011
		10	36	S	
126-98-7	Methylacrylonitrile	1	3	HA	
74-89-5	Methylamine	10	12		
	Methyl amyl alcohol, see 4-Methyl-2-pentanol				
	Methyl amyl ketone, see 2-Heptanone				
100-61-8	N-Methylaniline	0.5	2	H	
75-55-8	2-Methylaziridine	2	5	HK	
	Methyl bromide, see Bromomethane				
	3-Methyl butanone, see 3-Methyl-2-butanon				
563-80-4	3-Methyl-2-butanone	100	350	H	
123-51-3	3-Methyl-1-butanone	5	18	HE	2021
		10	37	S	
626-38-0	1-Methylbutyl acetate	50	260	E	
	3-Methylbutyl acetate, see Isopentyl acetate				
98-51-1	1-Methyl-4-tert-butyl benzene	10	60		
	Methylbutyl ketone, see Hexane-2-one				
137-05-3	Methyl -2-cyanoacrylate	2	8	A	
101-14-4	4,4′-Methylene-bis(2-chloroaniline) (MOCA)		0.01	KHG	2021
	Methylene-bis(4- cyclohexyl isocyanate), see Dicyclohexylmethane-4,4’-diisocyanate				
	Methylene-bis-phenyl diisocyanate, see Diphenylmethane-4,4’-diisocyanate				
101-77-9	4,4’-Methylenedianiline	0.01	0.08	HAKG	2021
	Methylene chloride, see Dichloromethane				
98-82-8	1-Methylethyl benzene	10	50	HKE	2021
		50	250	S	
	Methylethyl ketone, see Butanone				
	Methylethyl ketone peroxide, see 2-Butanone peroxid				
	Methylphenol, see Cresols				

	Methyl formate, see Methyl methanoate				
	Methyl glycol, see 2-Methoxyethanol				
	Methyl glycol acetate, see 2-Methoxyethyl acetate				
110-12-3	5-Methyl-2-hexanone	20	95	E	2014
		50	250	S	
541-85-5	5-Methyl-3-heptanone	10	53	E	2014
		20	107	S	
60-34-4	Methyl hydrazine	0.01	0.02	HK	
	Methyl isobutyl carbinol, see 4-Methyl-2-pentanol				
	Methyl isobutyl ketone, see 4-Methylpentan-2-one				
624-83-9	Methyl isocyanate	0.02	0.05	S (5 min) AE	2011
	Methyl isopropyl ketone, see 3-Methyl-2-butanone				
	Methyl iodide, see Iodomethane				
	Methyl chloride, see Chloromethane				
	Methyl chloroform, see 1,1,1-Trichloroethan				
	Methyl mercaptan, see Methanthiol				
80-62-6	Methyl methacrylate	25	100	AE	2011
		100	400	S	
107-31-3	Methyl methanoate	50	125	HE	2018
		100	250	S	
107-41-5	2-Methyl-2,4-pendandiol	20	100	T	
872-50-4	N-Methyl-2-pyrrolidone	5	20	HRE	2011
		20	80	S	
108-11-2	4-Methyl-2-pentanol	20	80	H	
108-10-1	4-Methylpentan-2-one	20	83	HE	2012
		50	208	S	
141-79-7	4-Methyl-3-penten-2-one	10	40		
	4-Methylpentyl-2-acetate, see 1,3-Dimethylbutyl acetate				
78-83-1	2-Methylpropan-1-ol	25	75	HT	2007
75-65-0	2-Methyl-2-propanol	25	75	HT	2007
	Methyl propyl ketone, see 2-Pentanone				
681-84-5	Methyl silicate	1	6		
	α-Methylstyrene, see 2-Phenylpropene				
108-87-2	Methylcyclohexane	200	800		
	Methylcyclohexanol (all isomers)	25	120		

583-60-8	2-Methylcyclohexanone	25	115	H	
12108-13-3	Methylcyclopentadienyl manganese tricarbonyl (calculated as Mn)	0.1	0.2	H	
479-45-8	N-Methyl-2,4,6-N-tetranitroaniline		1.5	HA	
7786-34-7	Mevinphos	0.01	0.1	H	
	MMMF (Man Made Mineral Fibers), see Refractory ceramic fibres, thin glass fibres for special purposes, mineral wool and AES wool				
	Mineral oils used as engine oil			HKG	2021
	Mineral wool	1 fibre/cm^3			2007
	Molybdenum compounds, soluble (calculated as Mo)		5		
	Molybdenum compounds, insoluble (calculated as Mo)		10		
	Monofluorodichloromethane, see Fluorodichloromethane				
110-91-8	Morpholine	10	36	HE	2007
91-20-3	Naphthalene	10	50	E	
3173-72-6	Naphthalene-1,5-diisocyanate	0.005	0.04	A	
86-88-4	1-Naphthylthiourea		0.3		
26628-22-8	Sodium azide		0.1	E	2014
			0.3	S	
	Sodium bisulfite, see Sodium hydrogen sulfite				
143-33-9	Sodium cyanide	0.9	1	HE	2018
		4	5	S	
62-74-8	Sodium fluoroacetate		0.05	H	
7631-90-5	Sodium hydrogen sulfite		5		
1310-73-2	Sodium hydroxide		2	T	
7681-57-4	Sodium metabisulfite (Sodium pyrosulfite)		5		
	Sodium tetraborates:				
1330-43-4	Anhydrous		1		
1303-96-4	Decahydrates		5		
12447-40-4	Pentahydrates		1		
463-82-1	Neopentane	250	750	E	2007
	Nickel and Nickel compounds (calculated as Ni)		0.05	AKR	2000
	Nickel carbonyl, see Nickel tetracarbonyl				
13463-39-3	Nickel tetracarbonyl	0.001	0.007	HKR	
54-11-5	Nicotine		0.5	HE	
100-01-6	p-Nitroaniline		3	H	
98-95-3	Nitrobenzene	0.2	1	HKRE	2007
79-24-3	Nitroethane	20	62	HE	2018

		100	312	S	
10102-44-0	Nitrogen dioxide	0.5	0.96	E	2018
		1	1.91	S	
10102-43-9	Nitrogen monoxide	2	2.5	E	2018
	Nitrogen oxide, see Nitrogen monoxide				
7783-54-2	Nitrogen trifluoride	10	29		
	Nitroglycerol, see Glycerol trinitrate				
	Nitroglycol, see 1,2-Ethandiol dinitrate				
	p-Nitrochlorobenzene, see 1-chloro-4-nitrobenzene				
75-52-5	Nitromethane	50	125		
108-03-2	1-Nitropropane	20	70		
79-46-9	2-Nitropropane	5	18	KG	2020
	Nitrotoluene (all isomers)	1	5.5	H	
111-84-2	Nonane	100	525		
144-62-7	Oxalic acid		1	E	
	2-oxo-Hexamethylenimine, see Caprolactam				
2238-07-5	2,2'-[oxybis(methylene)] bisoxirane	0.1	0.5	AT	
7783-41-7	Oxygen difluoride	0.05	0.1		
2234-13-1	Octachloronaphthalene		0.1	H	
111-65-9	Octane	150	725		
	2-Octanol, see Isooctan-1-ol				
	Oil vapour		50		
	Oil mist (mineral oil particles)		1		
	Organic dust, total dust		5		
20816-12-0	Osmium tetraoxide	0.0002	0.002		
10028-15-6	Ozone	0.1	0.2		
	PAH (polyaromatic hydrocarbons)		0.04	HKG	2021
8002-74-2	Paraffin (fumes)		2		
4685-14-7	Paraquat		0.1	H	
56-38-2	Parathion		0.05	H	
298-00-0	Parathion-methyl		0.2	H	
1336-36-3	PCB (polychlorinated biphenyls)		0.01	HK	
19624-22-7	Pentaborane	0.005	0.01		
76-01-7	Pentachloroethane	5	40	H	
87-86-5	Pentachlorophenol	0.05	0.5	HK	
1321-64-8	Pentachloronaphtalene		0.5	H	

109-66-0	Pentane	250	750	E	
96-22-0	Pentane-3-one	100	350		
	Pentanol (all isomers)	50	180		
107-87-9	2-Pentanone	75	260		
	3-Pentanone, see Pentane-3-one				
620-11-1	3-Pentyl acetate	50	260	E	
628-63-7	Pentyl acetate	50	260	E	
	Pentyl acetate (all isomers)	50	260		
121-82-4	Perhydro-1,3,5-trinitro-1,3,5-triazine		1.5	H	
	Perchloroethylene, see Tetrachloroethene				
	Perchloromethyl mercaptan, see Trichloromethane sulfenyl chloride				
7616-94-6	Perchloril fluoride	3	14		
	Perlite				
	Total dust		10		
	Respirable dust		4		
	Persulphates		2	A	
88-89-1	Picric acid		0.1	HE	
83-26-1	Pindone		0.1		
80-56-8	α-Pinene	25	140	H	
127-91-3	β-Pinene	25	140		
110-85-0	Piperazine		0.1	AE	2014
			0.3	S	
	Pival, see Pindone				
	2-Pivaloyl-1,3-indandione, see Pindone				
	Platinum compounds, soluble (calculated as Pt)		0.002		
7440-06-4	Platinum, metallic	No prescribed limit value	E	2012	
	Plictran, see Cyhexatin				
	Polyester/glass fibre, total dust		5		
74-98-6	Propane	500	900		
57-55-6	Propane-1,2-diol	25	79		2007
6423-43-4	Propane-1,2-diyl dinitrate	0.05	0.3	H	
	1,2-Propanediol dinitrate, see Propane-1,2-diyl dinitrate				
71-23-8	1-Propanol	100	245	H	
67-63-0	2-Propanol	100	245		
	Propargyl alcohol, see 2-Propyne-1-ol				

	Propenal, see acrylaldehyde				
107-18-6	2-Propen-1-ol	2	5	HE	
79-09-4	Propionic acid	10	30	E	
57-57-8	β-Propiolactone	0.5	1.5	K	
114-26-1	Propoxur		0.5		
	2-Propyl acetate, see isopropyl acetate				
109-60-4	n-Propyl acetate	100	420		
75-31-0	2-Propylamine	5	12		
	1,2-Propylene glycol dinitrate, see Propane-1,2-diyl dinitrate				
	Propylene glycol monomethyl ether, see 1-Methoxy-2-propanol				
	2-Propyl glycidyl ether, see 2,3-Epoxypropyl isopropyl ether				
	Propylenimine, see 2-Methylaziridine				
75-56-9	1,2-Propylene oxide	1	2	AHKG	2020
	iso-Propyl glycidyl ether, see 2,3-Epoxypropyl isopropyl ether				
627-13-4	Propyl nitrate	20	90		
74-99-7	Propyne	500	825		
107-19-7	2-Propyne-1-ol	1	2.5	H	
8003-34-7	Pyrethrin		1	E	2007
110-86-1	Pyridine	5	15	E	
	Pyrocatechol, see 1,2-Dihydroxybenzene				
	Resorcinol, see 1,3-Benzenediol				
	Respirable dust in the silicon carbide industry, in furnace houses and related departments in the silicon carbide industry		0.5		
7440-16-6	Rhodium		0.1		
	Rhodium compounds, soluble (calculated as Rh)		0.001		
299-84-3	Ronnel		5		
83-79-4	Rotenone		5		
7697-37-2	Nitric acid	2	5	E	2007
	Hydrochloric acid, see Hydrogen chloride				
	Hexavalent chromium compounds (calculated as Cr(VI)) For lead chromate, see separate entry.		0.001	AKG	2021
	Selenium and inorganic Selenium compounds (except selenium sulphide, hydrogen selenide and selenium hexafluoride) (calculated as Se)		0.05	A	2000
7783-79-1	Selenium hexafluoride	0.05	0.4		

7446-34-6	Selenium sulphide		0.05	AK	2000
28523-86-6	Sevoflurane	5	35		2010
7803-62-5	Silane	0.5	0.7		
7440-21-3	Silicon		10		
	Silicon carbide fibres	0.1 fibre/cm^3	K		
	Silicon carbide, see Respirable dust in the silicon carbide industry				
	Silicon tetrahydride, see Silanium				
7646-85-7	Zinc chloride		1		
1314-13-2	Zinc oxide		5		
	Irritating dust				
	Total dust		10		
	Respirable dust		5		
	Stibin, see Antimony hydride				
57-24-9	Strychnine		0.15	T	
100-42-5	Styrene	25	105	M	
1395-21-7	Subtilisins (enzymes used in detergents)		0.00006	T	
3689-24-5	Sulfotep		0.1	HE	2014
2699-79-8	Sulphuryl fluoride	5	20		
	Welding fumes (unspecified)		5		
7446-09-5	Sulphur dioxide	0.5	1.3	E	2018
		1.0	2.7	S	
2551-62-4	Sulphur hexafluoride	1000	6000		
	Sulphur monochloride, see Disulphur dichloride				
5714-22-7	Sulphur pentafluoride	0.01	0.1	T	
7664-93-9	Sulphuric acid aerosol, thoracic fraction		0.1	KE	2011
7783-60-0	Sulphur tetrafluoride	0.1	0.4		
110-82-7	Cyclohexane	150	525	E	
108-93-0	Cyclohexanol	25	100		
108-94-1	Cyclohexanone	10	40	HE	2014
		20	80	S	
110-83-8	Cyclohexene	150	510		
108-91-8	Cyclohexylamine	10	40	H	
	Cyclonite, see Perhydro-1,3,5-trinitro-1,3,5-triazine				
542-92-7	1,3-Cyclopentadiene	40	110		
	Synthetic mineral fibres, see MMMF				
7440-22-4	Silver, metal dust and fumes		0.1	E	

	Silver, soluble compounds (calculated as Ag)		0.01	E	
	2,4,5-T, see 2,4,5-Trichlorophenoxyacetic acid				
	Talcum without fibres				
	Total dust		6		
	Respirable dust		2		
	TDI, see 2,4- and 2,6-Toluene diisocyanate				
13494-80-9	Tellurium		0.1		
7783-80-4	Tellurium hexsafluoride	0.02	0.2		
	TEPP, see Tetraethyl pyrophosphate				
	Terphenyls	0.5	4.5	T	
8006-64-2	Terpentine (of plant origin)	25	140	HA	
79-27-6	1,1,2,2-Tetrabromoethane	1	14		
	Tetrabromomethane, see Carbon tetrabromide				
78-00-2	Tetraethyl lead	0.01	0.075	HR	
107-49-3	Tetraethyl pyrophosphate	0.004	0.05	H	
76-14-2	1,1,2,2-tetrafluoro-1,2-dichloroethane	500	3500		
109-99-9	Tetrahydrofuran	50	150	HE	
79-34-5	1,1,2,2-Tetrachloroethane	1	7	H	
127-18-4	Tetrachloroethene	6	40	HKRE	2018
		18	120	S	
	Tetrachloroethylene, see Tetrachloroethene				
56-23-5	Tetrachloromethane	1	6.3	HKE	2018
		3	19	S	
1335-88-2	Tetrachloronaphtalene		2	H	
75-74-1	Tetramethyl lead	0.01	0.075	HR	
3333-52-6	Tetramethylsuccinonitrile	0.5	3	H	
7722-88-5	Tetrasodium pyrophosphate		5		
509-14-8	Tetranitromethane	0.005	0.04	K	
	Tetryl, see N-Methyl-2,4,6-N-tetranitroaniline				
	Thallium and soluble Thallium compounds (calculated as Tl)		0.1	H	
7719-09-7	Thionyl chloride	1	5	T	
	Tin compounds, organic (calculated as Sn)		0.1	H	
	Tin compounds, inorganic (calculated as Sn)		2	E	
68-11-1	Thioglycolic acid	1	5		
137-26-8	Thiram		5	AM	
13463-67-7	Titanium dioxide		5		

	TNT, see 2,4,6-Trinitrotoluene				
	Toxaphene, see Camphechlor				
108-88-3	Toluene	25	94	HE	
584-84-9	2,4-Toluene diisocyanate	0.005	0.035	AK	
91-08-7	2,6-Toluene diisocyanate	0.005	0.035	AK	
95-53-4	o-Toluidine	0.1	0.5	HKG	2020
	Wood dust from exotic hardwoods, oak and beech		1	KG	2020
	Wood dust from Nordic woods, except oak and beech, total dust		2	K	
75-25-2	Tribromomethane	0.5	5	HK	
126-73-8	Tributyl phosphate	0.2	2.5		
	Tri(cyclohexyl)tin hydroxide, see Cyhexatin				
15468-32-3	Tridymite				
	Total dust		0.15	K	
	Respirable dust		0.05	KG	2021
102-71-6	Triethanolamine		5		
121-44-8	Triethylamine	2	8	HE	
112-24-3	Triethylenetetramine	1	6	A	2007
603-34-9	Triphenylamine		5		
115-86-6	Triphenylphosphate		3		
	Trifluoromonobromomethane, see Bromotrifluoromethane				
76-13-1	1,2,2-Trifluoro-1,1,2-trichloro-ethane	500	3800		
75-47-8	Triiodomethane	0.2	3		
120-82-1	1,2,4-Trichlorobenzene	2	15	HE	2014
76-03-9	Trichloroacetic acid	0.75	5		
71-55-6	1,1,1-Trichloroethane	50	270	E	
79-00-5	1,1,2-Trichloroethane	10	54	H	
79-01-6	Trichloroethene	6	33	HKG	2021
		30	164	S	
	Trichloroethylene, see Trichloroethene				
	Trichlorofluoromethane, see Fluorotrichloromethane				
93-76-5	2,4,5-Trichlorophenoxy acetic acid		5	H	
67-66-3	Trichloromethane	2	10	HKRE	
594-42-3	Trichloromethanesulphenyl chloride	0.1	0.8		
1321-65-9	Trichloronaphtalene		5	H	
76-06-2	Trichloronitromethane	0.1	0.7		
96-18-4	1,2,3-Trichloropropane	10	60	H	

	Trimellitic acid anhydride, see Benzene-1,2,4-tricarboxylic acid-1,2-anhydride				
75-50-3	Trimethylamine	2	4.9	E	2021
		5	12	S	
526-73-8	1,2,3-Trimethylbenzene	20	100	E	
95-63-6	1,2,4-Trimethylbenzene	20	100	E	
	Trimethylbenzene (all isomers), see Mesitylene				
121-45-9	Trimethyl phosphite	0.5	2.6		
118-96-7	2,4,6-Trinitrotoluene		0.1	H	
78-30-8	Triorthocresyl phosphate		0.1		
	Tricyclohexylhydroxytin, see Cyhexatin				
	Thin glass fibres for special purposes	0.1 fibre/cm^3	K		2007
	Inorganic fluorides (calculated as F)		0.5	E	2010
	Uranium and uranium compounds (calculated as U)		0.2		
110-62-3	Valeraldehyde	25	90		
7440-62-2	Vanadium				
	Fumes (calculated as V)		0.05	T	
	Dust (calculated as V)		0.2		
108-05-4	Vinyl acetate	5	17.6	KE	2011
		10	35.2	S	
	Vinyl benzene, see Styrene				
593-60-2	Vinyl bromide	1	4	KG	2020
	Vinylidene chloride, see 1,1-Dichloroethane				
75-01-4	Vinyl chloride	1	2.6	KG	2020
106-87-6	Vinylcyclohexene dioxide	10	60		
	Vinyl toluene (all isomers)	50	240		
1304-82-1	Bismuth telluride		10		
	Bismuth telluride (with added Selenium)		5		
81-81-2	Warfarin		0.1		
	White Spirit (content of aromatic compounds <22%)	50	275		
	White Spirit (content of aromatic compounds >22%)	25	120		
	Tungsten and insoluble Tungsten compounds (calculated as W)		5		
	Tungsten compounds, soluble (calculated as W)		1		
1330-20-7	Xylen (all isomers)	25	108	HE	
108-38-3	m-Xylen	25	108	HE	
106-42-3	p-Xylene	25	108	HE	

95-47-6	o-Xylene	25	108	HE	
1477-55-0	m-Xylene-α-,α-Diamine)		0.1	T	
	Xylidine (all isomers)	1	5	H	
7440-65-5	Yttrium		1		
	Zirconium compounds (calculated as Zr)		5		

Footnotes

1. The limit value is set equal to the value for nuisance dust.
2. In agriculture, a limit value equal to 20 ppm is applicable during a transitional period (2013–2024) for livestock production in older farm buildings (farm buildings erected before 2002).
3. The limit value applies to raw cotton finer than 15 µm.
4. The short-term value for diisocyanates is 0.01 ppm.
5. The limit value is based on the calculated aggregate sum of the gaseous and particulate (aerosol) form of the substance.
6. Only for the short-term value: Some undertakings in the smelting industry will be unable to comply with this short-term value for technical or financial reasons. These undertakings are responsible for documenting a sound working environment. Written instructions must be prepared for work in a CO atmosphere.
   For the underground mining and tunnelling industries, the following limit value applies for carbon monoxide up to 21 August 2023: 25 ppm, 29 mg/m³, and short-term exposure should not exceed 100 ppm. If such values can occur, written instructions shall be prepared for work in CO atmosphere.
7. Dust containing α-Quartz, Cristobalite and/or Tridymite shall be assessed on the basis of the summation equation. At the same time, the values for nuisance dust must be complied with.
8. Measurements of compliance with this biological limit value is conditional on voluntary cooperation by employees.
9. Some undertakings in the smelting industry will be unable to comply with the limit values for technical or financial reasons. These undertakings are responsible for documenting a sound working environment. Such undertakings must have a plan for how to reduce exposure and must demonstrate lower values over time. The Norwegian Labour Inspection Authority, trade union representatives and safety representatives must be consulted and informed of annual plans and the results achieved.
10. The limit value for flour dust is set equal to the value for inhalable dust.
11. The short-term value is below the odour threshold.
12. By “mineral wool” is meant glass wool (except thin glass fibres for special purposes), rock wool and slag wool.
13. Some undertakings will be unable to comply with the limit values for technical or financial reasons. These undertakings are responsible for documenting a sound working environment. Such undertakings must have a plan for how to reduce exposure and must demonstrate lower values over time. The Norwegian Labour Inspection Authority, trade union representatives and safety representatives must be consulted and informed of annual plans and the results achieved.
    For the underground mining and tunnelling industries, the following limit value applies for nitrogen dioxide up to 21 August 2023: 0.6 ppm, 1.1 mg/m³.
14. Some undertakings will be unable to comply with the limit values for technical/financial reasons. These undertakings are responsible for documenting a sound working environment. Such undertakings must have a plan

for how to reduce exposure and must demonstrate lower values over time. The Norwegian Labour Inspection Authority, trade union representatives and safety representatives must be consulted and informed of annual plans and the results achieved.

For the underground mining and tunnelling industries, the following limit value applies for nitrogen monoxide up to 21 August 2023: 25 ppm, 30 mg/m³.

15. The limit value applies to particulate PAH collected by filtration and is based on the sum of the following 21 PAH compounds: anthracene (3), benzo(a)anthracene (2A), benzo[a]fluorene (3), benzo[b]fluorene (3), benzo[b]fluoranthene (2A), benzo[j] fluoranthene (2A), benzo[k]fluoranthene (2A), benzo[a]pyrene (1), benzo[e]pyrene (3), benzo[ghi]perylene (3), dibenzo[a,h])anthracene (2A), dibenzo[a,e]pyrene (3), dibenzo[a,h]pyrene (2A), dibenzo[a,i]pyrene (2A), dibenzo[a,l]pyrene (2A), phenanthrene (3), fluoranthene (3), indeno((1,2,3-cd)pyrene (2B), chrysen (2A), pyrene (3) and triphenylene (3).
16. Naphthalene and biphenyl are gaseous PAHs that have accumulated in the absorbent. These two substances shall be assessed separately in relation to the respective limit values that apply to each of them.
17. Welding/metal fumes contain different substances. In addition to the limit value for welding fumes (unspecified), the value for each individual substance in the welding fumes shall be complied with.
18. Some undertakings will be unable to comply with the limit values for technical/financial reasons. These undertakings are responsible for documenting a sound working environment. Written instructions must be prepared for work in a CO atmosphere. Such undertakings must have a plan for how to reduce exposure and must demonstrate lower values over time. The Norwegian Labour Inspection Authority, trade union representatives and safety representatives must be consulted and informed of annual plans and the results achieved.
19. The limit value applies to the inhalable fraction of the wood dust. If dust from hardwoods is mixed with other wood dust, the limit value shall apply to all wood dust that is present in the mixture.
20. These fibres correspond to “Special-purpose glass fibres” in the International Agency for Research on Cancer (IARC) monographs on the evaluation of carcinogenic risks to humans. Man-made vitreous fibres 2002: Vol 81. http://monographs.iarc.fr/ENG/Monographs/vol81/volume81.pdf
21. For the industries 08 Mining and quarrying and 42 Civil engineering, a limit value equal to 0.1 mg/m³ is applicable during a transitional period up to 1 February 2022.
22. The limit value shall apply from 21 February 2023. For the mining and tunnelling industries, the limit value shall apply from 21 February 2026.
23. In certain working environments where there is contamination of elementary carbon from sources other than diesel exhaust, the determination of elementary carbon should be made in a specific aerosol fraction.
24. The remarks for mineral oils used as motor oils apply to all situations where mineral oils over time undergo mechanical influence under high pressure and high temperature.
25. Until 11 July 2026, a maximum level of 0.0002 mg/m³ applies. After that date, a limit value equal to 0.00002 mg/m³ and short-term value equal to 0.0002 mg/m³.
26. For N,N-dimethylformamide, an estimated 8-hour limit value, DNEL (Derived No-Effect Level) shall apply as regulated by Commission Regulation (EU) 2021/2030. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R2030

Added by Regulation of 23 January 2024 No. 165.

Annex 3

List of classified biological agents (infection risk groups)

The list is limited to biological agents that cause infectious disease in humans. In addition, the list provides an overview of the following remarks:

A: May cause allergic reactions
D: Registers of employees who are exposed to the biological agent shall be stored for at least ten years after the most recently known exposure event
T: Induces the formation of toxins, may cause toxic reactions
V: Effective vaccine available

Bacteria and similar	***Infection risk group***	***Remark***
Aggregatibacter actinomycetemcomitans (Actinobacillus actinomycetemcomitans)	2	
Actinomadura madurae	2	
Actinomadura pelletieri	2	
Actinomyces gerencseriae	2	
Actinomyces israelii	2	
Actinomyces pyogenes	2	
Actinomyces spp.	2	
Anaplasma spp.	2	
Arcanobacterium haemolyticum (Corynebacterium haemolyticum)	2	
Arcobacter butzleri	2	
Bacillus anthracis	3	T
Bacteroides fragilis	2	
Bacteroides spp.	2	
Bartonella bacilliformis	2	
Bartonella quintana (Rochalimaea quintana)	2	
Bartonella (Rochalimea) spp.	2	
Bordetella bronchiseptica	2	
Bordetella parapertussis	2	
Bordetella pertussis	2	T, V
Bordetella spp.	2	
Borrelia burgdorferi	2	
Borrelia duttonii	2	
Borrelia recurrentis	2	
Borrelia spp.	2	
Brachyspira spp.	2	
Brucella abortus	3	
Brucella canis	3	

Brucella inopinata	3	
Brucella melitensis	3	
Brucella suis	3	
Burkholderia cepacia	2	
Burkholderia mallei (Pseudomonas mallei)	3	
Burkholderia pseudomallei (Pseudomonas pseudomallei)	3	D
Campylobacter fetus subsp. fetus	2	
Campylobacter fetus subsp. venerealis	2	
Campylobacter jejuni subsp. doylei	2	
Campylobacter jejuni subsp. jejuni	2	
Campylobacter spp.	2	
Cardiobacterium hominis	2	
Cardiobacterium valvarum	2	
Chlamydia abortus (Chlamydophila abortus)	2	
Chlamydia caviae (Chlamydophila caviae)	2	
Chlamydia felis (Chlamydophila felis)	2	
Chlamydia pneumoniae (Chlamydophila pneumoniae)	2	
Chlamydia psittaci (Chlamydophila psittaci) (avian strains)	3	
Chlamydia psittaci (Chlamydophila psittaci) (other strains)	2	
Chlamydia trachomatis (Chlamydophila trachomatis)	2	
Clostridium botulinum	2	T
Clostridium difficile	2	T
Clostridium perfringens	2	T
Clostridium tetani	2	T, V
Clostridium spp.	2	
Corynebacterium diphtheriae	2	T, V
Corynebacterium minutissimum	2	
Corynebacterium pseudotuberculosis	2	T
Corynebacterium ulcerans	2	T
Corynebacterium spp.	2	
Coxiella burnetii	3	
Edwardsiella tarda	2	
Ehrlichia sennetsu (Rickettsia sennetsu)	2	
Ehrlichia spp.	2	
Eikenella corrodens	2	
Elizabethkingia meningoseptica (Flavobacterium meningosepticum)	2	

Enterobacter aerogenes (Klebsiella mobilis)	2	
Enterobacter cloacae subsp. cloacae (Enterobacter cloacae)	2	
Enterobacter spp.	2	
Enterococcus spp.	2	
Erysipelothrix rhusiopathiae	2	
Escherichia coli	2	
Escherichia coli, verocytotoxigenic strains, e.g. O157:H7 or O103	3	T
Flavobacterium meningosepticum	2	
Fluoribacter bozemanae (Legionella)	2	
Francisella hispaniensis	2	
Francisella tularensis subsp. holarctica	2	
Francisella tularensis subsp. mediasiatica	2	
Francisella tularensis subsp. novicida	2	
Francisella tularensis subsp. tularensis	3	
Fusobacterium necrophorum subsp. funduliforme	2	
Fusobacterium necrophorum subsp. necrophorum	2	
Gardnerella vaginalis	2	
Haemophilus ducreyi	2	
Haemophilus influenzae	2	V
Haemophilus spp.	2	
Helicobacter pylori	2	
Helicobacter spp.	2	
Klebsiella oxytoca	2	
Klebsiella pneumoniae subsp. ozaenae	2	
Klebsiella pneumoniae subsp. pneumoniae	2	
Klebsiella pneumoniae subsp. rhinoscleromatis	2	
Klebsiella spp.	2	
Legionella pneumophila subsp. fraseri	2	
Legionella pneumophila subsp. pascullei	2	
Legionella pneumophila subsp. pneumophila	2	
Legionella spp.	2	
Leptospira interrogans (alle serotyper)	2	
Leptospira interrogans spp.	2	
Listeria monocytogenes	2	
Listeria ivanovii subsp. ivanovii	2	
Listeria invanovii subsp. londoniensis	2	

Morganella morganii subsp. morganii (Proteus morganii)	2	
Morganella morganii subsp. sibonii	2	
Mycobacterium abscessus subsp. abscessus	2	
Mycobacterium africanum	3	V
Mycobacterium avium subsp. avium (Mycobacterium avium)	2	
Mycobacterium avium subsp. paratuberculosis (Mycobacterium paratuberculosis)	2	
Mycobacterium avium subsp. silvaticum	2	
Mycobacterium bovis	3	V
Mycobacterium caprae (Mycobacterium tuberculosis subsp. caprae)	3	
Mycobacterium chelonae	2	
Mycobacterium chimaera	2	
Mycobacterium fortuitum	2	
Mycobacterium intracellulare	2	
Mycobacterium kansasii	2	
Mycobacterium leprae	3	
Mycobacterium malmoense	2	
Mycobacterium marinum	2	
Mycobacterium microti	3	
Mycobacterium pinnipedii	3	
Mycobacterium scrofulaceum	2	
Mycobacterium simiae	2	
Mycobacterium szulgai	2	
Mycobacterium tuberculosis	3	V
Mycobacterium ulcerans	3	
Mycobacterium xenopi	2	
Mycoplasma hominis	2	
Mycoplasma pneumoniae	2	
Mycoplasma spp.	2	
Neisseria gonorrhoeae	2	
Neisseria meningitidis	2	V
Neorickettsia sennetsu (Rickettsia sennetsu, Ehrlichia sennetsu)	2	
Nocardia asteroides	2	
Nocardia brasiliensis	2	
Nocardia farcinica	2	
Nocardia nova	2	
Nocardia otitidiscaviarum	2	

Nocardia spp.	2	
Orientia tsutsugamushi (Rickettsia tsutsugamushi)	3	
Pasteurella multocida subsp. gallicida (Pasteurella gallicida)	2	
Pasteurella multocida subsp. multocida	2	
Pasteurella multocida subsp. septica	2	
Pasteurella multocida	2	
Pasteurella spp.	2	
Peptostreptococcus anaerobius	2	
Plesiomonas shigelloides	2	
Porphyromonas spp.	2	
Prevotella spp.	2	
Proteus mirabilis	2	
Proteus penneri	2	
Proteus vulgaris	2	
Providencia alcalifaciens (Proteus inconstans)	2	
Providencia rettgeri (Proteus rettgeri)	2	
Providencia spp.	2	
Pseudomonas aeruginosa	2	T
Rhodococcus hoagii (Corynebacterium equii)	2	
Rickettsia africae	3	
Rickettsia akari	3	
Rickettsia australis	3	
Rickettsia canadensis	2	
Rickettsia conorii	3	
Rickettsia heilongjiangensis	3	
Rickettsia japonica	3	
Rickettsia montanensis	2	
Rickettsia typhi	3	
Rickettsia prowazekii	3	
Rickettsia rickettsii	3	
Rickettsia sibirica	3	
Rickettsia spp.	2	
Salmonella enterica (choleraesuis) subsp. arizonae	2	
Salmonella enteritidis	2	
Salmonella typhimurium	2	
Salmonella paratyphi A, B, C	2	V

Salmonella typhi	3	V
Salmonella (other serotypes)	2	
Shigella boydii	2	
Shigella dysenteriae (type 1)	3	T
Shigella dysenteriae (except type 1)	2	
Shigella flexneri	2	
Shigella sonnei	2	
Staphylococcus aureus	2	T
Streptobacillus moniliformis	2	
Streptococcus agalactiae	2	
Streptococcus dysgalactiae subsp. equisimilis	2	
Streptococcus pneumoniae	2	T, V
Streptococcus pyogenes	2	T
Streptococcus suis	2	
Streptococcus spp.	2	
Treponema carateum	2	
Treponema pallidum	2	
Treponema pertenue	2	
Treponema spp.	2	
Trueperella pyogenes	2	
Ureaplasma parvum	2	
Ureaplasma urealyticum	2	
Vibrio cholerae (herunder El Tor)	2	T, V
Vibrio parahaemoloyticus (Benecka parahaemolytica)	2	
Vibrio spp.	2	
Yersinia enterocolitica subsp. enterolitica	2	
Yersinia enterocolitica subsp. palearctica	2	
Yersinia pestis	3	
Yersinia pseudotuberculosis	2	
Yersinia spp.	2	

Viruses	***Infection risk group***	***Remark***
Adenoviridae (F)	2	
Arenaviridae (F)		
Brazilian mammarenavirus	4	
Chapare mammarenavirus	4	

Flexal mammarenavirus	3	
Guanarito mammarenavirus	4	
Junín mammarenavirus	4	
Lassavirus (Lassa mammarenavirus)	4	
Lujo mammarenavirus	4	
Lymphocytic choriomeningitis virus (neurotropic strains)	2	
Lymphocytic choriomeningitis virus (other strains)	2	
Mobala mammarenavirus	2	
Mopeia virus (Mopeia mammarenavirus)	2	
Tacaribe mammarenavirus		
Machupo virus (Machupo mammarenavirus)	4	
Whitewater Arroyo mammarenavirus	3	
Astroviridae (F)	2	
Caliciviridae (F)		
Norwalkvirus (Norovirus)	2	
Other caliciviruses known to be pathogenic	2	
Coronaviridae (F)		
Middle East respiratory syndrome coronavirus (MERS-CoV)	3	
Severe acute respiratory syndrome-related coronavirus (SARS-CoV)	3	
Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2)	3	
Other coronaviruses known to be pathogenic	2	
Filoviridae (F)		
Ebola virus	4	
Marburg virus	4	
Flaviviridae (F)		
Murray Valley encephalitis virus (Australia encephalitis virus)	3	
Tick-borne encephalitis virus Central European subtype	3	V
Tick-borne encephalitis virus Far Eastern Subtype	3	
Tick-borne encephalitis virus Siberian subtype	3	V
Absettarov virus	3	
Hanzalova virus	3	
Hypr virus	3	
Kumlinge virus	3	
Dengue virus	3	
Hepacivirus C (Hepatitis C virus)	3	D
Japanese encephalitis virus	3	V

Kyasanur Forest disease virus	3	V
Louping ill virus	3	
Negishi virus	3	
Omsk virus (tick-borne encephalitis virus)	3	
Powassan virus	3	
Rocio virus	3	
Russian spring-summer encephalitis (RSSE) (tick-borne encephalitis virus)	3	V
St. Louis encephalitis virus	3	
Wesselsbron virus	3	
West Nile fever virus	3	
Yellow fever virus	3	V
Zika virus	2	
Other flaviviruses known to be pathogenic	2	
Hantaviridae (F)		
Andes orthohantavirus (Hantavirus species causing Hantavirus Pulmonary Syndrome [HPS])	3	
Bayou orthohantavirus	3	
Black Creek Canal orthohantavirus	3	
Cano Delgadito orthohantavirus	3	
Choclo orthohantavirus	3	
Dobrava-Belgrade orthohantavirus (Hantavirus species causing Haemorrhagic Fever with Renal Syndrome [HFRS])	3	
El Moro Canyon orthohantavirus	3	
Hantaan orthohantavirus (Hantavirus species causing Haemorrhagic Fever with Renal Syndrome [HFRS]	3	
Laguna Negra orthohantavirus	3	
Seoul orthohantavirus (Hantavirus species causing Haemorrhagic Fever with Renal Syndrome [HFRS])	3	
Puumala orthohantavirus (Hantavirus species causing Nephropathia Epidemica [NE])	2	
Prospect Hill orthohantavirus	2	
Sin Nombre orthohantavirus (Hantavirus species causing Hantavirus Pulmonary Syndrome [HPS])	3	
Other hantaviruses known to be pathogenic	2	
Hepadnaviridae (F		
Hepatitis B virus	3	V, D
Hepeviridae (F)		
Orthohepevirus A (Hepatitis E virus	2	

Herpesviridae (F)		
Human betaherpesvirus 5 (Cytomegalovirus)	2	
Human gammaherpesvirus 4 (Epstein-Barr virus)	2	
Macacine alphaherpesvirus 1 (Herpesvirus simiae, Herpes B virus)	3	
Herpes simplex virus types 1 and 2 (Human alphaherpesvirus 1 and 2, Human herpesvirus 1 and 2)	2	
Human alphaherpesvirus 3 (Herpesvirus varicella-zoster)	2	V
Human betaherpesvirus 6A (Human B-lymphotropic virus)	2	
Human betaherpesvirus 6B	2	
Human betaherpesvirus 7	2	
Human betaherpesvirus 8	2	D
Nairoviridae (F)		
Crimean-Congo haemorrhagic fever orthonairovirus	4	
Dugbe orthonairovirus	2	
Hazara orthonairovir	2	
Nairobi sheep disease orthonairoviru	2	
Other nairoviruses known to be pathogenic	2	
Orthomyxoviridae (F)		
Influenza A virus A/New York/1/18 (H1N1) (Spanish flu 1918)	3	
Influenza A virus from 1957 H2N2 pandemic (e.g. A/Singapore/1/57)	3	
Highly Pathogenic Avian Influenza (HPAI) virus (H5), e.g. H5N1	3	
Highly Pathogenic Avian Influenza (HPAI) virus (H7), e.g. H7N7, H7N9	3	
Low Pathogenic Avian Influenza virus (LPAI) H7N9	3	
Influenza A virus – not mentioned above	2	V
Influenza B virus	2	V
Influenza C virus	2	V
Tick-borne orthomyxoviridae: Dhori og Thogoto virus	2	
Papillomaviridae (F)	2	D
Paramyxoviridae (F)		
Hendra henipavirus	4	
Nipah henipavirus	4	
Measles virus	2	V
Mumps virus (Mumps rubulavirus)	2	V
Newcastle disease virus	2	
Parainfluenza virus types 1 to 4 (human respirovirus 1 and 3 and human rubulavirus 2 and 4)	2	
Parvoviridae (F)		

Human parvovirus (B 19)	2	
Peribunyaviridae (F)		
Bunyamwera ortobunyavirus (Germiston virus)	2	
Californiaencephalitt ortobunyavirus	2	
Germiston virus (see Bunyamwera ortobunyavirus)		
Oropouche ortobunyavirus	3	
Other ortobunyavirus known to be pathogenic	2	
Phenuiviridae (F):		
Bhanja phlebovirus	2	
Punta Toro phlebovirus	2	
Rift Valley fever phlebovirus	3	
Sandfly fever Naples phlebovirus (Toscana virus)	2	
Toscanavirus (se Sandfly fever Naples phlebovirus)	2	
SFTS phlebovirus (Severe fever with thrombocytopenia syndrome virus)	3	
Other phleboviruses known to be pathogenic	2	
Picornaviridae (F)		
Saffold virus	2	
Cosavirus A	2	
Enterovirus A	2	
Enterovirus B	2	
Enterovirus C	2	
Enterovirus D, Human Enterovirus type 70 (acute hemorrhagic conjunctivitis virus)	2	
Hepatitis A virus (human entero virus, type 72, Hepatovirus a)	2	V
Poliovirus, type 1 and type 3	2	V
Poliovirus, type 2	3	V
Rhinovirus	2	
Aichivirus A (Aichi virus 1)	2	
Parechoviruses A	2	
Parechoviruses B (Ljungan virus)	2	
Other Picornaviridae known to be pathogenic	2	
Pneumoviridae (F)		
Respiratory syncytial virus (RS virus, Human orthopneumovirus)	2	
Polyomaviridae (F)		
BK virus and JC virus (Human polyomavirus 1 and 2)	2	D6
Poxviridae (F)		
Molluscum contagiosum virus	2	

Cowpox virus	2	
Elephantpox virus	2	
Galactocele virus	2	
Molluscum contagiosum virus	2	
Monkeypox virus	3	V
Orf virus	2	
Rabbitpox virus	2	
Vaccinia virus	2	
Variola (major and minor) virus	4	V
Yatapox virus (Tana and Yaba)	2	
Reoviridae (F)		
Banna virus	2	
Coltivirus	2	
Rotavirus	2	
Orbivirus	2	
Retroviridae (F)		
Human immunodeficiency virus (HIV), types 1 and 2	3	D
Human T-cell lymphotropic virus (HTLV), types 1 and 2	3	D
SIV (Simianape-immunsviktvirus)	2	
Rhabdoviridae (F)		
Australian bat lyssavirus	3	V
Duvenhage lyssavirus	3	V
European bat lyssavirus 1	3	V
European bat lyssavirus 2	3	V
Lagos bat lyssavirus	3	
Mokola lyssavirus	3	
Rabies virus (Rabies lyssavirus)	3	V
Vesicular stomatitis virus (Alagoas vesiculovirus, Indiana vesiculovirus, New Jersey vesiculovirus)	2	
Piry vesiculovirus (Piry virus)	2	
Togaviridae (F)		
Alphavirus:		
Cabassou virus	3	
Eastern Equine Encephalitis virus	3	V
Bebaru virus	2	
Chikungunya virus	3	
Everglades virus	3	

Mayaro virus	3	
Mucambo virus	3	
Ndumu virus	3	
O'nyong-nyong virus	2	
Ross River virus	2	
Semliki Forest virus	2	
Sindbis virus	2	
Tonate virus	3	
Venezuelan Equine Encephalitis virus	3	V
Western Equine Encephalitis virus	3	V
Other alpha viruses known to be pathogenic	2	
Rubella virus	2	V
Unclassified viruses		
Hepatitis delta virus	2	V, D

Parasites	***Infection risk group***	***Remark***
Acanthamoeba castellani	2	
Ancylostoma duodenale	2	
Angiostrongylus cantonensis	2	
Angiostrongylus costaricensis	2	
Anisakis simplex	2	A
Ascaris lumbricoides	2	A
Ascaris suum	2	A
Babesia divergens	2	
Babesia microti	2	
Balamuthia mandrillaris	3	
Balantidium coli	2	
Brugia malayi	2	
Brugia pahangi	2	
Brugia timori	2	
Capillaria philippinensis	2	
Capillaria spp.	2	
Clonorchis sinensis (Opisthorchis sinensis)	2	
Clonorchis viverrini (Opisthirchis viverrini)	2	
Cryptosporidium hominis	2	
Cryptosporidium parvum	2	

Cyclospora cayetanensis	2	
Dicrocoelium dentriticum	2	
Dipetalonema streptocerca	2	
Diphyllobothrium latum	2	
Dracunculus medinensis	2	
Echinococcus granulosus	3	
Echinococcus multilocularis	3	
Echinococcus oligarthrus	3	
Echinococcus vogeli	3	
Entamoeba histolytica	2	
Enterobius vermicularis	2	
Enterocytozoon bieneusi	2	
Fasciola gigantica	2	
Faciola hepatica	2	
Fasciolopsis buski	2	
Giardia lamblia (Giardia duodenalis, Giardia intestinalis)	2	
Heterophyes spp.	2	
Hymenolepis diminuta	2	
Hymenolepis nana	2	
Leishmania aethiopica	2	
Leishmania braziliensis	3	
Leishmania donovani	3	
Leishmania guyanensis (Viannia guyanensis)	3	
Leishmania infantum (Leishmania chagasi)	3	
Leishmania major	2	
Leishmania mexicana	2	
Leishmania panamensis (Viannia panamensis)	3	
Leishmania peruviana	2	
Leishmania tropica	2	
Leishmania spp.	2	
Loa loa	2	
Mansonella ozzardi	2	
Mansonella perstans	2	
Mansonella streptocerca	2	
Metagonimus spp.	2	
Naegleria fowleri	3	

Necator americanus	2	
Onchocerca volvulus	2	
Opisthorchis felineus	2	
Opisthorchis spp.	2	
Paragonimus westermani	2	
Paragonimus spp.	2	
Plasmodium falciparum	3	
Plasmodium knowlesi	3	
Plasmodium spp. (in humans and monkeys)	2	
Sarcocystis suihominis	2	
Schistosoma haematobioum	2	
Schistosoma intercalatum	2	
Schistosoma japonicum	2	
Schistosoma mansoni	2	
Schistosoma mekongi	2	
Strongyloides stercoralis	2	
Strongyloides spp.	2	
Taenia saginata	2	
Taenia solium	3	
Toxocara canis	2	
Toxocara cati	2	
Toxoplasma gondii	2	
Trichinella nativa	2	
Trichinella nelsoni	2	
Trichinella pseudospiralis	2	
Trichinella spiralis	2	
Trichomonas vaginalis	2	
Trichostrongylus orientalis	2	
Trichostrongylus spp.	2	
Tricuris trichiura	2	
Trypanosoma brucei brucei	2	
Trypanosoma brucei gambiense	2	
Trypanosoma brucei rhodesiense	3	
Trypanosoma cruzi	3	
Wuchereria bancrofti	2	

Fungi	*Infection risk group*	*Remark*
Aspergillus flavus	2	A
Aspergillus fumigatus	2	A
Aspergillus spp.	2	
Blastomyces dermatitidis (Ajellomyces dermatitidis)	3	
Blastomyces gilchristii	3	
Candida albicans	2	A
Candida dubliniensis	2	
Candida glabrata	2	
Candida parapsilosis	2	
Candida tropicalis	2	
Cladophialophora bantiana (Xylohypha bantiana, Cladosporium bantianum eller tridhoides)	3	
Cladophialophora modesta	3	
Cladophialophora spp.	2	
Coccidioides immitis	3	A
Coccidioides posadasii	3	A
Cryptococcus gattii (Filobasidiella neoformans var. bacillispora)	2	A
Cryptococcus neoformans (Filobasidiella neoformans var. Neoformans)	2	A
Emmonsia parvavum var. parva	2	
Emmonsia parvavum var. crescens	2	
Epidermophyton floccosum	2	A
Epidermophyton spp.	2	
Fonsecaea pedrosoi	2	
Histoplasma capsulatum	3	
Histoplasma capsulatum var. farciminosum	3	
Histoplasma duboisii	3	
Madurella grisea	2	
Madurella mycetomatis	2	
Microsporum spp.	2	A
Nannizzia spp.	2	
Neotestudina rosatii	2	
Paracoccidioides brasiliensis	3	A
Paracoccidioides lutzii	3	
Paraphyton spp.	2	
Rhinocladiella mackenziei	3	
Scedosporium apiospermum	2	

Scedosporium prolificans (inflatum)	2	
Sporothrix schenckii	2	
Talaromyces marneffei (Penicillium marneffei)	2	A
Trichophyton rubrum	2	A
Trichophyton tonsurans	2	A
Trichophyton spp.	2	

Prions (unconventional agents associated with communicable spongiform encephalopathies)	***Infection risk group***	***Remark***
Creutzfeldt-Jacob disease	3	D6
Form of Creutzfeldt-Jacob disease	3	D6
Bovine spongiform encephalopathy (BSE, mad cow disease) and related transmissible spongiform encephalopathies (TSEs)	3	D6
Gerstmann-Sträussler-Scheinker syndrome (GSS)	3	D6
Kuru	3	D6
Scrapie	2	

Notes

1. The term 'spp.' refers to other species of the same genus known to be human pathogens.
2. With the exception of non-pathogenic strains.
3. Usually not spread by airborne transmission.
4. Hepatitis D virus infections is pathogenic in employees only in the presence of simultaneous or secondary infection caused by the hepatitis B virus. Vaccination against the hepatitis B virus will therefore protect employees who are not infected by the virus against the hepatitis D virus (Delta).
5. Only for types A and B.
6. Recommended for work involving direct contact with these agents.
7. Two viruses are identified: one a type of the buffalopox virus and the other a variant of the Vaccinia virus.
8. Variant of the cowpox virus.
9. Variant of the Vaccinia virus.
10. At present, there is no evidence of disease in humans caused by retroviruses of simian origin. As a precaution, containment level 3 is recommended for work involving exposure to such retroviruses.
11. There is no evidence of in humans of infections caused by the agents responsible for other TSEs than BSE in animals. The containment level used for agents in infection risk group 3 (with pertaining footnote 3) is nevertheless recommended as a precaution for laboratory work, with the exception of laboratory work involving identified Scrapie agents for which containment level 2 is sufficient.

Amended by Regulations of 19 August 2013 No. 1036 (in force on 20 August 2013), 23 January 2024 No. 165.

Annex 4

Non-coherent optical radiation

The Annex is not included in this edition, but the text of the Annex is identical to the text of Annex I of Directive 2006/25/EC, which can be found online.

Annex 5

Laser optical radiation

The Annex is not included in this edition, but the text of the Annex is identical to the text of Annex II of Directive 2006/25/EC, which can be found online.