

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 third paragraph. Legal basis is 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 as amended by Directive 2003/18/EC), point 8 (Directive 89/391/EEC), point 10 (Directive 89/655/EEC as amended by Directive 2001/45/EC), point 11 (Directive 89/656/EEC), point 12 (Directive 90/269/EEC), point 14 (Directive 90/394/EEC as amended by Directive 97/42/EC), point 14a (Directive 2004/37/EC), point 15 (Directive 2000/54/EC), point 16 (Directive 91/383/EEC articles 3 and 4), point 16h (Directive 98/24/EC), point 16j (Directive 2000/39/EC) and point 16ja (Directive 2002/44/EC). In respect of Chapter 8 of these Regulations, cf. the EEA Agreement Annex XVIII point 16d (Directive 92/85/EEC). In respect of Chapter 15 of these Regulations, cf. the EEA Agreement Annex XVIII point 16jb (Directive 2003/10/EC). In respect of Chapter 16 of these Regulations, cf. the 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.

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.

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 individual person working on board shall receive the necessary training:

- a) to be able to carry out his or her work in a safe and proper manner;
- b) before being given access to areas involving a serious or special risk;
- c) when 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 Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

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 his or her attention.

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

Section 5-13

Time required for safety and environmental work

(1) The safety representatives and members of the working environment committee shall have at their disposal the time required to carry out their tasks in an appropriate manner, though not in such a way as to encroach on the specified rest periods of the persons working on board, and in general within regular working hours. If the person in question is required to interrupt his work, he shall notify his 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).

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 pipe lines, etc. the jet nozzle must be attached to the pipe line 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.

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) “*Administrative norm*”: Recommended maximum value for the average concentration of a chemical agent in the air within the breathing zone of a person working on board in relation to a specified reference period.
- b) “*Biological agent*”: Any micro-organism, cell culture and endoparasite the contact with which may provoke infection, allergy or toxicity.
- c) “*Biological limit value for lead*”: The binding maximum value for the concentration of lead in a person’s blood.
- d) “*Cell culture*”: The result of in-vitro growth of cells derived from multicellular organisms.
- e) “*Exposure*”: The harmful effects of chemicals and biological agents to which persons working on board are exposed or risk being exposed.
- f) “*Endoparasites*”: Parasites which live in the human body during the whole or parts of their life cycle.
- g) “*Limit value*”: The binding maximum value for the average concentration of a chemical agent in the air within the breathing zone of a person working on board in relation to a specified reference period.
- h) “*Containment*”: Barriers used to prevent unintended contact between biological agents and humans or the environment.
- i) “*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.
- j) “*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.
- k) “*Micro-organism*”: Any cellular or non-cellular microbiological entity, including those which have been genetically modified, capable of replication or of transferring 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).

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) Work in narrow and confined spaces, tanks and similar spaces shall be according to instructions which shall always be reviewed before commencing work. The instructions shall ensure that, inter alia:

- a) the oxygen content of the atmosphere is measured before commencing work;
- b) there is a person standing guard during the work operation at the entrance of the space and that this person is provided with necessary and approved communication equipment and protective and rescue equipment.

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

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

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

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 there is still a risk, despite the protective measures taken in each case, to the safety or health of a person working on board, he or she 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 working 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 his or her 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

(1) The following limit values for lead, vinyl chloride and benzene in the working atmosphere must not be exceeded:

<i>Substance</i>	<i>Reference period</i>	<i>Limit value in ppm</i>	<i>Limit value in mg/m³</i>
Lead	eight hours	-	0.05
Vinyl chloride	eight hours	1	3
Benzene	eight hours	1	3

(2) The biological limit value for lead which must not be exceeded is 0.5 micromol per litre of blood for women in their fertile age and 1.5 micromol per litre of blood for other persons working on board.

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

Section 12-6

Measures to be taken where limit values or administrative norms for contamination are exceeded

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

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 as 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 persons working on board shall sign for the chemicals handed out and thereby acknowledge that they are familiar with both the health hazards associated with the use of the chemicals and 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 Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 12-11

Change of work

(1) Where necessary to protect the health of a person working on board, he or she shall be assigned tasks and duties where there is no risk of 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) Biological agents shall be classified into four risk groups, according to their level of risk of infection:

- a) Group 1 biological agent means one that is unlikely to cause human disease.
- b) Group 2 biological agent means one that can cause human disease and might be a hazard to persons working on board, while unlikely to spread to society at large, and for which there is usually effective prophylaxis or treatment available.
- c) Group 3 biological agent means one that can cause severe human disease and present a serious hazard to persons working on board; it may present a risk of spreading to society at large, but there is usually effective prophylaxis or treatment available.
- d) Group 4 biological agent means one that causes severe human disease and is a serious hazard to persons working on board; it may present a high risk of spreading to society at large, and there is usually no effective prophylaxis or treatment available.

(2) A list of biological agents classified into risk groups 2, 3, or 4 is to be found in Annex 2. 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 Regulation of 19 August 2013 No. 1036 (in force on 20 August 2013).

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:

<i>A</i> <i>Containment measure</i>	<i>B</i> <i>Containment level</i>		
	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:

<i>Containment measure</i>	<i>Containment level</i>		
	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. Waste water 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:

- “*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;
- “*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;
- “*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;

- “*Daily exposure limit value, $A(8)$* ”: The daily exposure value which shall not be exceeded;
- “*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:

- 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;
- the exposure value averaged over 40 hours is less than the limit value; and
- 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/s².

Whole-body vibration:

The daily exposure limit value for an eight-hour reference period, A(8), is set to 1.1 m/s².

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/s².

Whole-body vibration:

The daily exposure action value for an eight-hour reference period, A(8), is set to 0.5 m/s².

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 mentioned in section 14-5, and which constitute a risk to the health of a person working on board, he or she shall receive an appropriate medical examination. The person working on board shall also receive an appropriate medical examination if the exposure is of such a kind that it can be directly linked to an identifiable health injury or disease, it is likely that the health injury or the disease will occur under special work conditions, and techniques for identifying health injuries and diseases have been tested out.

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 $L_{Aeq}(T)$* ": 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:

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

where: T = measurement time

$p_a(t)$ = A-weighted instantaneous sound pressure

$p_0 = 20 \mu\text{Pa}$ (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:

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

where: T = measurement time

$p_c(t)$ = C-weighted instantaneous sound pressure

$p_0 = 20 \mu\text{Pa}$ (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
 $p_0 = 20 \mu\text{Pa}$ (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:

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

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 limits”: Noise exposure 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
 $p_0 = 20 \mu\text{Pa}$ (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 values": Noise exposure 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 μ Pa).
- (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 μ Pa);
 - b) lower exposure action values: $L_{ex,8h} = 80$ dB(A) and $p_{peak} = 112$ Pa (135 dB(C) in relation to 20 μ Pa).
- (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:

<i>Designation of rooms and spaces</i>	<i>Vessel size</i>	
	<i>1,600 up to 10,000 GT</i>	<i>≥10,000 GT</i>
<i>1 Work spaces</i>		
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
<i>2 Navigation space</i>		
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
<i>3 Accommodation spaces</i>		
Cabins and hospitals	60	55
Messrooms	65	60
Recreation rooms	65	60
Open, external recreation areas	75	75
Offices	65	60
<i>4 Service spaces</i>		
Galleys, without food processing equipment operating	75	75
Serveries and pantries	75	75
<i>5 Normally unoccupied spaces</i>		
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 his or her hearing checked. The hearing examination shall be conducted by a doctor or by another suitable qualified person under the responsibility 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:

- see to that the person suffering from the hearing damage is informed by the doctor or other suitably qualified person of the result which relates to him or her personally;
- review the risk assessment carried out pursuant to section 15-3;
- review the measures provided to eliminate or reduce risks pursuant to sections 15-2, 15-21 and 15-22;
- 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
- 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 Regulation of 30 June 2014 No. 922 (in force on 1 July 2014).

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.

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) exposure limit values and exposure action values 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 ($\text{Wm}^{-2} \text{sr}^{-1}$);
 - 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

The exposure limit values for artificial optical radiation, other than laser radiation, are as set out in Annex 3.

The exposure limit values for laser radiation are as set out in Annex 4.

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 work stations 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 safe means of ascent and descent and have a self-locking system to prevent the user falling should he or she lose control of his or her 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 classified biological agents

(1) Below is a list of the biological agents that are classified in risk groups 2, 3 and 4.

(2) The list contains special remarks for biological agents which in addition to causing infectious diseases also may cause allergic or toxic reactions, for biological agents for which there are effective vaccines, and for biological agents for which it is appropriate to keep lists of exposed persons working on board available for more than ten years. Such agents are marked as follows:

- a) A: Possibility of allergic reaction.
 - b) D: Lists of persons working on board exposed to this biological agent shall be available for at least ten years after the last known exposure.
 - c) T: Creating a toxic reaction.
 - d) V: Effective vaccine exists.
- (3) The notes used in the below list mean:
- a) 1. The designation "spp." refers to other species within the family which are known to be disease-provoking in humans.
 - b) 2. Except for strains which are not disease-provoking.
 - c) 3. Does not normally cause airborne infection.
 - d) 4. An infection with the hepatitis D virus provokes disease in humans only where the infection occurs simultaneously with or after an infection caused by the hepatitis B virus. Vaccination against the hepatitis B virus thus protects persons working on board not infected with this virus against the hepatitis D (delta) virus.
 - e) 5. For type A and type B only.
 - f) 6. Recommended for work involving direct contact with the agents concerned.
 - g) 7. Two viruses are identified: a variant of the buffalo pox virus and a variant of the vaccinia virus.
 - h) 8. Variant of the cow pox virus.
 - i) 9. Variant of the vaccinia virus.
 - j) 10. As of today there is no evidence of any retrovirus from monkeys causing disease in humans. For work involving exposure to such retroviruses, containment level 3 is recommended as a preventive measure.
 - k) 11. There is no evidence that agents causing TSEs other than BSE in animals will lead to infections in humans. However, as a preventive measure we recommend the containment level used for Group 3 biological

agents (with footnote 3) for laboratory work, except for laboratory work in connection with an identified scrapie agent, in which case containment level 2 will be sufficient.

<i>Bacteria and similar organisms</i>	<i>Classification</i>	<i>Remark</i>
Actinobacillus actinomycetemcomitans	2	
Actinomadura madurae	2	
Actinomadura pelletieri	2	
Actinomyces gerencseriae	2	
Actinomyces israelii	2	
Actinomyces pyogenes	2	
Actinomyces spp. ¹	2	
Arcanobacterium haemolyticum (Corynebacterium haemolyticum)	2	
Bacillus anthracis	3	
Bacteroides fragilis	2	
Bartonella bacilliformis	2	
Bartonella (Rochalimea) spp.	2	
Bordetella bronchiseptica	2	
Bordetella parapertussis	2	
Bordetella pertussis	2	V
Borrelia burgdorferi	2	
Borrelia duttonii	2	
Borrelia recurrentis	2	
Borrelia spp.	2	
Brucella abortus	3	
Brucella canis	3	
Brucella melitensis	3	
Brucella suis	3	
Campylobacter fetus	2	
Campylobacter jejuni	2	
Campylobacter spp.	2	
Cardiobacterium hominis	2	
Chlamydia pneumoniae	2	
Chlamydia trachomatis	2	
Chlamydia psittaci (avian strains)	3	
Chlamydia psittaci (other strains)	2	
Clostridium botulinum	2	T
Clostridium perfringens	2	
Clostridium tetani	2	T, V
Clostridium spp.	2	
Corynebacterium diphtheriae	2	T, V
Corynebacterium minutissimum	2	
Corynebacterium pseudotuberculosis	2	

Corynebacterium spp.	2	
Coxiella burnetii	3	
Edwardsiella tarda	2	
Ehrlichia sennetsu (Rickettsia sennetsu)	2	
Ehrlichia spp.	2	
Eikenella corrodens	2	
Enterobacter aerogenes/kloacae	2	
Enterobacter spp.	2	
Enterococcus spp.	2	
Erysipelothrix rhusiopathiae	2	
Escherichia coli ²	2	
Escherichia coli, verocytotoxic strains (e.g. O157:H7 or O103)	3 ³	T
Flavobacterium meningosepticum	2	
Fluoribacter bozemanae (Legionella)	2	
Francisella tularensis (Type A)	3	
Francisella tularensis (Type B)	2	
Fusobacterium necrophorum	2	
Gardnerella vaginalis	2	
Haemophilus ducreyi	2	
Haemophilus influenzae	2	V
Haemophilus spp.	2	
Helicobacter pylori	2	
Klebsiella oxytoca	2	
Klebsiella pneumoniae	2	
Klebsiella spp.	2	
Legionella pneumophila	2	
Legionella spp.	2	
Leptospira interrogans (all serotypes)	2	
Listeria monocytogenes	2	
Listeria ivanovii	2	
Morganella morganii	2	
Mycobacterium africanum	3	V
Mycobacterium avium/intracellulare	2	
Mycobacterium bovis (except BCG strains)	3	V
Mycobacterium chelonae	2	
Mycobacterium fortuitum	2	
Mycobacterium kansasii	2	
Mycobacterium leprae	3	
Mycobacterium malmoense	2	
Mycobacterium marinum	2	
Mycobacterium microti	3 ³	

<i>Mycobacterium paratuberculosis</i>	2	
<i>Mycobacterium scrofulaceum</i>	2	
<i>Mycobacterium simiae</i>	2	
<i>Mycobacterium szulgai</i>	2	
<i>Mycobacterium tuberculosis</i>	3	V
<i>Mycobacterium ulcerans</i>	3 ³	
<i>Mycobacterium xenopi</i>	2	
<i>Mycoplasma cavia</i>	2	
<i>Mycoplasma hominis</i>	2	
<i>Mycoplasma pneumoniae</i>	2	
<i>Neisseria gonorrhoeae</i>	2	
<i>Neisseria meningitidis</i>	2	V
<i>Nocardia asteroides</i>	2	
<i>Nocardia brasiliensis</i>	2	
<i>Nocardia farcinica</i>	2	
<i>Nocardia nova</i>	2	
<i>Nocardia olitidiscaviarum</i>	2	
<i>Pasteurella multocida</i>	2	
<i>Pasteurella</i> spp.	2	
<i>Peptostreptococcus anaerobius</i>	2	
<i>Plesiomonas shigelloides</i>	2	
<i>Porphyromonas</i> spp.	2	
<i>Prevotella</i> spp.	2	
<i>Proteus mirabilis</i>	2	
<i>Proteus penneri</i>	2	
<i>Proteus vulgaris</i>	2	
<i>Providencia alcalifaciens</i>	2	
<i>Providencia rettgeri</i>	2	
<i>Providencia</i> spp.	2	
<i>Pseudomonas aeruginosa</i>	2	
<i>Burkholderia mallei</i> (<i>Pseudomonas mallei</i>)	3	
<i>Burkholderia pseudomallei</i> (<i>Pseudomonas pseudomallei</i>)	3	
<i>Rhodococcus equi</i>	2	
<i>Rickettsia akari</i>	3 ³	
<i>Rickettsia canada</i>	3 ³	
<i>Rickettsia conorii</i>	3	
<i>Rickettsia montana</i>	3 ³	
<i>Rickettsia typhi</i> (mooseri)	3	
<i>Rickettsia prowazekii</i>	3	
<i>Rickettsia rickettsii</i>	3	
<i>Rickettsia tsutsugamushi</i>	3	

Rickettsia spp.	2	
Bartonella quintana (Rochalimaea quintana)	2	
Salmonella arizonae	2	
Salmonella enteritidis	2	
Salmonella typhimurium	2	
Salmonella paratyphi A, B, C	2	
Salmonella typhi	3 ³	V
Salmonella (other serotypes)	2	
Serpulina spp.	2	
Shigella boydii	2	
Shigella dysenteriae (Type 1)	3 ³	T
Shigella dysenteriae (other than Type 1)	2	
Shigella flexneri	2	
Shigella sonnei	2	
Staphylococcus aureus	2	
Streptobacillus moniliformis	2	
Streptococcus pneumoniae	2	
Streptococcus pyogenes	2	
Streptococcus suis	2	
Streptococcus spp.	2	
Treponema carateum	2	
Treponema pallidum	2	
Treponema pertenue	2	
Treponema spp.	2	
Vibrio cholerae (including El Tor)	2	
Vibrio parahaemolyticus	2	
Vibrio spp.	2	
Yersinia enterocolitica	2	
Yersinia pestis	3	V
Yersinia pseudotuberculosis	2	
Yersinia spp.	2	

<i>Viruses</i>	<i>Classification</i>	<i>Remark</i>
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Adenoviridae	2	
Arenaviridae LCM Lassa virus (Old World arena virus); Lassa virus4		
Lymphocytic choriomeningitis virus (neurotropic strains)	3	
Lymphocytic choriomeningitis virus (other strains)	2	
Mopeia virus	2	

Other LCM Lassa complex viruses	2	
Tacaribe virus complex (New World arena virus): Guanarito virus	4	
Junin virus	4	
Sabia virus	4	
Machupo virus	4	
Flexal virus	3	
Other Tacaribe complex viruses	2	
Astroviridae	2	
Bunyaviridae Belgrade virus (also known as Dobrava virus)	3	
Bhanja virus	2	
Bunyamwer virus	2	
California encephalitis virus	2	
Germiston virus	2	
Oropouche virus	3	
Sin Nombre virus (formerly Muerto Canyon virus)		
Hanta virus: Hantaan (Corean haemorrhagic fever)	3	
Seoul virus	3	
Puumala virus	2	
Prospect Hill virus	2	
Other Hanta viruses	2	
Nairo virus: Congo Crimean fever virus	4	
Hazara virus	2	
Phlebo virus: Rift Valley fever virus	3	V
Sandfly fever virus	2	
Toscana virus	2	
Other bunya viruses known to provoke disease	2	
Caliciviridae hepatitis E virus	3 ³	
Norwalk virus	2	

Other Caliciviruses	2	
Coronaviridae	2	
Filoviridae Ebola virus	4	
Marburg virus	4	
Flaviviridae Australian encephalitis virus (Murrey Valley encephalitis)	3	
Central European tick-borne encephalitis virus	3 ³	V
Absettarov virus	3	
Hanzalova virus	3	
Hypr virus	3	
Kumlinge virus	3	
Dengue virus types 1 to 4	3	
Hepatitis C virus	3 ³	D
Hepatitis G virus	3 ³	D
Japanese B encephalitis virus	3	V
Kyasanur Forest virus	3	V
Louping ill virus	3 ³	
Omsk virus (a)	3	V
Powassan virus	3	
Rocio virus	3	
Russian spring/summer encephalitis virus (RSSE) (tick-borne)	3	V
St. Louis encephalitis virus	3	
Wesselsbron virus	3 ³	
West Nile fever virus	3	
Yellow fever virus	3	V
Other flavi viruses known to be disease-provoking	2	
Hepadnaviridae hepatitis B virus	3 ³	V, D
Hepatitis D virus (delta) ⁴	3 ³	V, D

Herpes viridae cytomegalo virus	2	
Epstein-Barr virus	2	
Herpes virus simiae (virus B)	3	
Herpes simplex virus, types 1 and 2	2	
Herpes virus varicella-zoster	2	
Human B-lymphotropic virus (HBLV-HHV6)	2	
Human herpes virus 7	2	
Human herpes virus 8	2	D
Orthomyxoviridae influenza virus types A, B, and C	2	V ⁵
Tick-borne orthomyxoviridae: dhori and thogoto viruses	2	
Papovaviridae BK and JC viruses	2	D ⁶
Human papilloma virus	2	D ⁶
Paramyxoviridae measles virus	2	V
Mumps virus	2	V
Newcastle disease virus	2	
Para-influenza virus types 1 to 4	2	
Respiratory syncytial virus	2	
Parvoviridae human parvo virus (B 19)	2	
Picornaviridae acute haemorrhagic conjunctivitis (AHK)	2	
Coxsackie viruses	2	
ECHO virus	2	
Hepatitis A virus (human entero virus, type 72)	2	V
Polio virus	2	V
Rhino virus	2	
Poxviridae buffalo pox virus ⁷	2	
Cow pox virus	2	
Elephant pox virus ⁸	2	
Galactoceles virus	2	

Molluscum contagiosum virus	2	
Monkey pox virus	3	V
Orf virus	2	
Rabbit pox virus ⁹	2	
Vaccinia virus	2	
Variola (major and minor) virus	4	V
White pox virus ("variola virus")	4	V
Yatapox virus (Tana and Yaba)	2	
Reoviridae colti virus	2	
Human rota viruses	2	
Orbi virus	2	
Reo virus	2	
Retroviridae human immune deficiency virus (HIV), types 1 and 2	3 ³	D
Human T-cell lymphotropic virus (HTLV), types 1 and 2	3 ³	D
SIV virus ¹⁰	3 ³	
Rhabdoviridae rabies virus	3 ³	V
Vesicular stomatitis virus	2	
Togaviridae alpha virus: East American horse encephalomyelitis virus	3	V
Bebaru virus	2	
Chikungunya virus	3 ³	
Everglades virus	3 ³	
Mayaro virus	3	
Mucambo virus	3 ³	
Ndumu virus	3	
O'nyong-nyong virus	2	
Ross River virus	2	
Semliki Forest virus	2	

Sindbis virus	2	
Tonate virus	3 ³	
Venezuelan horse encephalomyelitis virus	3	V
West American horse encephalomyelitis virus	3	V
Other known alpha viruses	2	
Rubi virus (rubella)	2	V
Toroviridae	2	
Unclassified viruses Hepatitis viruses, not yet identified	3 ³	D
Equine morbilli virus	4	
Unconventional agents associated with communicable spongiform encephalopathies: Creutzfeldt-Jacobs disease	3 ³	D ⁶
Variant Creutzfeldt-Jacobs disease	3 ³	D ⁶
Bovine spongiform encephalopathy (BSE) and related communicable spongiform encephalopathies ¹¹	3 ³	D ⁶
Gerstmann-Straussler-Scheinker syndrome	3 ³	D ⁶
Kuru	3 ³	D ⁶

Parasites	Classification	Remark
Acanthamoeba castellanii	2	
Ancylostoma duodenale	2	
Angiostrongylus cantonensis	2	
Angiostrongylus costaricensis	2	
Ascaris lumbricoides	2	A
Ascaris suum	2	A
Babesia divergens	2	
Babesia microti	2	
Balantidium coli	2	
Brugia malayi	2	
Brugia pahangi	2	
Capillaria philippinensis	2	
Capillaria spp.	2	
Clonorchis sinensis	2	
Clonorchis viverrini	2	
Cryptosporidium parvum	2	
Cryptosporidium spp.	2	

<i>Cyclospora cayetanensis</i>	2
<i>Dipetalonema streptocerca</i>	2
<i>Diphyllobothrium latum</i>	2
<i>Dracunculus medinensis</i>	2
<i>Echinococcus granulosus</i>	3 ³
<i>Echinococcus multilocularis</i>	3 ³
<i>Echinococcus vogeli</i>	3 ³
<i>Entamoeba histolytica</i>	2
<i>Fasciola gigantica</i>	2
<i>Fasciola hepatica</i>	2
<i>Fasciolopsis buski</i>	2
<i>Giardia lamblia</i> (<i>Giardia intestinalis</i>)	2
<i>Hymenolepis diminuta</i>	2
<i>Hymenolepis nana</i>	2
<i>Leishmania braziliensis</i>	3 ³
<i>Leishmania donovani</i>	3 ³
<i>Leishmania ethiopia</i>	2
<i>Leishmania mexicana</i>	2
<i>Leishmania peruviana</i>	2
<i>Leishmania tropica</i>	2
<i>Leishmania major</i>	2
<i>Leishmania</i> spp.	2
<i>Loa loa</i>	2
<i>Mansonella ozzardi</i>	2
<i>Mansonella perstans</i>	2
<i>Naegleria fowleri</i>	3
<i>Necator americanus</i>	2
<i>Onchocerca volvulus</i>	2
<i>Opisthorchis felinus</i>	2
<i>Opisthorchis</i> spp.	2
<i>Paragonimus westermani</i>	2
<i>Plasmodium falciparum</i>	3 ³
<i>Plasmodium</i> spp. (in humans and monkeys)	2
<i>Sarcocystis sui hominis</i>	2
<i>Schistosoma haematobium</i>	2
<i>Schistosoma intercalatum</i>	2
<i>Schistosoma japonicum</i>	2
<i>Schistosoma mansoni</i>	2
<i>Schistosoma mekongi</i>	2
<i>Strongyloides stercoralis</i>	2
<i>Strongyloides</i> spp.	2

Taenia saginata	2
Taenia solium	3 ³
Toxocara canis	2
Toxoplasma gondii	2
Trichinella spiralis	2
Tricuris trichiura	2
Trypanosoma brucei brucei	2
Trypanosoma brucei gambiense	2
Trypanosoma brucei rhodesiense	3 ³
Trypanosoma cruzi	3
Wuchereria bancrofti	2

<i>Fungi</i>	<i>Classificatio n</i>	<i>Remark</i>
Aspergillus fumigatus	2	A
Blastomyces dermatitidis (Ajellomyces dermatitidis)	3	
Candida albicans	2	A
Candida tropicalis	2	
Cladiophialophora bantiana (formerly Xylohypha bantiana, Cladosporium- bantianum or tridhoides)	3	
Coccidioides immitis	2	A
Cryptococcus neoformans var. neoformans (Filobasidiella neoformans var. neoformans)	2	A
Cryptococcus neoformans var. gattii (Filobasidiella bacillispora)	2	A
Emmonsia parvavum var. parva	2	
Emmonsia parvavum var. crescens	2	
Epidermophyton floccosum	2	A
Fonsecaea compacta	2	
Fonsecaea pedrosoi	2	
Histoplasma capsulatum var. capsulatum (Ajellomyces capsulatus)	3	
Histoplasma capsulatum duboisii	3	
Madurella grisea	2	
Madurella mycetomatis	2	
Microsporium spp.	2	A
Neotestudina rosatii	2	
Paracoccidioides brasiliensis	3	
Penicillium marneffeii	2	A
Scedosporium apiospermum (Pseudallescheria boydii)	2	
Scedosporium prolificans (inflatum)	2	
Sporothrix schenckii	2	
Trichophyton rubrum	2	
Trichophyton spp.	2	

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

Annex 3

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 4

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.