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Chapter A II B  
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Technical regulation on  
occupational health in ships

## C H A P T E R   I I

### Chemical occupational health effects

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# CHAPTER II

## Chemical occupational health effects

### Part B Code-numbered products

#### Regulation 1 Application

- 1 The provisions of this part shall apply to work on board ships with code-numbered products.
- 2 The provisions of this part shall not apply to work covered by the Danish Working Environment Act.
- 3 The provisions of this part shall apply to work with the products listed in annex 1, for which a code number shall be determined in pursuance of the Order issued by the Danish Working Environment Authority on the determination of code numbers. In addition, products used when making ready for and ending such works shall be covered.
- 4 The provisions of this chapter shall also apply to work with substances and materials covered by the Order issued by the Danish Working Environment Authority on epoxy resins and isocyanates, etc.

#### Regulation 2 Definitions

- 1 "A code number for a product" shall mean a code consisting of two figures connected by a hyphen where
  - .1 "the figure before the hyphen" shall indicate the safety measures that shall at least be taken against breathing vapours from the product's content of volatile components, including organic solvents, and
  - .2 "the figure after the hyphen" shall indicate the safety measures that shall at least be taken against contact with the product on the skin, in the eyes and in the airways or against ingestion.

#### Regulation 3 Performance of work

- 1 Work with products covered by the provisions of this part shall be planned, arranged and carried out in accordance with the provisions of this part and, furthermore, in accordance with the provisions of chapter I, part A, on performance of work on board ships.
- 2 In the case of substances and materials covered by regulation 1(4), the work shall also be arranged and carried out so that skin contact is avoided.

#### Regulation 4 Code numbers

- 1 The master shall ensure that a product, cf. regulation 1(3) and (4), is provided with a code number before being used.
- 2 The code number of a product shall be clearly indicated on the packing or be given in writing in some other way. The year when the Order issued by the Danish Working Environment Authority in force at any time according to which the code number has

- been determined shall be indicated together with the code number.
- 3 The code number shall be given in the workplace user instructions that must be drafted according to the provisions of chapter II, part A, on substances and materials used on board ships.
  - 4 As regards substances and materials covered by regulation 1(4), the supplier and workplace user instructions shall also contain information about whether the substance and the material contain epoxy resins, monomeric epoxy compounds, reactive solvents or isocyanates as well as about the hardening time of the substance or material.
  - 5 In the case of a product where a mixture of more components or addition of a diluent is prescribed, the master shall ensure that a code number has been determined both for each individual product and for the mixture when ready to use.
  - 6 In the case of a product where use at a specific temperature is prescribed, a code number shall be determined both for the product at room temperature and for the product at the prescribed temperature.
  - 7 The packing or the notice about the code number shall also contain information that the breathing mask shall be air-supplied if a product contains liquids that boil at low temperatures (substances with a boiling point below 65 °C as well as a number of other substances that absorb poorly on charcoal filters) and if it is necessary to wear a breathing mask as a protection against the inhalation risk when working with the product.

#### **Regulation 5 The use of products**

- 1 A product, including the mixture when ready for use, may not be used if the product's code number is not given. This information shall be available to the employees.
- 2 If it is not possible to procure the necessary information about the determination of the code number, the requirements that apply when using the product shall be those that apply to the highest code numbers.
- 3 As regards substances and materials covered by regulation 1(4), they may not be applied by means of spraying (aerosol/atomisation), but only manually by means of a spatula, brush, roller, spray gun or the like.
- 4 Persons with eczema, diagnosed epoxy allergy, asthma, chronic pulmonary diseases, diagnosed skin or bronchial allergy or much perspiring hands (hyperhidrosis manuum) may not work with substances and materials covered by regulation 1(4).
- 5 Employees engaged in work with the substances and materials covered by the provisions of this part shall have completed training approved by the Danish Maritime Authority before the work is being performed.
- 6 The master or the person substituting him shall see to it that the training mentioned in paragraph (5) takes place.
- 7 During working processes, products which, when ready for use, have a higher figure in the code number than the one listed in table 2.1 of annex 2 may not be used.

- 8 Exemptions may be granted from the provisions of paragraph (7) when special requirements are made for the properties of the surface or for the final work pursuant to other legislation.
- 9 A product may not be used if, for the intended use, it is possible to substitute it by a non-harmful, less hazardous or less annoying product. Hence, in general a product with the lowest possible code number when ready for use shall be applied.
- 10 When the use of a substitute product will involve significant differences in technical properties or expenses, all aspects of the technical and economic consequences shall be weighed against considerations of health, safety and the environment.
- 11 The ship's safety organisation shall be involved in the assessment of whether substitution is possible.
- 12 If substitution is not possible under paragraph (9) or the use of the product cannot be prevented because a total assessment under paragraph (10) shows that the use of a substitute product will involve unreasonable extra expenses for the ship owner/the employer, this shall be proved to the Danish Maritime Authority upon request.

#### **Regulation 6 Protective measures**

- 1 When work is being carried out with the products, including making ready for and completing the work, measures shall be taken to ensure that persons working with the products are protected as much as possible against exposure to the products used. This shall primarily be ensured by means of technical measures, cf. the principles of prevention in the provisions of chapter I, part A, on the performance of work on board ships.
- 2 When work is being carried out with the products, measures shall also be taken to protect the surrounding environment.
- 3 Where the technical measures mentioned in paragraph (1) cannot reasonably be taken or where conditions otherwise do not prevent the risk of exposure to unnecessary effects, the safety measures mentioned in annexes 2-4 shall be taken as a minimum.
- 4 When work is being carried out on hot surfaces with a temperature above 35 °C, the safety measures shall be determined on the basis of the code number and the figure before the hyphen shall be increased to the closest higher figure. In addition, a full-face breathing mask shall always be used as a minimum.
- 5 When each individual piece of work has been completed and until the products applied have dried or hardened to such an extent that the risk of exposure to effects that are harmful to health has been eliminated, the safety measures under regulation 5 (9)-(12) shall still be taken.
- 6 Where it is necessary that more employees are carrying out simultaneous work with the products so close to each other that there is a risk of exposure to effects that are harmful to health in addition to what may be attributed to own work, sufficient safety measures shall be taken to counter the health risk.

- 7 Persons other than those carrying out the work with the products or necessary work in connection herewith may not be so close to the work that they may be exposed to effects that are harmful to health.
- 8 In connection with substances and materials covered by regulation 1 (4), warning signs shall be affixed, cf. the provisions of chapter VIII, part A, on signalling, safety signs and marking.
- 9 Each individual employee may not work wearing a breathing mask for more than six hours each working day in the case of an air-supplied breathing mask and not for more than three hours each working day in the case of a filtering breathing mask. In especially strenuous situations as a consequence of the nature of the work, temperature conditions or the like, the time shall be reduced. Work may not be carried out continuously when wearing a breathing mask.
- 10 If, already when planning the work, it is assessed that the work carried out by the employee while wearing a filtering breathing mask will last for longer than the period stipulated in paragraph (9), an air-supplied breathing mask shall be worn already when the work is started. If the work is so physically strenuous that it becomes hard to breathe through a filtering mask due to the resistance, an air-supplied breathing mask shall be used.
- 11 Where work is being carried out with substances and materials, sufficient relevant first-aid equipment shall be available, including a bottle of eye-rinsing solution.

#### **Regulation 7 Storage and hygiene**

- 1 The substance and the material shall be stored in a sound and secure way.
- 2 As regards substances and materials covered by regulation 1(4), waste, remnants, empty packing, discarded working clothes and used dispensable towels shall be placed in special waste receptacles clearly marked with the content.
- 3 During work with code-numbered products, personal protective equipment shall be stored in ventilated lockers, rooms or other spaces on board the ship outside the crew accommodation.
- 4 Persons working with substances and materials covered by regulation 1(4) shall have separate changing rooms. Ordinary clothes and working clothes shall be kept separate, and access shall be provided to showers with hot and cold water.
- 5 Access shall be provided to wash basins with hot and cold water. In connection with work with substances and materials covered by regulation 1(4), the taps may not be manually operated.
- 6 In connection with the washing facilities, a suitable detergent, mild soap, soft dispensable towels and suitable skin lotions for application after having washed as well as a waste receptacle shall be available.

#### **Regulation 8 Other provisions**

- 1 In the case of substances and materials covered by regulation 1(4), the employees shall also carefully follow personal hygiene procedures.
- 2 If the hands or other parts of the body have been in contact with the substances or materials, they shall be cleaned immediately

using suitable detergents. Subsequently, they shall be washed carefully with soap and water and a suitable skin lotion shall be applied.

- 3 Food and beverages, etc. may not be taken on the workplace, and smoking shall also be prohibited.
- 4 Working clothes used during the work with the substances and materials may not be worn during meals.
- 5 The master or the person substituting him shall ensure that it is effectively monitored that the employees comply with the rules stipulated in paragraphs (1)-(4).

## A N N E X 1

Code-numbered products  
cf. regulation 1(3)-(4)

- 1     Paints and other paint-like surface coatings.
- 2     Glue (adhesives), including organic solvents and filling products such as fillers, sealing compounds and putty used for joining purposes during repair work in, for example, the accommodation.
- 3     Diluents used for the above products and products used when making ready for work and when completing work with the above products, including degreasing compounds, washing-off agents and paint removers.
- 4     Products used when making ready to work with and completing work with the above-mentioned products, including washing-off agents and paint removers.

## ANNEX 2

## Indoor work

**1 Application area of the annex**

- .1 Work with products indoors on ships and on "general" installations in these areas, such as pipes, installation hatches and lockers.

**2 Prohibition table**

- .1 Table 2.1 lists the highest permissible figure before the hyphen for paint products in a mixture ready for use for certain paint work.

**3 Definitions**

- .1 "Light coverings" shall mean coverings made of tarpaulins or other tent-like material making it possible for some air to circulate through openings and leaks.
- .2 "Workspaces with an installed mechanical extraction system" shall be workspaces that may be accepted for work on large items and that are provided with sufficient mechanical extraction.

**4 Safety measures**

- .1 Ventilation
  - .1 Mechanical ventilation shall be installed as stipulated in table 2.2.
- .2 Personal protective equipment
  - .1 The personal protective equipment that shall be used in connection with each individual task can be found by using table 2.3. Protective equipment stipulated for both the figure before and the figure after the hyphen in the code number shall be carried or combined according to the principles of annex 4.

The notes are also found in annex 4.



Table 2.1

**The highest permissible figure before the hyphen in the code number for paint products in mixtures ready for use for indoor painting**

	Ceilings/walls (decks)/(bulkheads)	Floor
A. Normal exposure and requirements <i>Examples:</i> Accommodation and sleeping quarters, galley and stores room Offices and messrooms Stairways and corridors Exercise rooms and leisure rooms Passenger accommodation Messrooms Toilets Engine space and car deck (decks/bulkheads)	1-	1-
B. High exposure and requirements <i>Surfaces</i> subject to great effects and where comprehensive functional requirements are made. <i>Examples:</i> Surfaces in galleys and bathrooms Changing rooms Toilet and washrooms Engine space and car deck (floor) (Surfaces that are not subject to great effects belong under A)	2-	2-
C. Special exposure and requirements <i>Surfaces</i> that are subject to special effects or where special requirements are made. <i>Examples:</i> Surfaces in sickrooms/infirmarys, wet rooms Engine space tank top as well as surfaces in the engine space that are subject to exhaust (4-), car decks (floor) painted while in operation because of very short drying time. (Surfaces that are not subject to special effects belong under A or possibly B).	2-	4-

Table 2.2

**Requirements for the fitting of indoor ventilation**

Code number	Light coverings (made of tarpaulins and other tent-like material)		Spaces with mechanical ventilation	
	Spatula, brush, roller and the like	Spray	Spatula, brush, roller and the like	Spray
00-	None	Mechanical ventilation	None	Ventilation in operation
0-	None	Mechanical ventilation	None	Ventilation in operation
1-	None	Mechanical ventilation	Ventilation in operation <sup>B)</sup>	Ventilation in operation
2-	Mechanical ventilation <sup>A)</sup>	Mechanical ventilation	Ventilation in operation <sup>B)</sup>	Ventilation in operation
3-	Mechanical ventilation <sup>A)</sup>	Mechanical ventilation	Ventilation in operation <sup>B)</sup>	Ventilation in operation
4-	Mechanical ventilation	Mechanical ventilation	Ventilation in operation <sup>B)</sup>	Ventilation in operation
5-	Mechanical ventilation	Mechanical ventilation	Ventilation in operation	Ventilation in operation

Table 2.2, cont.

**Requirements for the fitting of indoor ventilation**

Code number Figure before the hyphen	Spaces without mechanical ventilation		Inside tanks, cofferdams and the like	
	Spatula, brush, roller and the like	Spray	Spatula, brush, roller and the like	Spray
00-	None	Mechanical ventilation	None	Ventilation in operation
0-	None	Mechanical ventilation	Mechanical ventilation <sup>A)</sup>	Ventilation in operation
1-	Mechanical ventilation <sup>A)</sup>	Mechanical ventilation	Mechanical ventilation <sup>A)</sup>	Ventilation in operation
2-	Mechanical ventilation <sup>A)</sup>	Mechanical ventilation	Mechanical ventilation <sup>A)</sup>	Ventilation in operation
3-	Mechanical ventilation <sup>A)</sup>	Mechanical ventilation	Ventilation in operation	Ventilation in operation
4-	Mechanical ventilation	Mechanical ventilation	Ventilation in operation	Ventilation in operation
5-	Mechanical ventilation	Mechanical ventilation	Ventilation in operation	Ventilation in operation

A) Use of mechanical ventilation may be omitted where the total consumption of painting products is maximum 1 litre per day.

B) Use of ventilation in operation is not required where the total consumption of painting products is maximum 1 litre per day.

Table 2.3

**Personal protective equipment and special working clothes**  
**Work with products in connection with painting, paint-like surface**  
**coating, glueing, bonding and jointing indoors**

Code number Figure before the hyphen	Small surface*		Large surface	
	Spatula, brush, roller and the like	Spray	Spatula, brush, roller and the like	Spray
00-	None special	Full-mask with combination filter <sup>9)</sup>	No special <sup>8)</sup>	Full-mask with combination filter <sup>9)</sup>
0-	None special	Full-mask with combination filter <sup>9)</sup>	No special <sup>8)</sup>	Full-mask with combination filter <sup>9)</sup>
1-	None special <sup>7)</sup>	Air-supplied half-mask <sup>2), 6)</sup> eye protection	Gas filter mask <sup>9)</sup>	Air-supplied half-mask <sup>2), 6)</sup> eye protection
2-	None special <sup>7)</sup>	Air-supplied full-mask <sup>2)</sup>	Air-supplied half-mask	Air-supplied full-mask <sup>2)</sup>
3-	Gas filter mask <sup>9)</sup>	Air-supplied full-mask <sup>2)</sup>	Air-supplied half-mask	Air-supplied full-mask
4-	Gas filter mask <sup>9)</sup>	Air-supplied full-mask <sup>2)</sup>	Air-supplied half-mask	Air-supplied full-mask
5-	Air-supplied full-mask	Air-supplied full-mask	Air-supplied half-mask	Air-supplied full-mask <sup>2)</sup>

Table 2.3, cont.

**Personal protective equipment and special working clothes**  
**Work with products in connection with painting, paint-like surface**  
**coating, glueing, bonding and jointing indoors**

Code number	Small surface*		Large surface	
Figure after the hyphen	Spatula, brush, roller and the like	Spray	Spatula, brush, roller and the like	Spray
-1	Gloves <sup>3), 4), 5)</sup>	Full-mask with combination filter, protective clothing, gloves, hood	Gloves <sup>3), 4), 5)</sup>	Full-mask with combination filter, protective clothing, gloves, hood
-2	Gloves <sup>3), 4), 5)</sup>	Air-supplied half-mask <sup>1), 6)</sup> , eye protection, protective clothing, gloves, hood	Gloves <sup>3), 4), 5)</sup>	Air-supplied half-mask <sup>1), 6)</sup> , eye protection, protective clothing, gloves, hood
-3	Gloves <sup>3), 4), 12)</sup>	Air-supplied full-mask, protective clothing, gloves, hood	Gloves <sup>4), 5)</sup>	Air-supplied full-mask, protective clothing, gloves, hood
-4	Gloves, face mask, hood, protective clothing <sup>11), 13)</sup>	Air-supplied full-mask, protective clothing, gloves, hood	Gloves, face mask, hood, protective clothing <sup>11), 13)</sup>	Air-supplied full-mask, protective clothing, gloves, hood
-5	Gloves, face mask, hood, protective clothing <sup>11), 13)</sup>	Air-supplied full-mask, protective clothing, gloves, hood	Gloves, face mask, hood, protective clothing <sup>11), 13)</sup>	Air-supplied full-mask, protective clothing, gloves, hood
-6	Gloves, face mask, hood, protective clothing <sup>11), 13)</sup>	Air-supplied full-mask, protective clothing, gloves, hood	Gloves, face mask, hood, protective clothing <sup>11), 13)</sup>	Air-supplied full-mask, protective clothing, gloves, hood

\* Small surfaces are surfaces each one no bigger than 4 square metres and in all no more than 1/10 of the total surface in a room.

## ANNEX 3

## Outdoor work

**1 Application area of the annex**

- .1 Work with products outdoors on ships, including work on, for example:  
decks, bulkheads, antennas and masts, fixed machinery, etc.
- .2 Outdoor work shall, insofar as possible, be carried out with effective natural ventilation or under light coverings with mechanical ventilation installed.

**2 Safety measures**

- .1 Personal protective equipment.
- .2 It is stipulated in table 3.1 what personal protective equipment shall be used in connection with each individual task.
- .3 Protective equipment stipulated for both the figure before and the figure after the hyphen in the code number shall be carried or combined according to the principles of annex 4.

The notes are also printed in annex 4.

**Table 3.1****Personal protective equipment and special working clothes in connection with outdoor work**

Code number	Outdoors	
Figure before the hyphen	Spatula, brush, roller and the like	Spray
00-	No special	Full-mask with combination filter <sup>9)</sup>
0-	No special	Full-mask with combination filter <sup>9)</sup>
1-	No special	Eye protection, air-supplied half-mask <sup>2), 6)</sup>
2-	No special <sup>10)</sup>	Eye protection, air-supplied half-mask <sup>2), 6)</sup>
3-	Gas filter mask <sup>0), 9)</sup>	Eye protection, air-supplied half-mask <sup>2), 6)</sup>
4-	Eye protection, air-supplied half-mask <sup>1), 6)</sup>	Air-supplied full-mask <sup>2)</sup>
5-	Air-supplied full-mask	Air-supplied full-mask

Code number	Outdoors	
Figure after the hyphen	Spatula, brush, roller and the like	Spray
-1	Gloves <sup>3), 4), 5)</sup>	Full-mask with combination filter, hood, gloves, protective clothing
-2	Gloves <sup>3), 4), 5)</sup>	Air-supplied half-mask <sup>2), 6)</sup> , eye protection, hood, gloves, protective clothing
-3	Gloves <sup>4), 5)</sup>	Air-supplied full-mask <sup>2), 6)</sup> , eye protection, hood, gloves, protective clothing
-4	Gloves, face mask, hood or helmet, protective clothing	Air-supplied full-mask, hood, gloves, protective clothing
-5	Gloves, face mask, hood or helmet, protective clothing	Air-supplied full-mask, hood, gloves, protective clothing
-6	Gloves, face mask, hood or helmet, protective clothing	Air-supplied full-mask, hood, gloves, protective clothing

## ANNEX 4

## Choice of personal protective equipment

**1 Notes for tables 2.3 and 3.1 on personal protective equipment**

- 0) In connection with spot painting and other types of finishing or repair work on rather small surfaces where the total consumption is not more than 1 litre of the product per day, work may be carried out outside niches and the like without wearing breathing masks.
- 1) In connection with work of short duration, such as spot painting and other types of finishing or repair work to a limited extent (for maximum one hour per day), a gas filter mask may be worn. However, an air-supplied breathing mask shall be used when working with products containing liquids with a low boiling point.
- 2) In connection with work of short duration, such as spot painting and other types of finishing or repair work to a limited extent (for maximum one hour per day), a combination filter mask may be worn. If the combination filter mask substitutes a full-mask, eye protection shall also be used. However, an air-supplied breathing mask shall be used when working with products containing liquids with a low boiling point.
- 3) If the hands do not get smudged by the product, the work may be carried out without wearing gloves.
- 4) In connection with splashing work, a face shield as well as a hood, helmet or cap with a large peak shall be used. Any requirement for eye protection shall not apply in such cases.
- 5) Overall suit shall be used where the work involves smudging to such an extent that ordinary working clothes do not protect the skin against contact with the product.
- 6) If half-mask together with other required personal protective equipment cannot be used easily at the same time, an air-supplied full-mask shall be used instead of a half-mask.
- 7) In niches, etc., the same personal protective equipment shall be used as in the case of "big surfaces".
- 8) A gas filter mask or appropriate ventilation shall be used when the product is applied in rooms that are poorly ventilated. However, any breathing mask shall be air-supplied when working with products containing liquids with a low boiling point.
- 9) An air-supplied half-mask shall be used when working with products containing liquids with a low boiling point.
- 10) In places with no circulation of air, a breathing mask shall be used similar to that used when working outdoors with products coded 3-.
- 11) Work with a glue gun or glue tube may be carried out without wearing a face shield and hood.
- 12) Work with a glue gun or glue tube may be carried out without wearing gloves if the hands do not get smudged by the product. Gloves shall be used when changing glue cartridges.

- 13) Work with a glue gun or glue tube may be carried out without wearing protective clothing if the clothes do not get smudged by the product.

## **2 Choice between notes**

- 1 If no personal protective equipment or the same personal protective equipment is stipulated for the same purpose with different notes, the more restrictive notes (4) – 10)) shall always apply. The less restrictive notes (0) – 3) and 11) – 13)) shall be left out.

## **3 Choice between personal protective equipment**

- 1 If the composition means that it is necessary to choose between two different kinds of personal protective equipment with the same purpose, the final type of personal protective equipment shall be chosen as follows:
  - .1 An air-supplied full-mask shall precede
    - an air-supplied half-mask,
    - a mask with combination filter,
    - a gas filter mask,
    - a dust filter mask,
    - eye protection, and
    - a face shield.
  - .2 An air-supplied half-mask shall precede
    - a mask with combination filter,
    - a gas filter mask, and
    - a dust filter mask.
  - .3 A mask with combination filter shall precede
    - a gas filter mask, and
    - a dust filter mask.
  - .4 Where a dust filter mask and a gas filter mask are stipulated at the same time, a mask with combination filter shall be used.
  - .5 Where a face shield and eye protection are stipulated at the same time, a face shield shall be used.
- 2 If an item of personal protective equipment is not chosen in accordance with the above, the notes that are related to the item of personal protective equipment in question shall not apply.