

## **Dangerous substances and materials on board ships**

In this folder, you can read about the precautions to be taken to avoid the harmful effects of working with substances and materials.

They may, for example, be substances and materials that:

- **are used** on board (paint, cleaning agents, etc.),
- **are generated** during the work process (welding fumes, exhaust gases, aerosols from high-pressure cleaning),
- **carried** as cargo (oil and petroleum products, grain and feedstuffs, asbestos).

### **Point of contact**

In order for you to acquire the necessary knowledge about the substances and materials, the following information is needed:

- Safety Data Sheet or similar information, including information about labelling, code number, limit values, etc.
- Workplace instructions for the dangerous substances and materials used.
- Workplace assessment/risk assessment of all the work processes involving the use, generation or carriage of substances and materials.

### **Know your chemistry**

It is necessary to go through all the substances and materials on board to get to know your chemistry.

You must always have an updated record of the substances and materials carried on board. You can, for example, record them by inserting them in the record found at the back of this folder.

Substances and materials that are frequently replaced can be recorded independently. This applies, for example, to substances and materials carried as cargo.

Subsequently, you must check whether the substances and materials have been labelled correctly and ensure that a Safety Data Sheet is available on board. If this is not the case, you must acquire this information because it is necessary in order for you to plan and carry out the work in a manner that is appropriate in terms of both health and safety.

It is always a good idea to ask the supplier or the shipper for a Safety Data Sheet or similar information. Then, the supplier must inform you whether the substance or material is dangerous or not.

## **Substitution**

When the necessary knowledge about the substances and materials is available, you must assess whether it is necessary to use exactly these substances and materials. It would be best to substitute them for harmless or less dangerous ones. Often, it will be necessary to involve the ship owner and/or SeaHealth Denmark or the Danish Fishermen's Occupational Health Service.

## **Workplace assessment/risk assessment**

A workplace assessment must include a mapping and assessment of the occupational health problems on the ship and a plan of how to solve them:

- through substitution when used (such as indoor painting – follow the product choice form),
- through the arrangement of the workplace (such as closed systems, effective encapsulation and point extraction at cleaning vessels),
- through the use of technical aids and suitable work methods (such as a laundry machine for cleaning dirty machinery parts, fixed tank cleaning machines),
- through the use of personal protective equipment.

The solutions must be chosen on the basis of this prioritised order. The best solution would, thus, be to find a substitute for a dangerous substance or material, and the poorest solution would be to use personal protective equipment. They are referred to as the “preventive principles”. The solutions must be given in the workplace assessment.

Once the solutions have been chosen, a work procedure must be developed – and it must also be checked whether the solutions function satisfactorily.

You must be aware that extra requirements apply to the development of written workplace assessments/risk assessments in connection with all work processes involving a risk of being exposed to dangerous substances and materials.

The extra requirements to be included are descriptions of the following:

- How dangerous the substance is, for example causing local irritation, corroding, brain damaging, carcinogenic.
- What is the effect of the substance, for example skin contact, breathing.
- How great is the risk of being exposed to the substance or material, for example the concentration in the air, and for how long are you exposed.
- How work is being performed with the substance, and how great the quantity is.
- How the precautions function, for example point extraction.
- Any results of work medical examinations.
- The limit value of a substance, if any.
- Information from the supplier – and any workplace instructions.

Workplace assessments must be updated every time changes are made to the work, or every third year.

You can see how to develop a workplace assessment in the Danish Maritime Authority's folder on workplace assessments.

## **Avoid exposure**

In connection with substances and materials, it is an important principle to avoid any unnecessary exposure. Therefore, the exposure must be reduced as much as technically possible and the limit values determined by the Danish Working Environment Authority must be met.

First and foremost, you must plan and carry out the work using the general preventive principles. If this does not eliminate the risk, it may become necessary, for example, to arrange the work and the work methods, carry out a technical control and use suitable working equipment and materials to avoid or limit leakages of dangerous substances and materials.

If this does not provide sufficient protection, measurements must be carried out on an ongoing basis, especially when you are in doubt whether it is possible to meet the limit values.

The risk of fire and explosions related to the presence of substances and materials must be avoided by means of the following precautions:

1. Reduce the concentration of flammable substances and the quantity of instable substances;
2. avoid sources of ignition and inappropriate circumstances; and
3. reduce the harmful effects of any fire and explosion.

## **Instructions and training**

Before you use dangerous substances and materials, you must have seen the video "God kemi om bord" ("Good chemistry on board") and the associated teaching material made by SeaHealth Denmark.

You must have been instructed in the procedure described in the workplace assessment.

If you use a dangerous substance or material, you must also be instructed in the workplace instructions.

## **Safety Data Sheets and workplace instructions**

A Safety Data Sheet must contain information about the following:

1. Trade name and supplier.
2. Ingredients.
3. Risk identification.
4. First aid measures.

5. Fire-fighting.
6. Spillage.
7. Handling and storage.
8. Precautions to be taken during use.
9. Physical and chemical properties.
10. Stability and reactivity.
11. Properties that are harmful to health.
12. Environmental data.
13. Disposal.
14. Transport data.
15. Regulations.
16. Other information.

When using substances and materials, this information must be supplemented by information about the conditions on board as regards items 4, 5, 6, 7, 8, 13 and 16. This is also referred to as workplace instructions.

You can see how to develop workplace instructions in the Danish Maritime Authority's folder "Workplace instructions for work with substances and materials on board ships".

You can read about the regulations on chemical occupational health problems in Notice A from the Danish Maritime Authority, chapter III A.

Should you need any more assistance, please contact:

SeaHealth Denmark

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e-mail: [info@seahealth.dk](mailto:info@seahealth.dk)

Danish Fishermen's Occupational Health Service

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e-mail: [post@f-a.dk](mailto:post@f-a.dk)

Record of substances and materials					Date:					
Internal no.	Trade name	Supplier	Workplace instructions	Use	Consumption			Price	Health risk	Remarks
					Daily	Often	Rarely			