

## **Hazardous Substances Ordinance\*)**

### **(Gefahrstoffverordnung – GefStoffV)**

of 26 November 2010 (BGBl. I p. 1643)

amended by Article 2 of the Act of 28 July 2011 (BGBl. I p. 1622),

by Article 2 of the Ordinance of 24 April 2013 (BGBl. I p. 944) and

by Article 2 of the Ordinance of 15 July 2013 (BGBl. I p. 2514)

\*) Article 1 of this Ordinance serves to implement the following Directives:

Council Directive 98/24/EC of 7 April 1998 on the Protection of the Health and Safety of Workers from the Risks related to Chemical Agents at Work (OJ L 131 of 5.5.1998, p. 11), which was amended by Directive 2007/30/EC (OJ L 165 of 27.6.2007, p. 21),

Commission Directive 2000/39/EC of 07 April 1998 on the Protection of the Health and Safety of Workers from the Risks related to Chemical Agents at Work (OJ L 142 of 5.5.1998, p. 47), which was amended by Directive 2009/161/EC (OJ L 338 of 27.6.2007, p. 87),

- (Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC (OJ L 38 of 9.2.2006),
- Commission Directive 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC (OJ L 338 of 19.12.2009, p. 87),
- Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (OJ L 158 of 30.4.2004, p. 50, L 229 of 29.6.2004, p. 23, L 204 of 4.8.2007, p. 28)
- Directive 2009/148/EC of the European Parliament and of the Council of 30 November 2009 on the protection of workers from the risks related to exposure to asbestos at work (OJ L 330 of 16.12.2009, p. 28).
- Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (OJ L 196 of 16.8.1967, p. 1), which was last amended by Directive 2009/2/EC (OJ L 11 of 16.1.2009, p. 6),
- Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (OJ L 200 of 30.7.1999, p. 1, L 6 of 10.1.2002, p. 71), which was last amended by Regulation (EC) No. 1272/2008 (OJ L 353 of 31.12.2008, p. 1),

- Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market (OJ L 123 of 24.4.1998, p. 1, L 150 of 8.6.2002, p. 71), which was last amended by the Directives 2010/7/EU, 2010/8/EU, 2010/9/EU, 2010/10/EU and 2010/11/EU (OJ L 37 of 10.2.2010, pp. 33, 37, 40, 44, 47).
- Directive 96/59/EC of the Council of 16 September 1996 on the disposal of poly-chlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (OJ L 243 of 24.9.1996, p. 31), which was amended by Regulation (EC) No. 596/2009 (OJ L 188 of 18.7.2009, p. 14),
- Directive 1999/92/EC of the European Parliament and of the Council of 16 December 1992 on minimum requirements for ensuring the safety and health protection of workers potentially at risk from explosive atmospheres (OJ L 23 of 28/01/2000, p.57), as amended by Directive 2007/30/EC (OJ L 165 of 27/06/2007, p. 21),

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## **Section 1**

### **Objective, Scope and Definitions**

#### Article 1

##### **Objective and scope**

(1) The aim of the present Ordinance is to protect people and the environment against substance-related damage by means of

1. regulations on the classification, labelling and packaging of dangerous substances and preparations,
2. measures to protect workers and other persons during activities involving hazardous substances and
3. restrictions on the manufacture and use of specific hazardous substances, preparations and articles.

(2) Section 2 shall apply to the placing on the market of

1. hazardous substances and preparations,
2. specific substances, preparations and articles that are subject to special labelling requirements pursuant to
  - a) Directive 96/59/EC of the Council of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (OJ L 243 of 24.9.1996, p. 31), which was amended by Regulation (EC) No. 596/2009 (OJ L 188 of 18.7.2009, p. 14), or
  - b) Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (OJ L 200 of 30.7.1999, p. 1, L 6 of 10.1.2002, p. 71), which was last amended by Regulation (EC) No. 1272/2008 (OJ L 353 of 31.12.2008, p. 1),
3. biocidal products within the meaning of Article 3b paragraph 1 number 1 of the Chemicals Act that are not hazardous substances or preparations, and
4. biocidal active substances within the meaning of Article 3b paragraph 1 number 2 of the Chemicals Act which are biological agents within the meaning of the Biological Agents Ordinance, and biocidal products within the meaning of Article 3b paragraph 1 number 1 of the Chemicals Act which contain such biological agents as active substances.

Section 2 shall not apply to human food products or animal feed in the form of finished products intended for end consumption.

(3) Sections 3 to 6 shall apply to activities during which workers may be exposed to hazards to their health and safety from substances, preparations or articles. They shall equally apply if the safety and health of other persons may be at risk because of activities within the meaning of Article 2 paragraph 4 performed by employees or entrepreneurs with no employees. Sentences 1 and 2 shall also apply to activities carried out in connection with the transport of substances, preparations and articles. The provisions of the Hazardous Goods Transport Act (Gefahrgutbeförderungsgesetz) and the ordinances based on it shall remain unaffected.

(4) Unless expressly stated otherwise, this Ordinance shall not apply to

1. biological agents within the meaning of the Biological Agents Ordinance and
2. private households.

This Ordinance shall also not apply to enterprises that fall within the scope of the Federal Mining Act (Bundesberggesetz) where there are corresponding statutory provisions therein or in ordinances adopted on the basis of this Act.

## Article 2

### Definitions

(1) Hazardous substances within the meaning of this Ordinance mean

1. hazardous substances and preparations according to Article 3,
2. explosive substances, preparations and articles,
3. substances, preparations and articles from which substances according to number 1 or number 2 can arise or be released during their manufacture or use,
4. substances and preparations which do not satisfy the criteria of numbers 1 to 3 but which may endanger the health and safety of workers on account of their physico-chemical, chemical or toxic properties and the manner in which they are present or used at the workplace,
5. all substances which have been assigned an occupational exposure limit.

(2) With regard to the term preparation the definition laid down in Article 2 (1b) of Directive 1999/45/EC shall apply.

(3) The terms carcinogenic, mutagenic and toxic to reproduction within the meaning of section 4 cover

1. substances which satisfy the criteria for classification as carcinogenic, mutagenic or toxic to reproduction according to Annex VI of Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (OJ L 196 of 16.8.1967, p. 1), which was last amended by Directive 2009/2/EC (OJ L 11 of 16.1.2009, p. 6),
2. preparations which contain one or more of the substances given in number 1 if the concentration of one or more of these substances exceeds the concentration limits for the classification of a preparation as carcinogenic, mutagenic or toxic to reproduction,
3. substances, preparations or processes which are identified as carcinogenic, mutagenic or toxic to reproduction in the rules and knowledge published according to Article 20 paragraph 4.

The concentration limits within the meaning of sentence 1 number 2 are laid down

1. in Table 3.2 of Annex VI Part 3 of Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No. 1907/2006 (OJ L 353 of 31.12.2008, p. 1), which was amended by Regulation (EC) No. 790/2009 (OJ L 235 of 5.9.2009, p. 1), in its up-to-date version or

2. in Annex II Part B of Directive 1999/45/EC, if the substance or the substances are not listed in Annex VI Part 3 Table 3.2 of Regulation (EC) No. 1272/2008 or are listed without concentration limits.

(4) Organic peroxides within the meaning of Article 11 paragraph 4 and of Annex III shall be deemed substances derived from hydrogen peroxide by the fact that one or both hydrogen atoms have been replaced by organic groups, as well as preparations including these substances.

(5) An activity is any work involving substances, preparations or articles, including the manufacture, mixing, use and consumption, storage, keeping, treatment and processing, filling and decanting, removal, disposal and destruction. Activities shall also include in-house transport and operating and monitoring work.

(6) Storage is the keeping for later use and for delivery to others. It includes holding available for transport if the transport is not conducted within 24 hours after the items concerned have been made available or on the following working day. If this working day is Saturday, the deadline shall end at the end of the next working day.

(7) The following shall be deemed as equivalent:

1. Equivalent to workers shall be persons engaged in home work as well as school pupils, students and others, especially persons working in scientific facilities who perform activities involving hazardous substances; for school pupils and students, however, the regulations of the present Ordinance concerning the involvement of bodies representing personnel shall not apply.
2. Equivalent to the employer are the entrepreneur with no employees and the contracting body and intermediate foreman within the meaning of the Home Work Act in the version published in the Federal Law Gazette Part III, section number 804-1, last amended by Article 225 of the Ordinance of 31 October 2006 (BGBl. I p. 2407).

(8) The occupational exposure limit means the limit value for the time-weighted average concentration of a substance in the air at the workplace in relation to a specified reference period. It indicates up to what concentration of a substance acute or chronic effects for the health of workers are in general not to be expected.

(9) The biological limit value means the limit value obtained by toxicological-occupational medical means, for the concentration of a substance, its metabolite or an indicator of effect in the corresponding biological material. It indicates up to what concentration the health of workers is in general not impaired.

(10) Substances, preparation and articles shall be deemed explosive

1. if they can be made to react chemically with or without air from ignition sources such as external thermal effects, mechanical effects or detonations where high-tension gases arise in such a short time that a sudden rise in temperature and pressure is caused or
2. if, when mixed with air and after an ignition source has become active, an automatic flame propagation takes place which generally involves a sudden rise in temperature and pressure.

(11) An explosive mixture shall mean a mixture of combustible gases, vapour, mist or dust in which after ignition the combustion process spreads to the whole unburnt mixture. A dangerous explosive mixture is one which arises in such a quantity that special protective measures are necessary for the maintenance of the health and safety of workers or other persons (quantity presenting an imminent danger). An explosive atmosphere is an explosive

mixture under atmospheric conditions in the mixture with air.

(12) The state of the art means the state of development of advanced processes, equipment or modes of operation which make it appear certain that a measure is suitable in practical terms for protecting the health and safety of workers. In the determination of the state of the art, reference shall be made in particular to comparable processes, equipment or modes of operation which have been successfully tested in practice. The same applies with respect to the requirements regarding occupational medicine and workplace hygiene.

(13) A person with professional expertise (formerly known as “a knowledgeable person”, in German: eine fachkundige Person) shall mean someone who is qualified to perform a task determined in the present Ordinance. The requirements regarding knowledge depend on the nature of the respective task. The requirements include an appropriate vocational training, professional experience or the recent exercise of an occupation and participation in specific in-service training courses.

(14) A person with expert knowledge (in German: eine sachkundige Person) shall mean someone who has expanded his existing knowledge by attending an officially recognised course for the acquisition of expert knowledge. Depending on the area of work it may also be necessary in order to acquire expert knowledge to pass an examination at the end of the course. A person with expert knowledge shall also mean someone who has a qualification recognised as equivalent by the competent authority or a qualification determined to be equivalent in the present Ordinance.

## **Section 2**

### **Information regarding Hazardous Substances**

#### **Article 3**

#### **Hazardous Properties**

Within the meaning of the present Ordinance substances and preparations are hazardous which exhibit one or more of the properties given in sentence 2. Substances and preparations are defined as

1. explosive if they can react exothermally and with a rapid development of gases in a solid, liquid, pasty or gelatinous state even without the involvement of atmospheric oxygen and if, under specified test conditions, they detonate, deflagrate rapidly or explode when heated under partial enclosure,
2. oxidizing if they are not themselves normally combustible but may increase the risk and severity of a fire considerably in contact with combustible substances or preparations, mainly by the discharge of oxygen,
3. extremely inflammable if
  - a) in a liquid state they have an extremely low flashpoint and a low boiling point,
  - b) as gases they have an explosion range at usual temperature and under normal pressure in mixture with air,
4. highly inflammable if
  - a) at usual temperature they can heat up in air without any energy input and can finally ignite,



- b) in a solid state they can easily be ignited with the brief action of an ignition source and continue to burn or smoulder in a dangerous way after they have been removed,
  - c) in a liquid state they have a very low flashpoint,
  - d) on contact with water or with moist air they develop extremely inflammable gases in a dangerous quantity,
5. inflammable if they exhibit a low flashpoint in a liquid state,
  6. highly toxic if, when inhaled, swallowed or absorbed through the skin in very small quantities, they may cause death or acute or chronic health damage,
  7. toxic if, when inhaled, swallowed or absorbed through the skin in small quantities, they may cause death or acute or chronic health damage,
  8. harmful to health if, when inhaled, swallowed or absorbed through the skin, they may cause death or acute or chronic health damage,
  9. corrosive if they can destroy living tissue on contact,
  10. irritant if, without being corrosive they can cause an inflammation on brief, longer lasting or repeated contact with skin or mucous membrane,
  11. sensitising if, when inhaled or absorbed through the skin, they can cause oversensitive reactions so that characteristic disorders will arise with future exposure to the substance or preparation,
  12. carcinogenic if, when inhaled, swallowed or absorbed through the skin, they can cause cancer or increase the frequency of cancer,
  13. toxic to reproduction if, when inhaled, swallowed or absorbed through the skin
    - a) they cause non-hereditary damage to offspring or increase the frequency of such damage (teratogenic) or
    - b) they can impair male or female reproduction functions or the ability to reproduce (toxic to reproduction),
  14. mutagenic if, when inhaled, swallowed or absorbed through the skin, they can cause hereditary genetic damage or increase their frequency,
  15. dangerous for the environment if they themselves or their conversion products are suitable for altering the state of the natural system, of water, soil or air, the climate, animals, plants or microorganisms in such a way that this may lead immediately or subsequently to dangers for the environment.

#### Article 4

### **Classification, Labelling and Packaging**

(1) The classification, labelling and packaging of substances and mixtures and of articles with explosive material shall be based on the provisions of Regulation (EC) No. 1272/2008.

(2) Where under Article 61 of Regulation (EC) No. 1272/2008 the classification, labelling or packaging of substances and preparations is implemented according to the Directive 67/548/EEC or Directive 1999/45/EC, the provisions of these Directives and paragraphs 3 to 6 and Article 5 (3) shall be applied notwithstanding Article 19 (3).

(3) In the classification of substances and preparations the rules and knowledge published according to Article 20 paragraph 4 shall be taken into account.

- (4) The labelling of substances and preparations placed on the market in Germany shall be in the German language.
- (5) If dangerous substances or dangerous preparations are placed on the market unpackaged, appropriate safety information or a safety data sheet in German shall be enclosed with each delivery unit.
- (6) If a manufacturer or importer who labels according to Directive 1999/45/EC makes use of the possibility laid down in Article 15 of this Directive of providing a deviating name for hazardous substances in the labelling of preparations, he shall submit the required information and evidence to the Federal Office for Chemicals (Article 4 paragraph 1 number 1 of the Chemicals Act) in good time. Use shall not be made of the possibility for a deviating name in the case of active substances in biocidal products.
- (7) The manufacturer or importer shall classify biocidal active substances which are placed on the market on their own and which are at the same time biological agents in addition according to Articles 3 and 4 of the Biological Agents Ordinance.
- (8) Article 20 paragraph 2 sentence 2 letter a and paragraph 3 sentences 2 and 3 letter a, c, f to j, l and m shall apply in addition to the packaging and labelling of biocidal products and in the case of authorised or registered biocidal products in addition Article 20 paragraph 3 sentence 3 letters b, d, e and k of Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market (OJ L 123 of 24.4.1998, p. 1, L 150 of 8.6.2002, p. 71), which was last amended by the Directives 2010/7/EU, 2010/8/EU, 2010/9/EU, 2010/10/EU and 2010/11/EU (OJ L 37 of 10.2.2010, pp. 33, 37, 40, 44, 47). In the labelling of biocidal products where the active substance is a biological agent the following shall also be indicated:
1. the identity of the organism according to Annex IVA Section II Numbers 2.1 and 2.2 to Directive 98/8/EC,
  2. the classification of the microorganisms in risk groups according to Articles 3 and 4 of the Biological Agents Ordinance and
  3. with the classification in risk group 2 and higher according to Articles 3 and 4 of the Biological Agents Ordinance the symbol for biohazard according to Annex of the Biological Agents Ordinance.
- The details required according to sentence 2 and according to Article 20 paragraph 3 sentence 3 letters a, b, d, g and k of Directive 98/8/EC shall stand on the name plate. The details according to Article 20 paragraph 3 sentence 3 letters c, e, f, h, i, j and l of Directive 98/8/EC may stand on the name plate or some other place of the packaging or on an integrated sheet enclosed with the packaging.
- (9) Decontaminated, PCB-bearing devices within the meaning of Directive 96/59/E shall be labelled according to the Annex of this Directive.
- (10) The labelling of certain restricted substances, preparations and articles shall be based in addition on Article 67 in combination with Annex XVII of Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396 of 30.12.2006, p. 1, L 136 of 29.5.2007, p. 3, L 141 of 31.5.2008, p. 22, L 36 of 5.2.2009, p. 84), which was last amended by Regulation (EU) No. 453/2010 (OJ L 133 of 31.5.2010, p. 1) in its up-to-date version.

(11) If

1. the information given in the labelling or the safety data sheet of a preparation or
2. the information on the contamination or additive on the name plate or in the safety data sheet of a substance

is not adequate to enable new preparations to be properly classified during manufacture, the legal entity responsible for placing on the market the preparation or the substance shall make available to the other manufacturers on request and without delay all information required for a proper classification of new preparations.

## Article 5

### **Safety Data Sheet and Other Duties to Communicate Information**

(1) The requirements to be observed by the manufacturer, importer and new legal entity responsible for placing on the market regarding the safety data sheet when placing substances and preparations on the market arise from Article 31 in combination with Annex II to Regulation (EC) No. 1907/2006. If under these provisions it is not required to transmit a safety data sheet, the obligations to communicate information shall be based on Article 32 of the Regulation (EC) No. 1907/2006.

(2) In the case of the details to be provided according to Numbers 15 and 16 of Annex II of Regulation (EC) No. 1907/2006, the rules and knowledge published in Article 20 paragraph 4 shall be taken into account according to which substances or activities are identified as carcinogenic, mutagenic or toxic to reproduction.

(3) If preparations are labelled according to Directive 1999/45/EC, precise and generally comprehensible instructions for use shall be affixed in accordance with Annex V Letter A Number 1.2 of Directive 1999/45/EC to the packaging of preparations that are offered in the retail trade or can be obtained by anyone and that are classified as highly toxic, toxic or corrosive. If this is not technically possible the instructions of use shall be enclosed with the packaging.

## **Section 3**

### **Risk Assessment and Basic Obligations**

## Article 6

### **Information Gathering and Risk Assessment**

(1) Within the framework of a risk assessment as part of the assessment of working conditions under Article 5 of the Occupational Safety and Health Act the employer shall establish whether the workers perform activities involving hazardous substances or whether hazardous substances can arise or be released during activities. If this is the case, he shall assess all risks to health and safety of workers arising from these and shall do so with respect to the following aspects:

1. hazardous properties of the substances or preparations, including their physico-chemical effects,
2. information of the manufacturer or legal entity responsible for placing on the market concerning safety and health protection specifically in the safety data sheet,

3. the nature and extent of the exposure taking account of all exposure routes; the results of the measurements and identifications according to Article 7 paragraph 8 shall be taken into account,
4. possibilities of substitution,
5. working conditions and processes, including work equipment and the quantity of hazardous substances,
6. occupational exposure limits and biological limit values,
7. effectiveness of the protective measures taken or to be taken,
8. knowledge gained from preventive medical examinations according to the Ordinance on Occupational Health Care.

(2) The employer shall gather the information needed for the risk assessment from the legal entity responsible for placing on the market or from other sources which he has access to with reasonable effort. In particular the employer shall comply with the information which is made available to him under Title IV of Regulation (EC) No. 1907/2006; this shall include safety data sheets and the information on substances or preparations for which a safety data sheet does not have to be drawn up. Where Regulation (EC) No. 1907/2006 does not provide for any duty to communicate information, the legal entity responsible for placing on the market shall make available to the employer on request the information needed for the risk assessment with respect to the hazardous substances.

(3) Substances and preparations which have not been classified and labelled by the legal entity responsible for placing on the market according to Article 4 paragraph 1 or 2, for example substances or preparations manufactured in-house, the employer shall himself classify. But he shall at least identify the risks to workers emanating from the substances or preparations; this shall also apply to hazardous substances according to Article 2 paragraph 1 number 4.

(4) The employer shall establish whether the substances, preparations or articles during activities may lead to risks of fire or explosion, also taking account of the work equipment used, processes applied and the working environment as well as their possible interactions. In particular he shall determine whether the substances, preparations or articles may form explosive mixtures in view of their properties and the way in which they are present or are used at the workplace. In the case of non-atmospheric conditions the possible changes in the safety characteristics relevant to explosion prevention shall be identified and taken into account.

(5) In the risk assessment other activities shall be considered with which the possibility of a risk exists even after all possible technical protective measures have been taken. This shall apply in particular to maintenance work, including servicing tasks. Furthermore other activities such as operating and monitoring tasks shall be taken into account if these may give rise to a risk to workers from hazardous substances.

(6) The inhalation, dermal and physicochemical hazards associated with the activities shall be assessed independently of one another and amalgamated in the risk assessment. If a number of hazardous substances arise simultaneously in an activity, interactions and combined effects of the hazardous substances which exert an influence on health and safety of workers shall be taken into account in the risk assessment where such effects are known.

(7) When laying down the protective measures to be taken the employer may take over a risk assessment which the manufacturer or legal entity responsible for placing on the market has supplied to him where the details and stipulations in this risk assessment correspond to the working conditions and processes, including the work equipment and quantity of hazardous substance in his own establishment.

(8) The employer shall document the risk assessment regardless of the number of workers for the first time prior to the commencement of the activity; the following shall be indicated here:

1. the risks at the workplace,
2. the result of the test for possibilities of a substitution according to paragraph 1 sentence 2 number 4,
3. a justification for dispensing with a technically possible substitution where protective measures according to Article 9 or Article 10 shall be taken,
4. the protective measures to be taken, including the protective measures
  - a) taken in addition because an occupational exposure limit is exceeded as well as protective measures to be taken in future to comply with the occupational exposure limit, or
  - b) taken in addition or to be taken in future (plan of measures), taking into consideration the assessment criteria for carcinogenic hazardous substances published in accordance with Article 20 paragraph 4.
5. a justification when there is a deviation from rules and knowledge published under Article 20 paragraph 4 and
6. the identification results which demonstrate that the occupational exposure limit is complied with or – in the case of substances without occupational exposure limit – the technical protective measures taken are effective.

For activities involving low risk a detailed documentation may be waived under paragraph 11. If a detailed documentation is waived in other cases, a comprehensible justification shall be given. The risk assessment shall be checked regularly and updated where necessary. It shall be updated without delay if major changes or new information require this or if an update proves necessary because of the results of preventive medical examinations under the Ordinance on Occupational Health Care.

(9) The risk assessment shall only be conducted by persons with professional expertise. If the employer does not have the relevant knowledge himself, he shall obtain knowledgeable advice. Persons with professional expertise may in particular be specialists for occupational safety and health and the company doctor.

(10) The employer shall keep a list of the hazardous substances used in the company and the list shall refer to the relevant safety data sheets. The list shall include at least the following details:

1. name of the hazardous substance,
2. classification of the hazardous substance or details of the hazardous properties,
3. details of the quantity ranges used in the company,
4. designation of the working areas in which workers may be exposed to the hazardous substance.

Sentences 1 and 2 shall not apply if only activities involving a low risk according to paragraph 11 are performed. The details according to sentence 2 numbers 1, 2 and 4 shall be accessible to all workers concerned and their representative body.

(11) If the risk assessment for certain activities gives rise to only a low risk to the workers overall because of the

1. hazardous properties assigned to the hazardous substance,

2. a small quantity of substance used,
3. a low exposure level of short duration and
4. the working conditions

and if the measures to be taken under Article 8 are sufficient to protect the workers, no further measures of section 4 shall be taken.

(12) If for substances or preparations there is no test data or reliable information available on acutely toxic, irritant, skin-sensitising or mutagenic effect or on the effect with repeated exposure, the substances or preparations shall be treated in the risk assessment as hazardous substances with corresponding effects.

## Article 7

### **Basic Obligations**

(1) The employer shall only commence an activity involving hazardous substances after a risk assessment according to Article 6 has been conducted and the requisite protective measures according to section 4 have been taken.

(2) In order to ensure the health and safety of workers for all activities involving hazardous substances, the employer shall take the measures required under the Occupational Safety and Health Act and in addition the measures required under the present Ordinance. He shall take into account the rules and knowledge published under Article 20 paragraph 4. With the compliance with these rules and knowledge it shall normally be assumed that the requirements of the present Ordinance have been satisfied. There may be a deviation from these rules and knowledge if other measures are taken to ensure at least in a comparable way the safety and health protection of workers.

(3) The employer shall preferably perform a substitution on the basis of the result of the substitution check under Article 6 paragraph 1 sentence 2 number 4. He shall replace hazardous substances or processes by substances, preparations or articles or processes which are not hazardous or less so to the health and safety of workers under the specific use conditions.

(4) The employer shall preclude risks to the health and safety of workers performing activities which involve hazardous substances. If this is not possible, he shall reduce these to a minimum. The employer shall satisfy these requirements by laying down and applying suitable protective measures. In this he shall observe the following order:

1. the configuration of suitable processes and technical control devices for processes, the use of emission-free or low-emissions forms of use and the use of suitable work equipment and materials according to the state of the art,
2. the application of collective protective measures of a technical kind at the source of danger, such as appropriate airing and ventilation, and the application of suitable organisational measures,
3. where a risk cannot be prevented by measures under numbers 1 and 2, the application of individual protective measures which also encompass the provision and use of personal protective equipment.

(5) Workers shall use the personal protective equipment provided as long as a risk exists. The use of burdensome personal protective equipment shall not be an enduring measure. It shall be restricted for each worker to the absolutely essential minimum.

(6) The employer shall ensure that

1. the personal protective equipment is stored in an appropriate fashion at a location intended for the purpose,
2. the personal protective equipment is checked prior to use and cleaned after use and
3. damaged personal protective equipment is repaired or replaced before any further use.

(7) The employer shall check the functioning and effectiveness of the technical protective measures regularly, and at least every three years. The result of these checks shall be recorded and preferably kept together with the documentation according to Article 6 paragraph 8.

(8) The employer shall ensure that the occupational exposure limits are complied with. He shall check compliance by means of workplace measurements or some other suitable methods for identifying exposure. Identifications shall also be conducted if the conditions change which may influence the exposure of workers. The results of the identification shall be recorded, kept and made available to the workers and their representative body. If activities are performed in accordance with a process- and substance-specific criterion which has been published in Article 20 paragraph 4, the employer may normally assume that the occupational exposure limits have been complied with; in that case sentence 2 shall not apply.

(9) Where activities involving hazardous substances are being performed for which there is not occupational exposure limit, the employer shall regularly check the effectiveness of the technical protective measures taken using suitable methods of identification, which may include workplace measurements.

(10) Any person who performs workplace measurements of hazardous substances shall be knowledgeable and shall have the necessary equipment at his disposal. If an employer contracts a measuring body accredited for the measurements of hazardous substances at workplaces, the employer may normally assume that the knowledge acquired by this measuring body is relevant.

(11) In all the identifications and measurements the employer shall take into account all the processes, measuring rules and limit values mentioned in Article 20 paragraph 4, for which the corresponding provisions of the following Directives have been considered:

1. Council Directive 98/24/EC of 7 April 1998 on the Protection of the Health and Safety of Workers from the Risks related to Chemical Agents at Work (OJ L 131 of 5.5.1998, p. 11), which was amended by Directive 2007/30/EC (OJ L 165 of 27.6.2007, p. 21), and in particular the Directives under Article 3 (2) of this Directive relating to occupational exposure limits,
2. Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (OJ L 158 of 30.4.2004, p. 50, L 229 of 29.6.2004, p. 23, L 204 of 4.8.2007, p. 28) and
3. Directive 2009/148/EC of the European Parliament and of the Council of 30 November 2009 on the protection of workers from the risks related to exposure to asbestos at work (OJ L 330 of 16.12.2009, p. 28).

## **Section 4**

### **Protective Measures**

#### Article 8

##### **General Protective Measures**

(1) The employer shall take the following protective measures for activities involving hazardous substances:

1. suitable design of the workplace and suitable work organisation,
2. provision of suitable work equipment for activities involving hazardous substances and suitable maintenance procedures for ensuring the health and safety of workers at work,
3. limitation of the number of workers who are or may be exposed to hazardous substances,
4. limitation of the duration and level of exposure,
5. appropriate hygiene measures, especially those to avoid contamination, and regular cleaning of the workplace,
6. limitation of the hazardous substances encountered at the workplace with respect to the quantity required to continue with the activities,
7. suitable working methods and processes which do not impair the health and safety of workers or which keep the risk as low as possible, including precautions for the safe handling, storage and transport of hazardous substance and of waste materials containing hazardous substances at the workplace.

(2) The employer shall ensure that

1. all substances and preparations used are identifiable,
2. hazardous substances and preparations are labelled in the company and that the labelling contains adequate information on the classification, the risks during handling and the safety measures to be taken; the labelling selected should preferably be in accordance with the Regulation (EC) No. 1272/2008 or, under the transitional provisions of this Regulation, of the Directive 67/548/EEC or of the Directive 1999/45/EC,
3. apparatus and piping are labelled in such a way that at least the hazardous substances contained and the risks they present are clearly identifiable.

Labelling obligations according to other statutory provisions shall remain unaffected by this. For as long as the employer does not meet the obligations under sentence 1, he shall not perform activities involving the substances and preparations mentioned. Sentence 1 number 2 shall not apply to substances which are manufactured as new for research and development purposes or for scientific teaching purposes and which have not yet been tested. Exposure of workers when working with these substances shall be avoided.

(3) The employer shall ensure in accordance with the results of the risk assessment according to Article 6 that in the working areas where workers may be exposed to hazardous substances, such workers do not eat any food or drink any beverages. The employer shall



set up suitable areas for this purpose prior to the commencement of the activities.

(4) The employer shall ensure that with the use of sealable containers the safe storage, handling and transport of hazardous substances is also guaranteed during waste disposal.

(5) The employer shall ensure that hazardous substances are kept or stored in such a way that they endanger neither human health nor the environment. He shall take effective precautions to prevent any misuse or incorrect use. In particular hazardous substances shall not be kept or stored in containers whose form or content description may cause them to be mistaken for foodstuffs. They shall only be arranged in an orderly fashion and shall not be kept or stored in the immediate vicinity of medicinal products, food products or animal feed, including their additives. When hazardous substances are being kept for discharge and immediate use labelling according to paragraph 2 shall be applied so that it is clearly visible and legible.

(6) The employer shall ensure that hazardous substances which are no longer needed and emptied containers which may still contain residues of hazardous substances are safely handled, removed from the workplace and properly stored or disposed of.

(7) The employer shall ensure that substances and preparations classified as toxic, highly toxic, carcinogenic of category 1 or 2, mutagenic of category 1 or 2 or toxic to reproduction of category 1 or 2 are kept or stored under seal in such a way that only knowledgeable and reliable persons have access to them. Activities involving these substances and preparations as well as respiratory tract-sensitising substances and preparations shall only be carried out by knowledgeable or specially trained persons. Sentences 1 and 2 shall not apply to fuels at filling stations.

(8) For activities involving hazardous substances according to Annex I numbers 2 to 5, Articles 6 to 18 and the relevant provisions of Annex I numbers 2 to 5 shall be complied with.

## Article 9

### **Supplementary Protective Measures**

(1) If the general protective measures according to Article 8 are not adequate to counteract risks due to inhalation, absorption via the skin or swallowing, the employer shall in addition take those measures according to paragraphs 2 to 7 which are necessary on the basis of the risk assessment under Article 6. This shall apply in particular if

1. occupational exposure limits or biological limit values are exceeded,
2. with hazardous substances which are skin-resorptive or damaging to the skin or eyes there is a risk due to skin or eye contact or
3. in the case of hazardous substances without occupational exposure limit and without biological limit value it can be assumed that there is a risk because of the hazardous properties assigned to them under Article 3 and because of the inhalation exposure.

(2) The employer shall ensure that hazardous substances are manufactured and used in a closed system if

1. substitution of the hazardous substances according to Article 7 paragraph 3 by such substances, preparations, articles or processes which are not hazardous to health and safety or less so during use is technically not possible and
2. there is an increased risk to workers due to inhalation exposure to hazardous substances.

If it is technically not possible to apply a closed system, the employer shall ensure that the exposure of workers is reduced as far as possible in accordance with the state of the art and in compliance with Article 7 paragraph 4.

(3) If an occupational exposure limit is exceeded, the employer shall without delay conduct a fresh risk assessment according to Article 6 and take suitable supplementary protective measures in order to comply with the occupational exposure limit. If the occupational exposure limit cannot be complied with despite the fact that all technical and organisational protective measures have been taken, the employer shall without delay provide personal protective equipment. This shall apply in particular to demolition, reconstruction and maintenance work.

(4) If there is a risk from skin or eye contact even though all technical and organisational protective measures have been taken with respect to hazardous substances which are skin-resorptive or damaging to the skin or eyes, the employer shall without delay provide personal protective equipment.

(5) The employer shall make available separate storage possibilities for working or protective clothing on the one hand and street clothing on the other. The employer shall clean working clothing contaminated by hazardous substances.

(6) The employer shall take suitable measures which ensure that working areas in which there is an increased risk to workers are only accessible to workers who must enter them to perform their work or to perform certain tasks.

(7) If activities involving hazardous substances are carried out by one worker alone, the employer shall take supplementary protective measures or ensure appropriate supervision. This can also be ensured by the use of technical equipment.

## Article 10

### **Special Protective Measures for Activities Involving Hazardous Substances that are Carcinogenic, Mutagenic and Toxic to Reproduction**

(1) In the case of activities involving hazardous carcinogenic substances of category 1 or 2 for whom an occupational exposure limit according to Article 20 paragraph 4 has been announced the employer shall apply a suitable, risk-related concept of measures in order to implement the requirement of reducing the risk to a minimum according to Article 7 paragraph 4. In this context he shall take into account the rules, knowledge and assessment criteria published under Article 20 paragraph 4. In the case of activities involving hazardous substances that are carcinogenic, mutagenic and toxic to reproduction of category 1 or 2 the employer shall in addition fulfil the provisions under paragraphs 3 to 5 notwithstanding paragraph 2. The special provisions of Annex II number 6 shall be observed.

(2) Paragraphs 3 to 5 shall not apply if

1. an occupational exposure limit according to Article 20 paragraph 4 has been announced, it has been complied with and this is verified by a workplace measurement or by other suitable methods for identifying the exposure or
2. activities are carried out in accordance with a process- or substance-specific criterion according to Article 20 paragraph 4.

(3) If activities involving hazardous substances that are carcinogenic, mutagenic and toxic to reproduction of category 1 or 2 are performed, the employer shall

1. identify the exposure of workers by means of workplace measurements or by other suitable identification methods, also in order to recognise quickly increased exposure

- levels due to an unforeseeable event or an accident,
2. delimit hazard areas where workers are exposed or may be exposed to these hazardous substances, and mount warning and safety signs, including the prohibition sign "No access for unauthorised persons" and "No smoking" according to Annex II Number 3.1 of Council Directive 92/58/EEC of 24 June 1992 on the minimum requirements for the provision of safety and/or health signs at work (OJ L 245 of 26.8.1992, p. 23), which was amended by Directive 2007/30/EC (OJ L 165 of 27.6.2007, p. 21).

(4) In the case of activities where it can be expected that there will be a considerable increase in exposure of workers from hazardous substances that are carcinogenic, mutagenic or toxic to reproduction of category 1 or 2 and for which every possibility of further protective measures to limit this exposure has already been exhausted, the employer shall, after consultation with the workers or their representative body, take measures to shorten the duration of the exposure of workers as far as possible and to ensure protection of the workers during these activities. He shall make personal protective equipment available to the workers affected and these must wear such equipment for the whole duration of the increased exposure.

(5) If activities involving hazardous substances that are carcinogenic, mutagenic and toxic to reproduction of category 1 or 2 are performed in a working area, the air extracted there shall not be returned to the working area. This shall not apply if the air has been adequately decontaminated of such substances using processes or devices recognised by the authorities or the statutory accident insurance institutions. The air shall then be conducted or cleaned in such a way that hazardous substances that are carcinogenic, mutagenic and toxic to reproduction do not pass into the breathing air of other workers.

#### Article 11

##### **Special Protective Measures against Physicochemical Effects, Especially against Risks of Explosion and Fire**

(1) The employer shall take measures to protect workers and other persons against physicochemical effects in accordance with Article 6. In particular he shall take measures to avoid risks of explosion and fire during activities involving hazardous substances or to reduce such risks to the minimum. This shall apply primarily to activities involving explosive, oxidising, extremely inflammable, highly inflammable and inflammable substances or preparations, including their storage. Furthermore this shall apply to activities involving other hazardous substances, especially explosive hazardous substances and hazardous substances which may react chemically with one another or are chemical unstable, where fire and explosion risks may arise.

(2) To avoid risks of explosion and fire, the employer shall take measures in the following order of priority:

1. hazardous quantities or concentrations of hazardous substances which may result in fire or explosion risks shall be avoided,
2. ignition sources which may trigger fires or explosions shall be avoided,
3. the damaging effects of fires or explosions on the health and safety of workers and other persons shall be reduced.

(3) Over and beyond the provisions of paragraphs 1 and 2 the employer shall observe Annex I number 1.

(4) As for activities involving organic peroxides the employer shall, in particular and over and beyond the provisions of paragraphs 1 and 2 and Annex I number 1, take measures which

1. reduce the risk of an unintentional explosion to a minimum and
2. restrict the effects of fires and explosions.

In this context the employer shall observe Annex III.

#### Article 12

(deleted)

#### Article 13

### **Operational Disturbances, Accidents and Emergencies**

(1) In order to protect the health and safety of workers during operational disturbances, accidents or emergencies, the employer shall lay down in good time the emergency measures to be taken when such an incident occurs. This shall include the provision of appropriate first-aid equipment and the conduct of safety exercises at regular intervals.

(2) If one of the incidents given in paragraph 1 sentence 1 occurs, the employer shall without delay take the measures laid down in accordance with paragraph 1 in order

1. to inform workers affected of the hazard situation caused in the company by the incident,
2. to reduce the effects of the incident and
3. to restore normal operational sequence.

In addition to the rescue personnel only the workers may remain in the hazard area who are performing activities aimed at achieving the goals according to sentence 1 numbers 2 and 3.

(3) The employer shall make available to workers working in the hazard area prior to commencement of the activity suitable protective clothing and personal protective equipment and where relevant the requisite special safety devices and special work equipment. In the hazard area the workers shall use the protective clothing and the personal protective equipment for the duration of the irregular operational sequence. The use of burdensome personal protective equipment shall be limited in time for the individual workers. Unprotected and unauthorized persons shall not remain in the hazard area to be fixed.

(4) The employer shall make available warning and other communication systems which indicate any increased risk to health and safety, the purpose being to facilitate an appropriate reaction and the initiation without delay of rectification measures and help, evacuation and rescue measures.

(5) The employer shall ensure that information is available on measures to be taken in the case of emergencies involving hazardous substances. The competent in-house and external accident and emergency services shall be granted access to this information. This information shall include:

1. an advance notification of relevant risks at work, on measures to establish risks and precautionary rules and processes to enable the emergency services to prepare their own rectification and safety measures,
2. all available information on specific risks which arise or may arise during an accident or emergency, including the information concerning processes according to paragraphs 1 to 4.

Article 14

**Instruction and Information of Workers**

(1) The employer shall ensure that the workers are granted access to written operating instructions which meet the requirements of the risk assessment according to Article 6. They shall be comprehensible in form and language. The operating instructions shall contain as a minimum the following:

1. information on the hazardous substances present or arising at the workplace, such as the designation of the hazardous substances, their labelling and possible risks to health and safety,
2. information on appropriate precautionary rules and measures the workers are to take for their own protection and protection of other workers at the workplace; this shall include in particular
  - a) hygiene provisions,
  - b) information on measures to be taken to prevent exposure,
  - c) information on the wearing and use of personal protective equipment and protective equipment,
3. information on measures which are to be taken in the case of operational disturbances, accidents and emergencies and to prevent their happening to workers, especially rescue crews.

The operating instructions shall be updated with every major change in the working conditions. The employer shall also ensure that the workers

1. have access to all information according to Article 35 of Regulation (EC) No. 1907/2006 concerning the substances and preparations with which they perform activities, especially access to safety data sheets and
2. are instructed on methods and procedures which have to be applied when hazardous substances are used to protect workers.

(2) The employer shall ensure that the workers are given oral instruction on all risks arising and corresponding protective measures on the basis of the operating instructions according to paragraph 1. Part of this instruction shall also involve general occupational medical and toxicological advice. This shall also serve to inform workers on the conditions under which they are entitled to preventive medical examinations under the Ordinance on Occupational Health Care, and on the purpose of these preventive medical examinations. This advice shall be given in the presence of the physician according to Article 7 paragraph 1 of the Ordinance on Occupational Health Care if this is necessary. The instruction shall be given prior to commencement of the work and thereafter at least every year in relation to the specific workplace. It shall be given in a form and language which is comprehensible for the workers. The content and time of the instruction shall be recorded in writing and confirmed by signature of those receiving the instruction.

(3) The employer shall ensure for activities involving hazardous substances that are carcinogenic, mutagenic and toxic to reproduction of category 1 or 2 that

1. the workers and their representative body can verify whether the provisions of the present Ordinance are being complied with, namely with respect to
  - a) the selection and use of the personal protective equipment and the related burdens on workers,
  - b) measures to be taken within the meaning of Article 10 paragraph 4 sentence 1,

2. the workers and their representative body are notified immediately in the case of elevated exposure, including the cases referred to in Article 10 paragraph 4 sentence 1, and are informed of the causes and the countermeasures already taken or still to be taken,
3. an updated list is kept of workers who perform activities where the risk assessment according to Article 6 gives rise to a risk to the health and safety of the workers; in the list the level and duration of the exposure to which the workers have been exposed shall be indicated,
4. the list under number 3 with all updates is kept for 40 years after the end of the exposure; on termination of contracts of employment the employer shall hand out to the workers an extract of the relevant details of the list and retain evidence of this such as personnel documents,
5. the physician according to Article 7 paragraph 1 of the Ordinance on Occupational Health Care, the competent authority and every person responsible for health and safety at the workplace have access to the list under number 3,
6. all workers have access to the details in the list of personal relevance to them,
7. the workers and their representative body have access to the information of a general nature not related to individuals in the list.

(4) With the consent of the worker concerned the employer may transfer the obligation of safekeeping - including the obligation to hand out an extract of the relevant details according to paragraph 3 number 4 to the competent statutory accident insurance institution. For this purpose the employer shall hand over the necessary documents to the statutory accident insurance institution in a form that is suitable for data-processing. The statutory accident insurance institution shall hand out an extract of the list with the details of relevance to the person concerned.

## Article 15

### **Cooperation between Various Companies**

(1) If external companies are to perform activities involving hazardous substances in a company, the employer shall ensure as contracting body that only those external companies are engaged which have the expertise and experience necessary for such activities. The employer shall, as contracting body, inform the external companies of the sources of danger and specific rules of conduct.

(2) If, in the case of activities by workers of an employer, it is not possible to discount the risk to workers of other employers from hazardous substances, all employers concerned shall act together in the conduct of their risk assessment in accordance with Article 6 and shall agree the protective measures. This shall be documented. The employers shall ensure that risks to workers of all companies involved from hazardous substances are effectively countered.

(3) Every employer shall be responsible for ensuring that his workers apply the jointly established protective measures.

(4) If, during activities by workers of an employer, there is a risk to workers of another employer from hazardous substances, a co-ordinator shall be appointed by the employers involved. If a co-ordinator has been appointed in accordance with the provisions of the Construction Sites Ordinance (Baustellenverordnung) of 10 June 1998 (BGBl. I p. 1283) which was amended by Article 15 of the Ordinance of 23 December 2004 (BGBl. I p. 3758), the obligations according to sentence 1 shall be deemed to have been fulfilled. The employers involved shall make available to the co-ordinator all the necessary safety-relevant

information on the protective measures laid down. The appointment of a co-ordinator shall not release the employers from their responsibility under the present Ordinance.

(5) Prior to the commencement of demolition, reconstruction and maintenance work or construction work the employer shall obtain for the risk assessment according to Article 6 information, in particular from the contracting body or builder-owner, as to whether hazardous substances, especially asbestos, are present or are to be expected as a result of the history of the building's use or construction. More extensive obligations to provide information, protection and monitoring which arise for the contracting body or builder-owner under other statutory provisions shall remain unaffected.

## **Section 5**

### **Prohibitions and Restrictions**

#### **Article 16**

##### **Restrictions on Manufacture and Use**

(1) Restrictions on manufacture and use of certain substances, preparations and articles arise from Article 67 in combination with Annex XVII of Regulation (EC) No. 1907/2006.

(2) In accordance with Annex II, there are further restrictions on the manufacture and use for substances, preparations and articles mentioned therein.

(3) Biocidal products shall not be used where it can be expected that their use in an individual case has damaging effects on the health of people, non-target organisms and the environment. Whoever uses biocidal products shall do this in a proper fashion. Proper use shall include in particular

1. use of a biocidal product only for the intended uses indicated in the labelling,
2. compliance with the conditions of use arising from the labelling and authorisation and
3. limitation of the use of biocidal products by proper consideration of physical, biological, chemical and other alternatives to a minimum.

Sentences 1 to 3 shall also apply to private households.

(4) The employer shall only permit persons engaged in homeworking to perform activities which involve a low risk within the meaning of Article 6 paragraph 11.

#### **Article 17**

##### **National Exemptions from Restriction Regulations according to Regulation (EC) No. 1907/2006**

(1) The restrictions according to Article 67 in combination with Annex XVII Number 6 of Regulation (EC) No. 1907/2006 shall not apply to the manufacture and use of diaphragms containing chrysotile for chlorine alkali electrolysis, including the asbestos-bearing raw materials needed for their manufacture, in systems existing on 01.12.2010 until the end of their use if

1. no asbestos-free substitute substances, preparations or articles are available on the market or

2. use of the asbestos-free substitute substances, preparations or articles would result in unacceptable hardship

and the concentration of asbestos fibres in the air at the workplace is below 1 000 fibres per cubic metre.

(2) The prohibition of use according to Article 67 in combination with Annex XVII Numbers 16 and 17 of Regulation (EC) No. 1907/2006 shall not apply to the use of the lead compounds mentioned there in paints intended for the conservation or authentic restoration of works of art and historical components or of listed buildings if the use of substitute substances is not possible.

## **Section 6**

### **Enforcement Regulations and Committee on Hazardous Substances**

#### Article 18

##### **Information to the authority**

(1) The employer shall notify the competent authority without delay of

1. any accident and any operational disturbance which have led to a serious impairment of workers' health during activities involving hazardous substances,
2. cases of illness and death where there is concrete evidence that they were caused by the activity involving hazardous substances with a precise indication of the activity and the risk assessment according to Article 6.

If it is possible that the details required for the notification according to sentence 1 can be taken in equivalent form from notifications under other statutory provisions, the obligation to notify may also be fulfilled by transmitting copies of these notifications to the competent authority. The employer shall give the workers affected or their representative body copies of the notifications according to sentence 1 or sentence 2 for information purposes.

(2) Without prejudice to Article 22 of the Occupational Safety and Health Act, the employer shall submit the following to the competent authority on request:

1. the result of the risk assessment according to Article 6 and the information on which it is based, including the documentation of the risk assessment,
2. the activities during which workers were exposed in reality or may possibly have been exposed to hazardous substances and the number of such workers,
3. the persons responsible according to Article 13 of the Occupational Safety and Health Act,
4. the protective and precautionary measures taken, including the operating instructions.

(3) In the case of activities involving hazardous substances that are carcinogenic, mutagenic and toxic to reproduction of category 1 or 2, the employer shall submit in addition on request the following to the competent authority:

1. the result of the substitution check,
2. Information on



- a) activities performed and industrial processes applied and the reasons for the use of these hazardous substances,
- b) the quantity of the hazardous substances manufactured or used,
- c) the type of the protective equipment to be used,
- d) the type and extent of the exposure,
- e) substitutions implemented.

(4) At the request of the competent authority the necessary knowledge demanded by Annex II of Regulation (EC) No. 1907/2006 for the formulation of safety data sheets shall be demonstrated.

## Article 19

### Official Exemptions, Orders and Powers

(1) On written or electronic application from the employer the competent authority shall be entitled to grant exemptions to Articles 6 to 15 if the application of these provisions would result in an individual case in disproportionate hardship and the deviation is compatible with protection of workers. The employer shall submit the following to the competent authority together with the application:

1. the reason for the exemption application,
2. the annual quantity of hazardous substance to be used,
3. the activities and processes concerned,
4. the number of workers probably affected,
5. the planned measures to ensure safety and health protection of the workers affected,
6. the technical and organisational measures which are intended to reduce or avoid exposure of the workers.

(2) An exemption according to paragraph 1 may also be applied for in connection with administrative procedures under other statutory provisions.

(3) In the case of Article 4 paragraph 2 the competent authority may grant on application on a case-by-case basis the waiver of the application in whole or in part of the labelling provisions of Directive 67/548/EEC in the case of substances and Directive 1999/45/EC in the case of preparations if oxidizing, inflammable, highly inflammable, health-impairing, irritant or environmentally hazardous substances or preparations are involved in such small quantities that a risk is not to be feared. Sentence 1 shall not apply to biocidal products.

(4) The competent authority may, without prejudice to Article 23 of the Chemicals Act, order measures on a case-by-case basis which the manufacturer, legal entity responsible for placing on the market or employer shall take in order to fulfil the obligations under sections 2 to 5 of the present Ordinance; it may in particular order that the employer

1. takes the measures needed to counter particular risks,
2. establish whether and to what extent a suspected danger actually exists and what measures shall be taken to counter the danger,
3. arrange for the work during which the workers are put at risk to be suspended if the employer does not take without delay or within a fixed deadline the measures needed

to counter the danger.

If there is an imminent risk the orders may also be issued to persons in the company with the power to issue directions.

(5) On request evidence shall be submitted to the competent authority that the risk assessment has been drawn up by a person with professional expertise according to Article 6 paragraph 9.

(6) The competent authority shall be entitled to prohibit the employer from performing activities involving hazardous substances or have them performed, and in particular order the shutdown of the working areas concerned if the employer fails to fulfil the notification obligation according to Article 18 paragraph 2 number 1.

## Article 20

### **Committee on Hazardous Substances**

(1) At the Federal Ministry of Labour and Social Affairs a Committee on Hazardous Substances (AGS) shall be set up, comprising suitable persons to represent the employers, the trades unions, the state authorities (Laender), the statutory accident insurance institution and other suitable persons, especially from the scientific community. The total number of members shall not exceed 21. A deputy shall be appointed for each member. Membership of the Committee on Hazardous Substances shall be honorary.

(2) The Federal Ministry of Labour and Social Affairs shall appoint the members of the Committee and a deputy for each member. The Committee shall adopt its own rules of procedure and shall elect the chair from amongst its members. The rules of procedure and the election of the chair shall be subject to the approval of the Federal Ministry of Labour and Social Affairs.

(3) The Committee's tasks shall include:

1. to determine the state of the art in science, technology, occupational safety and health and occupational hygiene as well as other scientific knowledge relating to activities involving hazardous substances, including their classification and labelling, and to make appropriate recommendations,
2. to determine how the requirements in the present Ordinance can be fulfilled, and to develop rules and knowledge based on the latest state of the art in technology and medicine,
3. to provide advice to the Federal Ministry of Labour and Social Affairs in all matters relating to hazardous substances and chemical safety,
4. the proposal of occupational exposure limits, biological limit values and other assessment criteria for hazardous substances and to check them regularly, taking account of the following:
  - a) when establishing limit values and assessment criteria it shall be ensured that the protection of workers' health is maintained,
  - b) for each substance for which an occupational exposure limit or a biological limit value has been laid down in the statutory instruments of the European Union, a national limit value shall be proposed taking these limit values into account.

The working programme of the Committee on Hazardous Substances shall be agreed with the Federal Ministry of Labour and Social Affairs, the power of final decision resting with the Federal Ministry of Labour and Social Affairs. The Committee shall cooperate closely with the other committees at the Federal Ministry of Labour and Social Affairs.

(4) After the examination the Federal Ministry of Labour and Social Affairs may

1. decide to publish the rules and knowledge identified by the Hazardous Substances Committee according to paragraph 3 sentence 1 number 2 as well as the occupational exposure limits and assessment criteria according to paragraph 3 sentence 1 number 4 in the Joint Ministerial Gazette and
2. may publish the recommendations in accordance with paragraph 3 sentence 1 number 1 as well as the consultation results in accordance with paragraph 3 sentence 1 number 3 in an appropriate manner.

(5) The Federal Ministries and the supreme State authorities may delegate representatives to attend the meetings of the Committee. On request these representatives shall be permitted to speak in the meeting.

(6) The Federal Institute for Occupational Safety and Health shall conduct the business of the Committee.

## **Section 7**

### **Administrative and Criminal Offences**

#### Article 21

#### **Chemicals Act – Notifications**

It is a breach in regulations within the meaning of Article 26 paragraph 1 number 8 letter b of the Chemicals Act if a person acts as following wilfully or negligently:

1. if, contrary to Article 8 paragraph 8 in combination with Annex I number 2.4.2 paragraph 1 sentence 1 or paragraph 2, he fails to make a notification, to make it correctly, to make it completely or to make it in time,
2. if, contrary to Article 8 paragraph 8 in combination with Annex I number 3.4 paragraph 1 or 2, he fails to make a notification, to make it correctly, to make it completely or to make it in time,
3. if, contrary to Article 8 paragraph 8 in combination with Annex I number 3.4 paragraph 3, he fails to notify a change or fails to do so in time,
4. if, contrary to Article 8 paragraph 8 in combination with Annex I number 3.6, he fails to make a notification, to make it correctly, to make it completely or to make it in time,
5. if, contrary to Article 8 paragraph 8 in combination with Annex I number 4.3.2 paragraph 1 sentence 1 or paragraph 2 in combination with paragraph 3, he fails to make a notification, to make it correctly, to make it completely or to make it in time,
6. if, contrary to Article 8 paragraph 8 in combination with Annex I number 4.3.2 paragraph 4, he fails to make a notification or to make it in time,
7. if, contrary to Article 8 paragraph 8 in combination with Annex I number 5.4.2.3 paragraph 1 or 2, he fails to make a notification, to make it correctly, to make it completely or to make it in time,
8. if, contrary to Article 8 paragraph 8 in combination with Annex I number 5.4.2.3 paragraph 3, he fails to notify a change or fails to do so in time,
9. if, contrary to Article 18 paragraph 1, he fails to make a notification, to make it correctly, to make it completely or to make it in time or

10. if, contrary to Article 18 paragraph 2, he fails to make a notification, to make it correctly, to make it completely or to make it in time.

## Article 22

### Chemicals Act – Activities

(1) It is a breach in regulations within the meaning of Article 26 paragraph 1 number 8 letter b of the Chemicals Act if a person acts as following wilfully or negligently:

1. fails to document a risk assessment, fails to document it accurately, completely or in time, thus violating Article 6 (8) sentence 1,
2. if, contrary to Article 6 paragraph 10 sentence 1 or sentence 2, he fails to keep a list of hazardous substances, fails to do so correctly or fails to do so completely,
3. if, contrary to Article 7 paragraph 1, he fails to arrange for an activity to be commenced,
- 3a. if, contrary to Article 7 paragraph 5 sentence 2, he implements the use of burdensome personal protective equipment as a long-term measure,
4. if, contrary to Article 7 paragraph 7 sentence 1, he fails to check the functioning and the effectiveness of the technical protective measures, or fails to do so in time,
5. if, contrary to Article 8 paragraph 2 sentence 3, he arranges for an activity to be performed,
6. if, contrary to Article 8 paragraph 3 sentence 2, he fails to set up an area or fails to do so in time,
7. if, contrary to Article 8 paragraph 5 sentence 3, hazardous substances are kept or stored,
8. if, contrary to Article 8 paragraph 8 in combination with Annex I number 2.4.2 paragraph 3 sentence 2, he fails to ensure that a person with expert knowledge with power to issue directions is working on the spot,
9. if, contrary to Article 8 paragraph 8 in combination with Annex I number 2.4.4 sentence 1, he fails to draw up a work schedule or fails to do so in time,
10. if, contrary to Article 8 paragraph 8 in combination with Annex I number 3.3 sentence 2, he fails to conduct pest control,
11. if, contrary to Article 8 paragraph 8 in combination with Annex I number 5.4.2.1 paragraph 2, he stores or transports substances and preparations of group A,
12. if, contrary to Article 8 paragraph 8 in combination with Annex I number 5.4.2.1 paragraph 3, he stores combustible materials,
13. if, contrary to Article 8 paragraph 8 in combination with Annex I number 5.4.2.2 paragraph 3, he fails to divide up substances or preparations into subquantities, or fails to do so in time,
14. if, contrary to Article 8 paragraph 8 in combination with Annex I number 5.4.2.3 paragraph 5, he stores substances or preparations,
15. if, contrary to Article 9 paragraph 3 sentence 2 or Article 9 paragraph 4, he fails to provide personal protective equipment or fails to do so in time,
- 15a. if, contrary to Article 9 paragraph 5, he fails to ensure that separate retention facilities are available,

16. if, contrary to Article 10 paragraph 4 sentence 2, he fails to make available protective clothing or respiratory protective equipment,
17. if, contrary to Article 10 paragraph 5 sentence 1, he returns extracted air to a working area,
18. if, contrary to Article 11 paragraph 3 in combination with Annex I number 1.4 paragraph 2 sentence 1, he fails to prohibit smoking or the use of naked flames or naked light,
19. if, contrary to Article 11 paragraph 3 in combination with Annex I number 1.4 paragraph 3 or number 1.5 paragraph 4, he fails to label an area mentioned therein or fails to do so in time,
- 19a. if, contrary to Article 11 paragraph 4 sentence 2 in combination with Annex III number 2.3 paragraph 1 sentence 1, he arranges for an activity to be performed involving an organic peroxide.
- 19b. if, contrary to Article 11 paragraph 4 sentence 2 in combination with Annex III number 2.6 sentence 2 letter a, he fails to ensure that a building or a room mentioned therein shall be erected according to safety standards.
- 19c. if, contrary to Article 11 paragraph 4 sentence 2 in combination with Annex III number 2.7, he fails to determine an area mentioned therein or fails to do so in time,
20. if, contrary to Article 13 paragraph 2 sentence 1, he fails to take a measure mentioned therein or fails to do so in time,
21. if, contrary to Article 13 paragraph 3 sentence 1, he fails to equip a worker, or fails to do so in time,
22. if, contrary to Article 13 paragraph 4, he fails to provide warning and other communication systems,
23. if, contrary to Article 13 paragraph 5 sentence 1, he fails to ensure that information on emergency measures is available,
24. if, contrary to Article 14 paragraph 1 sentence 1, he fails to ensure that the workers are granted access to written operating instructions in the manner specified,
25. if, contrary to Article 14 paragraph 2 sentence 1, he fails to ensure that the workers are given oral instructions on risks arising and corresponding protective measures,
26. if, contrary to Article 14 paragraph 3 number 2, he fails to ensure that the workers and their representative body are instructed and informed, or fails to do so in time,
27. if, contrary to Article 14 paragraph 3 number 3, he fails to ensure that an updated list is kept, or
28. if, contrary to Article 14 paragraph 3 number 4, he fails to ensure that an updated list is kept for 40 years after the end of exposure.

(2) A person who endangers the life or health of another person or endangers another person's property of major value by an action described in paragraph 1 shall be liable to a penalty under Article 27 paragraphs 2 to 4 of the Chemicals Act.

Article 23

(deleted)

Article 24

**Chemicals Act – Restrictions on Manufacture and Use**

(1) It is a breach in regulations within the meaning of Article 26 paragraph 1 number 7 letter a of the Chemicals Act if a person acts as following wilfully or negligently:

1. if, contrary to Article 16 paragraph 2 in combination with Annex II number 6 paragraph 1, he uses one of the substances listed therein,
2. if, contrary to Article 16 paragraph 3 sentence 2 in combination with sentence 3 number 1, and also in combination with sentence 4, he uses a biocidal product for a purpose not identified in the labelling or
3. if, contrary to Article 16 paragraph 3 sentence 2 in combination with sentence 3 number 2, and also in combination with sentence 4, he fails to comply with a condition of use arising from the labelling or the authorisation.

(2) Under Article 27 paragraph 1 number 1, paragraphs 2 to 4 of the Chemicals Act a person who acts wilfully or negligently as follows shall be liable to a penalty:

1. if, contrary to Article 8 paragraph 8 in combination with Annex I number 2.4.2 paragraph 3 sentence 1 or paragraph 4 sentence 1, he performs demolition, reconstruction or maintenance work,
2. if, contrary to Article 8 paragraph 8 in combination with Annex I number 3.5 sentence 1, he performs pest control,
3. if, without permission under Article 8 paragraph 8 in combination with Annex I number 4.2 paragraph 1, he performs fumigation,
4. if, contrary to Article 8 paragraph 8 in combination with Annex I number 4.2 paragraph 7 sentence 1, he performs fumigation,
5. if, contrary to Article 16 paragraph 2 in combination with Annex II number 1 paragraph 1 sentence 1 and also in combination with sentence 3, he performs work,
6. if, contrary to Article 16 paragraph 2 in combination with Annex II number 1 paragraph 1 sentence 4, he performs covering, superstructure, erection, cleaning or coating work,
7. if, contrary to Article 16 paragraph 2 in combination with Annex II number 1 paragraph 1 sentence 5, he reuses objects or materials which contain asbestos for other purposes,
8. if, contrary to Article 16 paragraph 2 in combination with Annex II number 2 paragraph 1, he manufactures the substances or preparations listed therein,
9. if, contrary to Article 16 paragraph 2 in combination with Annex II number 3 paragraph 1, he uses the articles listed therein,
10. if, contrary to Article 16 paragraph 2 in combination with Annex II number 4 paragraph 1, paragraph 3 sentence 1 or paragraph 4, he uses the cooling lubricants or corrosion protection agents listed therein, or
11. if, contrary to Article 16 paragraph 2 in combination with Annex II number 5 paragraph 1, he manufactures or uses the substances, preparations or articles listed therein.

## **Annex I**

**(to Article 8 paragraph 8, Article 11 paragraph 3)**

### **Special Provisions for Certain Hazardous Substances and Activities**

#### Contents

- Number 1 Risks of Explosion and Fire
- Number 2 Particulate Hazardous Substances
- Number 3 Pest Control
- Number 4 Fumigation
- Number 5 Ammonium Nitrate

#### **Number 1**

#### **Risks of Explosion and Fire**

##### **1.1 Basic Requirements**

(1) The employer shall lay down on the basis of the risk assessment according to Article 6 the organisational and technical protective measures according to the state of the art which are required to protect the health and safety of the workers or other persons against the risks of explosion and fire.

(2) When laying down protective measures against explosion risks the following order of priorities shall be observed according to Article 11 paragraph 2 where this is possible given the state of the art:

1. prevention of the formation of hazardous explosive mixtures,
2. avoidance of the ignition of hazardous explosive mixtures,
3. measures to attenuate the damaging effects of an explosion to a harmless level.

##### **1.2 Measures to Prevent the Formation of Hazardous Explosive Mixtures**

(1) When laying down protective measures according to number 1.1 paragraph 2 (1) the following measures shall be taken in particular:

1. substances and preparations which cannot form explosive mixtures shall be used,
2. the formation of hazardous explosive mixtures in working operations shall be prevented or limited,
3. hazardous explosive mixtures shall be removed in a safe fashion where this is possible given the state of the art.

(2) Where required according to the risk assessment under Article 6 the measures taken to avoid hazardous explosive mixtures shall be monitored using suitable technical devices.

(3) The workers shall be instructed in good time on a dangerous situation to enable them to evacuate the danger area without delay.

### **1.3 Measures to Protect against Risks of Explosion and Fire**

(1) The quantities of hazardous substances shall be limited to the level needed, especially with respect to the fire load and fire propagation.

(2) To protect against the unintentional release of hazardous substances which may lead to fire or explosion risks suitable measures shall be taken; in particular

1. hazardous substances in work equipment and installations shall be safely retained and states such as hazardous gauge and negative pressures, overfilling, corrosion and other hazardous states shall be avoided,
2. flows of hazardous substances from a place that can be accessed quickly and without hindrance shall be interrupted by shutting down the transport,
3. dangerous mixtures of hazardous substances shall be avoided.

(3) Escaping hazardous substances which may lead to fire or explosion risks shall be collected completely at their place where they are escaping or developing and removed in a safe fashion where this is possible given the state of the art. Liquid hazardous substances which have escaped shall be collected. Pools of liquid and dust deposits shall be removed in a safe fashion.

(4) If it is not possible to safely prevent the development of hazardous explosive mixtures, protective measures shall be taken to prevent ignition. Possible electrostatic discharges shall also be considered.

### **1.4 Protective Measures in Working Areas involving Risks of Explosion and Fire**

(1) Working areas involving fire and explosion hazards shall

1. be equipped with escape and rescue routes and exits in sufficient numbers so that the workers can evacuate the working areas in the case of a dangerous situation quickly, without hindrance and safely and that injured persons can be rescued at all times,
2. be designed and laid out in such a way that the spread of fires and the effects of fires and explosions to adjacent areas are avoided,
3. be equipped with fire extinguishers in sufficient number; where they do not work automatically, the fire extinguishers shall be labelled, easily accessible and easy to handle,
4. be provided with access routes for the fire service which are designed and marked in such a way that they can be reached quickly and without hindrance with extinguishing devices and other work equipment.

(2) In working areas involving fire and explosion risks smoking and the use of naked flame and naked lights shall be prohibited. Unauthorised persons shall be prohibited from entering areas where there are fire or explosion risks. There shall be clear and permanent signs to indicate the prohibitions.



(3) Working areas where an hazardous explosive atmosphere may arise shall be marked at their access points with warning signs according to Annex III of Directive 1999/92/EC of the European Parliament and of the Council of 16 December 1999 on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres (OJ L 23 of 28.1.2000, p. 57, L 134 of 7.6.2000, p. 36), which was amended by Directive 2007/30/EC (OJ L 165 of 27.6.2007, p. 21).

## **1.5 Storage Provisions**

(1) Hazardous substances shall only be stored at suitable locations. They shall not be stored at locations where this may lead to a risk to the workers or other persons.

(2) In working premises hazardous substances may only be stored if the storage is compatible with the protection of the workers and special devices are used which are state of the art.

(3) Hazardous substances shall not be stored together if this may lead to the formation of hazardous mixtures which result in an elevated explosion and fire risk. Furthermore hazardous substances shall not be stored together if this may mean additional risks to workers or other persons in the case of a fire or an explosion.

(4) Areas where extremely inflammable, highly inflammable or inflammable hazardous substances are stored in such quantities that there is an increased fire risk shall be labelled with the warning sign "Warning – Flammable Material or High Temperature" according to Annex II Number 3.2 of Directive 92/58/EEC.

## **1.6 Organisational Measures**

(1) The employer may assign to activities involving hazardous substances which can lead to fire or explosion risks only reliable workers who are familiar with the activities, the risks arising and the required protective measures.

(2) If, in working areas activities involving hazardous substances are performed which may lead to fire and explosion risks a number of workers are working and a special risk arises, reliable persons familiar with the activities, the risks arising and the required protective measures shall be assigned for supervisory functions. The person responsible for supervision shall ensure in particular that

1. the activities are only commenced when the measures laid down in the risk assessment according to Article 6 have been taken and their effectiveness has been demonstrated,
2. it is possible at all times to evacuate the working area quickly and
3. unauthorised persons are kept away from working areas involving hazardous substances which may lead to fire or explosion risks.

(3) In working areas involving hazardous substances which may lead to fire or explosion risks, a work release system with special written instructions from the employer shall be applied in the case of particularly hazardous activities and activities which may give rise to risks through an interaction with other activities. The work release shall be issued prior to commencement of activities by a person responsible for this.

## Number 2

### Particulate Hazardous Substances

#### 2.1 Scope

Number 2 shall apply to activities involving exposure to all alveolar and inhalable dusts. Number 2.4 shall apply in addition to activities with which asbestos dust or dust of materials containing asbestos is released or may be released. Deviations from numbers 2.4.2 to 2.4.5 are possible where activities are involved which lead only to a low exposure.

#### 2.2 Definitions

(1) Dusts, including fumes, are dispersed airborne solids which arise in particular due to mechanical, thermal or chemical processes or by being swirled up.

(2) Inhalable relates to the fraction of dust in the breathing zone of workers which can be taken into via the respiratory system. Alveolar relates to the fraction of inhalable dusts that may reach the alveoli and bronchioli.

(3) Asbestos within the meaning of Number 2 and Annex II number 1 means the following silicates with fibre structure:

1. actinolite, CAS number<sup>\*)</sup> 77536-66-4,
2. amosite, CAS number 12172-73-5,
3. anthophyllite, CAS number 77536-67-5,
4. chrysotile, CAS number 12001-29-5 and CAS number 132207-32-0,
5. crocidolite, CAS number 12001-28-4,
6. tremolite, CAS number 77536-68-6.

#### 2.3 Supplementary Protective Measures for Activities with Exposure to Inhalable Dusts

(1) The risk assessment according to Article 6 for activities involving substances, preparations and articles which may release dusts shall be conducted with due consideration of their dust formation behaviour.

(2) In the case of activities involving exposure to inhalable dusts for which no substance-related occupational exposure has been laid down, the protective measures according to the risk assessment under Article 6 shall be laid down in such a way that at least the occupational exposure limit for the inhalable dust fraction and for the alveolar dust fraction is complied with.

(3) Machines and devices shall be selected and operated in such a way that as little dust as possible is released. Dust-emitting installations, machines and devices shall be fitted with an effective extraction system where this is possible given the state of the art and the release of dust cannot be prevented by other means.

(4) In the case of activities involving dust exposure it shall be prevented that the dust spreads to unexposed working areas where this is possible given the state of the art.

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<sup>\*)</sup> Number in the Register of the Chemical Abstracts Service (CAS)

(5) Dusts shall be collected and disposed of safely as far as possible at the place where they are escaping or developing. The air extracted shall be conducted in such a way that as little dust as possible passes into the workers' breathing air. The air extracted shall only be returned to the working area if it has been adequately cleaned.

(6) Deposits of dusts shall be avoided. If this is not possible the dust deposits shall be removed using moist or wet processes in accordance with the state of the art or using suction processes using suitable vacuum cleaners or dust removers. Cleaning the working area by sweeping without dust-binding measures or by blowing the dust deposits with compressed air shall invariably not be permissible.

(7) Equipment to separate, collect and precipitate dusts shall be in accordance with the state of the art. When these devices are first put into operation, it shall be checked that they are adequately effective. At least once a year the devices shall be inspected with respect to their proper functioning, serviced and, where relevant, repaired. The results of the inspections as recorded in accordance with sentences 2 and 3 shall be retained.

(8) For dust-intensive activities, suitable organisational measures shall be taken in order to shorten the duration of exposure as far as possible. If the risk assessment under Article 6 reveals that the occupational exposure limits referred to in paragraph 2 cannot be complied with, the employer shall make available suitable personal protective equipment, especially respiratory protective equipment. This must be worn by the workers. The workers must be provided with separate storage facilities for work clothing and street clothing as well as washrooms.

## **2.4 Supplementary Provisions concerning the Protection against Risks from Asbestos**

### **2.4.1 Identification and Assessment of the Risk from Asbestos**

The employer shall ascertain in the risk assessment under Article 6 whether workers are or can be exposed to asbestos dust or dust from materials containing asbestos during activities. This applies in particular with respect to demolition, reconstruction and maintenance work involving articles or materials containing asbestos. In particular the employer shall identify whether asbestos is presented in weakly bonded form.

### **2.4.2 Notification to the authority**

(1) Activities according to number 2.1 sentence shall be notified to the competent authority. The employer shall grant the workers and their representative body access to the notification.

(2) The notification shall be made at the latest seven days prior to commencement of the activities by the employer and shall contain at least the following details:

1. location of the work site,
2. types and quantities of asbestos used or handled,
3. activities performed and processes applied,
4. number of workers involved,
5. starting date and duration of the work,
6. measures taken to limit the release of asbestos and to limit the workers' exposure to asbestos.

(3) Demolition, reconstruction and maintenance work involving asbestos shall only be performed by specialist companies whose personnel and safety facilities are suitable for such activities. During work it shall be ensured that at least one person with expert knowledge with power to issue directions is working on site. The expertise shall be demonstrated by the successful participation in a course for the acquisition of expert knowledge recognised by the competent authority. Proofs of expertise shall be valid for a period of six years. In derogation from sentence 4 proofs of expertise that have been acquired before 1 July 2010 shall remain valid until 30 June 2016. If a state approved further training course is being attended during the period of validity of the proof of expertise, the period of validity shall be extended by six years, from the date of the certificate proving the completion of the further training course.

(4) Demolition and reconstruction work where asbestos is present in weakly bonded form shall only be performed by specialist companies which have been authorised to perform such activities by the competent authority. The authorisation shall be issued on written or electronic application from the employer if the latter has demonstrated that the personnel and safety facilities needed for such activities are available to the extent necessary.

### **2.4.3 *Supplementary Protective Measures concerning Activities involving Exposure to Asbestos***

(1) The spread of asbestos dust shall be prevented by the dust-tight separation of the working area or by means of suitable protective measures which ensure an equivalent safety standard.

(2) It shall be ensured by an adequately dimensioned room ventilation system that the working area is thoroughly aired and a sufficient negative pressure is maintained.

(3) The working area shall be equipped with a personnel airlock with shower and a materials airlock.

(4) The workers shall be provided with suitable respiratory protective equipment, protective suits and, where necessary, other personal protective equipment. The employer shall ensure that the workers use the personal protective equipment.

(5) Contaminated personal protective equipment and the work clothing shall either be cleaned or disposed of. It may also be cleaned in suitable facilities outside the company. The cleaning shall be performed in such a way that workers are not exposed to asbestos dust. The materials to be cleaned shall be kept and transported in enclosed, labelled containers.

(6) The workers shall be provided with suitable washrooms with showers.

(7) Prior to application of demolition techniques materials containing asbestos shall be removed where possible.

### **2.4.4 *Work Schedule***

Prior to the commencement of activities involving asbestos, and in particular demolition, reconstruction and maintenance work, the employer shall draw up a work schedule. The work schedule shall provide for the following:

1. a description of the working procedure and the work equipment used to remove and dispose of asbestos and materials containing asbestos,
2. details of the personal protective equipment,
3. a description of how a check is made that there is no longer a risk from asbestos in

the working area after the completion of the demolition and reconstruction work.

#### **2.4.5 Supplementary Provisions concerning the Instruction of Workers**

(1) The workers shall be given regular instruction on the specific activity. The work schedule according to number 2.4.4 shall be taken into account here.

(2) The subject of the instructions shall encompass in particular the following items:

1. the properties of asbestos and its effects on health, including the synergistic effects of smoking,
2. the types of products and materials likely to contain asbestos,
3. activities during which asbestos exposure may arise and the significance of measures taken to minimise exposure,
4. the proper application of safe processes and personal protective equipment,
5. measures taken in the case of operational disturbances,
6. proper waste disposal,
7. medical examinations according to the Ordinance on Occupational Health Care.

### **Number 3**

#### **Pest Control**

##### **3.1 Scope**

Number 3 shall apply to pest control with highly toxic, toxic and health-endangering substances and preparations where the substances are released and where the control is not regulated by other statutory provisions. Number 3 shall apply to any person or company who performs pest control

1. professionally for others or
2. not only occasionally and not only to a small extent in his own company in which food products are produced, treated or placed on the market, or performs pest control in an institution as referred to Article 23 paragraph 5 or Article 36 of Protection against Infections Act (Infektionsschutzgesetz).

Release shall also be assumed if active substances according to sentence 1 only arise during the intended use. Number 3 shall not apply if pest control is performed in German aircraft or on ships outside the sovereign territory of the Federal Republic of Germany on the basis of international health provisions.

##### **3.2 Definitions**

Pest control agents mean substances and preparations which are intended for rendering harmless or destroying pests and harmful organisms or bothersome organisms.

### 3.3. General Requirements

Pest control shall be performed in such a way that there is no risk to people or to the environment. It shall only be performed with pest control agents which are marketable

1. as biocidal products according to Section IIa of the Chemicals Act or
2. as plant protection agents according to the Plant Protection Agents Act.

### 3.4 Obligation to Notify

(1) Any person or company who intends to perform pest controls according to Number 3.1 for the first time or intends to resume them after a break of more than one year shall notify the competent authority of this at least six weeks prior to the commencement of the first activity.

(2) The notification shall include in particular the following details:

1. evidence that the company's personnel, premises and safety facilities are adequate for this work,
2. the number of workers who handle the pest control agents,
3. regarding the agents intended for the pest control which
  - a) designations
  - b) properties
  - c) mechanisms of action
  - d) application procedures and
  - e) decontamination procedures
4. the area of the intended pest control and target organisms against which the pest control is to be conducted, and
5. the result of the substitution check according to Article 6 paragraph 1 sentence 2 number 4.

(3) Changes with respect to the details according to paragraph 2 numbers 1 to 5 shall be notified by the employer to the competent authority without delay.

(4) The personnel available is adequate if suitable and qualified persons with expert knowledge are assigned.

(5) A person shall be deemed qualified within the meaning of paragraph 4 if he/she

1. is at least 18 years old,
2. displays the required degree of reliability for handling pest control agents and
3. can demonstrate with a certificate from a physician according to Article 7 paragraph 1 of the Ordinance on Occupational Health Care that there are no reasons to suppose that he/she is physically or mentally unsuitable for handling pest control agents; the certificate shall not be older than 5 years.

(6) A person shall be deemed to have expert knowledge within the meaning of paragraph 4 who undergoes regular further training and

1. has taken the examination under the Ordinance on Occupational Training for Pest Control Officers of 15 July 2004 (BGBl. I, p. 1638),

2. has taken the examination under the Ordinance on the Certification Examination for the Licensed Qualification of Approved Pest Control Officers of 19 March 1984 (BGBl. I p. 468) or
3. has taken the examination for qualified assistant or master pest control specialist under law no longer applicable in the Federal Republic of Germany or under the law of the German Democratic Republic.

A person shall also be deemed to have expert knowledge who has taken an examination or successfully completed a course of training which is recognised as equivalent to the examinations mentioned in sentence 1 by the competent authority. If the pest control is limited to specific application areas, a person shall also be deemed to have expert knowledge who has taken an examination or successfully completed a course of training which is recognised by the competent authority as suitable for these activities.

### **3.5 Use of Auxiliary Personnel**

Pest controls under number 3.1 shall only be performed by persons who satisfy the requirements according to number 3.4 paragraphs 5 and 6. Auxiliary personnel may only be deployed under the direct and constant supervision of a qualified person with expert knowledge and shall demonstrably receive regular instruction appropriate to their activity.

### **3.6 Pest Control in Public Facilities**

The application of pest control agents in public facilities, and in particular in schools, children's day care centres and hospitals, shall be notified to the competent authority in writing, normally at least 14 days in advance. The scope, the application, the agents used, the application procedure and the protective measures provided for shall be given.

### **3.7 Documentation**

The application of pest control agents shall be adequately documented. The records shall be kept for at least five years and shall be submitted on request to the competent authority.

## **Number 4**

### **Fumigation**

#### **4.1 Scope**

(1) Number 4 shall apply to activities involving the following substances and preparations where they are authorised as fumigants and are used on their own:

1. hydrogen cyanide (hydrocyanic acid, prussic acid) and substances and preparations which are used to develop or evaporate hydrogen cyanide or highly volatile hydrogen cyanide compounds,
2. hydrogen phosphide as well as substances and preparations which develop hydrogen phosphide,
3. ethylene oxide and preparations which contain ethylene oxide,
4. sulphuryl difluoride (sulphuryl fluoride).

(2) Number 4 shall also apply to activities during room disinfection using formaldehyde solutions, including substances and preparations from which formaldehyde develops or evaporates or with which formaldehyde spreads in gaseous form or in the form of liquid droplets capable of suspension in order to disinfect all surfaces of a room.

(3) Number 4 shall also apply to fumigation activities involving other highly toxic and toxic substances and preparations which are authorised for fumigation purposes

1. as biocidal products according to Section IIa of the Chemicals Act or
2. as plant protection agents according to the Plant Protection Agents Act.

This shall also apply to biocidal products to which the transitional provisions of Article 28 paragraph 8 of the Chemicals Act are to be applied.

(4) Number 4 shall be applied to activities performed on fumigated transport units of all kinds such as vehicles, railway wagons, ships, tanks and containers which have been treated with toxic or highly toxic fumigants. Sentence 1 shall also apply to activities performed on transport units which have been fumigated abroad and which then pass into the scope of the present Ordinance.

(5) Number 4 shall not apply to activities involving fumigants in fully automatic, program-controlled sterilisers in the medical domain where the activities are performed in accordance with a process-specific and substance-specific criterion given under Article 20 paragraph 4.

## **4.2 Use Restriction**

(1) Any person or company intending to perform activities involving fumigants according to number 4.1 paragraphs 1 to 3 needs the permission of the competent authority.

(2) Paragraph 1 shall not apply

1. to activities which serve exclusively the purposes of research and development or the institutional suitability test for fumigants or processes,
2. to occasional activities with substances and preparations packaged in portions which develop no more than 15 grams of hydrogen phosphide when used as intended and are used for pest control in the ground.

(3) In deviation from paragraph 1 no permission is required, but it is necessary to have a certificate of competence (Befähigungsschein) according to number 4.3.1 paragraph 2

1. for activities which are performed not only occasionally with substances and preparations packaged in portions which develop no more than 15 grams of hydrogen phosphide when used as intended and are used for pest control in the ground
2. for the opening, venting and release of fumigated transport units.

(4) During transport ships and transport containers shall only be fumigated with hydrogen phosphide or another agent authorised for this purpose according to number 4.1 paragraph 3.

(5) Ethylene oxide and preparations which contain ethylene oxide shall only be used in fully automatic, program-controlled sterilisers and fully automatic sterilisation chambers.

(6) Permission and authorisation requirements and restrictions on use according to other statutory provisions are not affected.



(7) Fumigation shall not be carried out with other highly toxic or toxic substances and preparations than those named in number 4.1 paragraphs 1 to 3. In cases of number 4.1 paragraph 3 evidence of the authorisation for use as a fumigant shall be submitted with the notification according to number 4.3.2.

### **4.3 General provisions for fumigation activities**

#### **4.3.1 Permit and certificate of competence**

(1) The permit according to number 4.2 paragraph 1 shall be issued if the applicant

1. displays the necessary reliability and, where he himself intends to lead activities involving the fumigants mentioned in the permit, he holds a certificate of competence according to paragraph 2 and
2. has at his disposal a sufficient number of holders of a certificate of competence according to paragraph 2; the names of these holders of a certificate of competence must be given to the competent authority.

(2) A certificate of competence may be issued by the competent authority to a person who

1. displays the required reliability for activities involving fumigants which are covered by number 4.1,
2. can demonstrate with a certificate from a physician according to Article 7 paragraph 1 of the Ordinance on Occupational Health Care that there are no reasons to suppose that he/she is physically or mentally unsuitable for activities involving fumigants,
3. can provide evidence of the required expert knowledge and adequate experience for fumigation purposes
4. is at least 18 years old,

The evidence of expert knowledge according to sentence 1 number 3 is deemed to have been provided if the person concerned presents a certificate showing participation in a course recognised by the competent authority with respect to the intended activity and the passing of the related examination. The examination shall be taken before a representative of the competent authority. The certificate of competence shall be limited in accordance with the evidence of expert knowledge provided.

(3) The permit according to paragraph 1 and the certificate of competence according to paragraph 2 may be issued for a limited term and subject to conditions and may be restricted to certain fumigation activities. Conditions may also be imposed retrospectively. The permit according to paragraph 1 and the certificate of competence according to paragraph 2 may be revoked if there is justified doubt as to the holder's reliability on account of repeated or particularly grave violations of the present Ordinance.

(4) A certificate of competence shall expire if a new certificate is not submitted to the competent authority at the latest six years after issuance of the certificate according to paragraph 2 sentence 1 number 2.

#### **4.3.2 Notifications**

(1) Any person or company intending to perform fumigation with fumigants according to number 4.1 outside a fixed sterilisation chamber shall notify the competent authority thereof in writing at the latest one week in advance. The competent authority may authorise

exemptions thereto in justified cases. The notification deadline shall be brought forward to 24 hours in the case of ship and container fumigation in ports and in the case of disinfection relating to infection hygiene. In the case of fumigation in the medical domain such notification is not required.

(2) The notification shall indicate:

1. the person responsible,
2. the date of the fumigation,
3. a layout plan of the fumigation location and the object to be fumigated specifying the goods to be fumigated,
4. the fumigant intended for use and the quantities intended,
5. the probable starting date of fumigation,
6. the probable end of fumigation,
7. the probable date of the release and
8. the time for the leak test if necessary.

(3) Paragraph 1 shall not apply to ground fumigation in the open using hydrogen phosphide.

(4) The competent authority shall be notified without delay of any retirement of, change of and addition of holders of certificates of competence where the activities are subject to the reservation of permission according to number 4.2 paragraph 1.

### **4.3.3 Report**

(1) A report on fumigation using fumigants shall be drawn up according to number 4.1. The report shall indicate at least the following:

1. type and quantity of fumigants,
2. location, starting date and end of use and
3. time of the release.

A copy of the report shall be submitted to the competent authority on request.

(2) If vehicles, railway wagons, containers, tanks or other transport containers are fumigated, supplementary instructions concerning the disposal of residues of the fumigant and details of the fumigation devices used shall be included in the report. The report shall be given to the contracting body.

(3) Paragraph 1 shall not apply to ground fumigation in the open using hydrogen phosphide.

## **4.4 Requirements for fumigation**

### **4.4.1 General Requirements**

(1) Fumigation operations shall be performed in such a way that no persons are put at risk. Objects which are to be fumigated, such as buildings, rooms or transport units, shall be sealed according to the state of the art for this purpose.

(2) For each fumigation operation a person shall be appointed who is responsible for it. This person shall hold a certificate of competence according to number 4.3.1 paragraph 2 which is adequate for the intended fumigation operation. Where a number of fully automatic, program-controlled sterilisers are operated in a spatially cohesive area, it shall be sufficient to appoint a person to be responsible.

#### **4.4.2 Organisational Measures**

(1) The only persons who may be deployed to fumigation operations are those with the relevant expert knowledge. Sentence 1 shall not apply to auxiliary personnel

1. who exclusively perform activities with no or only low risk potential after induction by a person with expert knowledge,
2. who are deployed to fumigation according to paragraph 5
3. whose presence or involvement serves to acquire the experience required according to number 4.3.1 paragraph 2 sentence 1 (3) under the supervision of a responsible person within the framework of training course for the acquisition of expert knowledge.

(2) During fumigation activities where the fumigant gives rise to an increased risk to workers or other persons according to Article 6 under the risk assessment, at least the responsible person and a further person who fulfils the prerequisites under number 4.3.1 paragraph 2 sentence 1 (3) shall be present. If the fumigation is performed in fully automatic, program-controlled sterilisers to which number 4.1 paragraph 5 shall not be applicable, the presence of a person with certificate of competence during the activities according to sentence 1 shall be sufficient if a second person is available at short notice who fulfils the prerequisites according to number 4.3.2 paragraph 2 sentence 1 (3).

(3) In the case of room disinfection operations according to number 4.1 paragraph 2 the presence of a person with certificate of competence during the activities according to paragraph 2 sentence 1 shall be sufficient if a second person is present who is able to take emergency measures according to Article 13 paragraph 1.

(4) In the case of fumigation using hydrogen cyanide or sulphuryl difluoride only holders of a certificate of competence may be assigned where participation is not for the purpose of a training course for the acquisition of expert knowledge or to provide evidence of adequate experience according to number 4.3.1 paragraph 2 sentence 1 (3) and supervision is guaranteed by a sufficient number of holders of a certificate of competence.

(5) If preparations portioned ready for use which develop hydrogen phosphide are used for fumigation purposes, auxiliary personnel may be deployed if

1. they are supervised by holders of a certificate of competence in sufficient numbers,
2. they have previously received instruction and
3. they are suitable in terms of being in good health.

#### **4.4.3 Fumigation of rooms and movable transport units and goods in rooms**

(1) The users of adjacent rooms and buildings shall be warned in writing at the latest 24 hours prior to the commencement of fumigation using fumigants according to number 4.1 with an indication of the hazards of the fumigants. Sentence 1 shall not apply to fumigation in stationary sterilisers and sterilisation chambers.

(2) At the entrances to rooms which are to be fumigated warning signs according to number 4.4.4 paragraphs 1 and 2 shall be mounted prior to commencement of the fumigation. In addition the name, address and telephone number of the fumigation company must be displayed at the entrances to the rooms.

(3) From the introduction of the fumigant to the release of the fumigated rooms the person responsible shall be available in case needed.

(4) The person responsible shall only release rooms, fumigated goods or the use of items of equipment when it has been ensured by suitable verification procedures that there is no longer a risk from fumigant residues.

#### **4.4.4 Fumigation of movable transport units in the open**

(1) Transport units such as vehicles, railway wagons, containers, tanks or other transport containers shall only be fumigated in the open with a safety distance on all sides of at least 10 metres to buildings. The person responsible shall inspect them with respect to gas-tightness, seal them and lock them for the duration of the fumigation, affix a lead seal and apply warning signs according to paragraph 2 which are visible on all sides. In addition they shall be marked with the name, address and telephone number of the fumigation company. The warning sign shall be rectangular, at least 300 millimetres wide and at least 250 millimetres high. The inscription shall be black on a white background.

(2) The warning sign shall display at least the following details:

1. the word "DANGER",
2. the hazard symbol for "toxic",
3. the inscription "UNDER FUMIGATION",
4. the designation of the fumigant,
5. the date and time of the fumigation,
6. the date of the ventilation where this has been done, and
7. the inscription "ENTRY PROHIBITED".

An image of the warning sign is shown below.



\* entsprechende Angabe einfügen

(3) On ships transport containers under gas shall only be transported if the cargo bays are equipped with a mechanical ventilation system which prevents gas concentrations from developing above the occupational exposure limit.

(4) If there is no person with expert knowledge available for the necessary opening of fumigated vehicles, railway wagons, containers, tanks or other fumigated transport containers, they shall only be opened under the supervision of a person with professional expertise who is able to identify and assess potential risks for workers or other persons and to arrange for the required protective measures.

#### **4.4.5. Fumigation of ships in port and during transport**

(1) Fumigation operations on ships shall only be permissible if the safety of the crew and other persons is adequately ensured during the time the ship is berthed in port and during transit. In addition to the regulations of this Annex specifically relating to fumigation the internationally applicable recommendations of the International Maritime Organization (IMO) for the application of pest control agents on ships shall be observed.

(2) The person responsible shall inform the ship's captain in writing after a reasonable fumigation time and prior to departure from the port of the following:

1. what rooms have been fumigated and what other rooms shall not be entered during transport,
2. what technical modifications have been made to the ship which were necessary for fumigation purposes,
3. that the fumigated rooms are adequately gas-tight
4. that the rooms adjacent to those fumigated are free of fumigants.

(3) Number 4.4.4 paragraph 1 and 2 shall be applied accordingly.

(4) During the entire transport time the gas tightness of the fumigated rooms shall be checked at least every eight hours. The results shall be entered in the ship's log.

(5) The port authorities shall be notified of the type and time of the fumigation at the latest 24 hours prior to the arrival of a fumigated ship and which rooms and transport containers have been fumigated.

#### **4.4.6 Sterilisers and Sterilisation Chambers**

(1) Fumigation operations in sterilisers and sterilisation chambers shall only be permissible if the latter

1. have been set up in rooms which are intended as places where people are continuously present, except for fumigation in fully automatic sterilisers in working areas for the supply of sterile goods,
2. are inspected with respect to gas-tightness before each fumigation operation and the gas-tightness is monitored
3. can be vented in a way which is safe for people and the environment.

(2) If fully automated pressure control and pressure monitoring are not ensured, sterilisers and sterilisation chambers shall only be operated with normal or negative pressure.

(3) The checking and monitoring of the gas tightness of sterilisation chambers shall be documented.

## **Number 5**

### **Ammonium Nitrate**

#### **5.1 Scope**

(1) Number 5 shall apply to the storage, filling and in-house transport of

1. ammonium nitrate,
2. preparations containing ammonium nitrate.

(2) Number 5 shall not apply to

1. preparations with a mass content of ammonium nitrate up to 10 per cent,
2. ammonium nitrate and preparations containing ammonium nitrate of groups A and E in quantities of up to 100 kilograms,
3. preparations containing ammonium nitrate of the groups B, C and D in quantities of up to 1 tonne,
4. ammonium nitrate and preparations containing ammonium nitrate which are subject to the Explosives Act (Sprengstoffgesetz) because of their properties.

#### **5.2 Definitions**

Ammonium nitrate and the preparations are divided into the following groups:

1. Group A:  
ammonium nitrate and preparations containing ammonium nitrate which are capable of detonative reaction or are assigned, because of their ammonium nitrate content, to the subgroups A I, A II, A III or A IV according to number 5.3 paragraph 7 table 1;
2. Group B:  
preparations containing ammonium nitrate which are capable of self-perpetuating, progressive thermal decomposition;
3. Group C:  
preparations containing ammonium nitrate which are capable neither of self-perpetuating, progressive thermal decomposition nor detonative reaction, but develop nitrogen oxides when heated;
4. Group D:  
preparations containing ammonium nitrate which are harmless in aqueous solution or suspension, but in a state of crystallisation with reduction of the original water content are capable of a detonative reaction;
5. Group E:  
preparations containing ammonium nitrate which are present in water-in-oil emulsions and serve as pre-products for the manufacture of explosives.

### 5.3 General provisions

(1) Number 5.4 shall apply to ammonium nitrate and preparations containing ammonium nitrate of the groups given in number 5.2.

(2) Ammonium nitrate and preparations containing ammonium nitrate of groups A, B, C or E must be finely distributed and mixed thoroughly in their constituents and may not separate out during storage, transport or filling.

(3) Fertilizers containing ammonium nitrate in mixtures of nitrogen potassium or nitrogen phosphorous potassium fertilizer (NK or NPK bulk blends) shall be stored according to the provisions of group B or only in accordance with the degree of hazard identified. When fertilizers of group A are used in a mixture, they shall be stored according to the provisions for group A or also in accordance with the degree of hazard identified.

(4) Any nitrate ions for which an equivalent ammonium ion exists shall be deemed to be ammonium nitrate.

(5) The mass fraction of combustible constituents shall be unlimited for preparations containing ammonium nitrate of subgroup B II from paragraph 7 table 1, for ammonium nitrate and preparations containing ammonium nitrate of subgroup A I according to paragraph 7 table 1 it shall be limited to 0.2 per cent, and for preparations containing ammonium nitrate of all other subgroups according to paragraph 7 table 1 of groups A, B, C and D it shall be limited to 0.4 per cent.

(6) Carbon is considered to be a combustible constituent in the case of ammonium nitrate and preparations containing ammonium nitrate of subgroup A I according to paragraph 7 table 1 where organic substances are concerned.

(7) Inert substances within the meaning of number 5 are substances which do not increase the thermal sensitivity and sensitivity to detonation impact. In cases of doubt this shall be verified by an expert's report from the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und –prüfung).

Table 1: Framework compositions and limits for ammonium nitrate and preparations containing ammonium nitrate for assignment to one of the groups according to number 5.2

Sub-groups	Mass fraction of Ammonium Nitrate in per cent (%)	Other constituents	Special provisions
A I	≥ 90	chloride content ≤ 0.02 % inert substances ≤ 10 %	No other ammonium salts are allowed.
A II	> 80 to < 90	Limestone, dolomite or calcium carbonate < 20 %	
A III	> 45 to < 70	ammonium sulphate	Inert substances are allowed.
A IV	> 70 to < 90	potassium salts, phosphates in NP, NK or NPK fertilizers, sulphates in N fertilizers; inert substances	

Sub-groups	Mass fraction of Ammonium Nitrate in per cent (%)	Other constituents	Special provisions
B I	≤ 70	potassium salts, phosphates, inert substances and other ammonium salts in NK or NPK fertilizers	With a mass fraction of more than 45 % ammonium nitrate the mass fraction of ammonium nitrate and other ammonium salts together shall not exceed 70 %.
B II	≤ 45	excess nitrates ≤ 10 %	Unrestricted content of combustible constituents; any excess nitrates exceeding the content of ammonium nitrate are calculated as potassium nitrate.
C I	≤ 80	Limestone, dolomite or calcium carbonate ≥ 20 %	Limestone, dolomite or calcium carbonate with minimum purity of 90 %.
C II	≤ 70	inert substances	
C III	≤ 45	phosphates and other ammonium salts in NP fertilizers	
	> 45 to < 70	phosphates and other ammonium salts in NP fertilizers	The mass fraction of ammonium nitrate and other ammonium salts shall together not exceed 70 %.
C IV	≤ 45	ammonium sulphate	Inert substances are allowed.
D I	≤ 45	urea, water	In aqueous solution.
D II	≤ 45	Excess nitrates ≤ 10 %, potassium salts, phosphates and other ammonium salts in NP, NK or NPK fertilizers; water	In aqueous solution or suspension. Excess nitrates are calculated as potassium nitrate. The limit content specified in column 2 shall not be exceeded either in the liquid phase or in suspensions in the solid phase.
D III	≤ 70	ammonia, water	In aqueous solution.
D IV	> 70 to ≤ 93	water	In aqueous solution.
E	> 60 to ≤ 85	≥ 5 % to ≤ 30 % water, ≥ 2 % to ≤ 8 % combustible constituents, ≥ 0,5 % to ≤ 4 % emulsifier	Inorganic salts; additives.



(8) Ammonium nitrate and preparations containing ammonium nitrate which cannot be assigned to the framework compositions and limits within the groups A, B, C, D or E as laid down in paragraph 7 table 1 or which do not meet the conditions of paragraphs 2 to 5 shall only be stored, decanted or transported internally once an experts' report by the Federal Institute for Materials Research and Testing concerning their hazardous nature has been made available and in accordance with the requirements laid down in this report.

(9) Preparations containing ammonium nitrate of group B shall be stored, decanted or transported internally according to the provisions which apply to group C, provided an experts' report by the Federal Institute for Materials Research and Testing states that these preparations are free of the risks of a self-sustaining, progressive thermal decomposition.

(10) When assigning ammonium nitrate and preparations containing ammonium nitrate according to paragraphs 3, 8 or 9, the labelling of the group shall be applied in accordance with the experts' report of the Federal Institute for Materials Research and Testing.

## **5.4 Precautionary measures**

### **5.4.1 Basic Measures to be taken during the Storage of Substances and Preparations of the Groups given in Number 5.2**

During the storage of substances and preparations of groups A, B, C, D and E the following protective measures shall be taken:

1. protection against the influence of weather conditions,
2. protection against contamination and hazardous combined storage,
3. protection against unauthorised access,
4. fire safety,
5. protection against inadmissible strain.

### **5.4.2 Supplementary Measures for Substances and Preparations of the Groups and Subgroups A, D IV and E**

#### **5.4.2.1 General Measures**

(1) Substances and preparations which have run out or been spilled and contaminated substances and preparations shall be consumed immediately or disposed of in a safe fashion.

(2) The substances and preparations of group A shall only be stored and transported if packaged.

(3) In the storage room or within a radius of 10 metres around the storage location for substances and preparations of group A no combustible materials shall be stored.

(4) Preparations of groups and subgroups D IV and E shall be protected against thermal decomposition.

#### **5.4.2.2 Supplementary Measures for the Storage of Quantities over 1 Tonne**

(1) Substances and preparations of group A in quantities of more than 1 tonne shall only be

stored in suitable buildings with appropriate protective measures and in accordance with the state of the art.

(2) Preparations of groups and subgroups D IV and E in quantities of more than 1 tonne shall only be stored in suitable storage containers with appropriate protective measures and in accordance with the state of the art.

(3) The substances and preparations of group A and preparations of group E shall be divided into sub-quantities of up to 25 tonnes prior to storage.

(4) Sub-quantities of up to 25 tonnes of substances and preparations of group A shall only be stored if they

1. are separated from one another by walls of masonry bricks or wall blocks of similar strength or of concrete whose intermediate cavity is not filled with combustible materials and if walls including intermediate cavities have a minimum thickness  $d$  which shall be calculated from the greatest sub-quantity  $M$  in each case with the following formula:  
 $d = 0.1 M^{1/3}$  where  $d$  is in "metres" and  $M$  is in "kilograms",
2. in cases where the partitions do not reach to the ceiling, they shall only be stored up to a height of 1 metre below the height of the partition.

(5) The storage location shall have a minimum distance (safety distance)  $E$  to buildings where people are permanently present which shall be calculated for the greatest sub-quantity  $M$  in each case using the following formula:

$$E = 11 M^{1/3} \text{ where } E \text{ is in "metres" and } M \text{ is in "kilograms".}$$

For factory buildings this shall only apply if they are also used for residential purposes.

(6) The safety distance to public traffic routes shall be two thirds the distance under paragraph 5.

(7) As a deviation from paragraphs 5 and 6 for storage quantities of up to 3 tonnes the safety distance to residentially occupied buildings and to public traffic routes shall be at least 50 metres.

#### **5.4.2.3 Supplementary Measures for the Storage of more than 25 Tonnes**

(1) Any person or company intending to store substances and preparations of the groups and sub-groups A, D IV and E in quantities of more than 25 tonnes shall notify the competent authority of this in writing at the latest two weeks in advance.

(2) The notification shall include the following details:

1. name and address of the one obliged to notify,
2. type and maximum quantity of the substances or preparations to be stored,
3. a description of the design and installation of the store with layout plans and cross-sections,
4. a layout plan showing the position in relation to buildings and public traffic routes in a radius of 350 metres,
5. which of the buildings in the layout plan according to number 4 are intended for the continuous presence of people or residential purposes.

(3) Changes with regard to the information under paragraph 2 shall be notified to the competent authority without delay by the employer.

(4) In storage buildings for substances and preparations of group A rooms shall not be used for the continuous presence of people, except supervisory and operating personnel.

(5) Substances and preparations of group A shall only be stored in single-storey buildings.

### **5.4.3 Supplementary Measures for Preparations of Group B**

#### **5.4.3.1 General Measures**

Heat-producing appliances and other ignition sources shall not be present in storage rooms.

#### **5.4.3.2 Supplementary Measures for the Storage of more than 100 Tonnes**

(1) The temperature of the preparations shall not exceed 70 degrees Celsius when put into store.

(2) Material handling equipment and its structural facilities shall be of such a nature or shall be operated in such a way that any heat arising cannot cause any decomposition of the material stored.

#### **5.4.3.3 Supplementary Measures for Unpackaged Preparations over 1 500 Tonnes or for Exclusively Packaged Preparations over 3 000 Tonnes**

(1) The preparations shall be divided into sub-quantities of a maximum of 3 000 tonnes in each case. The division may be achieved by means of fireproof partitions, by bulk material of non-combustible stored material or by an intermediate space with a width of at least 2.5 metres which must be kept clear at all times. If the partition walls do not reach to the ceiling, the material stored shall only be heaped up to a height of 1 metre below the height of the partition.

(2) Paragraph 1 shall not apply if, at the same time,

1. suitable extinguishing systems are present,
2. extinguishing water is available in sufficient quantities,
3. there is a works fire brigade available at all times,
4. the stored material passing into the store is screened off and
5. the air in the storage room and in the disposal ducts below the storage area is continuously monitored.

### **5.4.4 Safety Measures for Preparations of Group D**

The preparations shall be safeguarded against drying out.

## **5.5 Alleviating Provisions**

### **5.5.1 Alleviating Provisions for Specific Substances and Preparations**

Substances and preparations of sub-groups A I and A II and preparations with inert substances of sub-group A IV and group E

1. may be divided into sub-quantities (batches) of at the most 100 tonnes, in deviation from number 5.4.2.2 paragraph 3 and
2. may, in deviation from number 5.4.2.2 paragraphs 5 and 6, be stored with a safety distance which corresponds to half the distance required therein.

The condition for this is verification by an experts' report of the Federal Institute for Materials Research and Testing that the substances and preparations of sub-groups A I, A II and A IV satisfy the condition requirements of Annex III of Regulation (EC) No. 2003/2003 of the European Parliament and of the Council of 13 October 2003 relating to fertilizers (OJ L 304 of 21.11.2003, p. 1), which was last amended by Regulation (EC) No. 1020/2009 (OJ L 282 of 29.10.2009, p. 7) and substances and preparations of group E are not capable of being detonated.

### **5.5.2 Alleviating Provisions for Companies Manufacturing Ammonium Nitrate and Explosives**

For companies manufacturing ammonium nitrate and explosives

1. number 5.4.2.1 paragraph 2 and number 5.4.2.3 paragraphs 1 to 3 for substances and preparations of group A shall not be applied;
2. a safety distance reduced by one half according to number 5.4.2.2 paragraphs 5 and 6 shall apply.

## **5.6 Exemptions**

Exemptions according to Article 19 paragraph 1 by the competent authority from the measures for substances and preparations of groups and sub-groups A, D IV and E mentioned in number 5.4.2 shall be granted in consultation with the Federal Institute for Materials Research and Testing.

**Annex II**  
**(to Article 16 paragraph 2)**  
**Special Restrictions Pertaining to the Manufacture and Use of Certain Substances,**  
**Preparations and Articles**

Contents

Number 1	Asbestos
Number 2	2-naphthylamine, 4-aminobiphenyl, benzidine, 4-nitrobiphenyl
Number 3	Pentachlorophenol and its Compounds
Number 4	Cooling Lubricants and Corrosion Protection Agents
Number 5	Biopersistent Fibres
Number 6	Particularly Dangerous Carcinogenic Substances

**Number 1**

**Asbestos**

(1) Work shall be prohibited on parts containing asbestos in buildings, equipment, machines, installations, vehicles and other articles. Sentence 1 shall not apply with respect to

1. demolition work,
2. reconstruction and maintenance work with the exception of work leading to removal of the surface of asbestos products unless low-emission processes are involved which are recognised by the authorities or by the statutory accident insurance institutions. The processes which entail prohibition of the removal of surfaces containing asbestos shall include in particular abrasion, pressure cleaning, brushing and drilling.
3. Activities with measurement technology support which lead to the removal of the surface of asbestos products and which must be carried out in order to obtain recognition as a low-emission procedure.

The prohibited work according to sentence 1 shall also include covering, superstructure and erection work on asbestos cement roofs and wall claddings, and cleaning and coating work on uncoated asbestos cement roofs and wall claddings. The further use of objects and materials containing asbestos which arise during work for other purposes than waste disposal or waste recycling shall be prohibited.

(2) The extraction, preparation, further processing and reuse of mineral raw materials which occur naturally and preparations and articles manufactured therefrom which contain asbestos with a mass content of more than 0.1 per cent shall be prohibited.

(3) Waste products containing asbestos shall be provided with the labelling mentioned in Article 67 in combination with Annex XVII number 6 column 2 (3) and Appendix 7 of this Annex of Regulation (EC) No. 1907/2006.

(4) Paragraphs 1 to 3 shall also apply to private households.

## **Number 2**

### **2-naphthylamine, 4-aminobiphenyl, benzidine, 4-nitrobiphenyl**

(1) The following substances and preparations which contain these substances with a mass content of more than 0.1 per cent shall not be manufactured:

1. 2-naphthylamine and its salts,
2. 4-aminobiphenyl and its salts,
3. benzidine and its salts and
4. 4-nitrobiphenyl

(2) The prohibition of manufacturing according to paragraph 1 shall not apply to research and analysis purposes and for the science teaching purposes in the quantities required.

## **Number 3**

### **Pentachlorophenol and its Compounds**

(1) Beyond the use prohibition according to Article 67 in combination with Annex XVII Number 22 of Regulation (EC) No. 1907/2006 such articles shall not be used which have been treated with a preparation containing pentachlorophenol, sodium pentachlorophenol or one of the other pentachlorophenol compounds and whose parts affected by the treatment contain more than 5 milligrams per kilogram of these substances.

(2) Paragraph 1 shall not apply to wood components of buildings and furniture and to textiles treated prior to 23 December 1989 with preparations which contain pentachlorophenol, sodium pentachlorophenol or one of the other pentachlorophenol compounds. For the area ("Gebiet") given in Article 3 of the Unification Treaty, 3 October 1990 shall replace 23 December 1989.

(3) Paragraph 1 shall not apply to waste wood which is recycled according to the Waste Wood Ordinance of 15 August 2002 (BGBl. I p. 3302), which was last amended by Article 2a of the Ordinance of 20 October 2006 (BGBl. I p. 2298).

(4) Paragraphs 1 to 3 shall also apply to private households.

## **Number 4**

### **Cooling Lubricants and Corrosion Protection Agents**

(1) Cooling lubricants to which nitrosating agents are added as components shall not be used.

(2) The employer shall ensure within the framework of the risk assessment according to Article 6 that no nitrosating agents have been added to the cooling lubricants used.

(3) Corrosion protection agents which at the same time contain nitrosating agents or their pre-stages, for example nitrite, and secondary amines, including blocked secondary amines shall not be used. Exceptions are secondary amines whose related N-nitrous amines are demonstrably not carcinogenic substances of category 1 or 2.

(4) Water-mixable and water-mixed corrosion protection agents which in as-delivered state contain nitrosating agents or their pre-stages, for example nitrite, shall not be used.

(5) The employer shall ensure within the framework of the risk assessment according to Article 6 that the corrosion protection agents used meet the requirements of paragraphs 3 and 4.

## **Number 5**

### **Biopersistent Fibres**

(1) The following mineral fibre-bearing hazardous substances shall not be manufactured or used either for heat and sound insulation in building construction, including technical insulation, or for ventilation installations:

1. synthetic mineral fibres (synthetically manufactured vitreous [silicate] fibres with a mass content of in total more than 18 per cent of the oxides of sodium, potassium, calcium, magnesium and barium),
2. preparations and products which contain synthetic mineral fibres with a mass content totalling more than 0.1 per cent.

(2) Paragraph 1 shall not apply if the synthetic mineral fibres fulfil one of the following criteria:

1. a suitable intraperitoneal test has not revealed any indications of disproportionate carcinogenicity,
2. the half-life after intratracheal instillation of 2 milligrams of fibre suspension for fibres with a length of more than 5 micrometres, a diameter of less than 3 micrometres and a length-to-diameter ratio of greater than 3 to 1 (WHO fibres) shall be at most 40 days,
3. the carcinogenicity index CI, which is obtained from the difference between the sum of the mass contents (in per cent) of the oxides of sodium, potassium, boron, calcium, magnesium, barium and the double mass content (in per cent) of aluminium oxide shall be at least 40 with synthetic mineral fibres,
4. Glass fibres which are intended for high temperature applications which
  - a) require a classification temperature from 1 000 degrees Celsius up to 1 200 degrees Celsius have a half-life according to the criteria given under sub-number 2 of at most 65 days or
  - b) require a classification temperature of more than 1 200 degrees Celsius, have a half-life according to the criteria given under sub-number 2 of at most 100 days.

(3) Spray procedures where carcinogenic mineral fibres are used shall be prohibited.

(4) Paragraphs 1 to 3 shall also apply to private households.

## **Number 6**

### **Particularly Dangerous Carcinogenic Substances**

(1) The following particularly dangerous carcinogenic substances shall only be manufactured or used in enclosed systems:

1. 6-amino-2-ethoxynaphthaline,
2. bis(chloromethyl)ether,
3. cadmium chloride (in inhalable form),
4. chloromethyl-methylether,
5. dimethylcarbamoyl chloride,
6. hexamethylphosphoric acid triamide,
7. 1,3-propane sultone,
8. N-nitrous amine compounds, except those N-nitrous amine compounds where appropriate tests have not yielded any indication of carcinogenic effects,
9. tetranitromethane,
10. 1,2,3-trichloropropane
11. dimethyl and diethyl sulphate

The restrictions pertaining to the manufacture and use according to sentence 1 shall also apply to o-Toluidine.

(2) The restrictions pertaining to the manufacture and use according to paragraph 1 shall not apply to research and analysis purposes and not to science teaching purposes in the quantities required.



## **Annex III**

### **(to Article 11 paragraph 4)**

#### **Special Requirements Regarding Activities Involving Organic Peroxides**

##### Contents

- Number 1     Scope and Definitions
- Number 2     Activities involving organic peroxides

#### **Number 1**

##### **Scope and Definitions**

(1) Annex III only stipulates the requirements for the protection of workers and persons according to Article 1 paragraph 3 sentence 2 (other persons) against

- a)     fire and explosion hazards as well as
- b)     fire and explosion impacts.

Health damaging effects which may occur in connection with activities involving organic peroxides shall not be covered by Annex III.

(2) The following definitions shall apply to Annex III:

- a)     risk group shall designate a classification of organic peroxides on the basis of their burning behaviour in a packaged state,
- b)     dangerous objects shall designate factory buildings, rooms or places where activities involving organic peroxides are carried out,
- c)     safety distances shall designate distances to be complied with between dangerous objects and their surrounding environment, in particular residential areas and traffic routes,
- d)     safety distances shall designate distances to be complied with on company premises,
- e)     traffic routes shall designate streets, railway tracks and waterways which are fully accessible for public traffic, except for low density areas,
- f)     residential area shall designate an area in which occupied residential buildings are to be found and which is not connected with the company; occupied residential buildings also include buildings and installations with rooms determined and suited for not only temporary stays of persons.

## Number 2

### Activities involving organic peroxides

#### 2.1 Scope

(1) Number 2 shall apply to activities involving organic peroxides.

(2) Number 2 shall not apply to

- a) activities involving organic peroxides in the form of preparations if
  - aa) the preparation does not contain more than 1.0 per cent active oxygen from organic peroxides with max. 1.0 per cent hydrogen peroxide, or
  - bb) the preparation does not contain more than 0.5 per cent active oxygen from organic peroxides with more than 1.0 per cent, but no more than 7.0 per cent hydrogen peroxide,
- b) activities involving organic peroxides in small packs with a content of up to 100 grams solid or up to 25 millilitres liquid organic peroxide provided that
  - aa) the organic peroxides are not subject to the Explosives Act,
  - bb) the small packs have been placed on the market ready for sale and the total mass of organic peroxides in the small packs available in the company does not exceed a total content of 100 kilograms,
- c) the keeping of explosive organic peroxides, insofar as they are subject to the provisions of the Second Ordinance to the Explosives Act as published on 10 September 2002 (BGBl. I p. 3543), which was last amended by Article 2 the Ordinance of 26 November 2010 (BGBl. I p. 1643).

#### 2.2 Definitions

The following definitions shall apply to number 2:

- a) active oxygen is the cleavable oxygen available for oxidation reactions (one oxygen atom per peroxy group),
- b) the corrected material throughput  $A_k$  (stated in kilograms/minute) characterizes the burning behaviour of an organic peroxide in its packaging based on a quantity of 10,000 kilograms. This takes into account the degree of completeness and uniformity of the burning process as well as the heat radiation capacity of the flames.

#### 2.3 Assignment of organic peroxides to risk groups

(1) The employer shall only allow activities involving organic peroxides if the Federal Institute for Materials Research and Testing has published a risk group for this organic peroxide according to paragraph 2. Where the Federal Institute for Materials Research and Testing has published the warehouse group assignment I, II or III according to the Second Ordinance relating to the Explosives Act as published on 10 September 2002 (BGBl. I p. 3543), last amended by Article 2 of the Ordinance of 26 November 2010 (BGBl. I p. 1643), risk groups OP I, OP II or OP III shall be deemed published for these organic peroxides accordingly. Sentence 1 shall not apply to organic peroxides in the form of preparations which contain organic peroxides with a mass content of under 10 per cent and hydrogen peroxide with a mass content of under 5 per cent.

(2) The following criteria shall apply to the assignment to risk groups:

- a) Risk group OP I: organic peroxides of this group often burn off very vigorously with strong heat development; in rare cases the fire spreads fast; packs of organic peroxide may also explode with low pressure effect; in this case the total content of a pack can react; single burning packs may be flung away; the resulting hazard for the environment is low; buildings in the surroundings are generally not at risk by the pressure effect; this risk group is broken down in subgroups Ia and Ib; risk group OP Ia comprises organic peroxides with a corrected material throughput Ak greater or equal to 300 kilograms/minute; risk group OP Ib comprises organic peroxides with a corrected material throughput Ak greater or equal to 140 kilograms/minute; however less than 300 kilograms/minute.
- b) Risk group OP II: organic peroxides of this group burn off vigorously with strong heat development; the fire spreads fast; in rare cases packs of organic peroxide may also explode with low pressure effect; in this case, however, it is not the total content of a pack that reacts; the surroundings are mainly at risk by flames and heat radiation; buildings in the vicinity are not at risk through the pressure effect; risk group OP II comprises organic peroxides with a corrected material throughput Ak greater than or equal to 60 kilograms/minute, however less than 140 kilograms/minute,
- c) Risk group OP III: organic peroxides of this group burn off and the effects of the fire are comparable to those of combustible materials; risk group OP III comprises organic peroxides with a corrected material throughput Ak of less than 60 kilograms/minute,
- d) Risk group OP IV: organic peroxides of this group are not readily flammable and burn off so slowly that the surroundings are practically not at risk by flames and heat radiation; the corrected material throughput Ak cannot be given for this risk group.

(3) Where no risk group assignment is available for an organic peroxide the employer shall submit a corresponding application in writing or electronically to the Federal Institute for Materials Research and Testing. The required documents shall be attached to the application. The Federal Institute for Materials Research and Testing shall publish the risk group assignment.

(4) In deviation from paragraph 3 the employer may also have another suitable agency check which risk group assignment shall be made. In this case the employer shall submit the test result together with the required documents to the Federal Institute for Materials Research and Testing. The Federal Institute for Materials Research and Testing shall publish the risk group assignment if it deems the assignment to be correct.

(5) Until the Federal Institute for Materials Research and Testing publishes the risk group assignment organic peroxides with a peroxide concentration of

- a) greater than or equal to 57 per cent shall be handled like organic peroxides of risk group OP Ib,
- b) greater than or equal to 32 per cent but less than 57 per cent shall be handled like organic peroxides of risk group OP II,
- c) greater than or equal to 10 per cent but less than 32 per cent shall be handled like organic peroxides of risk group OP III.

(6) Non combustible organic peroxides with a peroxide concentration greater than or equal to 10 per cent may be handled like organic peroxides of risk group OP IV if the competent authority has given its consent hereto. The preliminary risk group assignment shall not be used for more than two years.

## 2.4 Information Gathering and Risk Assessment

(1) Activities involving organic peroxides require that the employer has to gather expert information in the framework of the risk assessment according to Article 6 whether the risk group assignment of the organic peroxide published by the Federal Institute for Materials Research and Testing is applicable to this activity. Where the criteria of the assignment are in conformity with the working conditions, he shall take the protective measures resulting from the risk group assignment. If the employer finds out that the published risk group assignment cannot be accepted for individual activities, he shall expertly determine a deviating risk group for the activities concerned. If the employer himself does not have the expert knowledge, he shall seek expert advice.

(2) If the employer realizes in the framework of the risk assessment according to Article 6 that the manufacturing, handling or processing of organic peroxides may result in mixtures that are capable of being detonated or tend to fast deflagration or vigorous heat explosion the employer shall obtain an expert opinion from the Federal Institute for Materials Research and Testing which focuses in particular on the protective measures to be taken. This shall also apply when activities involving organic peroxides are to be carried out in stationary outdoor installations, including the storage in tanks or silos.

## 2.5 Protective and safety distances

(1) As for buildings and outdoor installations where activities involving organic peroxides are carried out, the employer shall specify sufficient protective distances between them and residential areas and public traffic routes; he shall also specify safety distances between them and buildings or installations within the company premises. Buildings where only activities involving organic peroxides of risk group OP IV are carried out, no protective or safety distances have to be complied with.

(2) The protective and safety distances shall be specified according to the risk group and the quantity of the available organic peroxides and the position, configuration and type of buildings and installations.

(3) When keeping organic peroxides of risk group OP Ia up to a net mass of 100 kilograms and of risk groups OP Ib, OP II and OP III up to a net mass of 200 kilograms no protective or safety distances have to be observed. It has to be ensured, however, that a reaction of organic peroxides which has not taken place according to the intended purpose shall not have any effect on the outside world or only in a direction which is not dangerous.

## 2.6. Constructive Requirements

The employer has to erect buildings where activities involving organic peroxides are carried out in such a way that the hazard for employees and other persons will be reduced to a minimum in the event of operational disturbances or accidents. Where a beginning decomposition may result in a hazard, he shall ensure that in particular buildings and rooms for the manufacturing, treatment, processing, filling or destruction of organic peroxides

- a) are erected according to safety standards,
- b) have sufficiently resilient ceilings and walls, and
- c) have sufficiently-sized pressure relief areas in walls or ceilings which in the case of an explosion make a quick pressure reduction possible; they must be made of light-weight building materials and their resilience must be clearly lower than that of the other components.

## **2.7 Ignition Sources**

The employer shall specify the areas in which ignition sources have to be avoided in the framework of the risk assessment and to take the necessary protective measures, including the marking of these areas.

## **2.8 Transport within company premises**

Within the company premises an organic peroxide shall only be transported by motor vehicles or industrial trucks which do not provide an ignition source for the organic peroxide.

## **2.9 Requirements for the keeping of organic peroxides**

(1) Organic peroxides, which are subject to the Explosives Act, must be kept according to the provisions of the Second Ordinance to the Explosives Act as published on 10 September 2002 (BGBl. I p. 3543), last amended by Article 2 of the Ordinance of 26 November 2010 (BGBl. I p. 1643). For the keeping of organic peroxides not subject to the Explosives Act, paragraphs 2 to 5 shall apply.

(2) Warehouses for organic peroxides of risk groups OP I to OP III shall be erected as single-storey buildings. In deviation from sentence 1 a warehouse may also have several storeys if the risk assessment shows that the hazard for employees and other persons is not increased because of the multi-storey building structure.

(3) Warehouses for organic peroxides of risk groups OP I to OP III shall be equipped with pressure relief areas.

(4) Warehouses shall be erected and equipped in such a manner that the maximum permissible storage temperature for organic peroxides is not exceeded.

(5) The employer shall ensure that organic peroxides are only stored together or placed jointly with other substances, preparations or articles if this will not result in a considerably greater hazard.

## **2.10 Requirements for plants and equipment**

(1) Plants and equipment shall be designed and equipped in such a manner that safety is maintained and an uncontrolled emission of organic peroxides prevented even in case of operational disturbances or accidents. It must be possible to empty them completely and safely.

(2) Plants must be erected in such a manner that they cannot trigger any dangerous reactions of the organic peroxides. They shall be equipped with control and monitoring devices for their safe operation.

(3) Dangerous inclusions of organic peroxides must be prevented.

(4) Type and number of fire extinguishers shall be designed for the particular properties of organic peroxides.