

# **Hazardous Substances Ordinance (Gefahrstoffverordnung - GefStoffV)**

of 23 December 2004 (BGBl. I p. 3758) as amended by Article 2 of the Ordinance of 23 December 2004 (BGBl. I p. 3855)

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## **Section 1 Scope and definitions**

### **Article 1: Scope**

(1) The present Ordinance shall apply to the following: (a) placing preparations, substances and products on the market; (b) protecting workers and other persons from health and safety risks arising from hazardous substances; (c) safeguarding the environment against damage occasioned by substances.

(2) Section 2 shall govern the placing of any of the following substances, preparations, products or agents on the market:

1. Hazardous substances and preparations within the meaning of Article 3a of the Chemicals Act (Chemikaliengesetz) as published in the announcement of June 20, 2002 (Federal Law Gazette (BGBl.) I p. 2090) as last amended by Article 10 of the Act of May 13, 2004 (Federal Law Gazette (BGBl.) I p. 934)
2. Specific substances, preparations and products that are subject to special labeling requirements pursuant to Directives 76/769/EEC, 96/59/EC or 1999/45/EC
3. Biocidal products pursuant to Article 3 (b) (1) (1) of the Chemicals Act (Chemikaliengesetz) that are not hazardous substances or preparations within the meaning of Article 3a of the Chemicals Act (Chemikaliengesetz)
4. Biological agents that are marketed and distributed as biocidal products.

Section 2 shall apply solely to oxidizing, extremely flammable, highly flammable or flammable preparations and substances that are not biocidal agents or products, that are placed on the market for any commercial purpose and/or that are used by any worker. Section 2 shall not apply to human or animal feeding stuffs that are destined for end users.

(3) Parts 3 through 6 shall apply to (a) the protection of workers against any actual or potential health and safety hazard occasioned by substances, preparations and products that workers use to carry out their work duties or that are associated with or produced by such duties; (b) the protection of any other worker or person whose health and safety could potentially be jeopardized by the direct outcome of any activity within the meaning of item (a).

(4) Section 3 shall also apply to the transport of dangerous chemical substances and preparations, without prejudice to the provisions of the Act on Transport of Hazardous Substances (Gesetz über die Beförderung gefährlicher Güter) and any ordinances promulgated on the basis thereof.

(5) Unless expressly stated otherwise, the Ordinance shall not apply to the following domains:

1. biological agents within the meaning of Article 2 (1) of the Ordinance on Safety and Health Protection Related to Work Involving Biological Substances (Biostoffverordnung) of Jan. 27, 1999 (Federal Law Gazette (BGBl.) I p. 50) as last

amended by Article 305 of the Ordinance of Nov. 25, 2003 (Federal Law Gazette (BGBl.) I p. 2304)

2. Household use

The Ordinance shall also not apply to enterprises that fall within the scope of the Federal Mining Act (Bundesberggesetz) of Aug. 13, 1980 (Federal Law Gazette (BGBl.) I p. 1310) as last amended by Article 12g(14) of the Act of Aug. 24, 2004 (Federal Law Gazette (BGBl.) I p. 2198) insofar as these statutes and/or any ordinances promulgated on the basis thereof contain any applicable provisions.

## **Article 2: Applicable European Community directives**

The European Community directives that apply hereunder are listed in Annex 1. The most recently amended versions of these directives shall apply in all cases. If any such directive is modified for any reasons, including as the result of technical progress in a process governed by such directive, the version published in the Official Journal of the European Community shall apply upon expiration of the implementation period stipulated in the applicable modified or amended directive and as from the date upon which the modified or amended directive comes into force.

The first sentence herein shall not apply insofar as not otherwise stipulated in Article 5 (5) in conjunction with Annex II.

## **Article 3: Definitions**

(1) "Hazardous substances" hereunder shall mean the following:

1. Hazardous substances and preparations within the meaning of Article 3a of the Chemicals Act (Chemikaliengesetz), as well as any other substance or preparation that has other chronically deleterious properties.
2. Any explosive substance, preparation or product.
3. Any substance, preparation or product whose manufacture or application could occasion the generation or release of any substance or preparation that falls within the scope of items 1 or 2.
4. Any other hazardous chemical agent within the meaning of Article 2 (b) in conjunction with item "a" of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work (OJ EC No. L 131 p. 11).

(2) "Carcinogenic," "mutagenic" or "toxic to reproduction" within the meaning of parts 3 and 4 shall mean the following:

1. Any substance that meets the criteria laid down in Annex VI of Directive 67/548/EEC for a substance that is to be classified as carcinogenic, mutagenic, or toxic to reproduction
2. Any preparation containing one or more of the substances referred to in item 1 herein, insofar as the concentration of one or more of such substances meets the

classification criteria for a preparation that is carcinogenic, mutagenic or toxic to reproduction. The relevant concentration levels shall be those stipulated in either

- a) Annex I of Directive 67/548/EEC or
- b) Annex II of Directive 1999/45/EC insofar as the substance or substances in Annex I of Directive 67/548/EEC are not mentioned in Annex II or are not subject to concentration thresholds therein.

3. Any substance, preparation or process that a Federal Ministry of Economics and Labor advisory has designated as carcinogenic, mutagenic, or toxic to reproduction within the meaning of Article 21 (4).

(3) "Activity" shall mean any work or work process involving production, handling, management, storage, transport, removal, disposal and treatment in which a substance, preparation or product is applied or is to be applied, or in which any substance or preparation occurs or is generated. This shall apply in particular to "application" (Verwenden) within the meaning of Article 3 (1) of the Chemicals Act (Chemikaliengesetz), as well as manufacturing. "Activity" in the present Ordinance also means any work involving operation or monitoring in which hazardous substances could pose a risk to workers' health or safety.

(4) "Storage" shall mean storage for purposes of subsequent application or distribution to third parties. "Storage" also includes preparation for any transport procedure that is not realized on the working day following the preparation process or within 24 hours of such process. If the working day is a Saturday, this deadline shall expire at the end of the subsequent working day.

(5) A business owner/operator with no employees, a party that subcontracts work to homeworkers (Zwischenmeister) and a party that issues work orders (Auftraggeber) shall be deemed to be an employer (Arbeitgeber) within the meaning of the Homework Act (Heimarbeitsgesetz). Homeworkers, pupils, students and other persons, in particular those employed at scientific institutions, and other persons who work with hazardous substances shall be deemed to be "workers" within the meaning of the Homework Act (Heimarbeitsgesetz). The provisions of this ordinance related to worker participation do not apply to pupils and students.

(6) "Occupational exposure limit value" shall mean the limit value for the time-weighted mean concentration of a substance in workplace air relative to a defined reference period. This value shall indicate the concentration of a substance that is not expected to induce any acute or chronic deleterious effect on the general state of a worker's health.

(7) "Biological limit value" shall mean the limit value for the toxicological and occupational medicine related concentration of a substance, its metabolites or an indicator of effect for the relevant biological material that is not expected to have any deleterious effect on the general state of a worker's health.

(8) "Explosive mixture" shall mean a mixture of combustible gases, vapor, mist or dust in which post-ignition combustion spreads to the entire uncombusted mixture.

"Hazardous explosive mixture" shall mean an explosive mixture that occurs in a quantity

that necessitates specific safeguards in order to protect the health and safety of workers or other persons. “Explosive atmosphere” shall mean an explosive mixture under atmospheric conditions when mixed with air.

(9) A substance, preparation or product shall be defined as “explosive” under the following conditions:

1. Where, in the presence or absence of air, the substance, preparation or product is amenable to chemical conversion by an ignition source such as an external thermal factor, mechanical load or detonation force that generates high-pressure gases in such a brief space of time that an explosive rise in temperature and pressure is induced.
2. Where, upon being combined with air and exposed to an ignition source, flames spread spontaneously in the substance, preparation or product in such a way as to induce an explosive rise in temperature and pressure.

(10) “Best available techniques” shall mean the state of development of advanced processes, equipment, or operational modalities that appear to reliably render a specific measure most suitable and practical for the protection of the health and safety of workers. The definition and selection of the best available techniques shall be predominantly based on comparable processes, equipment and operational modalities that have been used with success in other settings. This shall also apply to requirements in the realm of occupational medicine and workplace hygiene.

## **Section 2**

### **Information regarding hazardous substances**

#### **Article 4: Hazardous properties**

A substance or preparation shall be classified as hazardous insofar as it possesses one or more of the properties referred to in Article 3a (1) of the Chemicals Act (Chemikaliengesetz) and as defined in greater detail in Annex VI of Directive 67/548/EEC. A substance or preparation shall be defined as

1. explosive where, in a solid, liquid, pasty or gel state, it has the capacity to react exothermically and rapidly generate gases with or without the presence of air, and under defined test conditions either detonate, deflagrate or upon heating explode when partially confined;
2. oxidizing where, though the substance or preparation is not as a rule inherently combustible, the risk of fire and the intensity of any fire are greatly increased by contact with any flammable substance or preparation, mainly through the release of oxygen;
3. extremely flammable insofar as the substance or preparation
  - a) has an extremely low flash and boiling point in a liquid state;
  - b) has explosive limits when mixed with air in a gaseous state under normal temperature and pressure conditions;
4. highly flammable insofar as it



- a) becomes hot and can ultimately ignite in air under normal temperature conditions without any energy input;
  - b) while in a solid state is potentially highly flammable after brief contact with an ignition source and continues to burn or to be consumed hazardously after removal of the ignition source;
  - c) has a very low flash point in a liquid state;
  - d) generates hazardous quantities of extremely flammable gases upon contact with water or damp air
5. flammable insofar as it has a low flash point in a liquid state;
  6. highly toxic insofar as it causes death or is acutely or chronically deleterious upon being absorbed through the skin, inhaled or swallowed in minute amounts;
  7. toxic insofar as it causes death or is acutely or chronically deleterious upon being absorbed through the skin, inhaled or swallowed in minute amounts;
  8. a health hazard insofar as it causes death or is acutely or chronically deleterious upon being absorbed through the skin, inhaled or swallowed in minute amounts;
  9. corrosive insofar as it has the capacity to destroy living tissue upon contact with such tissue;
  10. irritating insofar as it causes inflammation (without being corrosive) upon immediate, prolonged or repeated contact with the skin or any mucous membrane;
  11. sensitizing insofar as upon being absorbed through the skin or inhaled it elicits a reaction of hypersensitisation such that on future exposure to the substance or preparation characteristic adverse effects are produced;
  12. carcinogenic insofar as it can cause cancer or increase the incidence thereof upon being absorbed through the skin, inhaled or ingested;
  13. toxic to reproduction insofar as, upon being absorbed through the skin, inhaled or ingested
    - a) it may produce non-heritable adverse effects in the progeny or increases the incidence of such adverse effects (embryotoxic)
    - b) it can impair male or female reproductive functions or capacity (fertility)
  14. mutagenic insofar as absorption through the skin, inhalation or ingestion induces heritable genetic defects or increases their incidence
  15. an environmental hazard insofar as the preparation, substance or transformation products thereof induce any changes in the properties of any ecosystem or of water, soil, air, climate, animals, plants or micro-organisms that could have an immediate or delayed hazardous effect on the environment.

## **Article 5: Classification, packaging and labeling**

(1) Manufacturers and importers shall classify substances and preparations before placing them on the market. Substances that fall within the scope of Annex I of Directive 67/548/EEC shall be classified in accordance with the classifications therein. Substances that do not fall within the scope of Annex I of Directive 67/548/EEC shall be classified by manufacturers and importers in accordance with Annex VI of Directive

67/548/EEC. In classifying substances and preparations, the manufacturer or distributor shall take into account all hazards pursuant to one or more of the following:

1. The results of tests required by the provisions of Articles 7, 9 and 9a of the Chemicals Act (Chemikaliengesetz)
2. Proven scientific knowledge based on classification in accordance with the hazardous properties referred to in Article 4
3. Information or knowledge arising from any authorization procedure

In addition, the manufacturer or distributor shall realize additional research on old substances within the meaning of Article 3 (2) of the Chemicals Act (Chemikaliengesetz) that do not fall within the scope of Annex I of Directive 67/548/EEC for purposes of obtaining essential and ascertainable data regarding the properties of these substances. Manufacturers and distributors shall comply with all Federal Ministry of Economics and Labor advisories in this regard.

(2) Manufacturers and importers shall classify preparations in accordance with Directive 1999/45/EEC.

(3) In addition, manufacturers and importers shall classify (a) biocidal products that are placed on the market as such and that also contain biological agents and (b) biocidal products containing biological agents, in both cases within the meaning of Articles 3 and 4 of the Ordinance on Safety and Health Protection Related to Work Involving Biological Substances (Biostoffverordnung).

(4) Any manufacturer, importer, or distributor of a hazardous substance, preparation or biocidal product that places such item on the market shall package and label such substance, preparation or product in accordance with the classifications in paragraphs 1, 2 and 3. If any hazardous substance or preparation is placed on the market in bulk (unpackaged), each unit supplied shall be accompanied by the appropriate safety information, preferably on a safety data sheet. Information within the meaning of sentences 1 and 2 shall be provided in German.

(5) In addition to the general provisions referred to in paragraphs 1 through 4 above, manufacturers, distributors and importers shall also comply with the regulations described in Annex II.

## **Article 6: Safety Data Sheets**

(1) Any manufacturer, importer, or distributor of a hazardous substance or preparation that places such item on the market shall submit at no charge a Safety Data Sheet in German pursuant to the provisions of Directive 91/155/EEC. Manufacturers and distributors, importers and distributors of any preparation within the meaning of Article 14 (2.1) (b) of Directive 1999/45/EC that is placed on the market shall supply commercial and professional users of such preparation with a Safety Data Sheet at the behest of any such user. Manufacturers and importers shall take particular care to

ensure that Safety Data Sheets are elaborated by knowledgeable persons, contain complete and accurate information and are updated on a regular basis.

(2) Safety Data Sheets pertaining to substances that a Federal Ministry of Economics and Labor advisory has classified as carcinogenic, mutagenic or toxic to reproduction within the meaning of Article 21 (4) shall be labeled accordingly, and if necessary shall provide information regarding safe use. The first sentence shall apply to preparations as well. Safety Data Sheets pertaining to substances or preparations shall also identify any activity involving such substance or preparation that a Federal Ministry of Economics and Labor advisory has classified as carcinogenic, mutagenic or toxic to reproduction within the meaning of Article 21 (4).

(3) Paragraphs 1 and 2 do not apply to distribution to end users who are private individuals.

(4) Precise and readily understandable directions for use pursuant to Directive 1994/45/EC shall be printed on the packaging of preparations referred to in paragraph 2 that are sold in retail outlets or that are available to the general public and are classified as very toxic (T+), toxic (T) or corrosive (C). If printing directions on the packaging is technically unfeasible, such directions shall be incorporated into the product packaging.

### **Section 3 General safeguards**

#### **Article 7: Gathering information and assessing risk**

(1) In assessing the work environment pursuant to Article 5 of the Industrial Safety Act (Arbeitsschutzgesetz) of August 7, 1996 (BGBl. I p. 1246) as last amended by Article 11 (20) of the Act of July 30, 2004 (BGBl. I. p. 1950), the employer shall first determine whether workers' activities either involve the use of hazardous substances or generate or release such substances. If either or both prove to be the case, the employer shall assess all possible health risks arising from such substances in light of the following:

1. Hazardous properties of the substance or preparation
2. Safety and health protection information provided by the manufacturer or distributor, particularly Safety Data Sheet information pursuant to Article 6
3. An assessment of the scope, nature and duration of exposure that takes into account all exposure routes as well as any available results pursuant to Articles 9 (4) and 10 (2).
4. Physicochemical effects of the substance or preparation
5. Substitution options
6. Work environment and work processes, including work materials and the quantities of hazardous substances involved
7. Occupational exposure limit values and biological limit values
8. Efficacy of safety measures that have been or shall be realized
9. Definitive findings of preventive medical checkups

Any activity realized by an employer involving hazardous substances shall be subject to a prior risk assessment, as well as prior implementation of any safety measures that are necessary.

(2) The employer shall obtain from the relevant distributor, vendor or any other readily available source all information that is necessary for realization of a risk assessment. Insofar as appropriate, such information shall also include any specific assessment of user risk that has been realized on the basis of European Community chemical substances regulations. If such regulations, particularly Directives 67/548/EEC and 1999/45/EC, do not require that information be supplied (e.g. in a Safety Data Sheet), the distributor or vendor shall provide the employer, at the latter's behest, with all information regarding hazardous substances that is necessary for compliance with the first and second sentences. The employer shall himself realize the classification of any substance or preparation pursuant to Directives 67/548/EEC or 1999/45/EC that the distributor has failed to classify and label pursuant to Article 5 (1) or 5 (2) and shall at a minimum notify workers of any risk to their health or safety arising from any substance or preparation. This shall apply as well to activities involving hazardous substances that are not so designated or that do not fall within the scope of any hazardous property within the meaning of Article 3a of the Chemicals Act (Chemikaliengesetz) but whose physical, chemical or toxic properties and workplace storage or application modalities constitute a health and safety risk for workers.

(3) The employer shall determine whether a fire or explosion could be induced by any activity involving any substance, preparation, or product, or any work environment, work process or work material, or any interaction between a substance, preparation or product and any work environment, work process or work material. It is of particular importance that the employer determine whether the properties of any substance, preparation or product, or any workplace application or storage modality, could result in the formation of an explosive mixture. Safety-related parameters regarding any possible change in non-atmospheric conditions that could cause an explosion shall be ascertained and adhered to.

(4) The risk assessment shall also investigate in-house activities (e.g. maintenance work) that could cause an explosion even if all possible preventive technical safeguards have been implemented. The possible risk entailed by other activities such as operating and monitoring activities shall be investigated insofar as the use or presence of hazardous substances in connection with such activities could endanger workers' health and safety.

(5) Any dermal, inhalation and physicochemical risks attributable to work activities shall be appraised individually as part of the risk assessment process. If more than one hazardous substance is associated with a single activity, the health and safety effects of possible interactions or combinations shall be appraised as part of the risk assessment process.

(6) The employer shall document risk, without regard for the number of workers affected, as specified in paragraph 2 and prior to rollout of the activity under

investigation. The documentation shall indicate which risks could occur in the work environment and which safeguards are compulsory within the meaning of sections 3 and 4 hereunder. The requirement for detailed documentation shall be waived for activities involving negligible risk within the meaning of paragraph 9. The employer shall supply a readily understandable explanation of any other instance of a failure to realize detailed documentation. The risk assessment shall be updated insofar as such updating is necessitated by the results of preventive medical checkups or a substantial change in any relevant circumstance.

(7) Risk assessments shall be realized solely by knowledgeable persons. If the employer himself does not possess such knowledge, he shall seek expert guidance. Knowledgeable persons shall mainly include company doctors and occupational safety specialists. The employer shall be entitled to base his safeguards on a risk assessment provided by a manufacturer or distributor insofar as the employer realizes his activities in accordance with the data and observations contained in such risk assessment.

(8) The employer shall maintain a registry of the hazardous substances used on his premises and shall include in such registry cross-references to the relevant Safety Data Sheets. The foregoing requirement shall be waived for hazardous substances that are associated with activities involving negligible risk within the meaning of paragraph 9. The registry shall be accessible to all workers affected and their representatives.

(9) If the risk assessment shows that worker risk is negligible owing to (a) the nature of the company work environment (b) the use of only small amounts of hazardous substances and (c) the fact that the cumulative duration and amount of exposure to hazardous substances is relatively low, and (d) if the health and safety measures realized for workers pursuant to Article 8 (1) through 8 (8) are sufficient, no further safeguards pursuant to Articles 9 through 17 shall be required (protection class 1).

The first sentence shall not apply to activities involving hazardous substances which

1. are classified or labeled as toxic, highly toxic, carcinogenic, mutagenic, or toxic to reproduction pursuant to EC category 1 or 2; or
2. have been classified by a Federal Ministry of Economics and Labor advisory as class 1 or 2 substances that are carcinogenic, mutagenic, or toxic to reproduction.

(10) If the employer realizes no activities involving hazardous substances which

1. are classified or labeled as toxic, highly toxic, carcinogenic, mutagenic, or toxic to reproduction pursuant to EC category 1 or 2; or
2. have been classified by a Federal Ministry of Economics and Labor advisory as carcinogenic, mutagenic, or toxic to reproduction pursuant to EC category 1 or 2,

and if the safety measures realized on the basis of the risk assessment pursuant to Articles 8 and 9 are sufficient to protect worker health and safety, the measures pursuant to Articles 10 and 11 shall not be required (protection class 2).

## **Article 8: Regulations pertaining to risk avoidance; activities involving negligible risk (protection class 1)**

(1) Pursuant to the employer's obligation to ensure the health and safety of his workers in carrying out their work duties, the employer shall realize all necessary work safety measures pursuant to the Industrial Safety Act (Arbeitsschutzgesetz), as well as the measures specified hereunder. In so doing the employer shall first and foremost act in accordance with all Hazardous Substances Commission (Ausschuss für Gefahrstoffe) regulations and advisories issued by the Federal Ministry of Economics and Labor pursuant to Article 21 (4) hereunder. As a rule, the employer shall be deemed to be in compliance with the requirements referred to in the Ordinance insofar as he is in compliance with regulations and advisories mentioned in the second sentence. The employer shall be permitted to deviate from these regulations and advisories insofar as a comparable level of worker health and safety protection (at a minimum) is achieved by means of other measures. The employer shall indicate in his risk assessment documentation his reasons for adopting such alternative measures.

(2) Health and safety risks for workers arising from activities involving hazardous substances shall be eliminated or minimized by means of the following measures:

1. Taking appropriate measures in regard to the design and organization of workplace work systems
2. Supplying work materials that are appropriate for activities involving hazardous substances and by realizing appropriate maintenance procedures, in both cases with a view to protecting workers' health and safety
3. Limiting the number of workers that are or could potentially be exposed to hazardous substances
4. Limiting exposure duration and intensity
5. Realizing appropriate hygiene measures and above all cleaning the workplace at regular intervals
6. Limiting the quantity of hazardous substances at the workplace to the quantity that is required for the activity of interest
7. Implementation of work methods and processes that are not deleterious to worker health and safety, including precautionary measures that ensure that hazardous substances, as well as waste containing such substances, are handled, stored and transported safely at the workplace.

Workplace contamination and worker risk shall be kept to an absolute minimum. The employer shall audit the functionality and efficacy of technical safety measures at regular intervals, and every three years at a minimum, and shall document the results of such audits.

(3) For the activities referred to in Article 7 (2) fifth sentence, the employer shall realize appropriate measures in accordance with the risk assessment pursuant to Articles 8 through 18.

(4) The employer shall ensure that all substances and preparations used for work activities are readily identifiable. Any hazardous substance or preparation in use at the workplace shall bear a label containing essential information regarding its classification,

the risks involved in handling it and the safety measures that are to be taken in regard to such substance or preparation. Preferably, labeling practices that comply with those referred to in Directives 67/548/EEC or 1999/45/EC shall be applied in realizing such labels. In addition, the employer shall ensure that any equipment, apparatus, pipe or conduit containing a hazardous substance is labeled in such a way that any such substance contained in such equipment, apparatus, pipe or conduit, as well as any hazard associated with such substance, are clearly identifiable. The foregoing shall be without prejudice to other legal obligations pertaining to labeling.

(5) The employer shall be barred from realizing any activity referred to in paragraphs 3 and 4 until such time as he has complied with the requirements specified therein. The second and third sentences of paragraph 4 shall not apply to new substances in scientific laboratories providing that worker exposure to such substances arising from the attendant activities is avoided.

(6) Hazardous substances shall be stored and warehoused in such a way as to avoid any deleterious effect on the environment or human health. In so doing, the employer shall also take precautionary measures aimed at preventing any improper or irregular use of such substances. The risk associated with any hazardous substance that is stored for purposes of distribution or immediate use shall be identifiable and the substance shall be labeled accordingly pursuant to Article 4.

(7) Hazardous substances shall not be stored or warehoused in any receptacle whose form or markings could suggest that foodstuffs are contained therein. Hazardous substances shall be stored in a clearly organized fashion and shall not be stored in close proximity to any medication, food for human consumption or animal feeding stuffs or the ingredients or components thereof.

(8) Hazardous substances that are no longer needed and any receptacle that has been emptied but still contains residues of hazardous substances shall be handled with care, removed from the workplace, stored or disposed of safely and properly.

### **Article 9: Basic worker safeguards (protection class 2)**

(1) The employer shall ensure that any worker health or safety risk arising from any work activity involving hazardous substances is eliminated or minimized through implementation of the measures specified in the risk assessment. In complying with this requirement, the employer shall prioritize use of a substitute substance or preparation. In particular, the employer shall avoid activities involving hazardous substances or shall replace hazardous substances with substances, preparations, products or processes that are not deleterious, or less deleterious, to worker health and safety under the relevant application conditions. The employer shall indicate in the risk assessment documentation his reasons for foregoing implementation of any available substitution.

(2) If a risk cannot be eliminated in accordance with paragraph 1, the employer shall minimize such risk by implementing the following measures in the sequence indicated below:

1. Elaboration of suitable processes and technical control systems, as well as the deployment of suitable work and other materials that are reflective of the best available techniques
2. Implementation of collective protection measures at the risk source such as the installation of suitable exhaust and ventilation equipment and suitable organizational measures
3. If risk cannot be avoided through the implementation of the measures specified in items 1 and/or 2, individual safeguards shall be implemented, including the use of personal protective equipment.

(3) Workers shall use personal protective equipment in any setting in which workers could potentially incur a health or safety risk. The employer shall refrain from (a) implementing the wearing of burdensome personal protective equipment as a long-term or permanent protective measure; and (b) allowing the wearing of such equipment to be or become a substitute for the implementation of safety measures of a technical or organizational nature. The employer shall ensure that

1. personal protective equipment is stored properly in a location that is specifically allocated for the storage of such equipment;
2. all personal protective equipment is tested and inspected prior to use and that such equipment is cleaned following use;
3. any personal protective equipment that is found to be damaged or defective is repaired or replaced prior to re-use.

The employer shall provide separate storage facilities for work/protective clothing and street clothing, insofar as the contamination of work clothing resulting from work activities could endanger workers' health and safety.

(4) The employer shall determine, by means of workplace measurements or comparable evaluative tools, whether his facility complies with occupational exposure limit values. If workplace activities are realized in accordance with one of the process and substance related criteria promulgated by the Hazardous Substances Commission (Ausschuss für Gefahrstoffe) and published by the Federal Ministry of Economics and Labor, the employer shall be deemed to be in compliance with occupational exposure limit values.

(5) If any occupational exposure limit value is exceeded, the employer shall realize a new risk assessment procedure promptly and shall implement the safeguards specified in paragraphs 2 (1) and 2 (2) in such a way as to bring such limit value into compliance. If occupational exposure limit values are noncompliant despite the implementation of technical and organizational safeguards, or if a health risk could arise from skin contact with any hazardous substance that (a) is absorbed through the skin (b) provokes cutaneous hypersensitivity (c) is irritating, corrosive, or cutaneously sensitizing or (d) could induce irreversible injury or disease, the employer shall promptly implement supplementary safeguards, and in particular shall provide the workers affected with



personal protective equipment.

(6) Any persons who realize such measurements shall possess the requisite expertise and equipment. The employer shall be entitled to assume that the data and information provided by any accredited measurement organization is accurate.

(7) In determining or measuring occupational exposure limit values, the employer shall comply with the procedures, measurement regulations and limit values promulgated by the Federal Ministry of Economics and Labor pursuant to Article 21 (4) hereunder, which are based upon the current versions of the following European Community directives:

1. Directive 98/24/EC and in particular the occupational exposure limit value provisions of Article 3 (2) of this Directive
2. Directive 2004/37/EC
3. Directive 83/477/EEC.

(8) If activities are realized involving hazardous substances for which no occupational exposure limit values are available, the employer shall be entitled to employ assessment methods that demonstrate the effectiveness of the safeguards implemented in regard to such substances. If no suitable assessment methods are available, the employer shall realize measurements.

(9) Workers shall refrain from consuming foodstuffs of any kind in work areas in which there is a risk of contamination from hazardous substances. Prior to the commencement of work activities, the employer shall provide suitable facilities for the consumption of foodstuffs.

(10) If a worker works with hazardous substances alone, the employer shall realize additional appropriate safeguards for such worker in accordance with the results of the risk assessment, or shall implement adequate supervisory measures through the use of technical apparatus or other appropriate means.

(11) Activities involving the use of biocidal products, including such activities in private households, shall be realized in accordance with established safety standards. Biocidal products shall not be used if such use is known to be deleterious to human health, non-target organisms and/or the environment. Application of established safety standards shall comprise the following at a minimum:

1. Biocidal product use under the conditions referred to in the authorization for such use and in accordance with the information on the product label
2. Minimizing biocidal product use through the application of established physical, biological, chemical or other alternative methods.

(12) Any employer that manufactures or uses the products referred to in Annex III, or that realizes the activities specified therein, shall comply with the regulations laid down in Articles 7 through 19 and Annex III.

## **Section 4 Supplementary safeguards**

### **Article 10: Supplementary safeguards for extremely hazardous activities (protection class 3)**

(1) If, for technical reasons, a hazardous substance is not amenable to replacement by a substance, preparation, product or process whose use or application is not hazardous or is a lesser hazard for worker health and safety, the employer shall manufacture or use such substance in a closed system. The employer shall use containers with airtight closures so as to ensure that hazardous substances are stored, handled and transported safely, including when waste is disposed of. If a closed system cannot be implemented for technical reasons, the employer shall take measures to ensure that worker risk, particularly risk arising from exposure, is minimized as much as possible through the use of the best available techniques.

(2) The employer shall take measures to ensure that his workplace complies with the relevant limit values and shall realize any measurements that are necessary in order to verify such compliance. Measurements shall also be realized insofar as any workplace or working condition changes that has an impact on worker exposure to hazardous substances. The results of such measurements shall be documented, archived and made available upon request to all workers and their agents and representatives. Application of the second sentence shall be excluded insofar as (a) the employer clearly demonstrates by means of substantiation methods on a par with the aforementioned measurements that the workplace is in compliance with applicable limit values; or (b) the employer realizes activities in accordance with one of the process and substance related criteria promulgated by the Hazardous Substances Commission (Ausschuss für Gefahrstoffe) and published by the Federal Ministry of Economics and Labor. If compliance with occupational exposure limit values is unfeasible, particularly during demolition, renovation and/or repair work, the employer shall minimize workers' exposure to hazardous substances to as great an extent as possible using the best available techniques and shall promptly implement supplementary safeguards, and shall above all provide workers with personal protective equipment. Article 9 (3) hereunder shall apply accordingly. Risk assessment documentation pursuant to Article 7 (6) shall specify the safeguards that were realized for the purpose of complying with occupational exposure limit values.

(3) The employer shall implement measures that ensure that workers have access only to those work areas to which they require access in order to carry out their work or perform specific work duties. Substances bearing the label T+ or T shall be stored in a locked facility or in such a way that only persons with expertise in the use of such substances have access to them. The second sentence shall not apply to fuel at automobile service stations.

**Article 11: Supplementary safeguards for activities involving the use of substances that are carcinogenic, mutagenic or toxic to reproduction (protection class 4)**

(1) Paragraphs 2, 3 and 4 below shall not apply insofar as

1. an occupational exposure limit value has been promulgated by the Hazardous Substances Commission (Ausschuss für Gefahrstoffe) and published by the Federal Ministry of Economics and is adhered to;
2. activities are realized in accordance with one of the process and substance related criteria promulgated by the Hazardous Substances Commission (Ausschuss für Gefahrstoffe) and published by the Federal Ministry of Economics and Labor.

Compliance with the relevant occupational exposure limit value shall be documented in the risk assessment report. Application of Article 10 (2) fourth sentence shall be excluded.

(2) If activities are realized that involve the use of substances that are carcinogenic, mutagenic or toxic to reproduction in accordance with EC category 1 or 2, the employer shall realize the following measures:

1. These substances shall be measured, in particular so as to measure, at an early stage, increased exposure resulting from an accident or unforeseen event;
2. Any hazardous area shall be clearly delimited and identified. Safety and warning signage, including signs saying "Rauchen Verboten" (No smoking), shall be installed in any area in which workers are or could be exposed to category 1 or 2 substances.

(3) In the case of any activity, particularly demolition, renovation or repair work, that could greatly increase workers' exposure to substances that are carcinogenic, mutagenic or toxic to reproduction in accordance with EC category 1 or 2 and for which all possible technical safeguards for limiting such exposure have been realized, after consulting with the workers affected or the representatives thereof, the employer shall implement measures that limit the duration of worker exposure to such substances insofar as possible and that protect workers while they are performing the activities that expose them to such substances. In the aforementioned instances (first sentence), the employer shall provide the affected workers with protective clothing and breathing apparatus which such workers shall be required to wear during the entire period of heightened exposure. Such period shall be of limited duration and shall be minimized for each worker.

(4) No exhaust air from any area in which activities involving the use of substances that are carcinogenic, mutagenic or toxic to reproduction in accordance with EC category 1 or 2 are realized shall be recirculated back into such area. In derogation of the first sentence, it shall be permissible to recycle exhaust air back into a work area if any such category 1 or 2 substances are adequately removed from such air using a method that has been approved by the competent authority or industry association. The air in such a case shall be treated or purified in such a way that no substances that are carcinogenic, mutagenic or toxic to reproduction are also added to the air of workers that are not carrying out the activities mentioned in the first sentence.

## **Article 12: Supplementary safeguards against physicochemical effects, particularly fire or explosion**

The employer shall implement technical and organizational measures that protect workers from risk arising from the physicochemical properties of hazardous substances. In particular, chemically unstable combustible substances, or other substances whose incompatibility renders them hazardous, are to be handled and stored in such a way that workers do not incur any risk. After implementing safeguards to avoid fire and explosion, the employer shall realize the following measures in the sequence listed:

1. Hazardous quantities or concentrations of combustible or explosive substances shall be avoided;
2. Ignition sources that could induce fire or explosion shall be avoided;
3. The deleterious effects of fire or explosion on health and safety shall be minimized.

In implementing the aforesaid measures in accordance with the first, second and third sentences, the employer shall above all comply with the stipulations of Annex III (1). The implementation of such measures shall be without prejudice to the provisions of the Ordinance on Industrial Safety and Health (Betriebssicherheitsverordnung).

## **Article 13: Accidents, emergencies and operational breakdowns**

(1) The employer shall in good time devise emergency measures that safeguard the health and safety of workers in the event of an accident, emergency or operational breakdown and shall implement such measures if the need arises. Such measures shall include the realization at regular intervals of safety drills, as well as providing adequate first-aid equipment.

(2) Upon occurrence of any event referred to in paragraph 1 first sentence, the employer shall take immediate measures to minimize the effects of such event, to advise workers of its occurrence and to reinstate normal operating conditions. The areas affected by any such event shall be accessed only by those workers whose presence in such area is absolutely necessary for repair work and for other indispensable activities.

(3) The employer shall promptly provide workers working in such areas with suitable protective clothing, personal protective equipment, as well as specialized safety equipment and work materials, all of which the workers concerned shall be required to use until the situation has been normalized. The employer shall limit the amount of time during which workers wear burdensome personal protective equipment. Persons not equipped with protective equipment shall not remain in any affected area.

(4) The employer shall ensure that warning and other communication systems are available for the purpose of alerting workers in the event a situation occurs involving an acute health and/or safety risk, so that in case of need adequate measures can be taken and emergency assistance, evacuation and rescue operations can be realized without delay.

(5) The employer shall ensure that information regarding emergency measures pertaining to hazardous substances is available to workers. The competent internal and external emergency services shall also have access to such information, which shall include the following:

1. advisories pertaining to the relevant work hazards, measures for identifying hazards and precautionary measures and procedures so that emergency services personnel can plan their own assistance and safety measures;
2. all available information regarding specific hazards that generally occur or could potentially occur in the event of an accident or emergency, including information regarding the processes specified in the previous paragraphs.

#### **Article 14: Providing workers with company-specific advisories and instructions**

(1) The employer shall provide workers with clear, understandable, and written company-specific operating instructions in accordance with Article 13 (5) (2) for purposes of avoiding the hazards mentioned in the risk assessment report. Such advisories and instructions shall include the following information at a minimum:

1. Information regarding hazardous substances that are present at the workplace. Such information shall include, for example, the name and label designation of such substances as well as the health and safety risks associated with such substances.
2. Information regarding precautionary measures that workers should take and procedures they are to follow in order to avoid putting themselves and their co-workers at risk. Such measures and procedures shall include the following at a minimum:
  - a) Hygiene regulations
  - b) Information regarding safeguards against exposure to hazardous substances
  - c) Information regarding the wearing and use of personal protective equipment and protective clothing
3. Information regarding measures that are to be taken by workers, and particularly by rescue personnel, in the event of an operational breakdown, accident or emergency, and safeguards aimed at preventing the occurrence thereof.

Company advisories shall be updated upon each instance of any change in the work environment. The employer shall implement the following measures as well:

1. Workers shall have ready access to safety data sheets pertaining to the substances and preparations that are used for work activities
2. Workers shall receive instruction in compulsory methods and procedures for the safe use of hazardous substances.

(2) The employer shall ensure that workers receive oral instruction, based on company advisories and instructions, regarding workplace hazards, as well as safety measures that are to be realized in regard to such hazards. Workers shall be advised of specific workplace hazards prior to commencement of the relevant activities and every 12 months thereafter at a minimum. The form and language of such advisories and instructions shall be readily understandable for all workers. The content of company advisories and instructions, as well as the date upon which they were provided, shall be

documented, and the recipients of such advisories and instructions shall sign such documentation to confirm having received same.

(3) The employer shall ensure that all workers that carry out activities involving hazardous substances are provided with general medical advice regarding toxic substances. Such advice shall be provided within the framework of the instruction and information referred to in paragraph 2. Workers shall also be advised of (a) the option of undergoing a medical examination pursuant to Article 16 (3); and (b) the specific health risks entailed by working with specific hazardous substances. If such medical advice is required for work related reasons, it is to be provided by a company physician pursuant to Article 15 (3) second sentence.

(4) The employer shall ensure that the following measures are taken in connection with activities involving substances that are carcinogenic, mutagenic or toxic to reproduction in accordance with EC category 1 or 2:

1. The employer shall enable workers and their representatives to ascertain whether the provisions of the present Ordinance apply in regard to the following:
  - a) The health and safety ramifications of selecting, wearing and using protective clothing and personal protective equipment
  - b) The compulsory measures referred to Article 11 (3) first sentence
2. Workers and their representatives shall be advised forthwith of any instance of elevated exposure including the instances referred to in Article 11 (3) as well as the cause of such exposure and any countermeasures that have been or are to be taken in regard to such exposure.
3. Updated records shall be maintained for all workers whose activities the risk assessment results indicate are deleterious to such workers' health and/or safety. These records shall also include any information that is available regarding exposure to which such workers were or may have been subjected.
4. The company doctor referred to in Article 15 (3) second sentence, the competent authority, as well as any health and safety officer at the workplace shall be granted access to the records referred to in item 3 above.
5. All workers shall be permitted to access any personal data that appears in the records referred to in item 3 above.
6. Workers and their representatives in the company shall be granted access to anonymous collective information.

### **Article 15: Preventive medical check-ups**

(1) The employer shall ensure that workers are provided with adequate preventive medical check-ups pursuant to Article 3 of the Act on Health and Safety at Work (Arbeitsschutzgesetz). The check-ups shall include any preventive medical measures that are necessary in order to protect workers against work related hazards. For any worker whose activities involve hazardous substances, medical check-ups shall include the following in particular:

1. A medical assessment of the health risks arising from the work activities and hazardous substances of interest, and recommendations in regard to suitable safety measures
2. The health risk attributable to the worker's activities shall be explained to him, and he shall receive counseling in regard to such risk, including risk that might arise from any existing health problem
3. The realization of specific preventive check-ups with a view to detecting any health problem or work related illness at an early stage
4. Recommendations as to how workplace safety can be audited, as well as repetition of the risk assessment
5. The elaboration of further or enhanced measures at the workplace, on the basis of relevant findings, with a view to protecting workers who carry out activities involving hazardous substances.

(2) Specific preventive medical check-ups shall be either requested or offered by the employer, and shall be realized as follows:

1. Initial medical examination prior to the beginning of any work involving a health risk
2. Check-ups at regular intervals while the worker is performing work involving a health risk
3. Check-ups upon termination of such work
4. Check-ups for workers whose work activities involve substances that are carcinogenic, mutagenic or toxic to reproduction in accordance with EC category 1 or 2. Such check-ups shall be realized while such activities are ongoing and upon termination thereof.
5. Medical examinations for specific purposes as required by Article 16 (4).

Preventive check-ups shall as a rule consist of the following:

1. The doctor shall either inspect, or obtain information regarding, the relevant workplace
2. The worker shall complete a medical questionnaire and shall undergo a medical examination
3. The worker's state of health shall be assessed in light of the working conditions to which the worker is exposed
4. The worker shall discuss his medical condition with the doctor
5. The results of the preventive check-up shall be documented

Insofar as accredited biomonitoring procedures and biological or other assessment values are available, such monitoring shall be realized within the framework of preventive medical check-ups.

(3) The employer shall ensure that preventive check-ups are realized by engaging the services of a doctor to perform such check-ups. The doctor shall either be a specialist in occupational medicine, or his field of expertise shall be officially designated as "Betriebsmedizin" (occupational medicine). When performing preventive check-ups that require specialized expertise or equipment, the attending physician shall enlist the aid of medical specialists that have competency in the relevant disciplines, or expertise with the relevant equipment. If the services of a specialist in occupational medicine pursuant to the Act on Health and Safety at Work (Arbeitsschutzgesetz) are enlisted, whenever possible the employer shall request that such specialist also carry out specific

preventive check-ups. The doctor shall be provided with all necessary information regarding working conditions, particularly risk assessment results, and shall be given the opportunity to inspect the workplace. Upon request, the doctor shall be authorized to examine the records referred to in Article 14 (4) (3) as well as the prevention records referred to in paragraph 5.

(4) The following requirements shall be met in regard to preventive medical check-ups:

1. The results of the check-ups shall be documented in writing
2. The worker shall be informed of the results of the check-up
3. A certificate shall be issued to the worker indicating whether and/or to what extent there are medical reasons why the worker should not carry out his assigned work duties
4. A copy of the check-up results certificate pursuant to item 3 shall be submitted to the employer only insofar as a check-up pursuant to Article 16 (1) is involved.

Any findings obtained as a result of preventive medical check-ups pursuant to the present Ordinance shall be taken into consideration in fulfilling the requirements of Article 3 of the Act on Health and Safety at Work (Arbeitssicherheitsgesetz).

(5) The employer shall maintain a prevention record for any worker that undergoes regular medical check-ups pursuant to Article 16 (1). Such record shall contain the information referred to in Article 14 (4) (3), as well as the results of the worker's preventive medical check-ups. It shall be permissible for the prevention record to be used in lieu of the record mentioned in Article 14 (4) (3). Prevention records are to be maintained in such a way that they can be evaluated at a later time. The worker affected or his authorized representative shall be entitled to examine the relevant information.

(6) The employer shall keep workers' prevention records on file until such time as the worker leaves the company's employ. The worker shall be provided with an extract from the prevention records that pertain to him. The employer shall archive a copy of the extract of such records, as well as the records mentioned in Article 14 (4) (3), with the company's human resources documentation.

### **Article 16: Requesting and offering preventive medical check-ups**

(1) The employer shall request regular medical check-ups pursuant to Article 15 (2) sentences 1-3 for all of the following types of activities:

1. For activities involving the hazardous substances referred to in Annex V (1) for which occupational exposure limit values are exceeded
2. For activities involving the hazardous substances referred to in Annex V (1) insofar as such substances are subject to dermal absorption and such absorption could endanger workers' health and safety
3. Any of the activities specified in Annex V (2.1)

(2) No worker shall take up or resume his work duties unless and until he has undergone a medical check-up pursuant to paragraph 1.



(3) The employer shall offer workers the opportunity to undergo a preventive medical check-up pursuant to Article 15 (2) first sentence Nos. 1 and 2 insofar as such workers are engaged in the following work activities:

1. Activities involving the hazardous substances referred to in Annex V (1) insofar as the worker has been exposed to any such substance
2. The activities referred to in Annex V (2.2).

The employer shall offer workers engaged in activities involving substances/preparations that are carcinogenic or mutagenic in accordance with EC category 1 or 2 the opportunity to undergo check-ups as per Article 15 (2) first sentence No. 4.

(4) Any worker that contracts an illness that could be attributable to activities involving any hazardous substance shall immediately be offered the opportunity to undergo a medical check-up pursuant to Article 15 (2) first sentence No. 5. This shall also apply to any worker engaged in similar work insofar as there is reason to believe that the health and safety of such worker could be at risk.

(5) If it comes to the employer's attention that, for health reasons, specific working conditions make it inadvisable for a worker to continue their present activities, the employer shall promptly realize additional safeguards, which may also include assigning the affected worker to activities that entail no risk of further exposure to deleterious conditions. The employer shall notify the works or staff council as well as the competent authority of any safety measures taken and shall carry out a repeat risk assessment. Where, in the case of the setting referred to in Article 15 (4) first sentence No. 4, the person examined or employer believes the results of the examination to be invalid, upon request the competent authority shall render a decision as to whether such results are valid.

### **Article 17: Regulations governing outsourced activities**

(1) If a subcontractor realizes any activity involving hazardous substances on behalf of another company, the employer in the company issuing the contract shall ensure that only subcontractors are hired that possess the necessary knowledge, skills and expertise for the activity of interest. Such employer shall ensure that the subcontractor is provided with information regarding the relevant sources of risk and the specific procedures to be followed in regard to such risk.

(2) Each employer involved in outsourced activities shall manage his sphere of responsibility in such a way that activity-related risk is avoided. If any worker's health and safety are endangered by worker outsourcing, the employer on whose premises the activities of interest are realized shall designate a coordinator prior to commencement of such activities. All participating companies shall provide the coordinator with any relevant health and safety related information, the risk assessment regarding the activities of interest and information regarding safeguards that have been implemented. The employer on whose premises the activities of interest are realized shall ensure that

all external companies are integrated with the worker health and safety protection system that is currently in use so as to avoid accidents, work related illnesses and operational breakdowns. Each employer involved in outsourced activities shall ensure that the employer's workers comply with all applicable safety regulations and procedures. In the event of any noncompliance therewith, the employer concerned shall implement appropriate corrective measures.

(3) All employers, companies issuing contracts and subcontractors shall realize the risk assessment conjointly and shall consult with each other and come to a mutual agreement in regard to such assessment. Such collaboration and consultation shall include at a minimum the selection of substances, preparations, products and processes, the coordination of the activities of interest, as well as the definition and implementation of the requisite safeguards. In addition, any interactions with nearby operations that could give rise to a health and safety risk shall be taken into consideration in elaborating the risk assessment. The results of the risk assessment shall be documented by all parties concerned.

(4) Prior to the commencement of any demolition, renovation or maintenance work and during the information gathering process for the risk assessment procedure, the employer shall obtain information, particularly from the customer, contractor or building owner concerned, indicating whether any of the hazardous substances mentioned in Annex IV are present at the workplace.

## **Section 5 Restrictions and prohibitions**

### **Article 18: Restrictions pertaining to production and use**

(1) Pursuant to the Annex IV restrictions on manufacturing and use pertain to specific substances, preparations and products, particularly those that are

1. carcinogenic or mutagenic
2. highly toxic or toxic or
3. environmentally harmful.

Insofar as not otherwise stipulated in Annex IV, the restrictions on production and use specified in the first sentence shall not apply to

1. the quantities of hazardous substances, preparations and products that are required for purposes of research and analysis in educational settings
2. demolition, renovation and maintenance work
3. waste disposal in line with the requirements of the common good.

Insofar as not otherwise stipulated in Annex IV, the prohibition pursuant to the first sentence shall not apply to the removal of substances, preparations or products that were in use on a regular basis before the relevant prohibition came into force.

Sentences 1, 2 and 3 shall apply to private households as well.

(2) The employer shall authorize homeworkers to realize activities that are defined as low-risk within the meaning of Article 7 (9).

## **Section 6 Implementation regulations and final provisions**

### **Article 19: Notification of the competent authority**

(1) The employer shall notify the competent authority promptly in the event of the following:

1. any accident or operational breakdown involving any activity involving hazardous substances, insofar as such accident or breakdown substantially harmed the health of any worker;
2. any illness or fatality that concrete evidence indicates was attributable to activities involving hazardous substances. Such notification shall include exact information regarding the relevant activity and risk assessment.

If the information in the notification pursuant to the first sentence is obtainable from notifications required by other statutory provisions, the employer shall be deemed to have complied with the notification requirement providing that a copy of the relevant prior notification is submitted to the competent authority. The employer shall submit a written copy of the notification mentioned in the first or second sentences to the workers concerned, or to any works or staff council that is in existence.

(2) In derogation of Article 22 of the Act on Health and Safety at Work (Arbeitsschutzgesetz), the employer shall submit the following to the competent authority:

1. the results of any risk assessment and the information on which such assessment is based, including risk assessment documentation
2. information regarding activities that have subjected or could potentially have subjected workers to exposure to hazardous substances, and the number of workers affected
3. the identities of the persons in charge pursuant to Article 13 of the Act on Health and Safety at Work (Arbeitsschutzgesetz);
4. information regarding the safeguards and safety measures that have been implemented and the advisories and instructions therefor.

Any employer that realizes activities involving substances that are carcinogenic, mutagenic or toxic to reproduction in accordance with EC category 1 or 2 shall provide the competent authority with the following information upon request:

1. The results of any substitution test
2. Relevant information regarding the following:
  - a) Activities realized, the attendant industrial processes and the reasons for the use of the hazardous substances of interest
  - b) The quantities of hazardous substances produced or used
  - c) The type of personal protective equipment that is to be used

- d) The nature and extent of exposure to hazardous substances
- e) Cases of substitution.

(3) The employer shall submit to the competent authority a copy of the prevention records mentioned in Article 15 (5).

(4) At the behest of the competent authority, proof of the expert knowledge specified in Article 6 (1) shall be submitted.

### **Article 20: Official exemptions, authorizations and requirements**

(1) Upon receipt of a written application from the employer, the competent authority shall be entitled to grant exemptions from the regulations specified in Articles 7 through 19 and Annexes III through V insofar as (a) compliance with such regulations would cause undue hardship and (b) the requested exemption would not expose the workers concerned to any risk. Such exemption shall be without prejudice to the stipulations of other statutory provisions.

The employer shall indicate the following in his application for an exemption:

1. The reason for requesting the exemption
2. The quantity of hazardous substance or substances that is used annually
3. The nature of the relevant activities, reactions and processes
4. The number of workers that are likely to be affected
5. Planned health and safety measures for the affected workers
6. Technical and organizational measures that have been implemented to minimize or avoid worker exposure to hazardous substances.

(2) The employer shall also be entitled to submit an application for the type of exemption specified in paragraph 1 within the framework of administrative procedures mandated by statutory provisions other than the present Ordinance.

(3) In individual cases, the competent authority shall be entitled to waive application in whole or in part of the regulations specified in Article 5 (4) and Annex II (1) pertaining to the placement on the market of small quantities of oxidizing, highly flammable, flammable, harmful, environmentally hazardous or irritating substances or preparations that pose no health or safety risk. The first sentence shall not apply to biocidal products.

(4) The competent authority shall be entitled to specify regulations, arising from sections 2 through 5 of the present Ordinance, that manufacturers, importers and/or employers are required to comply with, that exceed the scope of the stipulations of the Chemicals Act (Chemikaliengesetz). Such regulations may require the employer to take the following actions:

1. Implementation of safeguards against specific risks irrespective of any statutory provision pursuant to Article 19 of the Chemicals Act (Chemikaliengesetz)
2. Determination of whether and/or to what extent a suspected risk actually exists and the measures that are required in order to counteract such risk

3. Discontinuation of any work activity that endangers workers' health and safety if the required and appropriate safeguards against such endangerment are not implemented promptly or within the defined period.

In the event of imminent danger, the competent authority shall be entitled to mandate additional obligations that apply to company personnel that are authorized to issue instructions.

(5) If the employer fails to comply with the risk assessment submission stipulations of Article 19 (2), the competent authority shall be entitled to bar the employer from realizing activities involving hazardous substances and require the employer to suspend the attendant operations.

(6) Monitoring compliance with the regulations hereunder shall also include monitoring compliance with the European Community directives referred to in Article 2 and Annex 1.

### **Article 21: Hazardous Substances Commission (Ausschuss für Gefahrstoffe)**

(1) For consultation in all matters of health and safety at work involving hazardous substances, a Commission on Hazardous Substances shall be set up at the Federal Ministry of Economics and Labor, comprising an appropriate representation of employer's associations, trade unions, German *Laender* (states), statutory accident insurance institutions, as well as scientific and other experts. The Commission shall consist of a maximum of 21 persons; a deputy shall be appointed for each member. Members shall serve without pay.

(2) The Federal Ministry of Economics and Labor shall appoint the members of the Commission as well as a deputy for each member. The Commission shall adopt its own rules of procedure and shall select one of its members to serve as chairperson. The rules of procedure and the election of the chairperson shall be subject to approval by the Federal Ministry of Economics and Labor.

(3) The Commission's tasks shall include:

1. Elaboration of regulations governing activities involving hazardous substances and the classification and labeling thereof. Such regulations shall reflect the state of the art in the fields of technology, occupational medicine and occupational hygiene, as well as relevant and proven scientific knowledge
2. Elaboration of implementation procedures for the requirements of this Ordinance
3. Advising the Federal Ministry of Economics and Labor on general questions pertaining to hazardous substances
4. Recommending and reviewing at regular intervals biological and occupational exposure limit values in such a way that the following tasks are realized as well:
  - a) Ensure that limit values are defined in such a way that they safeguard worker health and safety

- b) Propose a national limit value for each substance for which the European Community has defined an occupational exposure or biological limit value, in such a way as to comply with Community limit values
5. Elaborate procedures for the realization of preventive medical check-ups and in so doing take account of the following factors:
- a) The correlation between exposure to a hazardous substance and a determinable illness or deleterious health effect
  - b) The likelihood that such illness or effect will occur in the work environments of interest
  - c) Generally recognized techniques for detecting the signs or effects of the relevant illnesses
  - d) Any risk to which the examination methods employed could subject workers.
- In carrying out its work the Commission shall comply with general work safety and health regulations pursuant to Article 4 of the Act on Health and Safety at Work (Arbeitsschutzgesetz).

(4) The Federal Ministry of Economics and Labor may decide to publish in the *Bundesarbeitsblatt* the regulations and findings established by the Commission in accordance with para. 3.

(5) The Federal Ministry of Economics and Labor and the supreme *Laender* (state) authorities shall be entitled to send delegates to Commission meetings. Upon request, these delegates shall be given the floor during such meetings.

(6) The Commission's business shall be conducted by the Federal Institute for Occupational Safety and Health (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin).

## **Article 22: Transitional provisions**

(1) Until Dec. 31, 2010, Annex IV (1) (1) shall not apply to the manufacture and use in existing installations of diaphragms for chlorine alkali electrolysis containing chrysotile (white) asbestos, and neither to the raw materials required for such manufacture, providing that

- 1. asbestos free substitute substances, preparations and products are not commercially available or
- 2. the use of asbestos-free substitute substances, preparations or products would cause undue hardship

and asbestos fiber concentration in workplace air is less than 1000 fibers per cubic meter.

(2) Paragraph 4 and Annex IV (14) (1) (7) and (8) shall not apply to products whose components contain PCB

- 1. until such product is taken out of service, which shall be realized no later than Dec. 31, 2010, and insofar as such component contains between 100 milliliters and 1 liter of liquid PCB; or

2. until the product is taken out of service, insofar as such component contains 100 milliliters or less of liquid PCB and insofar as the product went into operation on or before July 29, 1989.

(3) The regulations specified in Annex IV (26) and (27) shall come into force on Jan. 17, 2005.

## **Section 7 Administrative and criminal offences**

### **Article 23: Packaging and labeling pursuant to the Chemicals Act (Chemikaliengesetz)**

Persons who, deliberately or through negligence:

1. Fail to submit a safety data sheet, or fail to submit a safety data sheet in good time, pursuant to Article 6 (1) first sentence
2. Fail to provide a safety data sheet pursuant to Article 6 (1) second sentence
3. Fail to elaborate a safety data sheet in accordance fully and compliantly in accordance with Article 6 (1) third sentence
4. Fail to provide customers with the data required for compliant categorization and labeling pursuant to Article 5 (5) in conjunction with Annex II (1) (6)

shall be guilty of an administrative offence within the meaning of Article 26 (1) (5) (c) of the Chemicals Act (Chemikaliengesetz).

### **Article 24: Notification requirements pursuant to the Chemicals Act (Chemikaliengesetz)**

(1) Persons who, deliberately or through negligence:

1. Fail to submit information or proof, or fail to submit information or proof compliantly, fully, or in good time, pursuant to Article 5 (5) in conjunction with Annex II (4) first sentence
2. Fail to submit information, or fail to submit information compliantly or fully, pursuant to Article 5 (5) in conjunction with Annex II (1) (5)

shall be guilty of an administrative offence within the meaning of Article 26 (1) (6) (b) of the Chemicals Act (Chemikaliengesetz).

(2) Persons who, deliberately or through negligence, fail to submit a notification, or fail to submit a notification compliantly, fully or in good time,

1. in violation of Article 9 (12) in conjunction with Annex III (2.4.2) (1) first sentence, (2.4.2) (2), (4.4) (1) or (4.4) (2), in each case in conjunction with Annex III (3), (4.6), 5.3 (1) (2) first sentence, 5.3.2 (1) first sentence, 5.3.2 (2), 6.4.2.3 (1) or 6.4.2.3 (2), in each case in conjunction with paragraph 3
2. in violation of Article 16 (5) third sentence to the competent authority

3. in violation of Article 19 (1) or 19 (2)  
shall be guilty of an administrative offence within the meaning of Article 26 (1) (8) of the  
Chemicals Act (Chemikaliengesetz).

**Article 25: Activities that fall within the purview of the Chemicals Act  
(Chemikaliengesetz)**

(1) An administrative offence within the meaning of Article 26 (1) (8) (b) of the  
Chemicals Act (Chemikaliengesetz) shall be deemed to have occurred in the event of  
any deliberate or negligent action as follows:

1. Permitting a worker to realize work activities in violation of Article 7 (1) third sentence
2. Failure to document a risk assessment procedure, or failure to document a risk assessment procedure compliantly, fully or in good time, in violation of Article 7 (6) first sentence
3. Failure to compile a list of hazardous substances, or failure to document a risk assessment procedure compliantly, fully or in good time, in violation of Article 7 (8) first sentence
4. Failure to verify the functionality or effectiveness of technical safeguards, or failure to do so in good time, in violation of Article 8 (2) third sentence
5. Wrongfully permitting a work activity to be carried out within the meaning of Article 8 (5) first sentence
6. Failure to store hazardous substances compliantly, in violation of Article 8 (7) first sentence
7. Using burdensome personal protective equipment on a long-term basis in lieu of technical or organizational safeguards, in violation of Article 9 (3) second sentence or Article 10 (2) fifth sentence
8. Failure to provide separate storage facilities in violation of Article 9 (3) fourth sentence
9. Failure to provide personal protective equipment, or failure to provide such equipment in good time, in violation of Article 9 (5) second sentence
10. Failure to equip an area, or failure to do so in good time, in violation of Article 9 (9) second sentence
11. Failure to ensure that a person with expert knowledge and the authority to issue instructions is present, in violation of Article 9 (12) in conjunction with Annex III No. 2.4.2 (3) second sentence
12. Wrongful realization of any work activity specified in Article 9 (12) in conjunction with Annex III (2.4.2) (4) first sentence
13. Failure to elaborate a work plan or failure to elaborate a work plan in good time, in violation of Article 9 (12) in conjunction with Annex III (2.4.4) first sentence
14. Failure to package Group A substances and preparations for storage or transport, in violation of Article 9 (12) in conjunction with Annex III (6.4.2.1) (2)
15. Storage of combustible materials in violation of Article 9 (12) in conjunction with Annex III (6.4.2.1) (3)



16. Failure to divide substances or preparations into aliquots or failure to do so in good time, in violation of Article 9 (12) in conjunction with Annex III (6.4.2.2) (3)
17. Storage of substances or preparations in violation of Article 9 (12) in conjunction with Annex III (6.4.2.3) (5)
18. Failure to realize a measure pursuant to Article 11 (2)
19. Failure to provide protective clothing or breathing apparatus, in violation of Article 11 (3) second sentence
20. Rechanneling inadequately purified exhaust air into a work area in violation of Article 11 (4) second sentence
21. Failure to prohibit smoking or the use of open flames, in violation of Article 12 fourth sentence in conjunction with Annex III (1.4) (2) first sentence
22. Failure to provide signage or compliant signage pursuant to and in an area specified in Article 12 fourth sentence in conjunction with Annex III (1.4) (3) or (1.5) (4)
23. Failure to realize a measure specified in Article 13 (2) first or second sentence, or failure to realize such measure in good time
24. Failure to equip a worker, or failure to do so in good time, in violation of Article 13 (3) first sentence
25. Failure to provide warning or other communication systems, in violation of Article 13 (4)
26. Failure to ensure that information regarding emergency measures is available, in violation of Article 13 (5) first sentence
27. Failure to provide workers with written advisories and instructions, in violation of Article 14 (1) first sentence
28. Failure to provide workers with accurate, complete or timely advisories and instructions, in violation of Article 14 (2) first sentence
29. Failure to provide workers and their representatives with advisories and instructions, in violation of Article 14 (4) (2)
30. Failure to maintain an updated list, in violation of Article 14 (4) (3)
31. Failure to ensure that preventive medical check-ups are realized, in violation of Article 15 (3) first sentence
32. Failure to maintain prevention records, in violation of Article 15 (5) first sentence
33. Failure to archive prevention records or failure to archive such records for the mandated period, in violation of Article 15 (6) first sentence
34. Failure to have preventive medical check-ups realized or failure to have such check-ups realized in good time, in violation of Article 16 (1) (1-3).
35. Failure to provide workers with the option to undergo an examination specified in Article 16 (3) or 16 (4) or failure to provide such option in good time
36. Failure to appoint a coordinator or failure to appoint a coordinator in good time, in violation of Article 17 (2) second sentence.

(2) Any person that realizes any action specified in paragraph 1 that (a) endangers human health or safety or (b) places third-person assets of significant value at risk, shall be subject to prosecution pursuant to Article 27 (2-4) of the Chemicals Act (Chemikaliengesetz).

## **Article 26: Prohibitions against manufacturing and use pursuant to the Chemicals Act (Chemikaliengesetz)**

Pursuant to Article 27 (1) (2-4) of the Chemicals Act (Chemikaliengesetz), any person that deliberately or negligently commits any of the following actions shall be prosecuted:

1. Manufacture or use of any substance, preparation, or product specified in Article 18 (1) first or fourth sentence, in both instances in conjunction with Annex IV (1) (1) (2) first sentence, Annex IV (9) first sentence, Annex IV (12) (1), Annex IV (13.1) (1), Annex IV (14) (1) (1-7), Annex IV (15) first sentence, Annex IV (20) or Annex IV (22) (1)
2. Manufacture or use of any substance, preparation, or product specified in Article 18 (1) first or fourth sentence, in both instances in conjunction with Annex IV (4) first sentence, Annex IV (13.1) (2), Annex IV (17.1) (2) first sentence, Annex IV (19) (1), Annex IV (24), or Annex IV (27) first sentence
3. Use of any substance, preparation or product specified in Article 18 (1) first or fourth sentence, in both instances in conjunction with Annex IV (3) (1), (2) or (5), Annex IV (5), (6) (1), (7), (8), (13.3) (2), (17.1) (1) first sentence, (17.2) (1), (17.3) (1), (18), (21), (25) or (26) for any purpose specified hereunder
4. Manufacture of any decorative object specified in Article 18 (1) first or fourth sentence, in each instance in conjunction with Annex IV (10)
5. Manufacture or use of any substance specified in Article 18 (1) first or fourth sentence, in each instance in conjunction with Annex IV (23), outside an enclosed facility.
6. Use of any substance specified in Article 18 (1) first or fourth sentence, in each instance in conjunction with Annex IV (11), outside an enclosed facility.
7. Manufacture of isopropanol using the strong acid method, in violation of Article 18 (1) first or fourth sentence, in each instance in conjunction with Annex IV (16)
8. The use of carcinogenic mineral fibers, in violation of Article 18 (1) first or fourth sentence, in each instance in conjunction with Annex IV (22) (3)
9. Realization of any demolition, renovation, or maintenance work, in violation of Article 9 (12) in conjunction with Annex III (2.4.2) (3) first sentence or Annex III (4) first sentence
10. Realization of pest control measures, in violation of Article 9 (12) in conjunction with Annex III (4.5) first sentence
11. Fumigation, in violation of Article 9 (12) in conjunction with Annex III (5.2) (1) first sentence
12. Fumigation without a permit in violation of Article 9 (12) in conjunction with Annex III 5.2 (2)

## **Annexes**

### **Annex I**

#### **Applicable European Community directives**

1. Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances (OJ EC No. L 196 p. 1) as last amended by Directive 99/33/EC of the European Parliament and Council of 10 May 1999 (OJ EC No. L 199 p. 57), as last amended by Directive 2004/73/EC of the Council of 29 April 2004 (OJ EU No. L 152 p. 1)
2. Directive 1999/45/EC of the European Parliament and Council of 31 March 1999 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous preparations (OJ No. L 200 p. 1), as last amended by Directive 2004/66/EC of the Council of 26 April 2004 (OJ EU No. L 168 p. 35)
3. Directive 76/769/EEC of the Council of 27 July 1976 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (OJ No. L 262 p. 201), as last amended by Directive 2003/53/EC of the European Parliament and Council of 18 June 2003 (OJ No. L 178 p. 24), as last amended by Directive 2004/21/EC of the Council of 24 February 2004 (OJ EU No. L 57 p. 4)
4. Directive 91/155/EEC of the Commission of 5 March 1991 defining and laying down the detailed arrangements for the system of specific information relating to dangerous preparations pursuant to Article 14 of Directive 1999/45/EC of the European Parliament and Council and for hazardous substances pursuant to Article 27 of Directive 67/548/EEC of the Council (OJ EC No. L 76 p. 35), as last amended by Directive 2001/58/EC of the Council of 27 July 2001 (OJ EC No. L 212 p. 24)
5. Directive 96/59/EC of the Council of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCBs/PCTs) (OJ EC No. L 243 p. 31),
6. 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 EC No. L 123 p. 1)

## **Annex II**

### **Regulations regarding product labeling, packaging and information**

#### **Contents**

- No. 1 Basic requirements
- No. 2 Supplementary product labeling and packaging regulations

#### **Annex II (1) Basic requirements**

(1) Substances shall be labeled as specified in Directive 67/548/EEC. Application of Articles 24 (5) and 24 (2) therein shall be excluded. Labels for the substances enumerated in Annex I of 67/548/EEC shall contain the information specified therein. Any substance not mentioned therein shall be labeled in accordance with the classification provisions of Article 5 (1) hereunder.

(2) Substances that Article 5 (1-4) of the Chemicals Act (Chemikaliengesetz) exempts from registration and whose properties are insufficiently well known shall be labeled in accordance with the provisions of Article 13 (3) of Directive 67/548/EEC. Labeling pursuant to paragraph 1 hereunder shall be realized insofar as the relevant information is available.

(3) Preparations within the meaning of Directive 1999/45/EEC shall be labeled as stipulated therein. Application of Articles 11 (5) and 12 (3) therein shall be excluded.

(4) Any manufacturer or importer that intends to use the alternative preparation designation and labeling system laid down in Article 15 of Directive 1999/45/EC shall submit the required information and proof in good time to the registration office specified in the Chemicals Act (Chemikaliengesetz). Use of the aforementioned alternative designation procedure shall be prohibited for active agents and hazardous substances in biocidal products.

(5) If a manufacturer or importer is in possession of information regarding a substance enumerated in Annex VI (4.1) of Directive 67/548/EEC, and insofar as such information, in conjunction with the provisions of Annex VI (4.2), could result in the substance being classified or reclassified pursuant to Annex I of Directive 67/548/EEC as a substance that is carcinogenic, mutagenic or toxic to reproduction, the manufacturer or importer shall submit such information forthwith to the registration office specified in the Chemicals Act (Chemikaliengesetz).

(6) If the general labeling information on a preparation, or the labeling information on a substance regarding any impurities or additives therein, does not enable other manufacturers that wish to incorporate such preparation or substance into a proprietary preparation to categorize and label such proprietary preparation compliantly, the party that was responsible for placing the original preparation on the market shall promptly

supply other manufacturers, upon receipt of a well founded request, with all data pertaining to the hazardous substance component that is necessary in order to categorize and label the new preparation compliantly.

**Annex II (2)**  
**Supplementary product labeling and packaging regulations**

(1) The substances, preparations and products mentioned in Annex I of Directive 76/769/EEC that are subject to labeling requirements shall also be subject to the supplementary labeling provisions hereunder. The first sentence notwithstanding, pentachlorophenol and the salts, esters and preparations thereof shall be labeled with the following German words: “Nur für Fachleute im Bereich Forschung und Analyse.”  
[Only for experts in the field of research and analysis]

(2) Decontaminated devices containing PCB within the meaning of Directive 96/59/EC shall be labeled in accordance with the stipulations of the Annex of this Directive.

(3) Article 6 (4) and Annex II (1) notwithstanding, the packaging and labeling of biocidal products shall also be subject to the provisions of Directive 98/8/EC Article 20 (2) second sentence, Article 20 (3) sentences 2 and 3 (a, c, f through j, l, m; and in the case of approved or registered biocidal products b, d, e and k). The following additional labeling information shall be provided for biocidal products containing active biological agents:

1. The identity of the organism pursuant to Directive 98/8/EC, Annex IV (A) (2.1) and (2.2)
2. The risk group classification of the microorganisms pursuant to Articles 3 and 4 of the Ordinance on Safety and Health Protection Related to Work Involving Biological Substances (Biostoffverordnung)
3. If a risk group classification of 2 or higher applies, the “Biogefährdung” (biohazard) symbol pursuant to Annex I of the Ordinance on Safety and Health Protection Related to Work Involving Biological Substances (Biostoffverordnung) shall appear on the label.

The information required by Article 20 (3) (a, b, d, g and k) of Directive 98/8/EC and by the second sentence hereunder shall also appear on the label. The information required by Article 20 (3) (c, e, f, h, i, j and l) of Directive 98/8/EC shall appear on the label, elsewhere on the product packaging or in instructions that are included with the product.

## **Annex III**

### **Special provisions for specific hazardous substances and activities**

#### **Contents**

- No. 1 Risk of explosion and fire
- No. 2 Particulate hazardous substances
- No. 3 Activities in enclosed spaces
- No. 4 Pest control
- No. 5 Fumigation
- No. 6 Ammonium nitrate

#### **Annex III no. 1**

#### **Risk of explosion and fire**

##### **1.1 Basic requirements**

(1) Pursuant to the risk assessment required by Article 7 and using the best available techniques, the employer shall implement all organizational and technical safeguards that are necessary to prevent any risk to the health and safety of workers and any other persons affected arising from fire or explosion.

(2) In elaborating safeguards against explosion, the following sequence of priorities shall be followed pursuant to Article 12 and insofar as the available techniques allow:

1. Prevention of the formation of hazardous explosive mixtures
2. Avoidance of ignition of hazardous explosive mixtures
3. Rendering the deleterious effects of an explosion negligible.

##### **1.2 Safeguards against the formation of hazardous explosive mixtures**

(1) In elaborating safeguards against the formation of hazardous explosive mixtures pursuant to No. 1.1 (2) (1), the following measures shall be realized at a minimum:

1. Substances and preparations shall be used that cannot form explosive mixtures
2. The formation of hazardous explosive mixtures as a result of work processes shall be avoided or kept to an absolute minimum
3. Hazardous explosive mixtures shall be disposed of or eliminated safely insofar as the available techniques allow.

(2) Insofar as warranted by the risk assessment, technical equipment shall be installed that monitors the formation of hazardous explosive mixtures with a view to preventing the formation thereof. In the event a hazardous situation arises, workers shall be notified accordingly in good time so that they can leave the hazardous area immediately.

### **1.3 Requirements pursuant to safeguards against fire and explosion**

(1) Only the necessary minimum quantities of hazardous substances shall be kept in and around the workplace, particularly with a view to reducing fire load and the spread of fire.

(2) Measures shall be implemented to avoid any adventitious environmental release of hazardous substances that could result in a fire or explosion. Such measures shall include the following at a minimum:

1. Avoidance of conditions that could cause hazardous substances to leak or seep out of their containers, including overpressure, underpressure, overfilling, corrosion and other hazardous conditions
2. Implementation of a system that allows the flow of hazardous substances to be shut down from a readily and rapidly accessible location
3. Refraining from combining hazardous substances in such a way as to form hazardous mixtures.

(3) Any potentially explosive or inflammable hazardous substance that is released or discharged shall be captured and contained in its entirety at its discharge point and shall be eliminated or disposed of safely, insofar as allowed by available techniques. Any liquid hazardous substances that is released shall be captured and contained. Any fluid seepage or dust deposit shall be removed safely and promptly.

(4) If the release of hazardous explosive mixtures cannot be reliably prevented, measures shall be taken to ensure that such mixtures are not exposed to any ignition source, including sources of electrostatic discharge.

### **1.4 Workplace safety measures**

(1) The following safety measures shall be implemented in work areas that are subject to a risk of fire or explosion:

1. The number of emergency escape routes and exits provided shall be sufficient to ensure that in the event of an emergency, workers can access such escape routes and exits, and be rescued from them in the event of injury, rapidly, safely, and without hindrance.
2. Such work areas shall be outfitted in such a way that fires are prevented from spreading to nearby areas and so that any fire or explosion has little or no impact on nearby areas.
3. Such work areas shall be equipped with an adequate number of fire extinguishing apparatuses. Any such apparatus that is not activated automatically in the event of a fire shall be labeled, readily accessible and easy to use.
4. Such work areas shall be outfitted with firefighting routes that are configured and marked with signage in such a way that firefighters deploying firefighting equipment can rapidly and readily access such routes.

(2) Smoking and the use of any open flame or unshielded illumination shall be prohibited in any area that is subject to a risk of fire or explosion. Access to such areas



by unauthorized persons shall be prohibited, and such prohibition shall be clearly identifiable and indicated at all times.

(3) The entrance or entrances to any work area in which an explosive atmosphere could occur shall be outfitted with warning signage pursuant to Annex III of Directive 1999/92/EC (15th individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC); OJ EC L 023 p. 58).

## **1.5 Storage of hazardous substances**

(1) Hazardous substances shall be stored in areas that are appropriate for their storage and shall not be stored in any area in which such substances could endanger the health or safety of workers or any other persons.

(2) Hazardous substances shall be stored in work areas only insofar as such storage (a) does not endanger the health or safety of workers and (b) is realized in specialized receptacles or other apparatus that constitutes the best available technique.

(3) Hazardous substances shall not be stored together if doing so could (a) result in the formation of a potentially explosive or inflammable mixture or (b) provoke additional risk for workers or other persons in the event of a fire or explosion.

(4) Areas in which extremely flammable, highly flammable or flammable hazardous substances are stored in amounts that could provoke a destructive fire shall be equipped with a warning sign that reads as follows, in German: "Warnung vor feuergefährlichen Stoffen" pursuant to Annex II No. 3.2 of Directive 92/58/EEC (ninth individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC), Official Journal No. L 245 p. 23).

## **1.6 Organizational safety measures**

(1) Activities involving hazardous substances that pose a risk of fire or explosion shall be carried out solely by reliable and trustworthy workers that are familiar with the envisaged activity, its attendant risks and the safety measures that are necessary in order to avoid such risk.

(2) If activities involving hazardous substances that pose a risk of fire or explosion are realized in a work area in which two or more workers are working in such a way that a high risk is incurred, reliable and trustworthy personnel that are familiar with the activity, its attendant risks and the safety measures that are necessary in order to avoid such risk shall supervise such activities. The supervisor concerned shall ensure that the following regulations are adhered to at a minimum:

1. The activity of interest shall be initiated only insofar as the safety measures specified in the risk assessment have been realized and their efficacy has been demonstrated

2. The work area shall be configured in such a way that those working in the area can evacuate it rapidly at any time
3. Unauthorized persons that work elsewhere with flammable or explosive hazardous substances shall not be permitted to access such areas.

(3) A work activity approval system requiring that specific employer instructions be provided in writing shall be implemented in any work area containing hazardous substances that pose a risk of fire or explosion insofar as any extremely hazardous work activity or any interaction between two or more work activities could give rise to a health or safety risk. Initiation of the target activity shall be subject to prior approval by a person in charge of such activity.

## **Annex III No. 2**

### **Particulate hazardous substances**

#### **2.1 Scope**

No. 2 shall apply to worker exposure to alveolar and inhalable dust. Nos. 2.4.2 through 2.4.5 shall apply to activities that expose workers to asbestos dust or to dust originating in materials that contain or may contain asbestos. Article 7 (9) second sentence notwithstanding, No. 2.4 shall not apply to activities that pose only a low risk for workers pursuant to Article 7 (9) first sentence.

#### **2.2 Definitions**

(1) Dust, fumes and smoke shall mean dispersed airborne solids that are generated by mechanical, thermal or chemical processes, or that result from the raisability of such solids.

(2) Inhalable shall mean the constituent of dust in a worker's respiratory air zone that can be inhaled. Alveolar shall mean the constituent of inhalable dust that reaches the alveloli and bronchioles.

(3) Asbestos hereunder shall mean the following silicates with a fibrous structure:

1. Actinolite such as CAS No. 77536-66-4
2. Amosite such as CAS No. 12172-73-5
3. Anthophyllite such as CAS No. 77536-67-5
4. Chrysotile such as CAS No. 12001-29-5
5. Crocidolite such as CAS No. 12001-28-4
6. Tremolite such as CAS No. 77536-68-6

### **2.3 Supplementary safety measures pertaining to activities involving exposure to inhalable dust**

(1) Risk assessments for activities involving substances, preparations and products with the capacity to release dust shall take into account the dusting properties of such substances, preparations and products.

(2) Safety measures for activities involving exposure to inhalable dust for which no substance related occupational exposure limit value has been defined shall be realized in accordance with the risk assessment in such a way as to comply at a minimum with occupational exposure limit values for inhalable and alveolar dust.

(3) Machines and apparatus shall be selected and operated in such a way as to release the absolute minimum amount of dust. Dusty installations, machines, apparatus and devices shall be equipped with efficient exhaust systems insofar as (a) available techniques allow and (b) dust release is not preventable by any other means.

(4) Measures shall be realized that prevent the spread of dust from work areas subject to dust exposure to work areas not subject to dust exposure, insofar as the available techniques allow.

(5) A maximum amount of dust shall be collected as fully as possible at its point of generation or discharge and shall be disposed of safely. Exhaust air containing dust shall be handled in such a way that a minimum of dust is discharged into air that is inhaled by workers. Exhaust air shall be adequately purified prior to being rechanneled into a work area.

(6) The formation of dust deposits shall be avoided wherever possible. If the formation of such deposits is unavoidable, they shall be eliminated using the best available wet or dry method and appropriate vacuum cleaners or dust removers. It shall be impermissible to clean work areas via dry sweeping of dust deposits or by blowing dust deposits away using compressed air.

(7) Equipment or systems used for discarding, collecting, and depositing dust shall employ the best available techniques. Proof of the efficacy of such apparatus shall be provided when such apparatus is first put into operation. Once each year, maintenance and any necessary repairs shall be performed on such apparatus, and its functionality and efficacy shall be documented.

(8) Activities involving the release of substantial amounts of dust shall be realized and organized in such a way as to keep dust exposure periods to an absolute minimum. If the risk assessment findings show that occupational exposure limit values exceed the limits stipulated in paragraph 2, the employer shall provide workers with appropriate personal protective equipment, particularly respiratory protection, and shall require workers to wear such equipment and apparatus. The employer shall provide workers with washing rooms, as well as separate storage facilities for work and street clothing.

## **2.4 Supplementary asbestos safety measures**

### **2.4.1 Identification and assessment of asbestos risk**

In realizing asbestos risk assessments, the employer shall determine whether workers' activities involve or could potentially involve exposure to asbestos, asbestos dust or materials containing asbestos, particularly in connection with demolition, renovation or maintenance work involving products or materials containing asbestos. The employer shall determine in particular if any weakly bound (friable) asbestos is present.

### **2.4.2 Notification requirements**

(1) Activities mentioned in No. 2.1 second sentence shall be reported to the competent authority. The employer shall grant workers and any works or staff council the right to read such notifications.

(2) The employer shall submit the required notification no more than seven days following initiation of the activity of interest. Such notification shall indicate the following:

1. Location of the work site
2. Type and quantity of asbestos being used or handled
3. Activities being realized and the attendant methods or processes
4. Number of workers involved
5. Commencement and duration of the activities
6. Measures that will be taken to limit workers' asbestos exposure.

(3) Demolition, renovation and maintenance work involving asbestos shall be realized solely by specialized companies whose personnel and safety equipment are appropriate for such activities. A minimum of one person with expert knowledge and the authority to issue instructions shall be present at the work site at all times. Expert knowledge shall be demonstrated by successful participation in a specialized course that is accredited by the competent authority.

(4) Demolition and renovation work at sites containing weakly bound (friable) asbestos shall be realized solely by specialized companies that the competent authority has approved for work of this type. Such approval shall be granted upon written application from the employer insofar as proof is submitted that sufficient personnel and safety apparatus needed for the aforementioned activities are available.

### **2.4.3 Supplementary safety measures for work involving exposure to asbestos**

(1) The spread of asbestos dust shall be prevented via dust-proof quarantining of the work area or by deploying a comparable safety measure.

(2) The work area shall be outfitted with a ventilation system of sufficient scope to ensure that the work area is adequately aerated and that sufficient negative pressure is maintained in the work area.

(3) The work area shall be outfitted with a personnel airlock containing a shower, as well as a materials airlock.

(4) Workers shall be provided with appropriate breathing apparatus, protective clothing and any other personal protective equipment that is necessary. The employer shall take measures to ensure that workers wear their personal protective equipment.

(5) Any contaminated personal protective equipment or work clothing shall be either cleaned or disposed of. It shall be permissible to realize such cleaning on or off company premises providing that appropriate equipment is used. Cleaning shall be realized in such a way that workers are not exposed to asbestos dust. Items that are to be cleaned shall be stored and transported in closed and labeled containers.

(6) Workers shall be provided with appropriate washing rooms that are equipped with showers.

(7) All material containing asbestos shall be removed prior to the employment of any demolition method.

#### **2.4.4 Work plan**

The employer shall elaborate a work plan prior to the commencement of any work involving asbestos, particularly demolition, renovation or maintenance work involving asbestos.

Such work plan shall include and indicate the following:

1. The procedure and work methods that are to be employed for the removal of asbestos, as well as materials containing asbestos.
2. Information regarding personal protective equipment
3. Upon completion of the demolition or renovation work, verification that all asbestos risk has been eliminated.

#### **2.4.5 Supplementary requirements pertaining to worker instruction**

(1) Workers shall receive instruction at regular intervals and as needed, in accordance with the findings of the risk assessment and the actual work activities involved. Such instruction shall take into account and comply with the work plan pursuant to No. 2.4.4.

(2) The following information shall be imparted in particular within the framework of worker instruction:

1. The properties of asbestos and its health effects, including the fact that smoking heightens the deleterious effects of asbestos
2. The types of products and materials that may contain asbestos
3. Activities that can involve asbestos exposure and the importance of realizing safety measures that minimize such exposure
4. The proper and compliant use of personal protective equipment and safe working methods
5. Measures that are to be realized in the event of an operational breakdown
6. Proper and compliant waste disposal methods and procedures
7. Information pertaining to preventive medical check-ups.

### **Annex III no. 3**

#### **Activities in enclosed spaces**

##### **3.1 Scope**

(1) Annex III No. 3 shall apply to the following activities in enclosed spaces, installations and fittings, including on ships and in containers:

1. Cleaning activities and disposal of residues therefrom
2. Surface coating activities including painting
3. Adhesive application
4. Any auxiliary activity arising from or related to any activity mentioned in items 1-3, insofar as such activity involves the use of hazardous substances.

(2) No.3 shall not apply to earth drilling and underground excavation.

##### **3.2. Precautionary measures**

###### **3.2.1 Restrictions and prohibitions**

(1) The following regulations shall apply to any enclosed space in which activities that fall within the scope of No. 3.1 (1) are realized:

1. Hazardous substances shall be kept in the space only in the amounts needed for unimpeded realization of the target activities.
2. The manufacture of hazardous preparations shall be prohibited except insofar as such manufacture is required at the work site for operational and technical purposes.
3. Solvent cleaning of any coating or adhesive application apparatus shall be prohibited, with the exception of apparatus that is required for operational and technical purposes.

4. No other activity shall be realized concurrently with any activity mentioned in No. 3.1 (1) except insofar as such activity is required for the realization of a target activity and does not give rise to increased risk.
5. Upon completion of any activity mentioned in No. 3.1 (1), no other activity shall be realized in the same space insofar as such space contains or could contain an explosive atmosphere.
6. Upon completion of any activity mentioned in No. 3.1 (1), no other activity shall be realized in the same space without respiratory protection, insofar as the occupational exposure limit value is exceeded, or the space is subject to an oxygen deficiency.
7. Installations, internal fittings and interior walls shall not be heated in such a way that hazardous dissociation products are generated, insofar as workers are present in the space containing such installations, fittings or walls.

(2) The prohibitions pursuant to paragraph 1 (4-6) shall not apply to spaces in which (a) values below occupational exposure limit values obtain or (b) the formation of a hazardous explosive atmosphere is ruled out and sufficient oxygen is available.

### **3.2.2 Activity management and supervision**

(1) Prior to the commencement of any activity mentioned in No. 3.1 (1), the employer shall designate a reliable supervisor who is familiar with the target activities, the risk incurred by such activities and the safety measures that are necessary in order to avoid such risk.

(2) The supervisory personnel concerned shall ensure that the following is realized at a minimum:

1. Commencement of the target activities shall be subject to implementation of all envisaged measures
2. Workers shall wear the designated personal protective equipment while performing the target activities
3. The work area shall be configured in such a way that it can be evacuated rapidly at any time
4. Unauthorized persons shall be barred from accessing the work site.

(3) Activities pursuant to No. 3.1 (1) shall be realized in such a way that constant contact is maintained with a reliable safety officer stationed outside the space who can obtain emergency assistance if necessary. Such safety officer shall not be required for spaces that can be evacuated through a door.

### **3.2.3 Access openings**

(1) No activity mentioned in No. 3.1 (1) shall be initiated unless the space of interest is equipped with access openings (a) whose type, size, number and location allow

occupants to evacuate the space quickly and efficiently and (b) that allow for the rescue of any injured persons at any time.

(2) The requirements specified in paragraph 1 shall be deemed to have been met insofar as the following conditions obtain:

1. A minimum of two access openings shall be provided that are a minimum of 0.2 square meters in size, whereby no dimensional measurement of such opening shall be less than 350 millimeters in size. The foregoing shall apply as well to subdivisions of the target space and to openings in dividing walls.
2. Whenever possible, such openings shall be located at opposite ends of the space. The first sentence notwithstanding, an opening shall be deemed to be compliant insofar as the following requirements are met insofar as
  1. no principal dimension of the space exceeds three meters; or insofar as
  2. no principal dimension of the space exceeds 35 meters, the opening of interest is at least 0.5 square meters in size, no dimension of such opening is less than 500 millimeters in size, and the openings in all segments of the space are readily accessible without hindrance via dividing walls, other installations/fixtures, work scaffolding or similar structures.

(3) Paragraph 2 notwithstanding, containers shall be equipped with access openings whose dimensions meet the following minimum requirements:

1. Their nominal width shall be 600 millimeters; or
2. Their nominal width shall be 500 millimeters providing that no connector is more than 250 millimeters above the ground or floor.

(4) Paragraph 3 notwithstanding, the openings in containers whose capacity is 10 cubic meters or less shall be deemed to be compliant insofar as such containers were in use on October 1, 1986 and meet the following criteria:

1. They are a minimum of 350 x 450 millimeters in size
2. No connector is more than 150 millimeters above the ground or floor
3. The container is equipped with a minimum of one air vent whose nominal width is no less than 100 millimeters
4. It is demonstrated that the atmosphere in the container does not exceed the occupational exposure limit value and that adequate oxygen is available.

(5) Ship maintenance work as well as power plant activities on stream waterways and similar waterways shall not be subject to the requirements specified in paragraphs 2 and 3 insofar as the following criteria are met:

1. If structural properties or safety regulations preclude enlargement of existing openings or the creation of additional openings of adequate size
2. If the employer issues a written authorization pertaining to activities in the area of interest and such authorization describes the mandatory safety measures that apply to the specific situation.



### **3.2.4 Ventilation systems**

(1) Workers shall realize the activities specified in No. 3.1 (1) only insofar as the space of interest is equipped with an adequate ventilation system.

(2) Such system shall accomplish the following in the work area:

1. It shall reliably prevent the formation of an explosive atmosphere
2. It shall ensure that no oxygen deficiency occurs.

(3) Fresh air shall be used for ventilation purposes. The use of oxygen, or air with an elevated oxygen concentration, shall be prohibited for purposes of ventilation.

(4) If it is anticipated that exhaust air may exceed the occupational exposure limit value or that a hazardous explosive atmosphere may form in a work area, the exhaust air shall be discharged in such a way as to ensure that the health and safety of workers and other persons are not endangered.

(5) If the ventilation system proves to be ineffectual, the activities affected shall be aborted forthwith and the occupants affected shall evacuate the space, insofar as necessary.

(6) Upon completion of any activity mentioned in No. 3.1 (1), the ventilation system shall remain in operation insofar as the occupational exposure limit value is exceeded or a hazardous explosive atmosphere could form in such a way as to pose a threat to human health or safety.

### **3.2.5 Explosion prevention**

Specific explosion prevention measures shall be realized insofar as a hazardous explosive atmosphere is present or could potentially form owing to an ineffectual or insufficiently effective ventilation system.

### **3.2.6 Emergency facilities**

Appropriate and readily accessible emergency facilities shall be provided. Signage shall indicate the route or path to such facilities.

## **Annex III no. 4 Pest control**

### **4.1 Scope**

Annex III no. 4 shall apply to (a) pest control activities that employ toxic, highly toxic or deleterious substances or preparations; (b) preparations that release such substances or preparations; and (c) any pest control activity that is not governed by any other statutory provision. No. 4 shall apply to any person who realizes pest control activities

1. for commercial gain or as an independent contractor on behalf of a third party; or
2. more than just occasionally and to a limited extent in a proprietary enterprise that grows, manufactures, processes, handles, markets or distributes foodstuffs, or that realizes pest control activities in any facility mentioned in Article 36 of the Act on the Prevention and Control of Communicable Diseases (Infektionsschutzgesetz) of 20 July 2000 (BGBl I p. 1045) as last amended by Article 12 of the Act of 24 December 2003 (BGBl I p. 2954).

A pest control substance shall also be deemed to have been released upon compliant use of any substance within the meaning of the first sentence. No. 4 shall not apply to pest control activities that are realized in compliance with international health regulations on aircraft or vessels registered in the Federal Republic of Germany while such aircraft or vessels are in operation outside the territory of the Federal Republic of Germany.

### **4.2 Definition of pesticide**

Pesticide shall mean any substance or preparation that is used to render pests or deleterious organisms harmless, or to destroy such pests or organisms.

### **4.3 General requirements**

Pest control shall be realized in such a way as to avoid any deleterious effect on human beings and/or the environment.

### **4.4 Notification requirements**

(1) Any person that intends to realize pest control activities pursuant to No. 4.1, or intends to resume such activities following a hiatus of more than one year, shall notify the competent authority of such intention six weeks in advance.

(2) Such notification shall contain the following at a minimum:

1. Proof that the human, spatial and safety resources of the company are adequate for the envisaged activities
2. The number of workers that will be involved in pest control activities

3. a) The designations of,  
 b) properties of,  
 c) mechanisms of action for,  
 d) application methods for, and  
 e) decontamination methods for the pesticides that will be used for the envisaged pest control activities.
4. The area in which the envisaged pest control activities are to be realized, as well as the target organisms for such activities.
5. Findings of the substitution test pursuant to Article 9 (1).

(3) The employer shall notify the competent authority of any change in the information contained in the employer's notification pursuant to paragraph 2 (1-5).

(4) Adequate human resources shall be deemed to be available for pest control activities insofar as suitable qualified persons have been assigned to the relevant work duties. Persons shall be deemed qualified insofar as they meet all of the following criteria:

1. They are 18 years of age or older
2. They possess a sufficiently developed sense of responsibility to handle pesticides
3. They have in their possession a doctor's certificate pursuant to Article 15 (4) attesting to the fact that the person has no physical or mental health problem that would render the person unfit to handle pesticides. Such certificate shall not be more than five years old.

(5) A person shall be deemed qualified within the meaning of No. 4.4 (4) insofar as such person

1. has successfully passed the examination mandated by the currently applicable version of the Ordinance on the Training of Pest Control Specialists of July 15, 2004 (Verordnung über die Berufsausbildung zum Schädlingbekämpfer/zur Schädlingbekämpferin vom 15. Juli 2004 (BGBl I p. 1638)); or
2. has successfully passed the examination mandated by the currently applicable version of the Ordinance Regarding the Certification Examination for Licensed Pest Control Specialist of March 19, 1984 (Verordnung über die Prüfung zum anerkannten Abschluss „Geprüfter Schädlingbekämpfer/Geprüfte Schädlingbekämpferin“ vom 19. März 1984 (BGBl I p. 468)); or
3. has successfully passed the examination for master or qualified assistant pest control specialist (Prüfung zum Gehilfen oder Meister für Schädlingbekämpfung) pursuant to superseded or enforceable regulations in the former East Germany; or
4. has acquired qualifications comparable to those specified above in a Member State of the European Community; and
5. attends professional development courses or their equivalent on a regular basis.

A person shall also be deemed qualified for pest control activities insofar as such person has successfully passed an examination or successfully taken a training course that is recognized by the competent authority as being the equivalent of the examinations and certifications specified in Article 4.4 (5) of the present Annex. A person that engages in pest control activities that are limited to a specific application

domain shall be deemed qualified to realize such activities insofar as such person has successfully passed an examination or successfully taken a training course that is recognized by the competent authority as adequate certification for such activities.

#### **4.5 Use of unskilled workers**

Pest control activities pursuant to No. 4.1 of the present Annex shall be realized solely by persons that meet the criteria laid down in Nos. 4.4 (4) and 4.4 (5) of the present Annex. Unskilled workers shall be deployed for pest control activities solely under the direct supervision of a qualified person and shall receive regular instruction in regard to such activities.

#### **4.6 Pest control activities in public facilities**

Fourteen days prior to the realization of pest control activities in public facilities, particularly schools, daycare centers, or hospitals, the competent authority shall be notified in writing of the scope, application, materials, methods and envisaged protective measures for such activities.

#### **4.7 Documentation**

All pest control activities shall be comprehensively documented. Such documentation shall be archived for a minimum of five years and shall be submitted to the competent authority upon request.

### **Annex III (5) Fumigation**

#### **5.1 Scope**

Annex III (5) shall apply to the following: the use of fumigants specified in Annex III (5.2) (1) first sentence (1-6); any other fumigants that are approved by the competent authority; fumigation activities involving highly toxic or toxic substances and preparations that are classified as biocidal products and are therefore subject to the approval procedure mandated by No. IIa of the Chemicals Act (Chemikaliengesetz).

#### **5.2 Application restrictions**

(1) Fumigation involving non-biocidal highly toxic or toxic substances or preparations that are not subject to the approval or registration procedure for fumigants mandated by

No. 11a of the Chemicals Act (Chemikaliengesetz) shall be realized solely with the following substances and preparations:

1. Monobromethane (methyl bromide)
2. Hydrogen cyanide (prussic acid), as well as substances or preparations that are used to produce or vaporize hydrogen cyanide or volatile hydrogen cyanide compounds
3. Ethylene oxide
4. Hydrogen phosphide and substances or preparations that produce hydrogen phosphide
5. Formaldehyde and substances or preparations that are used to produce or vaporize formaldehyde
6. Sulfuryl difluoride.

The substances and preparations enumerated in items 1-6 above shall be used as fumigants solely under the conditions specified in paragraphs 2-4. The prohibition regarding items 1-6 shall not apply to packaged quantities of substances and preparations which, upon being used compliantly, produce a maximum of 15 grams of hydrogen phosphide and are released for pest control purposes. Sentence 2 shall likewise apply to any other fumigant that is authorized by the competent authority. Monobromethane shall be used as a fumigant within the meaning of item 1 (1) solely for purposes of (a) wood protection in buildings and (b) products destined for export to countries that specifically prescribe fumigation with monobromethane.

(2) Fumigation using the fumigants mentioned in paragraph 1 shall be subject to authorization by the competent authority. Item 1 shall not apply to fumigants used for medical purposes in program controlled gas sterilizers insofar as (a) the capacity of such sterilizer is less than one cubic meter and (b) the criteria for specific procedures and materials elaborated by the Hazardous Substances Commission (Ausschuss für Gefahrstoffe) and promulgated by the Federal Ministry of Economics and Labor are fulfilled.

(3) Substances and preparations shall be used as fumigants within the meaning of paragraph 1 first sentence items 1, 2, and 4 insofar as such substances and preparations have been approved by the Federal Office of Consumer Protection and Food Safety (Bundesamt für Verbraucherschutz und Lebensmittelsicherheit). In the case of any non-approved substance or preparation, the competent authority shall be entitled to request that an assessment be realized by the Federal Institute for Risk Assessment (Bundesinstitut für Risikobewertung) or the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung).

(4) Any vessel that is in transit shall be fumigated solely with hydrogen phosphide, and shipping containers shall be fumigated solely with hydrogen phosphide and monobromethane. Ethylene oxide shall be used on vessels in transit solely in conjunction with fully automatic fumigation systems.

### **5.3 General regulations pertaining to fumigation**

(1) Applicants for authorization to realize fumigation activities shall

1. possess the requisite dependability and, insofar as such applicant is in charge of handling fumigants, a certificate of competence pursuant to paragraph 2; or
2. shall have access to adequate numbers of holders of a competence certificate pursuant to paragraph 2. The competent authority shall be notified forthwith in the event any competence certificate changes hands.

(2) The competent authority shall grant a competence certificate insofar as the applicant for such certificate

1. possesses sufficient dependability to realize activities with the fumigants mentioned in Annex III (5.2);
2. possesses a doctor's certificate pursuant to Article 15 (3) attesting to the fact that the applicant is not physically or mentally unfit to handle the envisaged fumigants;
3. demonstrates that the applicant is sufficiently knowledgeable to realize fumigation activities;
4. is 18 years of age or older.

Expert knowledge pursuant to Article 5.3 (2) (3) shall be demonstrated by presentation of a certificate proving that the applicant has successfully passed a specialized course and the attendant examination for the envisaged activity, insofar as such course is accredited by the competent authority. The scope of the competence certificate shall be consistent with the proof of knowledgeability submitted by the applicant. The examination is to be taken before a representative of the competent authority.

(3) Authorization pursuant to paragraph 1 and the competence certificate pursuant to paragraph 2 shall be subject to restrictions and prohibitions, including restrictions regarding specific types of installations. The competent authority shall be entitled to promulgate supplementary requirements following issuance of the authorization.

(4) The competence certificate shall become null and void if a new doctor's certificate is not submitted to the competent authority within five years of the date of issuance of the original certificate pursuant to paragraph 2 (2).

#### **5.3.1 General requirements pertaining to fumigation**

(1) Fumigation shall be realized in such a way as to avoid placing the health and safety of any person at risk.

(2) A fumigation supervisor shall oversee all fumigation activities and shall possess a competence certificate that qualifies such supervisor for the envisaged activity. Supervision shall be deemed sufficient for fumigation in fully automatic gas sterilizers with less than one cubic meter capacity that do not fall within the scope of the exemption specified in No. 5.2 (2) insofar as a fumigation (sterilization) supervisor is responsible for the sterilizers that are being operated in a physically contiguous space.

Fumigation shall be realized solely by persons that possess expert knowledge within the meaning of Annex 5.3 (2). Application of the foregoing to unskilled workers within the meaning of No. 5.3 (2) shall be excluded.

(3) Fumigation in fumigation facilities shall be realized solely in such facilities that

1. are gas-tight;
2. are ventilated in a manner that is safe for human beings and the environment
3. are installed in a space that is not frequented continuously by human beings. The foregoing shall not apply to fumigation realized in fully automatic gas sterilizers in sterile goods work areas.

### **5.3.2 Notification requirements**

(1) Any person or company that intends to realize non-medical fumigation outside of a stationary fumigation facility using any fumigant specified in No. III (5.2) shall notify the competent authority in writing a minimum of one week prior to such fumigation (24 hours in advance for fumigation onboard ships). The competent authority shall be entitled to grant exemptions insofar as Good Reason exists for doing so.

(2) The notification pursuant to No. III (5.3.2) shall indicate the following:

1. The name of the fumigation supervisor
2. The date of the envisaged fumigation
3. A layout plan showing the location of the fumigation activities, the entity that is to be fumigated, and data regarding the goods to be fumigated in such entity
4. The designation of the envisaged fumigant and the quantity thereof that is to be used
5. The envisaged starting date and time of the fumigation procedure
6. The envisaged termination date and time of the fumigation procedure
7. The envisaged authorization date for resumed use of the fumigated space
8. Date and time of any leakage test that may be required.

### **5.3.3 Fumigation report**

(1) A report regarding fumigation using any fumigant specified in No. III (5.2) shall be compiled and a copy of such report shall be sent to the competent authority upon request. Such report shall indicate at a minimum the type and quantity of fumigant used, the location at which it was used, the personnel involved in the fumigation, the date and time the fumigation procedure began and ended, and the authorization date for resumed use of the fumigated space.

(2) If any road vehicle, rail vehicle, tank, transport box or any other transport container is fumigated, the fumigation report shall also describe the fumigation equipment used and the disposal method for the fumigant residues. Such report shall be submitted to the customer for which the fumigation was realized.

### **5.3.4 Organizational measures**

(1) The key phases of fumigation shall be realized in the presence of the following persons at a minimum: the fumigation supervisor, the holder of the applicable competence certificate (for fully automatic gas sterilizers only) and a person that meets the requirements laid down in No. III (5.3.1) (2) fourth sentence. Fumigation using hydrogen cyanide, sulfuryl difluoride or bromomethane shall be realized solely by holders of the applicable competence certificate.

(2) Any packaged and ready-made fumigation preparation that produces hydrogen phosphide shall be used solely under the direct supervision of a sufficient number of persons pursuant to No. III (5.3.1) (2), as well as assistants that have received appropriate instruction, insofar as the health of such personnel allows for the realization of fumigant preparation and deployment activities.

### **5.3.5 First aid**

Adequate first aid equipment and medication shall be stored at any location at which fumigation activities are carried out and shall be maintained in a serviceable condition.

## **5.4 Regulations pertaining to the fumigation of any area, road vehicle, rail vehicle, tank, transport box or any other transport container located in an enclosed area or docked vessel**

(1) The users of any building or other enclosed space shall be provided with at least 24 hours written notice prior to the commencement of any fumigation activities involving the use of any fumigant specified in No. 5.2, insofar as such fumigation is not realized at a healthcare facility. Such notice shall warn building users of any possible risk arising from such fumigant.

(2) Prior to the commencement of any fumigation activity, signs bearing the warnings specified in No. 5.6 (2) as well as the name, address and phone number of the fumigation provider shall be posted at all entrances to any area that is to be fumigated.

(3) A fumigation supervisor shall be available to take any necessary action from the time the fumigant is brought into the area that is to be fumigated until such time as the fumigation supervisor deems an area and the objects therein safe for use.

(4) The fumigation supervisor shall deem an area and the objects therein safe for use only insofar as an appropriate proof procedure has demonstrated that the fumigant employed in such area no longer poses a health or safety risk.



## **5.5 Special provisions pertaining to fumigation equipment**

(1) The fumigation supervisor shall check to ensure that all fumigation equipment is leakproof. A log of all fumigation activities shall be maintained.

(2) All fumigation equipment with the exception of fully automatic gas sterilizers shall be operated at normal or low pressure.

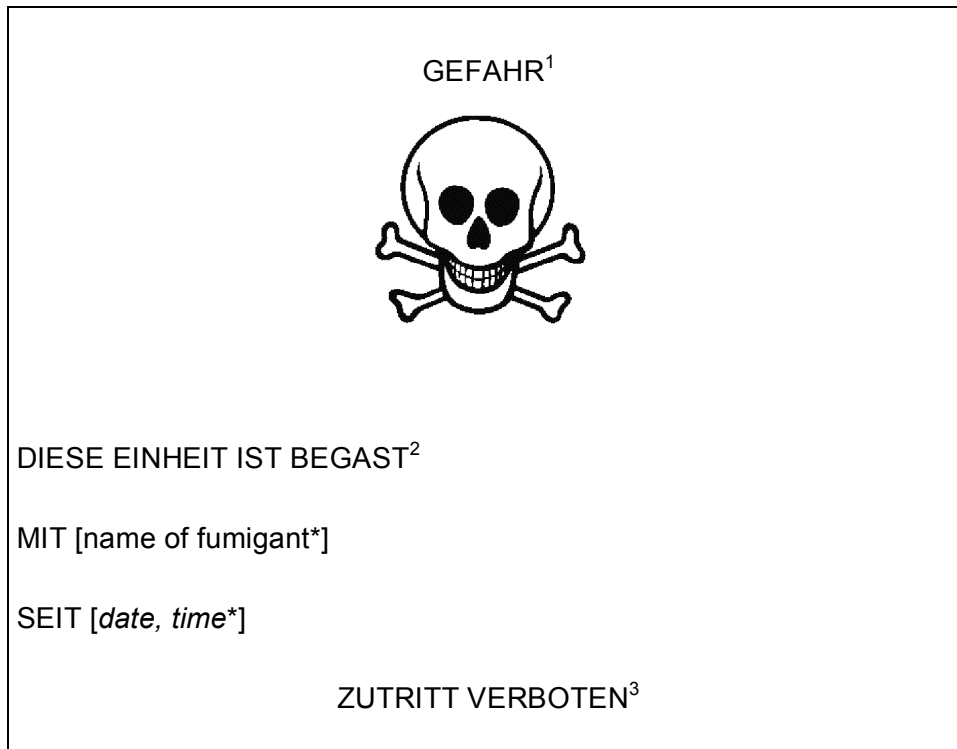
## **5.6 Special provisions pertaining to road vehicles, rail vehicles, tanks, transport boxes and any other transport container**

(1) Any road vehicle, rail vehicle, tank, transport box or any other transport container that is fumigated out of doors shall be positioned a minimum of 10 meters from the nearest building. The fumigation supervisor is to verify the gas-tightness of such objects, seal such objects, ensure that they are kept sealed and gas-tight during the entire fumigation process, and post a warning sign that is readily visible from all sides as well as the name, address and phone number of the fumigation provider. The warning sign shall be rectangular, at least 300 millimeters wide and at least 250 millimeters long. Its lettering shall be black, at least 25 millimeters high, and shall be inscribed on a white background.

(2) The warning sign shall contain the following at a minimum:

1. The icon for "toxic"
2. The word GEFÄHR [Danger]
3. The words "DIESE EINHEIT IST BEGAST" [Under fumigation]
4. The name of the fumigant
5. The date and time of fumigation
6. The words "ZUTRITT VERBOTEN" [Entry prohibited]

The content and layout of the sign shall be as follows:



\*enter the applicable information

(3) Any fumigated road vehicle, rail vehicle, tank, transport box or any other transport container shall only be transported insofar as (a) the fumigation supervisor has determined that the fumigant that was used is not a safety or health hazard and (b) the container has been sealed and a warning sign pursuant to paragraph 5.6 (2) has been affixed to the container.

(4) Shipping containers containing fumigant shall only be transported insofar as the loading area for such containers are equipped with a mechanical ventilation system that prevents fumigant concentration from exceeding occupational exposure limit values. Any ship carrying fumigated containers shall be equipped with appropriate gas measuring devices and instructions for the use thereof, as well as appropriate first aid equipment.

(5) If a knowledgeable person pursuant to No. 5.3 (2) is unavailable at the time a fumigated road vehicle, rail vehicle, tank, transport box or any other transport container is to be opened, such object shall be opened under the supervision of a knowledgeable person who has the capacity to identify and assess any health or safety risk to workers

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<sup>1</sup>(Danger)

<sup>2</sup>(Under fumigation)

<sup>3</sup>(Entry prohibited)

or third parties and who is authorized to have the necessary safeguards implemented in regard to such potential health or safety risk.

## **5.7 Regulations pertaining to the fumigation of ships in transit**

(1) Fumigation shall be realized on ships only insofar as (a) the appropriate permit has been obtained from the competent authority and (b) two or more knowledgeable persons within the meaning of No. 5.3 (2) (3) are present during the transit period.

(2) After a reasonable amount of fumigation time has elapsed and prior to departure from the harbor, the fumigation supervisor shall provide the ship's captain with the following information:

1. All areas that have been fumigated, as well as other areas that will be off limits while the ship is in transit, are to be identified
2. Any technical changes that will be realized onboard in order to realize fumigation activities
3. A statement to the effect that all fumigated areas are sufficiently gas-tight
4. A statement to the effect that all areas adjacent to any fumigated areas are free of fumigant.

(3) If the ship leaves the harbor immediately upon commencement of fumigation activities, a fumigation supervisor shall be on board until such time as

1. the fumigated load has been unloaded, or
2. the requirements specified in paragraph 2 have been fulfilled.

(4) The provisions of No. 5.4 (2) shall apply as well.

(5) The gas-tightness of all fumigated areas shall be verified at least every eight hours while the ship is in transit. The results of this verification shall be recorded in the ship's log.

(6) A minimum of 24 hours prior to the arrival of any fumigated ship, the competent harbor officials shall be notified of the time of fumigation and the areas and transport containers that are, have been or are to be under fumigation.

## **5.8 Additional regulations pertaining to specific fumigants**

### **5.8.1 Bromomethane**

(1) If any area that is to be fumigated with bromomethane is to be entered for purposes of opening bottle valves, holders of the relevant competence certificate shall be deployed in sufficient numbers to ensure that such area can be evacuated no more than ten minutes after the valve on the first bottle is opened.

(2) Any enclosed area whose bromomethane concentration exceeds 2 grams per cubic meter shall be off limits. Any enclosed area whose bromomethane concentration exceeds 0.4 grams per cubic meter shall be occupied for a maximum of ten minutes by persons equipped with respiratory protection.

(3) Fumigation in greenhouses or out of doors shall be realized solely under gas-tight covers or tarps. Warning signs pursuant to No. 5.6 (2) shall be posted at any location at which such fumigation is realized.

### **5.8.2 Hydrogen cyanide**

(1) A maximum of 30 grams per cubic meter (2.7 volume percent in air) of hydrogen cyanide shall be used for the fumigation of enclosed spaces. The use of additional fumigant shall be admissible after two hours have elapsed.

(2) The holder of a competence certificate shall not use more than 100 kilograms of fumigant over the course of a single work day.

### **5.8.3 Hydrogen phosphide**

(1) Application of Nos. 5.3.2 and 5.3.3 shall be excluded for hydrogen phosphide use out of doors.

(2) Preparations that produce hydrogen phosphide shall contain an additive that prevents the spontaneous combustion of hydrogen phosphide.

(3) Hydrogen phosphide fumigation shall be realized using a fumigant mixture that does not have the capacity to produce an explosive mixture of gas and air.

### **5.8.4 Formaldehyde**

The fumigation supervisor shall deem a fumigated area and the objects therein safe for use only insofar as an appropriate proof procedure has verified that the concentration of formaldehyde in the area does not exceed 0.1 milliliter per cubic meter.

## **Annex III No. 6**

### **Ammonium nitrate**

#### **6.1 Scope**

(1) Annex III No. 6 shall apply to the storage, filling and in-house transport of

1. ammonium nitrate
2. preparations containing ammonium nitrate preparations (hereinafter referred to as "preparations")

(2) Application of No. 6 to the following shall be excluded:

1. Preparations whose mass concentration of ammonium nitrate is 10% or less
2. Ammonium nitrate and Group A and E preparations pursuant to No. 6.2 in amounts up to 100 kilograms
3. Group B, C and D preparations pursuant to No. 6.2 in amounts up to one ton
4. Ammonium nitrate and preparations which, by virtue of their properties, fall within the scope of the Explosives Act (Sprengstoffgesetz).

#### **6.2 Definitions**

Ammonium nitrate and the relevant preparations shall be classified according to the following categories:

1. Group A:  
Ammonium nitrate and preparations that can generate an explosive reaction or which, by virtue of their ammonium nitrate content, fall within the scope of subgroups A I, A II, A III or A IV pursuant to Table 1.
2. Group B:  
Preparations with the capacity to undergo self-sustaining and progressive thermal decomposition.
3. Group C:  
Preparations that can neither undergo self-sustaining and progressive thermal decomposition nor generate an explosive reaction but which produce nitrogen oxide upon being heated.
4. Group D:  
Preparations that are non-hazardous in an aqueous solution or suspension, but which can generate an explosive reaction when in a crystallized state due to a reduction in the original water content.
5. Group E:

Preparations that occur as water in oil emulsions and that are used as precursor products for the manufacture of explosives.

### 6.3 General regulations

(1) No. 6.4 shall apply to ammonium nitrate and to Group A, B, C, D or E preparations.

(2) The constituents of ammonium nitrate and Group A, B, C, or E preparations shall be colloiddally and mixed, and shall not be separated during storage, transport or filling.

(3) NK or NPK (bulk blend) fertilizers containing ammonium nitrate shall be stored in accordance with the regulations specified for Group B or in accordance with the specific hazards assigned to such fertilizers. Group A fertilizer mixtures shall be stored in accordance with the regulations specified for Group A or in accordance with the specific hazards assigned to such fertilizers.

(4) Any nitrate for which an equivalent ammonium ion exists shall be classified as an ammonium nitrate.

(5) The allowable maximum mass fractions of combustible constituents shall be as follows: subgroup B II preparations: unrestricted; ammonium nitrate and subgroup A 1 preparations: up to 0.2%; preparations in all other Group A, B, C and D subgroups: up to 0.4%.

(6) Any organic carbon in ammonium nitrate and subgroup A I preparations shall be deemed a combustible constituent of such preparations.

(7) Inert substances within the meaning of the present Annex shall be substances that do not increase thermal sensitivity or sensitivity to the effects of explosion. In case of doubt, the aforementioned properties shall be substantiated by an expert's certificate of the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung).

Table I

Ammonium nitrate and preparation compositions and limits for purposes of classification into a group specified in No. 6.2

Sub-groups	Mass fraction of ammonium nitrate in percent	Other constituents	Specific regulations
A I	≥ 90	Chloride content ≤ 0.02% Inert substances ≤ 10%	No additional ammonium salts shall be admissible

A II	> 80 up to < 90	Limestone, dolomite, or calcium carbonate: < 20%	
A III	> 45 up to < 70	Ammonium sulfate	Inert substances shall be admissible
A IV	> 70 up to < 90	Potassium salts, phosphate in NP, NK or NPK fertilizers, sulfates in N fertilizers; inert substances	
B I	≤ 70	Potassium salts, phosphate, inert substances and other ammonium salts in NK or NPK fertilizers	If the mass fraction of ammonium nitrate exceeds 45%, the combined mass fraction of ammonium nitrate and other ammonium salts shall not exceed 70%.
B II	≤ 45	Excess nitrate: ≤ 10%	No restriction on combustibles content; any nitrate content exceeding the ammonium nitrate content shall be deemed potassium nitrate
C I	≤ 80	Limestone, dolomite, or calcium carbonate: ≥ 20%	Limestone, dolomite or calcium carbonate with minimum 90% purity
C II	≤ 70	Inert substances	
C III	≤ 45	Phosphate and other ammonium salts in NP fertilizers	
	> 45 up to < 70	Phosphate and other ammonium salts in NP fertilizers	The combined mass fraction of ammonium nitrate and other ammonium salts shall not exceed 70%.
C IV	≤ 45	Ammonium sulfate	Inert substances shall be admissible.
D I	≤ 45	Urea, water	In aqueous solutions.
D II	≤ 45	Excess nitrate ≤ 10%, potassium salts, phosphate and other ammonium salts in NP, NK, or NPK fertilizers	In aqueous solutions or suspensions. Excess nitrate shall be deemed potassium nitrate. The limits specified in column 2 shall also apply to liquids, as well as to solid-phase suspensions.
D III	≤ 70	Ammonia, water	In aqueous solutions.
DIV	> 70 up to ≤ 93	Water	In aqueous solutions.

E	> 60 up to ≤ 85	≥ 5% up to ≤ 30% water, ≥ 2% up to ≤ 8% combustible constituents, ≥ 0.5% up to ≤ 4% emulsifiers	Inorganic salts; additives.
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(8) The storage, filling and in-house transport of ammonium nitrate and preparations that do not fall within the scope of (a) the threshold and composition restrictions for Groups A, B, C D or E specified in the Table or (b) the requirements specified in paragraphs 2 and 5 shall be subject to prior submission of an expert's certificate of the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung) and the requirements specified therein.

(9) The storage, filling and in-house transport of Group B preparations shall be subject to the requirements for Group C preparations providing that an expert's certificate of the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung) indicates that such preparations do not pose a risk of self-sustaining and progressive thermal decomposition.

(10) The group classification on the label of preparations that are classified in accordance with the stipulations of paragraphs 3, 8 or 9 shall be realized in accordance with the applicable expert's certificate of the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung).

## 6.4 Precautionary measures

### 6.4.1 Requirements for the storage of Group A, B, C, D and E substances and preparations

The following safeguards are to be realized in an appropriate manner and scope for the storage of Group A, B, C, D and E substances and preparations:

1. Protection against the elements
2. Protection against contamination and hazardous storage configurations
3. Safeguards against unauthorized access
4. Fire protection
5. Safeguards against the effects of prohibited factors such as pressure, heat and so on.



## **6.4.2 Supplementary measures for Group A, D IV and E substances and preparations**

### **6.4.2.1 General safeguards**

- (1) Any contaminated substance or preparation that is spilled or seeps out shall either be used immediately or disposed of safely.
- (2) Group A substances and preparations shall be stored or transported solely in a packaged form.
- (3) No combustible material shall be stored in a storage area or within 10 meters of a storage area in which Group A substances are stored.
- (4) Group D IV and E preparations shall be safeguarded against thermal decomposition.

### **6.4.2.2 Requirements for the storage of more than one ton of a substance or preparation**

- (1) Group A substances and preparations that are stored in amounts exceeding one ton shall be stored using the best available techniques in appropriate buildings that are equipped with appropriate safeguards.
- (2) Group D IV and E substances and preparations that are stored in amounts exceeding one ton shall be stored using the best available techniques in appropriate containers that are equipped with appropriate safeguards.
- (3) Group A substances and preparations and Group E preparations shall be subdivided into aliquots of 25 tons or less prior to storage.
- (4) The storage of aliquots of Group A substances and preparations shall be subject to the following conditions:
  1. Such aliquots shall be separated by masonry walls, brick walls that are as strong as masonry walls, or cement walls. The intermediate space in any such wall shall be filled to capacity with fireproof material in such a way that the wall thickness, including its intermediate space, equals "d," which shall be determined on the basis of the largest aliquot M using the following equation:
$$d = 0.1 M^{1/3} \quad \text{where } d \text{ is expressed in meters and } M \text{ in kilograms}$$
  2. In storage areas whose dividing walls do not extend all the way to the ceiling, such aliquots shall be stored up to one meter below the height of such wall.

(5) The storage venue shall be separated from any building that is used continuously for human occupancy by a guard space E, which shall be calculated on the basis of the largest aliquot M using the following equation:

$$E = 11 M^{1/3} \quad \text{where E is expressed in meters and M in kilograms}$$

The foregoing shall apply to company buildings only insofar as they are used for residential purposes.

(6) The guard space between the storage venue and public thoroughfares shall be two-thirds of the distance specified in paragraph 5.

(7) Paragraphs 5 and 6 notwithstanding, for aliquots of up to three tons, the guard space between the storage venue and residential buildings or public thoroughfares shall be 50 meters.

#### **6.4.2.2 Supplementary measures pertaining to the storage of more than 25 tons of a substance or preparation**

(1) Any Party that intends to store Group A, D, IV and E substances and/or preparations in amounts exceeding 25 tons shall notify the competent authority of such intention in writing a minimum of two weeks in advance.

(2) Such notification shall contain the following information:

1. Name and address of the Party subject to the notification obligation
2. Type and maximum amount of the substances or preparations that are to be stored
3. Description of the type of building and equipment therein, including ground plans and sectional drawings
4. A layout plan showing the locations of all buildings and public thoroughfares within a radius of 350 meters of the storage venue
5. An indication as to whether the buildings shown in the layout plan are to be used for permanent human occupancy or for residential purposes.

(3) If any change is effected in the content of such notification (e.g. the amounts stored), paragraphs 1 and 2 shall apply accordingly.

(4) Storage buildings that are used for Group A substances and preparations shall not be used for permanent human occupancy, apart from occupancy by supervisory and service personnel.

(5) Group A substances and preparations shall not be stored in single-storey buildings.

### **6.4.3 Supplementary measures for Group B preparations**

#### **6.4.3.1 General precautions**

Fireplaces and other sources of ignition shall be excluded from storage areas.

#### **6.4.3.2 Supplementary measures pertaining to the storage of more than 100 tons of substances or preparations**

- (1) The storage temperature of such preparations shall not exceed 70 degrees Celsius.
- (2) Means of transport and the equipment integrated therein shall be constructed and/or operated in such a way that any heat generated by such equipment cannot provoke thermal decomposition in any storage material.

#### **6.4.3.3 Supplementary measures pertaining to unpackaged preparations in amounts exceeding 1500 tons, or packaged preparations in amounts exceeding 3000 tons**

- (1) These preparations shall be subdivided into aliquots of up to 3000 tons by means of fire-resistant dividing walls, piles of fireproof storage material, or an intermediate space that is at least 2.50 meters wide and that is kept clear at all times. If a dividing wall does not extend to the ceiling, the pile of storage material shall extend no higher than up to one meter below the height of such wall.
- (2) Application of paragraph 1 shall be excluded insofar as, concurrently with the requirements specified in paragraph 1,
  1. appropriate fire fighting equipment is available
  2. a sufficient amount of fire fighting water is available
  3. a works fire service is available seven days per week round the clock
  4. the storage material in the storage area has been sieved
  5. the air in the storage area and the discharge channels beneath the storage area are monitored continuously.

### **6.4.4 Technical safeguards for Group D preparations**

Measures shall be taken to prevent preparations from drying out.

## **6.5 Alleviating provisions**

### **6.5.1 Alleviating provisions pertaining to specific substances and preparations**

In derogation of No. 6.4.2.2 (3) for substances and preparations in stacked aliquots of up to 100 tons; and in derogation of No. 6.4.2.2 (5) for substances whose guard space is half the size of the guard space required thereunder, it shall be permissible to store Group A I and A II substances and preparations as well as preparations containing inert Group A IV and E substances insofar as (a) an expert's certificate issued by the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung) substantiates that the Group A I, A II and A IV substances and preparations of interest fulfill the property requirements of Annex III of Regulation (EC) No. 2003/2003 of the European Parliament and of the Council of 13 October 2003 relating to fertilisers and (b) no Group E substance or preparation is explosive.

### **6.5.2 Alleviating provisions pertaining to installations that produce ammonium nitrate and explosives**

The following exceptions shall apply to installations that produce ammonium nitrate and explosives:

1. Nos. 6.4.2.1 (2) and 6.4.2.3 (1-3) shall not apply to Group A substances and preparations
2. Only half of the guard space pursuant to No. 6.4.2.2 (5) shall be required.

### **6.6 Exemptions**

Any exemption pursuant to Article 20 (1) hereunder from the requirements pertaining to Group A, D IV and E substances and preparations pursuant to No. 6.4.2 shall be granted by the competent authority solely by mutual agreement with the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung).

**Annex IV**  
**Restrictions pertaining to production and use**

**Contents**

- No.1 Asbestos
- No.2 2-naphthylamine, 4-aminobiphenyl, benzidine, 4-nitrobiphenyl
- No.3 Arsenic and arsenic compounds
- No.4 Benzole
- No.5 Hexachlorocyclohexane (HCH)
- No.6 Lead carbonate, lead sulfate
- No.7 Mercury and mercury compounds
- No.8 Organo-tin compounds
- No.9 Di- $\mu$ -oxo-di-n-butylstanniohydroxyborane
- No.10 Decorative objects containing hazardous liquid substances or preparations
- No.11 Aliphatic chlorinated hydrocarbons
- No.12 Pentachlorophenol and pentachlorophenol compounds
- No.13 Tar oil
- No.14 Polychlorinated biphenyls and terphenyls; monomethyl-tetrachloro-diphenylmethane, monomethyl-dichloro-diphenylmethane and monomethyl-dibromo-diphenylmethane
- No.15 Vinyl chloride
- No.16 Strong acid processes for isopropanol manufacture
- No.17 Cadmium and cadmium compounds
- No.18 Short-chain chlorinated paraffin (alkane, C10-C13, chlorine)
- No.19 Cooling lubricants
- No.20 DDT
- No.21 Hexachlorothane
- No.22 Biopersistent fibers
- No.23 Particularly hazardous carcinogenic substances
- No.24 Flame retardants
- No.25 Azo dyes
- No.26 Alkylphenole
- No. 27 Chromate cement

**Annex IV No. 1**  
**Asbestos**

(1) The production and use of the following hazardous substances containing asbestos shall be prohibited:

1. Asbestos
2. Preparations whose mass concentration of asbestos exceeds 0.1%.
3. Products containing asbestos or preparations pursuant to no. 2.

(2) Paragraph 1 shall not apply to the following:

1. Demolition work
2. Renovation or maintenance work on existing installations, plants, systems, motor vehicles or buildings with the exception of the following:
  - Application of coverings to asbestos cement roofs
  - Cleaning and coating of uncoated asbestos cement roofs
  - Work that reduces, wears down, degrades or removes the surface of any asbestos product such as grinding, compressed air cleaning and brushing, except insofar as such work involves low-emission processes that are recognized as such by the competent authority or trade associations
3. The extraction, preparation, refinement, processing or reuse of naturally occurring mineral substances and any preparation or products manufactured therefrom whose mass concentration of asbestos is 0.1% or less
4. Material that is used as back-fill for underground mining, insofar as such material contains asbestos produced by hydraulic bonding induced by cement or similar substances in containers or moulded articles and from which no asbestos particles can be released
5. The use, until the end of their service life, of acetylene bottles manufactured prior to Dec. 31, 1994, insofar as such bottles integrate any porous mass containing chrysotile and no worker is exposed to them.

#### **Annex IV No. 2**

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

The production and use of hazardous substances whose mass concentration of

1. 2-naphthylamine or the salts thereof
2. 4-aminobiphenyl or the salts thereof
3. benzidine or the salts thereof or
4. 4-nitrobiphenyl

is equal to or greater than 0.1% shall be prohibited. The foregoing shall not apply to manufacture or use insofar as the substance is produced and converted by a chemical reaction in a closed system in such a way that the concentration of the substance at the conclusion of the reaction or end-product work operation is less than 0.1%.

#### **Annex IV No. 3**

#### **Arsenic and arsenic compounds**

(1) The use of hazardous substances whose mass concentration of arsenic is equal to or greater than 0.3% shall be prohibited for the following applications:

1. Cleaning realized inside accessible containers and other confined spaces

2. In paints and other surface coatings
3. In pesticides
4. For the manufacture of plate glass (e.g. window glass) and glass used for packaging
5. Leather manufacturing, fur manufacturing, textile finishing and taxidermy
6. Enamel manufacturing
7. In stripping and cleaning agents with the exception of phosphoric acid stripping agents
8. For chemical (reductive) metal deposition for surface finishing purposes
9. The manufacture of pyrotechnic products
10. In metal adhesives.

(2) The use of arsenic compounds and preparations containing such compounds shall be prohibited for the following application domains:

1. For the treatment of industrial, commercial or urban waters, irrespective of their use
2. To prevent the fouling by micro-organisms, plants or animals of:
  - a) boat hulls
  - b) cages, floats, nets and any other appliances or equipment used for fish or shellfish farming
  - c) any totally or partly submerged appliances or equipment
3. As a biocide agent in antifouling paint to prevent the fouling of painted objects by microorganisms, plants or animals
4. As a wood preservative.

(3) Paragraph 2 (3) shall not apply to type C copper-chrome-arsenic compounds (CCA; chrome as 47.5% CrO<sub>3</sub>, copper as 18.5% CuO, arsenic as 34% As<sub>2</sub>O<sub>5</sub>) that are used in industrial installations using vacuum or pressure to impregnate wood.

(4) The use of wood treated with solutions of type C copper-chrome-arsenic compounds pursuant to paragraph 3 shall be permissible for the following commercial and manufacturing purposes insofar as fixation of the wood preservative is completed:

1. as construction timber in public and agricultural buildings, office buildings and manufacturing facilities, providing that such use is required for reasons of safety
2. in bridges and bridgework
3. as constructional timber in freshwater areas and brackish water, e.g. jetties
4. as noise barriers
5. for avalanche control
6. in highway safety fencing and barriers
7. as debarked round conifer livestock fence posts
8. as earth retaining structures
9. as electric power transmission and telecommunication poles
10. as underground railway sleepers

(5) Treated wood referred to in paragraph 4 shall not be used

1. in residential or domestic constructions, whatever the purpose
2. in any application where there is a risk of repeated skin contact
3. in marine waters

4. for agricultural purposes other than for livestock fence posts and structural uses in accordance with paragraph 4
5. in any application where the treated wood may come into contact with intermediate or finished products intended for human and/or animal consumption.

**Annex IV No. 4  
Benzole**

The use of hazardous substances with a mass concentration of benzole equal to or greater than 0.1% shall be prohibited. The foregoing shall not apply to the following:

1. Fuels that are used for spark-ignition internal combustion engines
2. Substances and preparations that are used for industrial processes in closed systems
3. Raw oil, straight-run gasoline, and fuel components that are used for industrial processes.

**Annex IV No. 5  
Hexachlorcyclohexane (HCH)**

The use of hexachlorcyclohexane as a biocide agent in paints that prevent the growth of microorganisms, plants or animals on objects (antifouling paints) shall be prohibited.

**Annex IV No. 6  
Lead carbonate, lead sulfate**

(1) Hazardous substances containing the following lead compounds shall not be used as paint:

1. Anhydrous neutral lead carbonate
2. Lead hydrocarbonate
3. Lead sulfate

(2) Paragraph 1 shall not apply to paints intended for the preservation, or faithful restoration to their original state, of works of art and historical elements or parts of buildings designated as historic monuments, if the use of substitute substances is not possible.



**Annex IV No. 7**  
**Mercury and mercury compounds**

(1) The use of hazardous substances containing mercury compounds shall be prohibited for

1. wood preservation
2. impregnation of heavy industrial textiles and yarns intended for their manufacture
3. the treatment of water in the industrial, business or municipal sectors, regardless of its use.

(2) The use of mercury compounds as a biocide agent in paints that prevent the growth of microorganisms, plants or animals on objects (antifouling paints) shall be prohibited.

**Annex IV No. 8**  
**Organo-tin compounds**

(1) The use of hazardous substances containing organo-tin compounds shall be prohibited for the treatment of water in the industrial, business or municipal sectors, regardless of its use.

(2) The use of organo-tin compounds as a biocide agent in paints that prevent the growth of microorganisms, plants or animals on objects (antifouling paints) shall be prohibited.

**Annex IV No. 9**  
**Di- $\mu$ -oxo-di-n-butylstanniohydroxyborane**

The production and use of hazardous substances whose mass concentration of di- $\mu$ -oxo-di-n-butylstanniohydroxyborane is equal to or greater than 0.1% shall be prohibited. The first sentence shall not apply to the processing of end products whose mass concentration of di- $\mu$ -oxo-di-n-butylstanniohydroxyborane is less than 0.1%.

**Annex IV No. 10**  
**Decorative objects containing hazardous liquid substances or preparations**

The manufacture of decorative objects containing liquid substances or preparations that are or are to be classified as hazardous pursuant to Section Two of this Ordinance shall be prohibited.

**Annex IV No. 11**  
**Aliphatic chlorinated hydrocarbons**

1. Tetrachloromethane (carbon tetrachloride)
2. 1,1,2,2-tetrachloroethane
3. 1,1,1,2-tetrachloroethane
4. pentachloroethane
5. trichloromethane (chloroform)
6. 1,1,2-trichloroethane
7. 1,1-dichloroethylene
8. 1,1,1-trichloroethane
9. as well as substances, preparations and products whose mass concentration of the substances referred to in items 5-8 is equal to or greater than 0.1%, shall be used solely in enclosed installations.

**Annex IV No. 12**  
**Pentachlorophenol and pentachlorophenol compounds**

(1) The manufacture and use of the following substances, preparations and products shall be prohibited:

1. Pentachlorophenol
2. Sodium pentachlorophenate and all other pentachlorophenate salts and compounds
3. Preparations whose overall mass concentration amounts to more than 0.01% of the substances referred to in items 1 and 2
4. Products that have been treated with a preparation containing the substances referred to in items 1 or 2 and any of whose treated components contains more than 5 milligrams per kilogram (ppm) of the substances referred to in items 1 or 2.

(2) Paragraph 1 shall not apply to textiles, as well as for the wood components of buildings and furniture, that were treated with a preparation containing any substance referred to in paragraph 1 (1) or 1 (2) prior to Dec. 23, 1989. In the territory referred to in Article 3 of the Unification Treaty (Einigungsvertrag), the foregoing rule shall apply as from October 3, 1990 in lieu of Dec. 23, 1989.

(3) Paragraph 1 (4) shall not apply to waste wood that is recycled in accordance with the Waste Wood Ordinance (Altholzverordnung).

**Annex IV No. 13**  
**Tar oil**

**13.1 Prohibitions**

(1) The production and use of wood preservatives containing crude tar, tar oil or the components or distillation residues thereof (tar pitch), including in particular the following, shall be prohibited:

1. Creosote 8001-58-9
2. Creosote oil 61789-28-4
3. Distillates (coal-tar), naphthalene oils 84650-04-4
4. Creosote oil, acenaphthene fraction 90640-84-9
5. Higher-boiling distillates (coal tar) 65996-91-0
6. Anthracene oil 90640-80-5
7. Tar acids, raw coal 65996-85-2
8. Creosote, wood 8021-39-4
9. Low temperature coal tar, alkaline, extraction residues 122384-78-5.

(2) The use of products shall be prohibited that (a) are wholly or partially composed of wood or wood-based materials and (b) have been treated with any of the wood preservatives referred to in paragraph 1.

**13.2 Exceptions for wood preservatives**

Application of no. 13.1 (1) shall be excluded for the production and use of wood preservatives whose mass concentration of benzo(a)pyrene is less than 50 milligrams per kilogram and whose mass concentration of water soluble phenol is less than 3%, insofar as such production and use occurs in enclosed installations that realize

1. industrial processes or
2. finishing on-site for commercial purposes.

**13.3 Exceptions for specific products**

(1) Application of no. 13.1 (2) shall be excluded for

1. products that are treated with wood preservatives referred to in no. 13.2 and that are used solely for commercial or industrial purposes (e.g. railway sleepers, fences, tree props used in agriculture, vine stakes, sheet piles for ports and waterways);
2. used products that were treated with the wood preservatives referred to in no. 13.1 (1) before the present Ordinance came into force and that do not meet the requirements of no. 13.2, insofar as such products are reused exclusively as railroad sleepers, electric power transmission and telecommunication poles or for any other commercial or industrial purposes of a different nature, in accordance with the purpose for which they were originally manufactured.

(2) Use of the products referred to in paragraph 1 shall be prohibited

1. in indoor rooms, irrespective of their use

2. for the manufacture of toys
3. on playgrounds
4. in gardens and parks and in other places, if there is a risk of frequent skin contact
5. in the manufacture of garden furniture
6. as containers for living plants
7. as packaging that may come into contact with raw, intermediate or final products for human or animal nutrition and
8. as any other material that could contaminate the products referred to in items 6 and 7 or is involved in their manufacture or reprocessing.

(3) The ban pursuant to no. 13.1 (2) does not apply to waste wood used in accordance with the Waste Wood Ordinance (Altholzverordnung).

**Annex IV No. 14**  
**Polychlorinated biphenyls and terphenyls;**  
**monomethyltetrachlorodiphenylmethane, monomethyldichlorodiphenylmethane**  
**and monomethyldibromodiphenylmethane**

(1) The manufacture and use of the following substances, preparations and products shall be prohibited:

1. Polychlorinated (i.e. trichlorinated and higher chlorinated) biphenyl (PCB)
2. Polychlorinated terphenyls (PCT)
3. Monomethyltetrachlorodiphenylmethane
4. Monomethyldichlorodiphenylmethane
5. Monomethyldibromodiphenylmethane
6. Preparations containing more than 50 milligrams per kilogram of the substances referred to in items 1-5
7. Products containing substances pursuant to items 1-5 or preparations pursuant to item 6
8. Preparations and products that are suspected of falling within the scope of items 6 or 7, until such suspicion is proven false.

(2) The ban pursuant to paragraph 1 does not apply to:

1. The substances and preparations referred to in Article 2 Nos. 1 and 2 and Article 2 paragraph 2 first sentence of the Chemicals Act (Chemikaliengesetz)
2. Mixing any of the individual substances, preparations and products mentioned in paragraph 1 with each other, excluding any such mixture that is used to refill products containing PCB or PCT
3. Use of the products referred to in paragraph 1 items 7 and 8 for recovery pursuant to Article 2 (2) of the PCB/PCT Waste Ordinance (PCB/PCT-Abfallverordnung)
4. Waste wood used for recovery in accordance with the Waste Wood Ordinance (Altholzverordnung)

5. Wood chips, wood shavings, derived timber products and any products made from these, that contain less than 5 milligrams per kilogram of the substances mentioned in paragraph 1 items 1-5
6. Making a transformer available to an external party for a brief period for the sole purpose of realizing authorized maintenance, repairs, transport or refilling
7. Refilling a transformer with insulation fluid containing no PCB or PCT insofar as such transformers is contaminated with PCB or PCT and
  - a) the PCB concentration of the new insulation fluid does not exceed 2000 milligrams per kilogram (PPM)
  - b) after six months of operation, the PCB concentration of the new insulation fluid does not exceed the limit value mentioned in paragraph 1 item 6; and
  - c) insofar as after such six-month period the operator verifies compliance with the limit value mentioned in paragraph 1 item 6 by measuring the PCB concentration of the insulation fluid.

(3) The ban pursuant to paragraph 1 does not apply to the cleaning and subsequent refilling of any transformer whose insulation fluid contains more than 1000 milligrams of PCB per kilogram, as well as for cleaning processes that directly induce elimination of the PCB or PCT in the insulation fluid insofar as the following requirements are met:

1. Upon completion of the cleaning process, one-time refilling with PCB- or PCT-free insulation fluid and any additional cleaning that is required involving no refilling, the limit value specified in paragraph 1 item 6 shall not be exceeded over a prolonged period of time.
2. The total volume of liquid waste resulting from emptying and cleaning the transformer shall not exceed by more than 20 percent the transformer's maximum allowable filling volume.
3. The liquid waste resulting from emptying and cleaning the transformer shall be disposed of compliantly.
4. The insulation fluid resulting from off-line cleaning of a transformer shall be recovered compliantly.
5. Human health and environmental safety shall not be jeopardized.

Six weeks prior to cleaning in accordance with paragraph 3 first sentence, the transformer operator shall submit a notification to the competent authority indicating who will be realizing the cleaning, which cleaning process is to be used and the duration of the cleaning process. Cleaning shall be realized solely by a company that is accredited by the competent authority, using a cleaning process whose accreditation falls within the scope of the company's accreditation. Accreditation shall be granted solely insofar as no doubt exists regarding the company's reliability and the suitability of the cleaning process for the envisaged cleaning activity. Upon completion of the aforementioned filling and cleaning activities, the operator shall demonstrate sustained compliance with the limit value pursuant to paragraph 1 item 6 by submitting to the competent authority the results of measuring insulation fluid PCB concentration after the transformer has been in operation for one year, or six months following realization of a secondary cleaning procedure. The operator shall measure insulation fluid PCB concentration in the transformer every four years thereafter and shall submit the measurement results to the competent authority.

(4) Substances within the meaning of paragraph 1 items 1-5, as well as preparations within the meaning of paragraph 1 items 6 or 8, and product components within the meaning of paragraph 1 items 7 or 8 containing PCB as an insulator shall be removed, and shall then be disposed of pursuant to the provisions of the PCB/PCT Waste Ordinance (PCB/PCT-Abfallverordnung).

#### **Annex IV No. 15 Vinyl chloride**

The manufacture and use of products containing vinyl chloride (chloroethene) as an aerosol propellant shall be prohibited. The first sentence shall not apply to the substances and preparations specified in Article 2 (1) Nos. 1 and 2 and paragraph 2 first sentence of the Chemicals Act (Chemikaliengesetz).

#### **Annex IV No. 16 Strong acid processes for isopropanol production**

The production of isopropanol using strong acid processes shall be prohibited.

#### **Annex IV No. 17 Cadmium and cadmium compounds**

##### **17.1 Use of cadmium and cadmium compounds as dyeing agents**

(1) The use of cadmium and cadmium compounds as dyeing agents for the following products or the constituents thereof shall be prohibited, insofar as such products or product constituents are composed of the following substances and preparations:

1. Polyvinylchloride (PVC)
2. Polyurethane (PUR)
3. Low-density polyethylene, excluding low-density polyethylene that is used for the manufacture of master-batch pigment preparations
4. Cellulose acetate (CA)
5. Cellulose acetobutyrate (CAB),
6. Epoxy resins
7. Melamine-formaldehyde resin (MF)
8. Urea formaldehyde (UF)
9. Unsaturated polyester (UP)
10. Polyethylenterephthalate (PET)

11. Polybutylenterephthalate (PBT)
12. Polystyrene, crystal clear/standard
13. Acrylonitrile methyl methacrylate (AMMA)
14. Cured polyethylene
15. Polystyrene, high-impact (SB)
16. Polypropylene (PP)

The ban pursuant to paragraph 1 does not apply to products which, for safety reasons, must be dyed or stabilized using cadmium or cadmium compounds.

(2) The use of paint or varnish whose mass concentration of cadmium or cadmium compounds exceeds 0.01% shall be prohibited. The ban pursuant to paragraph 1 does not apply to preparations with a high zinc concentration, insofar as the mass concentration of cadmium or cadmium compounds is kept to a minimum and does not exceed 0.1%.

### **17.2 Use of cadmium and cadmium compounds as stabilizers**

The use of cadmium and cadmium compounds as stabilizers shall be prohibited in the following products containing or made of vinyl chloride polymer or vinyl chloride copolymers:

1. Packaging material
2. Office and school supplies
3. Fittings/mountings
4. Clothing and wearable accessories of all kinds
5. Floor and wall coverings
6. Textiles that are impregnated, coated or backed
7. Imitation leather
8. Phonograph records
9. Pipes and pipe fittings
10. Swing doors
11. Internal and external trims and body floors of road vehicles
12. Coating of steel sheets used in the construction trade or in industry and
13. Cable insulation

The ban pursuant to paragraph 1 shall be excluded for products which, for safety reasons, must be dyed or stabilized using cadmium or cadmium compounds.

### **17.3 Use of cadmium and cadmium compounds as a surface coating**

(1) The use of cadmium and its compounds as a metal surface coating shall be prohibited for:

1. The following items:
  - a) Household appliances
  - b) Furniture
  - c) Sanitary facilities
  - d) Central heating and air conditioning systems

- e) Cars and agricultural vehicles
  - f) Rail vehicles
  - g) Ships
  - h) Equipment used for materials flow technology
2. Equipment and machinery used to manufacture
    - a) products within the meaning of item 1 (a-g)
    - b) textiles and clothing
    - c) paper and cardboard
    - d) food and
  3. Equipment and machinery for
    - a) agriculture
    - b) freezing and deep freezing
    - c) printing and bookbinding.

The aforementioned restrictions shall apply as well to the elements of all such products, equipment and machinery.

(2) Paragraph 1 does not apply to

1. products and the components thereof that are used for the following application domains, insofar as the attendant activities necessitate a high safety standard:
  - a) aviation and spaceflight
  - b) mining
  - c) off-shore technology
  - d) in the nuclear power sector
2. the components of safety systems for the following application domains:
  - a) road vehicles
  - b) agricultural vehicles
  - c) rail vehicles
  - d) ships
3. Electrical contacts on equipment that requires such contact to ensure dependability.

**Annex IV No. 18**  
**Short-chain chlorinated paraffins (alkanes, C<sub>10</sub>-C<sub>13</sub>, chlorine)**

The use of short-chain chlorinated paraffins as well as substances and preparations whose mass concentration of short-chain paraffins exceeds 1% shall be prohibited

1. for metal processing, metal working, and
2. treatment of leather.



**Annex IV No. 19**  
**Cooling lubricants**

- (1) The use of cooling lubricants containing nitrosating agents shall be prohibited.
- (2) In realizing the risk assessment pursuant to Article 7, the employer shall ensure that any cooling lubricants used do not contain nitrosating agents.

**Annex IV No. 20**  
**DDT**

The production and use of 1,1,1-trichloro-2,2-bis(4-chlorophenyl)-ethane, the isomers thereof (DDT) as well as preparations containing DDT as an active agent shall be prohibited.

**Annex IV No. 21**  
**Hexachlorothane**

The use of hexachlorothane for the manufacture or processing of non-ferrous metals shall be prohibited.

**Annex IV No. 22**  
**Biopersistent fibers**

- (1) The production and use of the following hazardous substances containing mineral fibers shall be prohibited for purposes of thermal insulation and soundproofing in civil engineering including technical insulations:
1. Artificial mineral fibers: artificially manufactured, non-directional glass (silicate) fibers whose mass concentration of oxides of sodium, potassium, calcium, magnesium or barium exceeds 18%
  2. Preparations and products containing artificial mineral fibers in a concentration totalling more than 0.1%.
- (2) Application of paragraph 1 shall be excluded insofar as the mineral fibers of interest meet the following criteria:
1. An appropriate intraperitoneal test shall have uncovered no evidence of inordinate carcinogenicity
  2. The post-intratracheal instillation half-life of 2 milligrams of a fiber suspension containing fibers whose length exceeds 5 micrometers, whose diameter is less than

3 micrometers and whose length to diameter ratio exceeds 3:1 (WHO fibers) shall not exceed 40 days.

3. The carcinogeneity index, which is calculated from the difference between the sum of the mass content (as a percentage) of the oxides of sodium, potassium, boron, calcium, magnesium and barium, and twice the mass content (as a percentage) of aluminium oxide is greater than or equal to 40.
4. Glass fibers that are intended for high temperature applications, insofar as they
  - a) necessitate a classification temperature of 1000–1200 °C and have a half-life pursuant to the criteria in the item 2 first sentence amounting to 65 days or less; or
  - b) necessitate a classification temperature of 1000–1200 °C and have a half-life amounting to 100 days or less.

(3) The use of spray processes that employ carcinogenic mineral fibers shall be prohibited.

#### **Annex IV No. 23** **Particularly hazardous carcinogenic substances**

The following hazardous substances shall be manufactured and used solely in enclosed facilities:

1. 6-amino-2-ethoxynaphthaline
2. Bis(chloromethyl) ether
3. Inhalable cadmium chloride
4. Chloromethyl methylether
5. Dimethyl carbamoylchloride
6. Hexamethyl phosphoric acid amide
7. 1,3-propane sulton
8. N-nitrous amine compounds, except those for which the relevant tests have revealed no sign of carcinogeneity.
9. Tetranitromethane
10. 1,2,3-trichloropropane

#### **Annex IV No. 24** **Flame retardants**

The use of pentabromodiphenylether (C<sub>12</sub>H<sub>5</sub>Br<sub>5</sub>O) and octabromodiphenylether (C<sub>12</sub>H<sub>2</sub>Br<sub>8</sub>O) as well as substances and preparations whose mass concentration of these substances exceeds 0.1% shall be prohibited. This ban shall not apply to pentabromodiphenylether and preparations containing pentabromodiphenylether for use in aircraft emergency evacuation systems and the components thereof until 31 March 2006.

#### **Annex IV No. 25**

##### **Azo dyes**

The use of substances and preparations whose mass concentration of the “Blue colorant” azo dye no. EC 405-665-4 (mixture of disodium-(6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxido-phenylazo)-1-naphtholato) (1-(5-chlor-2-oxido-phenylazo)-2-naphtholato) chromate(1-) and trisodium bis(6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxido-phenylazo)-1-naphtholato)chromate(1-)) shall be prohibited for textile and leather dyeing.

#### **Annex IV No. 26**

##### **Alkylphenols**

The use of nonylphenol [ $C_6H_4(OH)C_9H_{19}$ ] and nonylphenoethoxylate [ $C_{15}H_{23}O(C_2H_4O)_nH$ ], as well as preparations whose mass concentration of either substance exceeds 0.1%, shall be prohibited for the following application domains:

1. Commercial cleaning, apart from dry cleaning in enclosed or other cleaning installations, providing that the washing liquid from these systems is recycled or incinerated
2. Domestic cleaning
3. Textile and leather processing, apart from (a) processing that does not result in the discharge of nonylphenoethoxylate into wastewater; and (b) use in sheepskin degreasing installations, provided that the organic fraction is completely removed from the process water prior to biological waste water treatment
4. As an emulsifier in agricultural teat dips
5. For metal processing and metal working, apart from metal processing in enclosed installations that recycle or incinerate their cleaning fluids
6. For the manufacture of pulp and paper
7. As an ingredient in cosmetic products
8. As an ingredient in personal care products, apart from spermicide
9. As a coformulant in pesticides or biocides, apart from pesticides or biocides licensed prior to July 17, 2003 (until such authorization expires), as well as biocides that fall within the scope of the transitional regulations specified in Article 28 (8) of the Chemicals Act (Chemikaliengesetz).

#### **Annex IV No. 27**

##### **Chromate cement**

The use of cement and preparations containing cement shall be prohibited where, in a form ready for use following hydration, their soluble chrome VI content is greater than 2

mg/kg dry weight of the cement. The first sentence shall not apply to the use of such cement and preparations in controlled, closed and fully automatic processes and processes in which cement and preparations containing cement are handled solely by machines and there is no danger of contact with the skin.

## **Annex V Preventive medical check-ups**

### Contents

- No. 1 Hazardous substances list
- No. 2 Activities list
- No. 2.1 Activities for which preventive medical check-ups are to be authorized
- No. 2.2 Activities for which workers are to be afforded the opportunity to undergo preventive medical check-ups

### **Annex V No. 1 Hazardous substances list**

<b>Hazardous substances</b>
• Acrylonitrile
• Alkyl mercury
• Alveolar dust
• Aromatic nitro and amino compounds
• Arenic and arsenic compounds
• Asbestos
• Benzole
• Beryllium
• Lead and inorganic lead compounds
• Tetraethyl and tetramethyl lead
• Cadmium and cadmium compounds
• Chrome VI compounds
• Dimethyl formamide
• Inhalable dust
• Fluorine and inorganic fluorine compounds
• Glycerin trinitrate and glycol dinitrate (nitroglycerin/nitroglycol)
• Hardwood dust
• Carbon disulfide
• Carbon monoxide

• Flour dust
• Methanol
• Nickel and nickel compounds
• Polycyclic aromatic hydrocarbons (Pyrolysis products of organic material)
• White phosphorous (tetraphosphorous)
• Platinum compounds
• Mercury and inorganic mercury compounds
• Hydrogen sulfide
• Silicon dust
• Styrene
• Tetrachlorethene
• Toluene
• Trichlorethene
• Vinyl chloride
• Xylol

## **Annex V no. 2 Activities list**

### **2.1 Activities for which the employer shall request preventive medical check-ups**

1. Work under moist conditions for four hours or more daily on a regular basis
2. Welding and cutting metal in environments whose air contains more than 3 milligrams per cubic meter of welding smoke
3. Activities involving exposure to grain and animal feed dust whose inhalable concentration in air exceeds 4 milligrams per cubic meter
4. Activities involving exposure to isocyanates in settings where frequent skin contact is unavoidable or isocyanate concentration in air exceeds 0.05 milligrams per cubic meter
5. Activities involving exposure to test animal dust and the rooms in which animals are kept
6. Activities involving the use of natural latex rubber gloves containing more than 30 micrograms of protein per gram of glove material

7. Activities involving exposure to non-hardened epoxy resins and skin or respiratory contact therewith.

## **2.2 Activities for which workers are to be afforded the opportunity to undergo preventive medical check-ups**

1. Pest control activities pursuant to Annex III No. 4
2. Fumigation activities pursuant to Annex III No. 5
3. Activities involving the following substances or mixtures thereof:  
n-hexane, n-heptane, 2-butanon, 2-hexanon, methanol, ethanol, 2-methoxyethanol, benzole, toluene, xylol, styrol, dichloromethane, 1,1,1-trichlorethane, trichlorethene and tetrachlorethene,
4. Activities involving EC category 1 or 2 carcinogenic or mutagenic substances or preparations
5. Work under moist conditions for more than two hours at a time on a regular basis
6. Welding and cutting metal in environments whose air contains more than 3 milligrams per cubic meter of welding smoke
7. Activities involving exposure to grain and animal feed dust whose inhalable concentration in air exceeds 1 milligram per cubic meter.