COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 29 October 2003
COM(2003) 644

2003/zzz (COD)
VOLUME II

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

concerning the Registration, Evaluation, Authorisation and Restrictions of Chemicals (REACH)

EN

(presented by the Commission)

TABLE OF CONTENTS

ANNEX I

GENERAL PROVISIONS FOR ASSESSING SUBSTANCES AND PREPARING CHEMICAL SAFETY REPORTS

0. INTRODUCTION

0.1. The purpose of this Annex is to set out how manufacturers and importers are to assess and document that the risks arising from the substance they manufacture or import are adequately controlled during manufacture and their own use(s) and that others further down the supply chain can adequately control the risks.

0.2. The chemical safety assessment shall address all the identified uses. It shall consider the use of the substance on its own (including any major impurities and additives), in a preparation or in an article. The assessment shall consider all stages of the life-cycle of the substance as defined by the identified uses. The chemical safety assessment shall be based on a comparison of the potential adverse effects of a substance with the known or reasonably foreseeable exposure of man and/or the environment to that substance.

0.3. If the manufacturer or importer considers that the chemical safety assessment carried out for one substance is sufficient to assess and document that the risks arising from another substance or from a group of substances are adequately controlled then he can use that chemical safety assessment for the other substance or group of substances. The manufacturer or importer shall provide a justification for this.

0.4. The chemical safety assessment shall be based on the information on the substance contained in the technical dossier and on other available and relevant information. Available information from assessments carried out under other international and national programmes shall be included. Where available and appropriate, an assessment carried out under Community legislation (e.g. risk assessments completed under Regulation 793/93) shall be taken into account in the development of, and reflected in, the chemical safety report. Deviations from such assessments shall be justified.

Thus the information to be considered includes information related to the hazard of the substance, the exposure arising from the manufacture or import and the identified uses of the substance.

In accordance with Annex IX, Section 3, in some cases, it may not be necessary to generate missing information, because risk management measures which are necessary to control a well-characterised risk may also be sufficient to control other potential risks, which will not therefore need to be characterised precisely.

If the manufacturer or importer considers that further information is necessary for producing his chemical safety report and that this information can only be obtained by performing tests in accordance with Annex VII or VIII using vertebrate animals, he shall submit a proposal for a testing strategy, explaining why he considers that additional information is necessary and record this in the chemical safety report under the appropriate heading. While waiting for results of further testing, he shall record the risk management measures he has put in place in his chemical safety report.

0.5. A chemical safety assessment performed by a manufacturer or an importer for a substance shall include the following steps in accordance with the respective sections of this Annex:

1. Human health hazard assessment

2. Human health hazard assessment of physicochemical properties

3. Environmental hazard assessment

4. PBT and vPvB assessment

If as a result of steps 1 to 4 the manufacturer or importer concludes that the substance or the preparation meets the criteria for classification as dangerous according to Directive 67/548/EEC or Directive 1999/45/EC or is assessed to be a PBT or vPvB, the chemical safety assessment shall also consider the following steps:

5. Exposure assessment

6. Risk characterisation

A summary of all the relevant information used in addressing the points above, shall be presented under the relevant heading of the chemical safety report (Section 7).

0.6. The main element of the exposure part of the chemical safety report is the description of the manufacturer's or importer's exposure scenario(s) and the exposure scenario(s) recommended by the manufacturer or importer to be implemented for the identified use(s). The exposure scenarios contain a description of the risk management measures which the manufacturer or importer has implemented and recommends to be implemented by downstream users. If the substance is placed on the market, these exposure scenarios including the risk management measures shall be summarised in an annex to the safety data sheet in accordance with Annex IA.

0.7. The level of detail required in describing an exposure scenario will vary substantially from case to case, depending on the use of a substance, its hazardous properties and the amount of information available to the manufacturer or importer. Exposure scenarios can describe the appropriate risk management measures for several individual uses of a substance. Single exposure scenarios may thereby cover large ranges of uses.

0.8. The process which the manufacturer or importer goes through, in carrying out their chemical safety assessment and developing their chemical safety reports, may be iterative. Iterations may consider on the one hand developing and revising the exposure scenario(s), which may include developing and implementing or recommending risk management measures, and on the other hand the need to generate further information. The purpose of generating further information is to establish a more precise risk characterisation, based on a refined hazard assessment or exposure assessment. This will allow appropriate information to be communicated down the supply chain in the safety data sheet.

0.9. Where information is not necessary in accordance with Annex IX , this fact shall be stated under the appropriate heading of the chemical safety report and a reference

shall be made to the justification in the technical dossier. This fact that no information is required shall also be stated in the safety data sheet.

0.10. In relation to particular effects, such as ozone depletion, for which the procedures set out in Sections 1 to 6 are impracticable, the risks associated with such effects shall be assessed on a case-by-case basis and the manufacturer or importer shall include a full description and justification of such assessments in the chemical safety report and summarised in the safety data sheet.

0.11. Where the methodology described in this Annex is not appropriate, details of alternative methodology used shall be explained and justified in the chemical safety report.

0.12. Part A of the chemical safety report shall include a declaration that the risk management measures outlined in the relevant exposure scenarios for the manufacturer's or importer's own use(s) are implemented by the manufacturer or importer and that those exposure scenarios for the identified uses are communicated to all known users further down the supply chain in the safety data sheet.

1. HUMAN HEALTH HAZARD ASSESSMENT

1.0. Introduction

1.0.1. The objective of the human health hazard assessment shall be:

– to determine the classification and labelling of a substance in accordance with Directive 67/548; and

– to derive levels of exposure to the substance above which humans should not be exposed. This level of exposure is known as the Derived No-Effect Level (DNEL).

1.0.2. The human health hazard assessment shall consider the following groups of potential effects: (1) toxicokinetics, metabolism and distribution, (2) acute effects (acute toxicity, irritation and corrosivity), (3) sensitisation, (4) repeated dose toxicity and (5) CMR effects (carcinogenity, mutagenicity and toxicity for reproduction). Based on all the available information, other effects shall be considered when necessary.

1.0.3. The hazard assessment shall comprise the following four steps:

Step 1. Evaluation of non-human data

Step 2. Evaluation of human data

Step 3. Classification and Labelling

Step 4. Derivation of Derived No-Effect Levels (DNELs)

1.0.4. The first three steps shall be undertaken for every effect for which information is available and shall be recorded under the relevant section of the Chemical Safety Report and where required and in accordance with Article 29, summarised in the Safety Data Sheet under headings 2 and 11.

1.0.5. For any effect for which no relevant information is available, the relevant section shall contain the sentence "*This information is not required by this regulation. See the justification at …*".

1.0.6. Step 4 of the human health hazard assessment shall be undertaken by integrating the results from the first three steps and shall be included under the relevant heading of the Chemical Safety Report and summarised in the Safety Data Sheet under heading 8.1.

1.1. Step 1: Evaluation of non-human data

1.1.1. The evaluation of non-human data shall comprise:

– the hazard identification for the effect based on all available non-human data;

– the establishment of the quantitative dose (concentration) – response (effect) relationship.

1.1.2. When it is not possible to establish the quantitative dose (concentration) – response (effect) relationship, then this should be justified and a semi-quantitative or qualitative analysis shall be included. For acute effects it is usually not possible to establish the quantitative dose (concentration) – response (effect) relationship on the basis of the results of a test conducted in accordance with Annex X. In such cases it suffices to determine whether and to which degree the substance has an inherent capacity to cause the effect.

1.1.3. All non-human data used to assess a particular effect on humans and to establish the dose (concentration) – response (effect) relationship, shall be briefly presented, if possible in the form of a table or tables, distinguishing between *in vitro*, *in vivo* and other data. The relevant test results (e.g., LD50, NO(A)EL or LO(A)EL) and test conditions (e.g., test duration, route of administration) and other relevant information shall be presented, in internationally recognised units of measurement for that effect.

1.1.4 If there are several studies addressing the same effect, then normally the study or studies giving rise to the highest concern shall be used to establish the Derived No-Effect Levels and a robust study summary shall be prepared for that study or studies and included as part of the technical dossier. If the study or studies giving rise to the highest concern are not used, then this shall be fully justified and robust study summaries shall be prepared and included as part of the technical dossier, not only for the study being used but also for all studies demonstrating a higher concern than the study being used. For substances where all available studies indicate no hazards an overall assessment of the validity of all studies should be performed.

1.2. Step 2: Evaluation of human data

If no human data are available, this part shall contain the statement "*No human data are available*". However, if human data is available, it shall be presented, if possible in the form of a table.

1.3. Step 3: Classification and Labelling

1.3.1. The appropriate classification and labelling developed in accordance with the criteria in Directive 67/548 shall be presented and justified. A comparison of the available

data with the criteria given in Directive 67/548 for CMR, categories 1 and 2, shall always be performed and a statement presented of whether the substance fulfils or does not fulfil those criteria.

1.3.2. If the data are inadequate to decide whether a substance should be classified for a particular end-point, the registrant shall indicate and justify the action or decision he has taken as a result.

1.4. Step 4: Identification of Derived No-Effect Level(s) (DNEL(s))

1.4.1. Based on the outcomes of steps 1 to 3, a Derived No-Effect Level(s) shall be established for the substance, reflecting the likely route(s), duration and frequency of exposure. If justified by the exposure scenario(s), a single DNEL may be sufficient. However, taking into account the available data and the exposure scenario(s) in Section 5 of the Chemical Safety Report it may be necessary to identify different DNELs for each relevant human population (e.g., workers, consumers and humans liable to exposure indirectly via the environment) and possibly for certain sub-populations (e.g. children, pregnant women) and for different routes of exposure. A full justification shall be given specifying, *inter alia*, the choice of the data used, the route of exposure (oral, dermal, inhalation) and the duration and frequency of exposure to the substance for which the DNEL is valid. If more than one route of exposure is likely to occur, then a DNEL shall be estgablished for each route of exposure and for the exposure from all routes combined. When established the DNEL, the following factors shall, *inter alia*, be taken into account:

(i) the uncertainty arising, among other factors, from the variability in the experimental data and from intra- and inter-species variation;

(ii) the nature and severity of the effect;

(iii) the human population to which the quantitative and/or qualitative information on exposure applies.

1.4.2. If it is not possible to identify a DNEL, then this shall be clearly stated and fully justified.

2. PHYSICOCHEMICAL HAZARD ASSESSMENT

2.1. The objective of the hazard assessment for physicochemical properties shall be to determine the classification and labelling of a substance in accordance with Directive 67/548.

2.2. The potential effects to human health shall be assessed for at least the following physicochemical properties:

– explosivity,

– flammability,

– oxidizing potential.

If the data are inadequate to decide whether a substance should be classified for a particular end-point, the registrant shall indicate and justify the action or decision he has taken as a result.

2.3. The assessment of each effect shall be presented under the relevant heading of the Chemical Safety Report (Section 7) and where required and in accordance with Article 29, summarised in the Safety Data Sheet under headings 2 and 9.

2.4. For every physicochemical property, the assessment shall entail an evaluation of the inherent capacity of the substance to cause the effect.

2.5. The appropriate classification and labelling developed in accordance with the criteria in Directive 67/548 shall be presented and justified.

3. ENVIRONMENTAL HAZARD ASSESSMENT

3.0. Introduction

3.0.1. The objective of the environmental hazard assessment shall be to determine the classification and labelling of a substance in accordance with Directive 67/548 and to identify the concentration of the substance below which adverse effects in the environmental sphere of concern are not expected to occur. This concentration is known as the Predicted No-Effect Concentration (PNEC).

3.0.2. The environmental hazard assessment shall consider the potential effects on the environment, comprising the (1) aquatic (including sediment), (2) terrestrial and (3) atmospheric compartments, including the potential effects that may occur (4) via food-chain accumulation. In addition, the potential effects on the (5) microbiological activity of sewage treatment systems shall be considered. The assessment of the effects on each of these five environmental spheres shall be presented under the relevant heading of the Chemical Safety Report (Section 7) and where required and in accordance with Article 29, summarised in the Safety Data Sheet under headings 2 and 12.

3.0.3. For any environmental sphere, for which no effect information is available, the relevant section shall contain the sentence "*This information is not required by this regulation. See the justification at …*". For any environmental sphere for which information is available, but the manufacturer or importer believes that it is not necessary to conduct the hazard assessment, the manufacturer or importer shall present a justification under the relevant heading of the Chemical Safety Report (Section 7) and where required and in accordance with Article 29, summarised in the Safety Data Sheet under heading 12.

3.0.4. The hazard assessment shall comprise the following three steps, which shall be clearly identified as such in the Chemical Safety Report:

Step 1. Evaluation of data

Step 2. Classification and Labelling

Step 3. Derivation of the Predicted No-Effect Concentration (PNEC)

3.1. Step 1: Evaluation of data

3.1.1. The evaluation of all available data shall comprise:

– the hazard identification based on all available data;

– the establishment of the quantitative dose (concentration) – response (effect) relationship.

3.1.2. When it is not possible to establish the quantitative dose (concentration) – response (effect) relationship, then this should be justified and a semi-quantitative or qualitative analysis shall be included.

3.1.3. All data used to assess the effects on a specific environmental sphere shall be briefly presented, if possible in the form of a table or tables. The relevant test results (e.g. LC50 or NOEC) and test conditions (e.g. test duration, route of administration) and other relevant information shall be presented, in internationally recognised units of measurement for that effect.

3.1.4. All data used to assess the environmental fate of the substance shall be briefly presented, if possible in the form of a table or tables. The relevant test results and test conditions and other relevant information shall be presented, in internationally recognised units of measurement for that effect.

3.1.5. If there are several studies addressing the same effect, then the study or studies giving rise to the highest concern shall be used to draw a conclusion and a robust study summary shall be prepared for that study or studies and included as part of the technical dossier. If the study or studies giving rise to the highest concern are not used, then this shall be fully justified and robust study summaries shall be prepared and included as part of the technical dossier, not only for the study being used but also for all studies reaching a higher concern than the study being used. For substances where all available studies indicate no hazards an overall assessment of the validity of all studies should be performed.

3.2. Step 2: Classification and Labelling

3.2.1. The appropriate classification and labelling developed in accordance with the criteria in Directive 67/548 shall be presented and justified.

3.2.2. If the data are inadequate to decide whether a substance should be classified for a particular end-point, the registrant shall indicate and justify the action or decision he has taken as a result.

3.3. Step 3: Identification of the Predicted No-Effect Concentration

3.3.1. Based on the available data, the PNEC for each environmental sphere shall be established. The PNEC may be calculated by applying an appropriate assessment factor to the effect values (e.g. LC50 or NOEC) derived from tests on organisms. An assessment factor expresses the difference between effects values derived for a

limited number of species from laboratory tests and the PNEC for the environmental sphere[1].

3.3.2. If it is not possible to derive the PNEC, then this shall be clearly stated and fully justified.

4. PBT AND vPvB ASSESSMENT

4.0. Introduction

4.0.1. The objective of the PBT and vPvB assessment shall be to determine if the substance fulfils the criteria given in Annex XII and if so, to characterise the potential emissions of the substance. A hazard assessment in accordance with Sections 1 and 3 of this Annex addressing all the long-term effects and the estimation of the long-term exposure of humans and the environment as carried out in accordance with Section 5 (Exposure Assessment), step 2 (Exposure Estimation), cannot be carried out with sufficient reliability for substances satisfying the PBT and vPvB criteria, which necessitates the need for a separate PBT and vPvB assessment.

4.0.2. The PBT and vPvB assessment shall be based on all the information submitted as part of the technical dossier. If the technical dossier contains for one or more endpoints only information as required in Annexes V and VI, the registrant shall consider whether further information needs to be generated to fulfil the objective of the PBT and vPvB assessment.

4.0.3. The PBT and vPvB assessment shall comprise the following two steps, which shall be clearly identified as such in Part C, Section 7 of the Chemical Safety Report:

Step 1. Comparison with the Criteria

Step 2. Emission Characterisation

The assessment shall also be summarised in the Safety Data Sheet under heading 12.

4.1. Step 1: Comparison with the Criteria

This part of the PBT and vPvB assessment shall entail the comparison of the available data with the criteria given in Annex XII and a statement of whether the substance fulfils or does not fulfil the criteria. If the available data are not sufficient to decide whether the substance fulfils the criteria in Annex XII, then other evidence giving rise to an equivalent level of concern shall be considered on a case-by-case basis.

4.2. Step 2: Emission Characterisation

If the substance fulfils the criteria an emission characterisation shall be conducted comprising the relevant parts of the exposure assessment as described in Section 5. In particular it shall

[1] In general, the more extensive the data and the longer the duration of the tests, the smaller is the degree of uncertainty and the size of the assessment factor. An assessment factor of 1000 is typically applied to the lowest of three short term L(E)C50 values derived from species representing different trophic levels and a factor of 10 to the lowest of three long-term NOEC values derived from species representing different trophic levels.

contain an estimation of the amounts of the substance released to the different environmental compartments during all activities carried out by the manufacturer or importer and all identified uses, and an identification of the likely routes by which humans and the environment are exposed to the substance.

5. EXPOSURE ASSESSMENT

5.0. Introduction

The objective of the exposure assessment shall be to make a quantitative or qualitative estimate of the dose/concentration of the substance to which humans and the environment are or may be exposed. The exposure assessment shall entail the following two steps, which shall be clearly identified as such in the chemical safety report:

Step 1. Development of exposure scenarios

Step 2. Exposure Estimation

Where required and in accordance with Article 29, the assessment shall also be summarised in an annex to the safety data sheet.

5.1. Step 1: Development of exposure scenarios

5.1.1. Exposure scenarios shall be developed for manufacture in the Community, manufacturer's and importer's own use, and all identified uses. An exposure scenario is the set of conditions that describe how the substance is manufactured or used during its life-cycle and how the manufacturer or importer controls, or recommends downstream users to control, exposures of humans and the environment. These exposure scenarios may be as wide-ranging or specific as necessary. The exposure scenario shall be presented under the relevant heading of the chemical safety report, and summarised in an annex to the safety data sheet, using an appropriate short title giving a brief general description of the use . In particular, an exposure scenario includes, where relevant, a description of:

– the processes involved in the production by the manufacturer and, if relevant, the further processing and use by the manufacturer or importer, including the physical form in which the substance is manufactured, processed and/or used;

– the processes involved in the identified use of the substance foreseen by the manufacturer or importer, including the physical form in which the substance is processed and/or used;

– the risk management measures implemented by the manufacturer or importer to reduce or avoid exposure of humans (including workers and consumers) and the environment to the substance;

– the risk management measures which the manufacturer or importer recommends to be implemented by the downstream users to reduce or avoid exposure of humans (including workers and consumers) and the environment to the substance;

– the waste management measures implemented by the manufacturer or importer and those recommended to be implemented by the downstream user or consumer to

reduce or avoid exposure of humans and the environment to the substance during waste, disposal and/or recycling;

– the activities of workers related to the processes and the duration and frequency of their exposure to the substance;

– the activities of consumers and the duration and frequency of their exposure to the substance;

– the duration and frequency of emissions of the substance to the different environmental compartments and sewage treatment systems and the dilution in the receiving environmental compartment.

5.1.2. When the assessment is identified to be used for an application for an authorisation for a specific use, exposure scenarios need only be developed for those uses and the subsequent life-cycle steps.

5.2. Step 2: Exposure Estimation

5.2.1. The exposure shall be estimated for each exposure scenario developed and shall be presented under the relevant heading of the chemical safety report and where required and in accordance with Article 29, summarised in an annex to the safety data sheet. The exposure estimation entails three elements: (1) emission estimation; (2) chemical fate and pathways; and (3) estimation of exposure levels.

5.2.2. The emission estimation shall consider the emissions during all relevant parts of the life-cycle of the substance under the assumption that the risk management measures described in the exposure scenario have been implemented.

5.2.3. A characterisation of possible degradation, transformation, or reaction processes and an estimation of environmental distribution and fate shall be performed.

5.2.4 An estimation of the exposure levels shall be performed for all human populations (workers, consumers and humans liable to exposure indirectly via the environment) and environmental spheres for which exposure to the substance is known or reasonably foreseeable. Each relevant route of human exposure (inhalation, oral, dermal and combined through all relevant routes of exposure) shall be addressed. Such estimations shall take account of spatial and temporal variations in the exposure pattern. In particular, the exposure estimation shall take account of:

– adequately measured, representative exposure data,

– any major impurities and additives in the substance,

– the quantity in which the substance is produced and/or imported,

– the quantity for each identified use,

– the degree of containment,

– the physicochemical properties of the substance,

– transformation and/or degradation products,

– the likely routes of exposure of and potential for absorption in humans,

– the likely pathways to the environment and environmental distribution and degradation and/or transformation (see also Section 3 Step 1).

5.2.5 Where adequately measured representative exposure data are available, special consideration shall be given to them when conducting the exposure assessment. Appropriate models can be used for the estimation of exposure levels. Relevant monitoring data from substances with analogous use and exposure patterns or analogous properties can also be considered.

6. RISK CHARACTERISATION

6.1 The risk characterisation shall be carried out for each exposure scenario and shall be presented under the relevant heading of the Chemical Safety Report.

6.2 The risk characterisation shall consider the human populations (exposed as workers, consumers or indirectly via the environment and if relevant a combination thereof) and the environmental spheres for which exposure to the substance is known or reasonably foreseeable, under the assumption that the risk management measures described in the exposure scenarios in the previous Section have been implemented. In addition, the overall environmental risk caused by the substance shall be reviewed by integrating the results for all relevant spheres and all relevant emission/release sources of the substance.

6.3 The risk characterisation consists of:

– a comparison of the exposure of each human population known to be or likely to be exposed with the appropriate Derived No-Effect Levels;

– a comparison of the predicted environmental concentrations in each environmental sphere with the Pnecs; and

– an assessment of the likelihood and severity of an event occurring due to the physicochemical properties of the substance.

6.4 For any exposure scenario, the exposures of humans and the environment can be considered to be adequately controlled, if:

– the exposure levels estimated in Section 6.2 do not exceed the appropriate Dnel or the Pnec, as determined in Sections 1 and 3, respectively, and;

– the likelihood and severity of an event occurring due to the physicochemical properties of the substance as determined in Section 2 is negligible.

6.5 For those human effects and those environmental spheres for which it was not possible to determine a DNEL or a PNEC, a qualitative assessment of the likelihood that effects are avoided when implementing the exposure scenario shall be carried out.

For substances satisfying the PBT and vPvB criteria, the manufacturer or importer shall use the information as obtained in Section 5, Step 2 when implementing on its

site, and recommending for downstream users, risk management measures which minimise exposures to humans and the environment.

7. CHEMICAL SAFETY REPORT FORMAT

The Chemical Safety Report shall include the following headings:

CHEMICAL SAFETY REPORT FORMAT

PART A

1. SUMMARY OF RISK MANAGEMENT MEASURES

2. DECLARATION THAT RISK MANAGEMENT MEASURES ARE IMPLEMENTED

3. DECLARATION THAT RISK MANAGEMENT MEASURES ARE COMMUNICATED

PART B

1. IDENTIFICATION OF THE SUBSTANCE AND PHYSICAL AND CHEMICAL PROPERTIES

2. CLASSIFICATION AND LABELLING

3. ENVIRONMENTAL FATE PROPERTIES

3.1. Degradation

3.2. Environmental distribution

3.3. Bioaccumulation

PART C

1. HUMAN HEALTH HAZARD ASSESSMENT

1.1. Toxicokinetics metabolism and distribution

1.2. Acute toxicity

1.3. Irritation

1.3.1. *Skin*

1.3.2. *Eye*

1.3.3. *Respiratory Tract*

1.4. Corrosivity

1.5. Sensitisation

1.5.1. *Skin*

1.5.2. *Respiratory system*

1.6. Repeated dose toxicity

1.7. Mutagenicity

1.8. Carcinogenicity

1.9. Toxicity for reproduction

1.9.1. *Effects on fertility*

1.9.2. *Developmental Toxicity*

1.10 Other effects

2. HUMAN HEALTH ASSESSMENT OF PHYSICOCHEMICAL PROPERTIES

2.1. Explosivity

2.2. Flammability

2.3. Oxidising potential

3. ENVIRONMENTAL HAZARD ASSESSMENT

3.1. Aquatic Compartment (including sediment)

3.2. Terrestrial Compartment

3.3. Atmospheric Compartment

3.4. Microbiological Activity in Sewage Treatment Systems

4. PBT AND vPvB ASSESSMENT

5. EXPOSURE ASSESSMENT

5.1. [Title of Exposure Scenario 1]

5.2.1. *Exposure Scenario*

5.2.2. *Exposure Assessment*

5.2. [Title of Exposure Scenario 2]

5.3.1. *Exposure Scenario*

5.3.2. *Exposure Assessment*

[etc.]

6. RISK CHARACTERISATION

6.1. [Title of Exposure Scenario 1]

6.1.1. *Human Health*

6.1.1.1. *Workers*

6.1.1.2. *Consumers*

6.1.1.3. *Humans liable to indirect exposure via the environment*

6.1.2. *Environment*

6.1.2.1. *Aquatic Compartment (incl. Sediment)*

6.1.2.2. *Terrestrial Compartment*

6.1.2.3. *Atmospheric Compartment*

6.1.2.4. *Microbiological Activity in Sewage Treatment Systems*

6.2. [Title of Exposure Scenario 2]

6.2.1. *Human Health*

6.2.1.1. *Workers*

6.2.1.2. *Consumers*

6.2.1.3. *Humans liable to indirect exposure via the environment*

6.2.2. *Environment*

6.2.2.1. *Aquatic Compartment (incl. Sediment)*

6.2.2.2. *Terrestrial Compartment*

6.2.2.3. *Atmospheric Compartment*

6.2.2.4. *Microbiological Activity in Sewage Treatment Systems*

[etc.]

6.x. **Overall exposure (combined for all relevant emission/release sources)**

6.x.1 Human health (combined for all exposure routes)

6.x.1.1

6.x.2 Environment (combined for all emission sources)

6.x.2.1

ANNEX Ia

GUIDE TO THE COMPILATION OF SAFETY DATA SHEETS

This Annex sets out the requirements for a Safety Data Sheet that is provided for a substance or a preparation in accordance with Article 29. The Safety Data Sheet provides a mechanism for transmitting appropriate information from the relevant Chemical Safety Report(s) down the supply chain to the immediate downstream user(s). The information provided in the Safety Data Sheet shall be consistent with the information in the chemical safety report, where one is required. Where a chemical safety report has been performed, the relevant exposure scenario(s) shall be placed into an annex of the safety data sheet, to make reference to them under the relevant headings of the safety data sheet easier.

The purpose of this Annex is to ensure consistency and accuracy in the content of each of the mandatory headings listed in Article 29, so that the resulting safety data sheets will enable users to take the necessary measures relating to protection of health and safety at the workplace, and protection of the environment.

The information provided by safety data sheets shall also meet the requirements set out in Council Directive 98/24/EC([2]) on the protection of the health and safety of workers from the risks related to chemical agents at work. In particular, the safety data sheet shall enable the employer to determine whether any hazardous chemical agents are present in the workplace, and to assess any risk to the health and safety of workers arising from their use.

The information in the Safety Data Sheet shall be written in a clear and concise manner. The safety data sheet shall be prepared by a competent person who shall take into account the specific needs of the user audience, as far as it is known. Persons placing substances and preparations on the market shall ensure that competent persons have received appropriate training, including refresher training.

For preparations not classified as dangerous, but for which a safety data sheet is required according to Article 30, proportionate information shall be provided under each heading.

Additional information may be necessary in some cases in view of the wide range of properties of the substances and preparations. If in other cases it emerges that information on certain properties is of no significance or that it is technically impossible to provide, the reasons for this shall be clearly stated under each heading. Information shall be provided for each hazardous property. If it is stated that a particular hazard does not apply, clearly differentiate between cases where no information is available to the classifier, and cases where negative test results are available.

Give the date of issue of the safety data sheet on the first page. When a safety data sheet has been revised, the changes shall be brought to the attention of the recipient.

Note

Safety data sheets are also required for certain special substances and preparations (e.g. metals in massive form, alloys, compressed gases etc.) listed in chapters 8 and 9 of Annex VI to Directive 67/548/EEC, for which there are labelling derogations.

---

[2] OJ L131, 5.5.1998, p.11

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the substance or preparation

The term used for identification shall be identical to that provided on the label as set out in Annex VI to Directive 67/548/EEC.

For substances subject to registration**,** the term shall be consistent with that provided under registration and the registration number assigned under Article 18(1) of this Regulation shall also be indicated.

Other means of identification available may also be indicated.

1.2. Use of the substance/preparation

Indicate the uses of the substance or preparation as far as they are known. Where there are many possible uses, only the most important or common uses need be listed. This shall include a brief description of what it actually does, e.g. flame retardant, anti-oxidant, etc.

Where a chemical safety report is required, the safety data sheet shall contain information on all the identified uses relevant to the recipient of the safety data sheet. This information shall be consistent with the identified uses and exposure scenarios set out in the annex to the safety data sheet .

1.3. Company/undertaking identification

Identify the person responsible for placing the substance or preparation on the market within the Community, whether it be the manufacturer, importer or distributor. Give the full address and telephone number of this person.

In addition, where this person is not located in the Member State where the substance or preparation is placed on the market, give a full address and telephone number for the person responsible in that Member State, if possible.

For registrants, the person identified shall be consistent with the information on the identity of the manufacturer or importer provided in the registration**.**

1.4. Emergency telephone

In addition to the above mentioned information, supply the emergency telephone number of the company and/or relevant official advisory body (this may be the body responsible for receiving information relating to health, which is referred to in Article 17 of Directive 1999/45/EC).

2. HAZARDS IDENTIFICATION

Give here the classification of the substance or preparation which arises from application of the classification rules in Directives 67/548/EEC or 1999/45/EC. Indicate clearly and briefly the hazards the substance or preparation presents to man and the environment.

Distinguish clearly between preparations which are classified as dangerous and preparations which are not classified as dangerous according to Directive 1999/45/EC.

Describe the most important adverse physicochemical, human health and environmental effects and symptoms relating to the uses and possible misuses of the substance or preparation that can reasonably be foreseen.

It may be necessary to mention other hazards, such as dustiness, suffocation, freezing or environmental effects such as hazards to soil-dwelling organisms, etc., which do not result in classification but which may contribute to the overall hazards of the material.

The information shown on the label shall be given under heading 15.

The classification of the substance shall be consistent with the classification provided to the classification and labelling inventory according to Title X.

3. COMPOSITION/INFORMATION ON INGREDIENTS

The information given shall enable the recipient to identify readily the hazards of the components of the preparation. The hazards of the preparation itself shall be given under heading 3.

3.1. It is not necessary to give the full composition (nature of the ingredients and their concentration), although a general description of the components and their concentrations can be helpful.

3.2. For a preparation classified as dangerous according to Directive 1999/45/EC, the following substances shall be indicated, together with their concentration or concentration range:

(i) substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC, if they are present in concentrations equal to or greater than the lowest of:

- the applicable concentrations defined in the table of Article 3 (3) of European Parliament and Council Directive 1999/45/EC, or
- the concentration limits given in Annex I to Council Directive 67/548/EEC, or
- the concentration limits given in Part B of Annex II to European Parliament and Council Directive 1999/45/EC, or
- the concentration limits given in Part B of Annex III to European Parliament and Council Directive 1999/45/EC, or
- the concentration limits given in an agreed entry in the classification and labelling inventory established under Title X,

(ii) and substances for which there are Community workplace exposure limits, which are not already included under (i).

3.3. For a preparation not classified as dangerous according to Directive 1999/45/EC, the following substances shall be indicated, together with their concentration or concentration range, if they are present in an individual concentration of ≥ 1% by weight for non-gaseous preparations and ≥ 0,2% by volume for gaseous preparations:

– substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC(3);

– and substances for which there are Community workplace exposure limits.

3.4. The classification (derived either from Articles 4 and 6 of Directive 67/548/EEC or from Annex I to Directive 67/548/EEC) of the above substances shall be given, including the symbol letters and R phrases which are assigned in accordance with their physicochemical, health and environmental hazards. The R phrases do not need to be written out in full here: reference shall be made to heading 16, where the full text of each relevant R phrase shall be listed.

3.5. The name and the Einecs or Elincs number of the above substances shall be given in accordance with Directive 67/548/EEC. The CAS number and IUPAC name (if available) may also be helpful. For substances listed by a generic name, according to Article 15 of Directive 1999/45/EC or the footnote to point 3.3 of this Annex, a precise chemical identifier is not necessary. The registration number assigned under Article 18(1) of this Regulation shall also be given for each substance that is subject to registration.

3.6. If, in accordance with the provisions of Article 15 of Directive 1999/45/EC or the footnote to point 3.3 of this Annex, the identity of certain substances is to be kept confidential, their chemical nature shall be described in order to ensure safe handling. The name used shall be the same as that which derives from the above procedures.

---

[3] Where the person responsible for placing the preparation on the market can demonstrate that the disclosure in the safety data sheet of the chemical identity of a substance which is exclusively classified as:

- irritant with the exception of those assigned R41 or irritant in combination with one or more of the properties mentioned in point 2.3.4 of Article 10 of Directive 1999/ 45/EC, or
- harmful in combination with one or more of the properties mentioned in point 2.3.4 of Article 10 of Directive 1999/45/EC presenting acute lethal effects alone,

will put at risk the confidential nature of his intellectual property, he may, in accordance with the provisions of Part B of Annex VI to Directive 1999/45/EC, refer to that substance either by means of a name that identifies the most important functional chemical groups, or by means of an alternative name.

4. FIRST AID MEASURES

Describe the first-aid measures.

Specify first whether immediate medical attention is required.

The information on first aid shall be brief and easy to understand by the victim, bystanders and first-aiders. The symptoms and effects shall be briefly summarised. The instructions shall indicate what is to be done on the spot in the case of an accident and whether delayed effects can be expected after exposure.

Subdivide the information according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion, under different subheadings.

Indicate whether professional assistance by a doctor is needed or advisable.

For some substances or preparations it may be important to emphasise that special means to provide specific and immediate treatment shall be available at the workplace.

5. FIRE-FIGHTING MEASURES

Refer to requirements for fighting a fire caused by the substance or preparation, or arising in its vicinity by indicating:

– suitable extinguishing media,

– extinguishing media which shall not be used for safety reasons,

– special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases,

– special protective equipment for fire-fighters.

6. ACCIDENTAL RELEASE MEASURES

Depending on the substance or preparation involved, information may be needed on:

– personal precautions such as:

  removal of ignition sources, provision for sufficient ventilation/respiratory protection, control of dust, prevention of skin and eye contact,

– environmental precautions such as:

  keeping away from drains, surface- and ground-water and soil, possible need to alert the neighbourhood,

– methods for cleaning up such as:

  use of absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), reduction of gases/fumes with water, dilution.

Also consider the need for indications such as: "never use, neutralise with ...".

Note

If appropriate refer to headings 8 and 13.

7. HANDLING AND STORAGE

Note

Information in this section shall relate to the protection of health, safety and the environment. It shall assist the employer in devising suitable working procedures and organisational measures according to Article 5 of Directive 98/24/EC.

Where a chemical safety report or a registration is required, the information in this section shall be consistent with the information given, for the identified uses and exposure scenarios set out in the annex to the safety data sheet.

7.1. Handling

Specify precautions for safe handling including advice on technical measures such as: containment, local and general ventilation, measures to prevent aerosol and dust generation and fire, measures required to protect the environment (e.g. use of filters or scrubbers on exhaust ventilation, use in a bunded area, measures for collection and disposal of spillages, etc.) and any specific requirements or rules relating to the substance or preparation (e.g. procedures or equipment which are prohibited or recommended) and if possible give a brief description.

7.2. Storage

Specify the conditions for safe storage such as: specific design for storage rooms or vessels (including retention walls and ventilation), incompatible materials, conditions of storage (temperature and humidity limit/range, light, inert gas, etc.) special electrical equipment and prevention of static electricity.

Give advice if relevant on quantity limits under storage conditions. In particular indicate any special requirements such as the type of material used in the packaging/containers of the substance or preparation.

7.3. Specific use(s)

For end products designed for specific use(s), recommendations shall refer to the identified use(s) and be detailed and operational. If possible, reference shall be made to industry - or sector - specific approved guidance.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values

Specify currently applicable specific control parameters including occupational exposure limit values and/or biological limit values. Values shall be given for the Member State where the

substance or preparation is placed on the market. Give information on currently recommended monitoring procedures.

Where a chemical safety report is required, the relevant DNELs and PNECs for the substance shall be given for the exposure scenarios set out in the annex to the safety data sheet.

For preparations, it is useful to provide values for those constituent substances which are required to be listed in the safety data sheet according to heading 3.

8.2. Exposure controls

For the purposes of this document exposure control means the full range of specific protection and prevention measures to be taken during use in order to minimise worker and environmental exposure.

8.2.1. Occupational exposure controls

This information will be taken into account by the employer in carrying out an assessment of risk to the health and safety of workers for the substance or preparation under Article 4 of Directive 98/24/EC, which requires the design of appropriate work processes and engineering controls, the use of adequate equipment and materials, the application of collective protection measures at source, and finally the use of individual protection measures, such as personal protection equipment. Therefore provide suitable and adequate information on these measures to enable a proper risk assessment to be carried out under Article 4 of Directive 98/24/EC. This information shall complement that already given under heading 7.1.

Where personal protection is needed, specify in detail which equipment will provide adequate and suitable protection. Take into account Council Directive 89/686/EEC([4]) and make reference to the appropriate CEN standards.

Where a chemical safety report is required, a summary of the risk management measures that adequately control exposure of workers to the substance shall be given for the exposure scenarios set out in the annex to the safety data sheet.

8.2.1.1. Respiratory protection

For dangerous gases, vapours or dust, specify the type of protective equipment to be used, such as self contained breathing apparatus, adequate masks and filters.

8.2.1.2. Hand protection

Specify clearly the type of gloves to be worn when handling the substance or preparation, including:

– the type of material,

– the breakthrough time of the glove material, with regard to the amount and duration of dermal exposure.

If necessary indicate any additional hand protection measures.

---

4 OJ L399 30.12.1989 p 18

8.2.1.3. Eye protection

Specify the type of eye protection equipment required such as: safety glasses, safety goggles, face shield.

8.2.1.4. Skin protection

If it is necessary to protect a part of the body other than the hands, specify the type and quality of protection equipment required, such as: apron, boots and full protective suit. If necessary, indicate any additional skin protection measures and specific hygiene measures.

8.2.2. Environmental exposure controls

Specify the information required by the employer to fulfil his commitments under Community environmental protection legislation.

Where a chemical safety report is required, a summary of the risk management measures that adequately control exposure of the environment to the substance shall be given for the exposure scenarios set out in the annex to the safety data sheet.

9. PHYSICAL AND CHEMICAL PROPERTIES

To enable proper control measures to be taken, provide all relevant information on the substance or preparation, particularly the information listed under heading 9.2. The information in this section shall be consistent with the information provided in a registration where one is required.

9.1. General information

Appearance

Indicate the physical state (solid, liquid, gas) and the colour of the substance or preparation as supplied.

Odour

If odour is perceptible, give a brief description of it.

9.2. Important health, safety and environmental information

pH

Indicate the pH of the substance or preparation as supplied or of an aqueous solution; in the latter case, indicate the concentration.

Boiling point/boiling range:

Flash point:

Flammability (solid, gas):

Explosive properties:

Oxidising properties:

Vapour pressure:

Relative density:

Solubility:

Water solubility:

Fat solubility (solvent – oil to be specified) :

Partition coefficient: n-octanol/water:

Viscosity:

Vapour density:

Evaporation rate:

9.3. Other information

Indicate other important safety parameters, such as, miscibility, conductivity, melting point/melting range, gas group (useful for European Parliament and Council Directive 94/9/EC)([5]), auto-ignition temperature etc.

Note 1

The above properties shall be determined in accordance with the specifications of Part A of Annex X or any other comparable method.

Note 2

For preparations, information shall normally be given on the properties of the preparation itself. However, if it is stated that a particular hazard does not apply, clearly differentiate between cases where no information is available to the classifier, and cases where negative test results are available. If it is considered necessary to give information about the properties of individual components, please indicate clearly what the data refers to.

10. STABILITY AND REACTIVITY

State the stability of the substance or preparation and the possibility of hazardous reactions occurring under certain conditions of use and also if released into the environment.

---

[5] OJ L100 19.4.1994 p. 1

10.1. Conditions to avoid

List those conditions such as temperature, pressure, light, shock, etc., which may cause a dangerous reaction and if possible give a brief description.

10.2. Materials to avoid

List materials such as water, air, acids, bases, oxidising agents or any other specific substance which may cause a dangerous reaction and if possible give a brief description.

10.3. Hazardous decomposition products

List hazardous materials produced in dangerous amounts upon decomposition.

Note

Address specifically:

– the need for and the presence of stabilisers,

– the possibility of a hazardous exothermic reaction,

– safety significance, if any, of a change in physical appearance of the substance or preparation,

– hazardous decomposition products, if any, formed upon contact with water,

– possibility of degradation to unstable products.

11. TOXICOLOGICAL INFORMATION

This section deals with the need for a concise but complete and comprehensible description of the various toxicological (health) effects, which can arise if the user comes into contact with the substance or preparation.

The information shall include dangerous-to-health effects from exposure to the substance or preparation, based on, for example, test data and experience. The information shall also include, where appropriate, delayed, immediate and chronic effects from short- and long-term exposure: for example sensitisation, narcosis, carcinogenicity, mutagenicity and reproductive toxicity (developmental toxicity and fertility). It shall also include information on the different routes of exposure (inhalation, ingestion, skin and eye contact), and describe the symptoms related to the physical, chemical and toxicological characteristics.

Taking account of the information already provided under heading 3, composition/information on ingredients, it may be necessary to make reference to specific health effects of certain substances in the preparation.

The information in this section shall be consistent with the information provided for in a registration where required and/or in a chemical safety report where required and shall give information on the following groups of potential effects:

– toxicokinetics, metabolism and distribution,

– acute effects (acute toxicity, irritation and corrosivity),

– sensitisation,

– repeated dose toxicity, and

– CMR effects (carcinogenity, mutagenicity and toxicity for reproduction).

For substances subject to registration, summaries of the information derived from the application of Annexes V to IX of this Regulation shall be given. The information shall also include the result of the comparison of the available data with the criteria given in Directive 67/548 for CMR, categories 1 and 2, following Paragraph 1.3.1 of Annex I.

12. ECOLOGICAL INFORMATION

Describe the possible effects, behaviour and environmental fate of the substance or preparation in air, water and/or soil. Where available, give relevant test data (e.g. LC50 fish ≤ 1 mg/l)**.**

The information in this section shall be consistent with the information provided for in a registration where required and/or in a chemical safety report where required.

Describe the most important characteristics likely to have an effect on the environment owing to the nature of the substance or preparation and likely methods of use. Information of the same kind shall be supplied for dangerous products arising from the degradation of substances and preparations. This may include the following:

12.1. Ecotoxicity

This shall include relevant available data on aquatic toxicity, both acute and chronic for fish, crustaceans, algae and other aquatic plants. In addition, toxicity data on soil micro- and macro-organisms and other environmentally relevant organisms, such as birds, bees and plants, shall be included when available. Where the substance or preparation has inhibitory effects on the activity of micro-organisms, the possible impact on sewage treatment plants shall be mentioned.

For substances subject to registration, summaries of the information derived from the application of Annexes V to IX of this Regulation shall be included.

12.2. Mobility

The potential of the substance or the appropriate constituents of a preparation ([6]), if released to the environment, to transport to groundwater or far from the site of release.

Relevant data might include:

– known or predicted distribution to environmental compartments,

– surface tension,

---

[6] This information cannot be given for the preparation because it is substance specific. It should therefore be given, where available and appropriate, for each constituent substance in the preparation which is required to be listed in the safety data sheet according to the rules under heading 2 of this Annex.

– absorption/desorption.

For other physicochemical properties see heading 9.

12.3. Persistence and degradability

The potential of the substance or the appropriate constituents of a preparation ([6]) to degrade in relevant environmental media, either through biodegradation or other processes such as oxidation or hydrolysis. Degradation half lives shall be quoted where available. The potential of the substance or appropriate constituents of a preparation([6]) to degrade in sewage treatment plants shall also be mentioned.

12.4. Bioaccumulative potential

The potential of the substance or the appropriate constituents of a preparation ([6]) to accumulate in biota and, eventually, to pass through the food chain, with reference to the octanol-water partition coefficient (Kow) and bioconcentration factor (BCF), if available.

12.5. Results of PBT assessment

Where a chemical safety report is required, the results of the PBT assessment as set in the Chemical Safety Report shall be given.

12.6 Other adverse effects

If available, include information on any other adverse effects on the environment, e.g. ozone depletion potential, photochemical ozone creation potential, endocrine disrupting potential and/or global warming potential.

Remarks

Ensure that information relevant to the environment is provided under other headings of the safety data sheet, especially advice for controlled release, accidental release measures, transport and disposal considerations under headings 6, 7, 13, 14 and 15.

13. DISPOSAL CONSIDERATIONS

If the disposal of the substance or preparation (surplus or waste resulting from the foreseeable use) presents a danger, a description of these residues and information on their safe handling shall be given.

Specify the appropriate methods of disposal of both the substance or preparation and any contaminated packaging (incineration, recycling, landfilling, etc.)

Where a chemical safety report is required, the information on the waste management measures that adequately control exposure of humans and the environment to the substance shall be consistent with the exposure scenarios set out in the annex to the safety data sheet.

Note

Refer to any relevant Community provisions relating to waste. In their absence, it is useful to remind the user that national or regional provisions may be in force.

14. TRANSPORT INFORMATION

Indicate any special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside his premises. Where relevant, provide information on the transport classification for each of the modal regulations: IMDG (sea), ADR (road, Council Directive 94/55/EC(9)), RID (rail, Council Directive 96/49/EC(10)), ICAO/IATA (air). This might include inter alia:

– UN number,

– class,

– proper shipping name,

– packing group,

– marine pollutant,

– other applicable information.

15. REGULATORY INFORMATION

Give the health, safety and environmental information shown on the label according to Directives 67/548/EEC and 1999/45/EC.

If the substance or preparation covered by this safety data sheet is the subject of specific provisions in relation to protection of man or the environment at Community level (e.g. authorisations given under Title VII or restrictions under Title VIII) these provisions shall, as far as is possible, be stated.

Also mention, where possible, the national laws which implement these provisions and any other national measures that may be relevant.

16. OTHER INFORMATION

Indicate any other information which the supplier assesses as being of importance for the health and safety of the user and for the protection of the environment, for example:

– list of relevant R phrases. Write out the full text of any R phrases referred to under headings 2 and 3 of the safety data sheet,

– training advice,

– recommended restrictions on use (i.e. non-statutory recommendations by supplier),

– further information (written references and/or technical contact point),

– sources of key data used to compile the data sheet,

For a revised safety data sheet, indicate clearly the information, which has been added, deleted or revised (unless this has been indicated elsewhere).

ANNEX Ib

CHEMICAL SAFETY ASSESSMENTS FOR PREPARATIONS

A chemical safety assessment for a preparation shall be conducted in accordance with Annex I with the following modifications:

1. INFORMATION BASE

The chemical safety assessment for a preparation shall be based on the information on the individual substances in the preparation contained in the technical dossier and/or the information communicated by the supplier in the safety data sheet. It shall also be based on the information available on the preparation itself.

2. HAZARD ASSESSMENTS

The hazard assessments (human health, human health for physicochemical properties and environmental) shall be carried out in accordance with Sections 1, 2 and 3 with the following alterations:

(a) For the evaluation of data step(s), any relevant data for the preparation, the classification for each substance in the preparation and any specific concentration limits for each substance in the preparation shall be presented.

(b) For the classification and labelling step, the classification and labelling for the preparation in accordance with European Parliament and Council Directive 1999/45/EC shall be presented and justified.

(c) For the derivation of derived no-effect levels (DNELs), the DNEL for each substance in the preparation with an appropriate reference to the safety data sheet of the supplier shall be listed, as well as the DNEL derived for the preparation, with a justification on their derivation. In lack of any information to the contrary, then additivity of effects shall be assumed. The DNELs for the preparation can then be calculated for each route of exposure and each exposure scenario as a weighted average of the DNELs for each substance in the preparation, with the weights being the fraction of the exposure to the substance in the preparation to the total exposure to all substances in the preparation.

(d) For the derivation of the predicted no-effect concentrations (PNECs), the PNEC for each substance in the preparation with an appropriate reference to the safety data sheet of the supplier shall be listed, as well as the PNECs derived for the preparation, with a justification on their derivation. In lack of any information to the contrary, then additivity of effects shall be assumed. The PNECs for the preparation can then be calculated for each environmental sphere and each exposure scenario as a weighted average of the PNECs for each substance in the preparation, with the weights being the fraction of the exposure to the substance in the preparation to the total exposure to all substances in the preparation.

3. PBT ASSESSMENT

If the preparation contains a substance fulfilling the criteria given in Annex XII, then this shall be stated in the chemical safety report.

4. EXPOSURE ASSESSMENT

4.1 The objective of the exposure assessment shall be to make a quantitative or qualitative estimate of the dose/concentration of the preparation to which humans and the environment are or may be exposed.

4.2 Exposure scenarios shall be developed in accordance with Section 5.1 of Annex I. Exposure shall be estimated for each exposure scenario developed and for each substance in the preparation in accordance with Section 5.2 of Annex I.

4.3 Assuming additivity of effects, then for each route of human exposure and each human population and for each environmental sphere, the estimation of the exposure level to the preparation is the sum of the estimates of the exposure level to each substance in the preparation.

ANNEX II

EXEMPTIONS FROM OBLIGATION TO REGISTER IN ACCORDANCE WITH ARTICLE 4 (2) (a)

EINECS no	Name/Group	CAS no
200-061-5	D-glucitol $C_6H_{14}O_6$	50-70-4
200-066-2	Ascorbic acid $C_6H_8O_6$	50-81-7
200-075-1	Glucose $C_6H_{12}O_6$	50-99-7
200-294-2	L-lysine $C_6H_{14}N_2O_2$	56-87-1
200-312-9	Palmitic acid, pure $C_{16}H_{32}O_2$	57-10-3
200-313-4	Stearic acid, pure $C_{18}H_{36}O_2$	57-11-4
200-334-9	Sucrose, pure $C_{12}H_{22}O_{11}$	57-50-1
200-405-4	α-tocopheryl acetate $C_{31}H_{52}O_3$	58-95-7
200-432-1	DL-methionine $C_5H_{11}NO_2S$	59-51-8
200-711-8	D-mannitol $C_6H_{14}O_6$	69-65-8
201-771-8	1-sorbose $C_6H_{12}O_6$	87-79-6
204-007-1	Oleic acid, pure $C_{18}H_{34}O_2$	112-80-1
204-664-4	Glycerol stearate, pure $C_{21}H_{42}O_4$	123-94-4
204-696-9	Carbon dioxide CO_2	124-38-9
205-278-9	Calcium pantothenate, D-form $C_9H_{17}NO_{5.1/2}Ca$	137-08-6
205-582-1	Lauric acid, pure $C_{12}H_{24}O_2$	143-07-7
205-590-5	Potassium oleate $C_{18}H_{34}O_2K$	143-18-0
205-756-7	DL-phenylalanine $C_9H_{11}NO_2$	150-30-1
208-407-7	Sodium gluconate $C_6H_{12}O_{7.}Na$	527-07-1
212-490-5	Sodium stearate, pure $C_{18}H_{36}O_{2.}Na$	822-16-2
215-279-6	Limestone A noncombustible solid characteristic of sedimentary rock. It consists primarily of calcium carbonate	1317-65-3
215-665-4	Sorbitan oleate $C_{24}H_{44}O_6$	1338-43-8

EINECS no	Name/Group	CAS no
216-472-8	Calcium distearate, pure $C_{18}H_{36}O_{2.1/2}Ca$	1592-23-0
231-147-0	Argon Ar	7440-37-1
231-153-3	Carbon C	7440-44-0
231-783-9	Nitrogen N_2	7727-37-9
231-791-2	Water, distilled, conductivity or of similar purity H_2O	7732-18-5
231-955-3	Graphite C	7782-42-5
232-273-9	Sunflower oil Extractives and their physically modified derivatives. It consists primarily of the glycerides of the fatty acids linoleic, and oleic. *(Helianthus annuus, Compositae*).	8001-21-6
232-274-4	Soybean oil Extractives and their physically modified derivatives. It consists primarily of the glycerides of the fatty acids linoleic, oleic, palmitic and stearic (*Soja hispida, Leguminosae*).	8001-22-7
232-276-5	Safflower oil Extractives and their physically modified derivatives. It consists primarily of the glycerides of the fatty acid linoleic (*Carthamus tinctorius, Compositae*).	8001-23-8
232-278-6	Linseed oil Extractives and their physically modified derivatives. It consists primarily of the glycerides of the fatty acids linoleic, linolenic and oleic (*Linum usitatissimum, Linaceae*).	8001-26-1
232-281-2	Corn oil Extractives and their physically modified derivatives. It consists primarily of the glycerides of the fatty acids linoleic, oleic, palmitic and stearic. *(Zea mays, Gramineae).*	8001-30-7
232-293-8	Castor Oil Extractives and their physically modified derivatives. It consists primarily of the glycerides of the fatty acid ricinoleic *(Ricinus communis, Euphorbiaceae).*	8001-79-4
232-299-0	Rape oil	8002-13-9

EINECS no	Name/Group	CAS no
	Extractives and their physically modified derivatives. It consists primarily of the glycerides of the fatty acids erucic, linoleic and oleic *(Brassica napus, Cruciferae)*.	
232-307-2	Lecithins The complex combination of diglycerides of fatty acids linked to the choline ester of phosphoric acid.	8002-43-5
232-436-4	Syrups, hydrolyzed starch A complex combination obtained by the hydrolysis of cornstarch by the action of acids or enzymes. It consists primarily of d-glucose, maltose and maltodextrins.	8029-43-4
232-442-7	Tallow, hydrogenated	8030-12-4
232-675-4	Dextrin	9004-53-9
232-679-6	Starch High-polymeric carbohydrate material usually derived form cereal grains such as corn, wheat and sorghum, and from roots and tubers such as potatoes and tapioca. Includes starch which has been pregelatinised by heating in the presence of water.	9005-25-8
232-940-4	Maltodextrin	9050-36-6
234-328-2	Vitamin A	11103-57-4
238-976-7	Sodium D-gluconate $C_6H_{12}O_7.xNa$	14906-97-9
248-027-9	D-glucitol monostearate $C_{24}H_{48}O_7$	26836-47-5
262-988-1	Fatty acids, coco, Me esters	61788-59-8
262-989-7	Fatty acids, tallow, Me esters	61788-61-2
263-060-9	Fatty acids, castor-oil	61789-44-4
263-129-3	Fatty acids, tallow	61790-37-2
266-925-9	Fatty acids, C_{12-18} This substance is identified by SDA Substance Name: *C_{12}-C_{18} alkyl carboxylic acid* and SDA Reporting Number: 16-005-00.	67701-01-3
266-928-5	Fatty acids C_{16-18} This substance is identified by SDA Substance	67701-03-5

EINECS no	Name/Group	CAS no
	Name: *C_{16}-C_{18} alkyl carboxylic acid* and SDA Reporting Number: 19-005-00.	
266-929-0	Fatty acids, C_{8-18} and C_{18}-unsatd. This substance is identified by SDA Substance Name: *C_8-C_{18} and C_{18} unsaturated alkyl carboxylic acid* and SDA Reporting Number: 01-005-00.	67701-05-7
266-930-6	Fatty acids, C_{14-18} and C_{16-18}-unsatd. This substance is identified by SDA Substance Name: *C_{14}-C_{18} and C_{16}-C_{18} unsaturated alkyl carboxylic acid* and SDA Reporting Number: 04-005-00	67701-06-8
266-932-7	Fatty acids, C_{16}-C_{18} and C_{18}-unsatd. This substance is identified by SDA Substance Name: *C_{16}-C_{18} and C_{18} unsaturated alkyl carboxylic acid* and SDA Reporting Number: 11-005-00	67701-08-0
266-948-4	Glycerides, C_{16-18} and C_{18}-unsatd. This substance is identified by SDA Substance Name: *C_{16}-C_{18} and C_{18} unsaturated trialkyl glyceride* and SDA Reporting Number: 11-001-00.	67701-30-8
267-007-0	Fatty acids, C_{14-18} and C_{16-18}-unsatd., Me esters This substance is identified by SDA Substance Name: *C_{14}-C_{18} and C_{16}-C_{18} unsaturated alkyl carboxylic acid methyl ester* and SDA Reporting Number: 04-010-00.	67762-26-9
267-013-3	Fatty acids, C_{6-12} This substance is identified by SDA Substance Name: *C_6-C_{12} alkyl carboxylic acid* and SDA Reporting Number: 13-005-00.	67762-36-1
268-099-5	Fatty acids, C_{14-22} and C_{16-22} unsatd. This substance is identified by SDA Substance Name: *C_{14}-C_{22}* and *C_{16}-C_{22} unsaturated alkyl carboxylic acid* and SDA Reporting Number: 07-005-00	68002-85-7
268-616-4	Syrups, corn, dehydrated	68131-37-3
269-657-0	Fatty acids, soya	68308-53-2
269-658-6	Glycerides, tallow mono-, di- and tri-, hydrogenated	68308-54-3
270-298-7	Fatty acids, C_{14-22}	68424-37-3

EINECS no	Name/Group	CAS no
270-304-8	Fatty acids, linseed-oil	68424-45-3
270-312-1	Glycerides, C_{16-18} and C_{18}-unsatd. mono- and di- This substance is identified by SDA Substance Name: *C_{16}-C_{18} and C_{18} unsaturated alkyl and C_{16}-C_{18} and C_{18} unsaturated dialkyl glyceride* and SDA Reporting Number: 11-002-00.	68424-61-3
288-123-8	Glycerides, C_{10-18}	85665-33-4
292-771-7	Fatty acids, C_{12-14}	90990-10-6
292-776-4	Fatty acids, C_{12-18} and C_{18}-unsatd.	90990-15-1
296-916-5	Fatty acids, rape-oil, erucic acid-low	93165-31-2

ANNEX III

EXEMPTIONS FROM THE OBLIGATION TO REGISTER IN ACCORDANCE WITH ARTICLE 4 (2) (b)

1. Substances rendered radioactive by either natural or artificial nuclear transformation;

2. Substances which result from a chemical reaction that occurs incidental to exposure of another substance or article to environmental factors such as air, moisture, microbial organisms or sunlight;

3. Substances which result from a chemical reaction that occurs incidental to storage of another substance, preparation or article;

4. Substances which result from a chemical reaction occurring upon end use of other substances, preparations or articles and which are not themselves manufactured, imported or placed on the market;

5. Substances which result from a chemical reaction that occurs when:

   (i) a stabiliser, colorant, flavouring agent, antioxidant, filler, solvent, carrier, surfactant, plasticiser, corrosion inhibitor, antifoamer or defoamer, dispersant, precipitation inhibitor, desiccant, binder, emulsifier, de-emulsifier, dewatering agent, agglomerating agent, adhesion promoter, flow modifier, pH neutraliser, sequesterant, coagulant, flocculant, fire retardant, lubricant, chelating agent, or quality control reagent functions as intended, or

   (ii) a substance solely intended to provide a specific physico-chemical characteristic functions as intended;

6. By-products, unless they are imported or placed on the market themselves;

7. Hydrates of a substance or hydrated ions, formed by association of a substance with water, provided that the substance has been registered by the manufacturer or importer using this exemption;

8. Minerals, ores, or substances occurring in nature if they are not chemically modified during their manufacturing, unless they meet the criteria for classification as dangerous according to Directive 67/548;

9. Natural gas, crude oil, coal.

ANNEX IV

INFORMATION REQUIREMENTS REFERRED TO IN ARTICLE 9

GUIDANCE NOTE ON FULFILLING THE REQUIREMENTS OF ANNEXES IV TO IX

Annexes IV to IX specify the information that shall be submitted for registration and evaluation purposes according to Articles 9, 11 and 12, 39, 40 and 44. For the lowest tonnage level, the standard requirements are in Annex V, and every time a new tonnage level is reached, the requirements of the corresponding Annex have to be added. For each registration the precise information requirements will differ, according to tonnage, use and exposure. The Annexes shall thus be considered as a whole, and in conjunction with the overall requirements of registration, evaluation and the duty of care.

STEP 1 – GATHER AND SHARE EXISTING INFORMATION

The registrant should gather all existing available test data on the substance to be registered. Wherever practicable, registrations should be submitted by consortia, in accordance with Article 10 or 17. This will enable test data to be shared, thereby avoiding unnecessary testing and reducing costs. The registrant should also collect all other available information on the substance. This should include alternative data (e.g. from (Q)SARs, read-across from other substances, in-vitro testing, epidemiological data) which may assist in identifying the presence or absence of hazardous properties of the substance and which can in certain cases replace the results of animal tests. In addition, information on exposure, use and risk management measures in accordance with Article 9 and Annex V should be collected. Considering all this information together, the registrant will be able to determine the need to generate further information.

STEP 2 – CONSIDER INFORMATION NEEDS

The registrant shall identify what information is required for the registration. First, the relevant Annex or Annexes to be followed shall be identified, according to tonnage. These Annexes set out the standard information requirements, but shall be considered in conjunction with Annex IX, which allows variation from the standard approach, where it can be justified. In particular, information on exposure, use and risk management measures shall be considered at this stage in order to determine the information needs for the substance.

STEP 3 – IDENTIFY INFORMATION GAPS

The registrant shall then compare the information needs for the substance with the information already available and identify where there are gaps. It is important at this stage to ensure that the available data is relevant and sufficient to fulfil requirements.

STEP 4 – GENERATE NEW DATA/PROPOSE TESTING STRATEGY

In some cases it will not be necessary to generate new data. However, where there is an information gap that needs to be filled, new data shall be generated (Annexes V and VI), or a testing strategy shall be proposed (Annexes VII and VIII), depending on the tonnage. New

tests on vertebrates shall only be conducted or proposed as a last resort when all other data sources have been exhausted.

In some cases, the rules set out in Annex V to IX may require certain tests to be undertaken earlier than or in addition to the standard requirements.

NOTES

Note 1: If it is not technically possible, or if it does not appear scientifically necessary to give information, the reasons shall be clearly stated, in accordance with the relevant provisions.

Note 2: The registrant may wish to declare that certain information submitted in the registration dossier is confidential. If this is the case, he shall list the items and provide a justification in accordance with Article 115.

INFORMATION REFERRED TO IN ARTICLE 9 (1) (A) (I) TO (V)

1. GENERAL REGISTRANT INFORMATION

1.1. Registrant

1.1.1. Name, address, telephone number, fax number and e-mail address

1.1.2. Contact person

1.1.3. Location of the registrant's production and own use site(s), as appropriate

1.2. Joint submission of data by consortia: other consortia members

Articles 10 or 17 foresee that parts of the registration may be submitted by one manufacturer or importer on behalf of other members of the consortium.

In this case, that manufacturer or importer shall identify the other members of the consortium specifying:

– their name, address, telephone number, fax number and e-mail address,

– parts of the present registration which apply to other members of the consortium.

Mention the number(s) given in Annex IV, V, VI, VII or VIII, as appropriate.

Any other consortium members shall identify the manufacturer/importer submitting on his behalf specifying:

– his name, address, telephone number, fax number and e-mail address,

– parts of the registration which are submitted by those manufacturer(s) or importer(s).

Mention the number(s) given in Annex IV, V, VI, VII or VIII, as appropriate.

2. IDENTITIFICATION OF THE SUBSTANCE

For each substance, the information given in this section shall be sufficient to enable each substance to be identified. If it is not technically possible or if it does not appear scientifically necessary to give information on one or more of the items below, the reasons shall be clearly stated.

2.1. Name or other identifier of each substance

2.1.1. Name(s) in the IUPAC nomenclature or other international chemical name(s)

2.1.2. Other names (usual name, trade name, abbreviation)

2.1.3. EINECS or ELINCS number (if available and appropriate)

2.1.4. CAS name and CAS number (if available)

2.1.5. Other identity code (if available)

2.2. Information related to molecular and structural formula of each substance

2.2.1. Molecular and structural formula (including SMILES notation, if available)

2.2.2 Information on optical activity (if applicable and appropriate)

2.2.3. Molecular weight or molecular weight range

2.3. Composition of each substance

2.3.1. Degree of purity (%)

2.3.2. Nature of impurities, including isomers and by-products

2.3.3. Percentage of (significant) main impurities

2.3.4. Nature and order of magnitude (.....ppm, ...%) of any additives (e.g. stabilising agents or inhibitors)

2.3.5. Spectral data (ultra-violet, infra-red, nuclear magnetic resonance or mass spectrum)

2.3.6. High-pressure liquid chromatogram, gas chromatogram

2.3.7. Description of the analytical methods or the appropriate bibliographical references for the identification of the substance and, where appropriate, for the identification of impurities and additives. This information shall be sufficient to allow the methods to be reproduced.

3. INFORMATION ON MANUFACTURE AND USE(S) OF THE SUBSTANCE(S)

3.1. Overall manufacture and/or imports in tonnes per manufacturer or importer per year in:

3.1.1. The calendar year of the registration (estimated quantity)

3.2. In case of a manufacturer: Brief description of the technological process used in manufacture

Precise details of the process, particularly those of a commercially sensitive nature, are not required.

3.3. An indication of the tonnage used for his own use(s)

3.4. Form (substance, preparation or article) and/or physical state under which the substance is made available to downstream users. Concentration or concentration range of the substance in preparations made available to downstream users and quantities of the substance in articles made available to downstream users.

3.5. Brief general description of the identified use(s)

3.6. Waste quantities and composition of waste resulting from production and identified uses (where known)

3.7. Uses advised against (see safety data sheet heading 16)

Where applicable, an indication of the uses, which the registrant advises against and why (i.e. non-statutory recommendations by supplier). This need not be an exhaustive list.

4. CLASSIFICATION AND LABELLING

4.1. The hazard classification of the substance(s), resulting from the application of Articles 4 and 6 of Directive 67/548/EEC;

In addition, for each entry, the reasons why no classification is given for an endpoint should be provided (i.e. if data are lacking, inconclusive, or conclusive but not sufficient for classification);

4.2. The resulting hazard label for the substance(s), resulting from the application of Articles 23 to 25 of Directive 67/548/EEC;

4.3. Specific concentration limits, where applicable, resulting from the application of Article 4 (4) of Directive 677548/EEC and Articles 4 to 7 of Directive 1999/45/EC.

5. GUIDANCE ON SAFE USE CONCERNING:

This information shall be consistent with that in the Safety Data Sheet, where such a Safety Data Sheet is required according to Article 29 of this Regulation.

5.1. First-aid measures (safety data sheet heading 4)

5.2. Fire-fighting measures (safety data sheet heading 5)

5.3. Accidental release measures (safety data sheet heading 6)

5.4. Handling and Storage (safety data sheet heading 7)

5.5. Transport information (safety data sheet heading 14)

Where a chemical safety report is not required, the following additional information is required:

5.6. Exposure Controls/Personal Protection (safety data sheet heading 8)

5.7. Stability and Reactivity (safety data sheet heading 10)

5.8. Disposal considerations

5.8.1. Disposal considerations (safety data sheet heading 13)

5.8.2. Information on recycling and methods of disposal for industry

5.8.3 Information on recycling and methods of disposal for the public

ANNEX V

STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF 1 TONNE OR MORE

Column 1 of this Annex establishes the standard information required for all substances manufactured or imported in quantities of 1 tonne or more in accordance with Article 11 (1) (a). Column 2 of this Annex lists specific rules according to which the required standard information may be omitted, replaced by other information, provided at a different stage or adapted in another way. If the conditions are met under which column 2 of this Annex allows adaptations, the registrant shall clearly state this fact and the reasons for each adaptation under the appropriate headings in the registration dossier.

In addition to these specific rules, a registrant may adapt the required standard information set out in column 1 of this Annex according to the general rules contained in Annex IX. In this case as well, he shall clearly state the reasons for any decision to adapt the standard information under the appropriate headings in the registration dossier referring to the appropriate specific rule(s) in column 2 or in Annexes IX or X[7].

Before new tests are carried out to determine the properties listed in this Annex, all available *in vitro* data, *in vivo* data, historical data, data from valid (Q)SARs and data from structurally related substances (read-across approach) shall be assessed first.

When, for certain endpoints, information is not provided for other reasons than those mentioned in column 2 of this Annex or in Annex IX, this fact and the reasons shall also be clearly stated.

[7] Note: conditions for not requiring a specific test that are set out in the appropriate test methods in Annex X itself that are not repeated in column 2, also apply

5. INFORMATION ON THE PHYSICOCHEMICAL PROPERTIES OF THE SUBSTANCE

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
5.1. State of the substance at 20° C and 101,3 kPa	
5.2. Melting/freezing point	5.2. The study does not need to be conducted for solids and liquids with a melting/freezing point below 0 °C.
5.3. Boiling point	5.3. The study does not need to be conducted: – for gases; or – for solids which either melt above 360 °C or decompose before boiling. In such cases the boiling point under reduced pressure may be estimated or measured; or – for substances which decompose before boiling (e.g. auto-oxidation, rearrangement, degradation, decomposition, etc.).
5.4. Relative density	5.4. The study does not need to be conducted if: – the substance is only stable in solution in a particular solvent and the solution density is similar to that of the solvent. In such cases, an indication of whether the solution density is higher or lower than the solvent density is sufficient; or – the substance is a gas. In this case, an estimation based on calculation shall be made from its molecular weight and the Ideal Gas Laws.
5.5. Vapour pressure	5.5. The study does not need to be conducted if: – a transition (change of physical state or decomposition) is observed. The following information should then be included: nature of the transition, temperature at which the transition occurs at atmospheric pressure, vapour pressure at 10 and 20 °C above this

	temperature (unless the transition is from solid to gas); or – the melting point is above 300 °C. If the melting point is between 200 °C and 300 °C, a limit value based on measurement or a recognised calculation method is sufficient.
5.6. Surface tension	5.6. The study does not need to be conducted if: - the water solubility is below 1 mg/l at 20 °C or - the substance forms micelles in the relevant concentration range for testing.
5.7. Water solubility	5.7. The study does not need to be conducted if: – the substance is hydrolytically unstable (half-life less than 12 hours); or – the substance is readily oxidisable in water. If the substance appears "insoluble" in water, a limit test up to the detection limit of the analytical method shall be performed.
5.8. Partition coefficient n-octanol/water	5.9. The study does not need to be conducted if the substance is inorganic. If the test cannot be performed (e.g. the substance decomposes, has a high surface activity, reacts violently during the performance of the test or does not dissolve in water or in octanol, or it is not possible to obtain a sufficiently pure substance), a calculated value for log P as well as details of the calculation method shall be provided.
5.9. Flash-point	5.10. The study does not need to be conducted if: – the substance is inorganic; or – the substance only contains volatile organic components with flash-points above 100 °C for

	aqueous solutions; or – the estimated flash-point is above 200 °C; or – the flash-point can be accurately predicted by interpolation from existing characterised materials.
5.10. Flammability	5.11. The study does not need to be conducted: – if the substance is a solid which possesses explosive or pyrophoric properties. These properties should always be considered before considering flammability; or – for gases, if the concentration of the flammable gas in a mixture with inert gases is so low that, when mixed with air, the concentration is all time below the lower limit; or – for substances which spontaneously ignite when in contact with air.
5.11. Explosive properties	5.12. The study does not need to be conducted if: – there are no chemical groups associated with explosive properties present in the molecule; or – the substance contains chemical groups associated with explosive properties which include oxygen and the calculated oxygen balance is less than –200; or – the organic substance or a homogenous mixture of organic substances contains chemical groups associated with explosive properties, but the exothermic decomposition energy is less than 500 J/g and the onset of exothermic decomposition is below 500 ºC; or – for mixtures of inorganic oxidising substances (UN Division 5.1) with organic materials, the concentration of the inorganic oxidising substance is: – less than 15%, by mass, if assigned to UN Packaging Group I (high hazard) or II (medium hazard) – less than 30%, by mass, if assigned to UN Packaging Group III (low hazard).

	Note: Neither a test for propagation of detonation nor a test for sensitivity to detonative shock is required if the exothermic decomposition energy of organic materials is less than 800 J/g.
5.12. Self-ignition temperature	5.13. The study does not need to be conducted: – if the substance is explosive or ignites spontaneously with air at room temperature; or – for liquids non flammable in air, e.g. no flash point up to 200 °C; or – for gases having no flammable range; or – for solids, if the substance has a melting point < 160 °C, or if preliminary results exclude self-heating of the substance up to 400 °C.
5.13. Oxidising properties	5.14. The study does not need to be conducted if: – the substance is explosive; or – the substance is highly flammable; or – the substance is an organic peroxide; or – the substance is incapable of reacting exothermically with combustible materials, for example on the basis of the chemical structure (e.g. organic substances not containing oxygen or halogen atoms and these elements are not chemically bonded to nitrogen or oxygen, or inorganic substances not containing oxygen or halogen atoms). The full test does not need to be conducted for solids if the preliminary test clearly indicates that the test substance has oxidising properties. Note that as there is no test method to determine the oxidising properties of gaseous mixtures, the evaluation of these properties must be realised by an estimation method based on the comparison of the oxidising potential of gases in a mixture with that of the oxidising potential of oxygen in air.

5.14. Granulometry	5.15. The study does not need to be conducted if the substance is marketed or used in a non solid or granular form.

6. TOXICOLOGICAL INFORMATION

In vivo testing with corrosive substances at concentration/dose levels causing corrosivity shall be avoided.

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
6.1. Skin irritation or skin corrosion The assessment of this endpoint shall comprise the following consecutive steps: (1) an assessment of the available human and animal data, (2) an assessment of the acid or alkaline reaction, (3) *in vitro* study for skin corrosion, (4) *in vitro* study for skin irritation.	6.1. Steps 3 and 4 do not need to be conducted if: – the substance is corrosive; or – the substance is a strong acid (pH < 2.0) or base (pH > 11.5); or – the substance is flammable in air at room temperature; or – the substance is very toxic in contact with skin; or – the acute toxicity study by the dermal route does not indicate skin irritation up to the limit dose level (2000 mg/kg body weight).
6.2. Eye irritation The assessment of this endpoint shall comprise the following consecutive steps: (1) an assessment of the available human and animal data, (2) an assessment of the acid or alkaline reaction, (3) *in vitro* study for eye irritation.	6.2. Step 3 does not need to be conducted if: – the substance is corrosive; or – the substance is a strong acid (pH < 2.0) or base (pH > 11.5); or – the substance is flammable in air at room temperature; or – the substance is classified as irritant in contact with skin and provided that the registrant classifies the substance as eye irritant.

6.3. Skin sensitisation The assessment of this endpoint shall comprise the following consecutive steps: (1) an assessment of the available human and animal data, (2) Murine Local Lymph Node Assay (LLNA).	6.3. Step 2 does not need to be conducted if: – the substance is corrosive, very toxic or irritant in contact with skin; or – the substance is a strong acid (pH < 2.0) or base (pH > 11.5); or – the substance is flammable in air at room temperature. If classification for skin sensitisation is possible from the results of the first step, the following step may be omitted and the registrant shall classify the substance as skin sensitising. If the LLNA is not adequate for the substance in question, the Guinea Pig Maximisation Test (GPMT) may be used.
6.4. Mutagenicity **6.4.1. *In vitro* gene mutation study in bacteria**	6.4. Further mutagenicity studies shall be considered in case of a positive result.

7. ECOTOXICOLOGICAL INFORMATION

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
7.1. Aquatic toxicity	
7.1.1. Short-term toxicity testing on *Daphnia*	7.1.1. The study does not need to be conducted if:
The registrant may consider long-term toxicity testing instead of short-term.	– the substance is highly insoluble (water solubility < 10 μg/l); or – the substance is unlikely to cross biological membranes (MW > 800 or molecular diameter > 15 Å; or – a long-term toxicity study is available. **The long-term aquatic toxicity study on *Daphnia*** (Annex VII, 7.1.5) shall be conducted if the comparison of the (predicted) environmental exposure with the results from the short-term aquatic toxicity data indicates the need to investigate further the effects on aquatic organisms; **The long-term aquatic toxicity study on *Daphnia*** (Annex VII, 7.1.5) shall be considered if the substance is poorly water soluble (water solubility < 1 mg/l).

8. OTHER AVAILABLE PHYSICOCHEMICAL, TOXICOLOGICAL AND ECOTOXICOLOGICAL INFORMATION

Any other relevant physicochemical, toxicological and ecotoxicological information that is available shall be provided.

ANNEX VI

ADDITIONAL STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF 10 TONNES OR MORE

Column 1 of this Annex establishes the standard information required for all substances manufactured or imported in quantities of 10 tonnes or more in accordance with Article 11 (1) (b). Accordingly, the information required in column 1 of this Annex is additional to that required in column 1 of Annex V. Column 2 of this Annex lists specific rules according to which the required standard information may be omitted, replaced by other information, provided at a different stage or adapted in another way. If the conditions are met under which column 2 of this Annex allows adaptations, the registrant shall clearly state this fact and the reasons for each adaptation under the appropriate headings in the registration dossier.

In addition to these specific rules, a registrant may adapt the required standard information set out in column 1 of this Annex according to the general rules contained in Annex IX. In this case as well, he shall clearly state the reasons for any decision to adapt the standard information under the appropriate headings in the registration dossier referring to the appropriate specific rule(s) in column 2 or in Annexes IX or X[8].

Before new tests are carried out to determine the properties listed in this Annex, all available *in vitro* data, *in vivo* data, historical data, data from valid (Q)SARs and data from structurally related substances (read-across approach) shall be assessed first.

When, for certain endpoints, information is not provided for other reasons than those mentioned in column 2 of this Annex or in Annex IX, this fact and the reasons shall also be clearly stated.

[8] Note: conditions for not requiring a specific test that are set out in the appropriate test methods in Annex X itself that are not repeated in column 2, also apply

6. TOXICOLOGICAL INFORMATION

In vivo testing with corrosive substances at concentration/dose levels causing corrosivity shall be avoided.

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
6.1. Skin irritation	
6.1.1. *In vivo* skin irritation	6.1.1. The study does not need to be conducted if: – the substance is corrosive; or – the substance is a strong acid (pH < 2.0) or base (pH > 11.5); or – the substance is flammable in air at room temperature; or – the substance is very toxic in contact with skin; or – the acute toxicity study by the dermal route does not indicate skin irritation up to the limit dose level (2000 mg/kg buffalo weight); or – the data available from the testing strategy foreseen in Annex V, Section 6.1. is adequate to classify the substance as skin corrosive or skin irritant.
6.2. Eye irritation	

6.2.1. ***In vivo*** **eye irritation**	6.2.1. The study does not need to be conducted if: – the substance is corrosive; or – the substance is a strong acid (pH < 2.0) or base (pH > 11.5); or – the substance is flammable in air at room temperature; or – the substance is classified as irritant in contact with skin and provided that the registrant classifies the substance as eye irritant; or – the data available from the testing strategy foreseen in Annex V, Section 6.2. is adequate to classify the substance as eye irritant.
6.4. Mutagenicity **6.4.2.** ***In vitro*** **cytogenicity study in mammalian cells** **6.4.3.** ***In vitro*** **gene mutation study in mammalian cells**, if a negative result in Annex V, 6.4.1. and Annex VI, 6.4.2.	6.4.2. The study does not need to be conducted - if adequate data from an *in vivo* cytogenicity test are available or - the substance is known to be carcinogenic category 1 or 2. 6.4.3. The study does not need to be conducted if adequate data from a reliable *in vivo* mammalian gene mutation test are available. 6.4. Appropriate *in vivo* **mutagenicity** studies shall be considered in case of a positive result in any of the mutagenicity studies in Annex V or VI.
6.5. Acute toxicity For gases and volatile liquids (vapour pressure above 10^{-2} Pa at 20°°C) the information shall be provided for the inhalation route (6.5.2).	6.5. The study/ies do(es) not need to be conducted if: – precise doses of the substance cannot be administered due to the chemical or physical properties of the substance; or – the substance is corrosive; or

	– the substance is flammable in air at room temperature.
For substances other than gases, the information mentioned under 6.5.1. to 6.5.3. shall be provided for at least two routes, one of which the oral route. The choice for the second route will depend on the nature of the substance and the likely route of human exposure. If there is only one route of exposure, information for only that route need be provided.	The appropriate second route shall be chosen on the following basis:
6.5.1. By oral route	
6.5.2. By inhalation	*6.5.2. Testing by the inhalation route is appropriate if:* (1) exposure of humans via inhalation is likely; and (2) one of the following conditions is met: – the substance has a vapour pressure above 10^{-2} Pa at 20 °C; or – the substance is a powder containing more than 1% particles on a w/w basis, with particle size mass median aerodynamic diameter (MMAD) less than 100 μm; or – the substance will be used in a manner which generates aerosols, particles or droplets in an inhalable size range (> 1% on a w/w basis of particles with MMAD < 100 μm).
6.5.3. By dermal route	*6.5.3. Testing by the dermal route is appropriate if:* (1) skin contact in production and/or use is likely; and (2) the physicochemical properties suggest a significant rate of absorption through the skin; and (3) one of the following conditions is met: – toxicity is observed in an acute oral toxicity test at low doses; or

	– systemic effects or other evidence of absorption is observed in skin and/or eye irritation studies; or – *in vitro* tests indicate significant dermal absorption; or – significant acute dermal toxicity or dermal penetration is recognised for structurally-related substances. *Testing by the dermal route is inappropriate if* the absorption by the skin is unlikely as indicated by molecular weight (MW > 800 or molecular diameter > 15 Å) and low liposolubility (log Kow below -1 or above 4).
6.6. Repeated dose toxicity **6.6.1. Short-term repeated dose toxicity study (28 days)**, one species, male and female, most appropriate route of administration, having regard to the likely route of human exposure.	6.6.1. The **short-term toxicity study** (28 days) does not need to be conducted if: – a reliable sub-chronic (90 days) or chronic toxicity study is available, provided that an appropriate species and route of administration were used; or – where a substance undergoes immediate disintegration and there are sufficient data on the cleavage products; or – relevant human exposure can be excluded. The appropriate route shall be chosen on the following basis: *Testing by the dermal route is appropriate if:* (1) skin contact in production and/or use is likely; and (2) the physicochemical properties suggest a significant rate of absorption through the skin; and (3) one of the following conditions is met: – toxicity is observed in the acute dermal toxicity test at lower doses than in the oral toxicity

test; or

– systemic effects or other evidence of absorption is observed in skin and/or eye irritation studies; or

– *in vitro* tests indicate significant dermal absorption; or

– significant dermal toxicity or dermal penetration is recognised for structurally-related substances.

Testing by the dermal route is inappropriate if the absorption by the skin is unlikely as indicated by molecular weight (MW > 800 or molecular diameter > 15 Å) and low liposolubility (log Kow < -1 or > 4).

Testing by the inhalation route is appropriate if:

(1) exposure of humans via inhalation is likely; and

(2) one of the following conditions is met:

– the substance has a vapour pressure above 10^{-2} Pa at 20 °C; or

– the substance is a powder containing more than 1% particles on a w/w basis, with a particle size MMAD less than 100 μm; or

the substance will be used in a manner which generates aerosols, particles or droplets in an inhalable size range (> 1% on a w/w basis of particles with MMAD < 100 μm). In the absence of contra-indications, the oral route shall be the preferred one.

The **sub-chronic toxicity study** (90 days) (Annex VII, 6.6.2) shall be proposed by the registrant if:

– the frequency and duration of human exposure indicates that a longer term study is appropriate; and one of the following conditions is met:

– other available data indicate that the substance may have a dangerous property that cannot be

	detected in a short-term toxicity study; or – appropriately designed toxicokinetic studies reveal accumulation of the substance or its metabolites in certain tissues or organs which would possibly remain undetected in a short-term toxicity study but which are liable to result in adverse effects after prolonged exposure. Further studies shall be proposed by the registrant or may be required by the competent authority of the evaluating Member State in accordance with Article 39, 40 or 44 in case of: – failure to identify a NOAEL in the 28 days study, unless the reason for the failure to identify a NOAEL is absence of adverse toxic effects; or – toxicity of particular concern (e.g., serious/severe effects); or – indications of an effect for which the available evidence is inadequate for toxicological and/or risk characterisation; In such cases it may also be more appropriate to perform specific toxicological studies that are designed to investigate these effects (e.g., immunotoxicity, neurotoxicity); or – the route of exposure used in the initial repeated dose study was inappropriate in relation to the expected route of human exposure and route-to-route extrapolation cannot be made; or – particular concern regarding exposure (e.g. use in consumer products leading to exposure levels which are close to the dose levels at which toxicity to humans may be expected); or – effects shown in substances with a clear relationship in molecular structure with the substance being studied, were not detected in the 28 days study.
6.7. Reproductive toxicity	6.7. The studies do not need to be conducted if: – the substance is known to be a genotoxic carcinogen and appropriate risk management measures are implemented; or – the substance is known to be a germ cell mutagen and appropriate risk management measures are implemented; or

	– relevant human exposure can be excluded.
6.7.1. Screening for reproductive/developmental toxicity, one species (OECD 421), if there is no evidence from available information on structurally related substances, from (Q)SAR estimates or from *in vitro* methods that the substance may be a developmental toxicant.	6.7.1. A positive result in the screening shall be confirmed at this level by a developmental toxicity study, one species, most appropriate route of administration, having regard to the likely route of human exposure (Annex VI, 6.7.2).
6.7.2. Developmental toxicity study, most appropriate route of administration, having regard to the likely route of human exposure (Annex X B. 31 or OECD 414).	6.7.2. The study shall be initially performed on one species. A decision on the need to perform a study on a second species should be based on the outcome of the first test. The **two-generation reproductive toxicity study** (Annex VII, 6.7.3) shall be proposed by the registrant if there are indications of potential reproductive toxicity from a repeated dose toxicity study (90 days) (e.g. histopathological effects on the gonads) or the substance has a close structural relationship with a known reproductive toxicant.
6.8 Toxicokinetics **6.8.1. Assessment of the toxicokinetic behaviour of the substance to the extent that can be derived from the relevant available information**	

7. ECOTOXICOLOGICAL INFORMATION

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
	–
7.1. Aquatic toxicity	7.1.2. The study does not need to be conducted if:

7.1.2. Growth inhibition study on algae	– the substance is highly insoluble (water solubility < 10 μg/l); or – the substance is unlikely to cross biological membranes (MW > 800 or molecular diameter > 15 Å).
7.1.3. Short-term toxicity testing on fish: The registrant may consider long-term toxicity testing instead of short-term.	7.1.3. The study does not need to be conducted if: – the substance is highly insoluble (water solubility < 10 μg/l); or – the substance is unlikely to cross biological membranes (MW > 800 or molecular diameter > 15 Å); or – a long-term toxicity study is available. **The long-term aquatic toxicity study on fish** (Annex VII, 7.1.6) shall be proposed by the registrant or may be required by the competent authority of the evaluating Member State in accordance with Article 39, 40 or 44 if the comparison of the (predicted) environmental exposure with the results from the short-term aquatic toxicity data indicates the need to investigate further effects on aquatic organisms. **The long-term aquatic toxicity study on fish** (Annex VII, 7.1.6) shall be considered if the substance is poorly water soluble (water solubility < 1 mg/l).
7.1.4. Activated sludge respiration inhibition testing, unless there is a low probability of emission into the sewage treatment system	7.1.4. The study does not need to be conducted if: – the substance is highly insoluble (water solubility < 10 μg/l); or – the substance is found to be readily biodegradable and the applied test concentrations are in the range of concentrations that can be expected in the influent of a sewage treatment plant. The study may be replaced by a nitrification inhibition test if available data show that the substance is likely to be an inhibitor of microbial growth or function.
7.2. Degradation	7.2. The simulation studies (Annex VII, 7.2.1.2 to 7.2.1.4.) shall be proposed by the registrant or may be required by the competent authority of the evaluating Member State in accordance with

7.2.1. Biotic	Article 39, 40 or 44 if the chemical safety assessment according to Annex I indicates the need to investigate further the degradation of the substance. The choice of the appropriate test(s) depends on the results of the safety assessment.
7.2.1.1. Ready biodegradability	7.2.1.1The study does not need to be conducted if the substance is inorganic.
7.2.2. Abiotic	
7.2.2.1. Hydrolysis as a function of pH.	7.2.2.1. The study does not need to be conducted if: – the substance is readily biodegradable; or – the water solubility of the substance is below 10 μg/l.
7.3. Fate and behaviour in the environment	
7.3.1. Adsorption/desorption screening study	7.3.1. The study does not need to be conducted if: – based on the physicochemical properties the substance can be expected to have a low potential for adsorption (e.g. the substance has a low octanol water partition coefficient); or – the substance decomposes rapidly.

ANNEX VII

ADDITIONAL STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF 100 TONNES OR MORE

At the level of this Annex, the registrant must submit a proposal and a time schedule for fulfilling the information requirements of this Annex in accordance with Article 11 (1) (c).

Column 1 of this Annex establishes the standard information required for all substances manufactured or imported in quantities of 100 tonnes or more in accordance with Article 11 (1) (c). Accordingly, the information required in column 1 of this Annex is additional to that required in column 1 of Annexes V and VI. Column 2 of this Annex lists specific rules according to which the registrant may propose to omit the required standard information, replace it by other information, provide it at a later stage or adapt it in another way. If the conditions are met under which column 2 of this Annex allows an adaptation to be proposed, the registrant shall clearly state this fact and the reasons for proposing each adaptation under the appropriate headings in the registration dossier.

In addition to these specific rules, a registrant may propose to adapt the required standard information set out in column 1 of this Annex according to the general rules contained in Annex IX. In this case as well, he shall clearly state the reasons for any decision to propose adaptations to the standard information under the appropriate headings in the registration dossier referring to the appropriate specific rule(s) in column 2 or in Annexes IX or X[9].

Before new tests are carried out to determine the properties listed in this Annex, all available *in vitro* data, *in vivo* data, historical data, data from valid (Q)SARs and data from structurally related substances (read-across approach) shall be assessed first.

When, for certain endpoints, it is proposed not to provide information for other reasons than those mentioned in column 2 of this Annex or in Annex IX, this fact and the reasons shall also be clearly stated.

[9] Note: conditions for not requiring a specific test that are set out in the appropriate test methods in Annex X itself that are not repeated in column 2, also apply

5. INFORMATION ON THE PHYSICOCHEMICAL PROPERTIES OF THE SUBSTANCE

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
5.18. Stability in organic solvents and identity of relevant degradation products Only required if stability of the substance is considered to be critical.	5.18. The study does not need to be conducted if the substance is inorganic.
5.19. Dissociation constant	5.19. The study does not need to be conducted if: – the substance is hydrolytically unstable (half-life less than 12 hours) or is readily oxidisable in water; or – the substance is not soluble in water or does not contain any ionic structure.
5.20. Viscosity	

6. TOXICOLOGICAL INFORMATION

In vivo testing with corrosive substances at concentration/dose levels causing corrosivity shall be avoided.

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
	6.4. If there is a positive result in any of the **mutagenicity** studies in Annex V or VI and there are no results available from an *in vivo* study, an appropriate *in vivo* mutagenicity study shall be proposed by the registrant.

	If there is a positive result from any *in vivo* study available, further appropriate *in vivo* studies shall be proposed.
6.6. Repeated dose toxicity **6.6.1. Short-term repeated dose toxicity study (28 days)**, one species, male and female, most appropriate route of administration, having regard to the likely route of human exposure, unless already provided as part of Annex VI requirements or if tests according to 6.6.2 is proposed. In this case, Section 3 of Annex IX shall not apply. **6.6.2. Sub-chronic toxicity study (90-day)**, one species, rodent, male and female, most appropriate route of administration, having regard to the likely route of human exposure.	6.6.2. The sub-chronic toxicity study (90 days) does not need to be conducted if: – a reliable short-term toxicity study (28 days) is available showing severe toxicity effects according to the criteria for classifying the substance as R48, for which the observed NOAEL-28 days, with the application of an appropriate uncertainty factor, allows the extrapolation towards the NOAEL-90 days for the same route of exposure; or – a reliable chronic toxicity study is available, provided that an appropriate species and route of administration were used; or – the substance is unreactive, insoluble and not inhalable and there is no evidence of absorption and no evidence of toxicity in a 28-day "limit test", particularly if such a pattern is coupled with limited human exposure. The appropriate route shall be chosen on the following basis: *Testing by the dermal route is appropriate if:* (1) skin contact in production and/or use is likely; and (2) the physicochemical properties suggest a significant rate of absorption through the skin; and

(3) one of the following conditions is met:

– toxicity is observed in the acute dermal toxicity test at lower doses than in the oral toxicity test; or

– systemic effects or other evidence of absorption is observed in skin and/or eye irritation studies; or

– *in vitro* tests indicate significant dermal absorption; or

– significant dermal toxicity or dermal penetration is recognised for structurally-related substances.

Testing by the dermal route is inappropriate if the absorption by the skin is unlikely as indicated by molecular weight (MW > 800 or molecular diameter > 15 Å) and low liposolubility (log Kow < -1 or > 4).

Testing by the inhalation route is appropriate if:

(1) exposure of humans via inhalation is likely; and

(2) one of the following conditions is met:

– the substance has a vapour pressure above 10^{-2} Pa at 20 °C; or

– the substance is a powder containing more than 1% particles on a w/w basis, with a particle size MMAD less than 100 μm; or

– the substance will be used in a manner which generates aerosols, particles or droplets in an inhalable size range (> 1% on a w/w basis of particles with MMAD < 100 μm). In the absence of contra-indications, the oral route shall be the preferred one.

Further studies shall be proposed by the registrant or may be required by the competent authority of the evaluating Member State in accordance with Articles 39, 40 or 44 in case of:

	– failure to identify a NOAEL in the 90 days study unless the reason for the failure to identify a NOAEL is absence of adverse toxic effects; or – toxicity of particular concern (e.g. serious/severe effects); or – indications of an effect for which the available evidence is inadequate for toxicological and/or risk characterisation; In such cases it may also be more appropriate to perform specific toxicological studies that are designed to investigate these effects (e.g. immunotoxicity, neurotoxicity); or – particular concern regarding exposure (e.g. use in consumer products leading to exposure levels which are high relative to the dose levels at which toxicity to humans may be expected).
6.7. Reproductive toxicity	6.7. The studies do not need to be conducted if: – the substance is known to be a genotoxic carcinogen and appropriate risk management measures are implemented; or – the substance is known to be a germ cell mutagen and appropriate risk management measures are implemented.
6.7.2. Developmental toxicity study, one species, most appropriate route of administration, having regard to the likely route of human exposure (Annex X B.31 or OECD 414), unless already provided as part of Annex VI requirements. **6.7.3. Two-generation reproductive toxicity study**, one species, male and female, most appropriate route of administration, having regard to the likely route of human exposure, if the 28-day or 90-day study indicates adverse effects on reproductive organs or tissues.	6.7.2 The study shall be initially performed on one species. A decision on the need to perform a study on a second species should be based on the outcome of the first test.

7. ECOTOXICOLOGICAL INFORMATION

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
7.1. Aquatic toxicity	7.1. Long-term toxicity testing shall be proposed by the registrant if the chemicals safety assessment according to Annex I indicates the need to investigate further the effects on aquatic organisms. The choice of the appropriate test(s) depends on the results of the safety assessment.
7.1.5. Long-term toxicity testing on *Daphnia*, (unless already provided as part of Annex V requirements)	7.1.5. The study does not need to be conducted if: – the substance is unlikely to cross biological membranes (MW > 800 or molecular diameter > 15 Å); or – direct or indirect exposure of the aquatic compartment is unlikely.
7.1.6. Long-term toxicity testing on fish, (unless already provided as part of Annex VI requirements) The information shall be provided for one of the following 7.1.6.1, 7.1.6.2 or 7.1.6.3.	7.1.6. The study does not need to be conducted if: – the substance is unlikely to cross biological membranes (MW > 800 or molecular diameter > 15 Å); or – direct or indirect exposure of the aquatic compartment is unlikely.
7.1.6.1 Fish early-life stage (FELS) toxicity test (OECD 210) **7.1.6.2 Fish short-term toxicity test on embryo and sac-fry stages** (Annex X C.15 or OECD 212) **7.1.6.3 Fish, juvenile growth test** (Annex X C.14 or OECD 215)	7.1.6.1. The FELS toxicity test shall be proposed by the registrant or may be required by the competent authority of the evaluating Member State in accordance with Articles 39, 40 or 44 if the substance has a potential to bioaccumulate.
7.2. Degradation	7.2. Further degradation testing shall be proposed by the registrant if the chemical safety assessment according to Annex I indicates the need to investigate further the degradation of the substance. The choice of the appropriate test(s) depends on the results of the safety

	assessment.
7.2.1. Biotic The information mentioned under 7.2.1.3 and 7.2.1.4 shall also be proposed by the registrant or may be required by the competent authority of the evaluating Member State in accordance with Articles 39, 40 or 44 in the cases defined below.	
7.2.1.2. Simulation testing on ultimate degradation in surface water	7.2.1.2. The study need not be conducted if: – the water solubility of the substance is below 10 μg/l; – the substance is readily biodegradable.
7.2.1.3. Soil simulation testing (for substances with a high potential for adsorption to soil)	7.2.1.3. The study need not be conducted: – if the substance is readily biodegradable; or – if direct or indirect exposure of soil is unlikely.
7.2.1.4. Sediment simulation testing (for substances with a high potential for adsorption to sediment)	7.2.1.4. The study need not be conducted: – if the substance is readily biodegradable; or – if direct or indirect exposure of soil is unlikely.
7.2.3. Identification of degradation products	7.2.3. Unless the substance is readily biodegradable Further testing shall be proposed by the registrant if the chemical safety assessment according to Annex I indicates the need to investigate further the fate and behaviour of the substance. The choice of the appropriate test(s) depends on the results of the safety assessment.
7.3. Fate and behaviour in the environment	

7.3.2. Bioconcentration in (one) aquatic species, preferably fish	7.3.2. The study need not be conducted if: – the substance has a low potential for bioaccumulation (ie log Kow < 3); or – the substance is unlikely to cross biological membranes (MW > 800 or molecular diameter > 15 Å); or – direct or indirect exposure of the aquatic compartment is unlikely.
7.3.3. Further studies on adsorption/desorption depending on the results of the study required in Annex VI	7.3.3. The study need not be conducted if: – based on the physicochemical properties the substance can be expected to have a low potential for adsorption (e.g. the substance has a low octanol water partition coefficient); or – the substance decomposes rapidly.
7.4. Effects on terrestrial organisms	7.4. These studies do not need to be conducted if direct or indirect exposure of the soil compartment is unlikely. In the absence of toxicity data for soil organisms, the equilibrium partitioning method may be applied to assess the exposure to soil organisms. In the case of a significant exposure a selection out of the following tests shall be proposed by the registrant. In particular for substances that have a high potential to adsorb to soil, the registrant shall consider long-term toxicity testing instead of short-term.
7.4.1. Short-term toxicity to earthworms	
7.4.2. Effects on soil micro-organisms	
7.4.3. Short-term toxicity to plants	

9. METHODS OF DETECTION AND ANALYSIS

Description of the analytical methods shall be provided on request, for the relevant compartments for which studies were performed using the analytical method concerned. If the analytical methods are not available this shall be justified.

ANNEX VIII

ADDITIONAL STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF 1000 TONNES OR MORE

At the level of this Annex, the registrant must submit a proposal and a time schedule for fulfilling the information requirements of this Annex in accordance with Article 11 (1) (d).

Column 1 of this Annex establishes the standard information required for all substances manufactured or imported in quantities of 1000 tonnes or more in accordance with Article 11 (1) (d). Accordingly, the information required in column 1 of this Annex is additional to that required in column 1 of Annexes V, VI and VII. Column 2 of this Annex lists specific rules according to which the registrant may propose to omit the required standard information, replace it by other information, provide it at a later stage or adapt it in another way. If the conditions are met under which column 2 of this Annex allows an adaptation to be proposed, the registrant shall clearly state this fact and the reasons for proposing each adaptation under the appropriate headings in the registration dossier.

In addition to these specific rules, a registrant may propose to adapt the required standard information set out in column 1 of this Annex according to the general rules contained in Annex IX. In this case as well, he shall clearly state the reasons for any decision to propose adaptations to the standard information under the appropriate headings in the registration dossier referring to the appropriate specific rule(s) in column 2 or in Annexes IX or X[10].

Before new tests are carried out to determine the properties listed in this Annex, all available *in vitro* data, *in vivo* data, historical data, data from valid (Q)SARs and data from structurally related substances (read-across approach) shall be assessed first.

When, for certain endpoints, it is proposed not to provide information for other reasons than those mentioned in column 2 of this Annex or in Annex IX, this fact and the reasons shall also be clearly stated.

[10] Note: conditions for not requiring a specific test that are set out in the appropriate test methods in Annex X itself that are not repeated in column 2, also apply

6. TOXICOLOGICAL INFORMATION

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
	6.4. If appropriate, in case of a positive result in any previous mutagenicity study further **mutagenicity studies** shall be proposed by the registrant. 6.6.3. **A long-term repeated toxicity study** (≥ 12 months) may be proposed by the registrant or required by the competent authority of the evaluating Member State in accordance with Articles 39, 40 or 44 if the frequency and duration of human exposure indicates that a longer term study is appropriate and one of the following conditions is met: – serious or severe toxicity effects of particular concern were observed in the 28 days or 90 days study for which the available evidence is inadequate for toxicological or risk characterisation; or – effects shown in substances with a clear relationship in molecular structure with the substance being studied were not detected in the 28 days or 90 days study; or – the substance may have a dangerous property that cannot be detected in a 90 days study.

	6.6. **Further studies** shall be proposed by the registrant or may be required by the competent authority of the evaluating Member State in accordance with Articles 39, 40 or 44 in case of: – toxicity of particular concern (e.g. serious/severe effects); or – indications of an effect for which the available evidence is inadequate for toxicological and/or risk characterisation; In such cases it may also be more appropriate to perform specific toxicological studies that are designed to investigate these effects (e.g. immunotoxicity, neurotoxicity); or – particular concern regarding exposure (e.g. use in consumer products leading to exposure levels which are close to the dose levels at which toxicity is observed).
6.7. Reproductive toxicity **6.7.4. Two-generation reproductive toxicity study**, one species, male and female, most appropriate route of administration, having regard to the likely route of human exposure, unless already provided as part of Annex VII requirements	6.7.4. The study need not be conducted if: – the substance is known to be a genotoxic carcinogen and appropriate risk management measures are implemented; or – the substance is known to be a germ cell mutagen and appropriate risk management measures are implemented; or – the substance is of low toxicological activity (no evidence of toxicity seen in any of the tests available), it can be proven from toxicokinetic data that no systemic absorption occurs via relevant routes of exposure (e.g. plasma/blood concentrations below detection limit using a sensitive method and absence of the substance and of metabolites of the substance in urine, bile or exhaled air) and there is no or no significant human exposure.
	6.9. **A carcinogenicity study** may be proposed or may be required by the competent authority of the evaluating Member State in accordance with Articles 39, 40 or 44 if:

	– the substance has a widespread dispersive use or there is evidence of frequent or long-term human exposure; and – the substance is classified as mutagenic category 3 or there is evidence from the repeated dose study(ies) that the substance is able to induce hyperplasia and/or pre-neoplastic lesions.

7. ECOTOXICOLOGICAL INFORMATION

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
7.2. Degradation **7.2.1. Biotic** 7.2.1.5. Further confirmatory testing on rates of biodegradation (aerobic and/or anaerobic) in environmental compartments (water, sediment, soil) with specific emphasis on the identification of the most relevant degradation products.	7.2. Further degradation testing shall be proposed of the chemical safety assessment according to Annex I indicates the need to investigate further the degradation of the substance. The choice of the appropriate test(s) depends on the results of the safety assessment.
7.3. Fate and behaviour in the environment **7.3.4. Further environmental fate and behaviour studies**	7.3. Further testing shall be proposed by the registrant if the chemical safety assessment according to Annex I indicates the need to investigate further the fate and behaviour of the substance. The choice of the appropriate test(s) depends on the results of the safety assessment.

7.4. Effects on terrestrial organisms **7.4.4. Long-term toxicity testing on earthworms**, unless already provided as part of Annex VII requirements. **7.4.5. Long-term toxicity testing on soil invertebrates** other than earthworms, unless already provided as part of Annex VII requirements. **7.4.6. Long-term toxicity testing on plants**, unless already provided as part of Annex VII requirements.	7.4. Long-term toxicity testing shall be proposed by the registrant when the comparison of the (predicted) environmental exposure with the results from the short-term toxicity test(s) indicates the need to investigate further the effects on terrestrial organisms. The choice of the appropriate test(s) depends on the outcome of this comparison. These studies do not need to be conducted if direct or indirect exposure of the soil compartment is unlikely.
7.5. Long-term toxicity to sediment organisms	7.5. Long-term toxicity testing shall be proposed by the registrant when the comparison of the (predicted) environmental exposure with the results from the short-term toxicity test(s) indicates the need to investigate further the effects on sediment organisms. The choice of the appropriate test(s) depends on the results of the safety assessment.
7.6. Long-term or reproductive toxicity to birds	7.6. The study need not be conducted if direct or indirect exposure of birds is unlikely.

9. METHODS OF DETECTION AND ANALYSIS

Description of the analytical methods shall be provided on request, for the relevant compartments for which studies were performed using the analytical method concerned. If the analytical methods are not available this shall be justified.

ANNEX IX

GENERAL RULES FOR ADAPTATION OF THE STANDARD TESTING REGIME SET OUT IN ANNEXES V TO VIII

Annexes V to VIII set out the standard testing regime required for all substances manufactured or imported in quantities of:

– 1 tonne or more in accordance with Article 11 (1) (a),

– 10 tonnes or more in accordance with Article 11 (1) (b),

– 100 tonnes or more in accordance with Article 11 (1) (c), and

– 1000 tonnes or more in accordance with Article 11 (1) (d).

In addition to the specific rules set out in Column 2 of Annexes V to VIII, a registrant may adapt the standard testing regime in accordance with the general rules set out in Section 1 of this Annex. Under evaluation competent authorities of evaluating Member States may assess these adaptations to the standard testing regime.

1. TESTING DOES NOT APPEAR SCIENTIFICALLY NECESSARY

1.1. Use of existing data

1.1.1. Data on physical-chemical properties from experiments not carried out according to GLP or Annex X

Data shall be considered to be equivalent to data generated by the corresponding test in Annex X if the following conditions are met:

(1) adequacy for the purpose of classification and labelling and risk assessment, and

(2) adequate and reliable documentation of the study is provided.

1.1.2. Data from animal experiments not carried out according to GLP or Annex X

Data shall be considered to be equivalent to data generated by the corresponding test in Annex X if the following conditions are met:

(1) adequacy for the purpose of classification and labelling and risk assessment,

(2) adequate and reliable coverage of the key parameters foreseen to be investigated in the corresponding test in Annex X,

(3) exposure duration comparable to or longer than the corresponding test in Annex X if exposure duration is a relevant parameter, and

(4) adequate and reliable documentation of the study is provided.

1.1.3. Historical human data

Historical human data, such as epidemiological studies on exposed populations, accidental or occupational exposure data and clinical studies, shall be considered.

The strength of the data for a specific health effect depends, among other things, on the type of analysis and on the parameters covered and on the magnitude and specificity of the response and consequently the predictability of the effect. Criteria for assessing the adequacy of the data include:

(1) the proper selection and characterisation of the exposed and control groups,

(2) adequate characterisation of exposure,

(3) sufficient length of follow-up for disease occurrence,

(4) valid method for observing an effect,

(5) proper consideration of bias and confounding factors, and

(6) a reasonable statistical reliability to justify the conclusion.

In all cases adequate and reliable documentation shall be provided.

1.2. Weight of evidence

There may be sufficient weight of evidence from several independent sources of information leading to the assumption/conclusion that a substance has or has not a particular dangerous property, while the information from each single source alone is regarded insufficient to support this notion.

There may be sufficient weight of evidence from the use of newly developed test methods, not yet included in Annex X, leading to the conclusion that a substance has or has not a particular dangerous property.

Where sufficient weight of evidence for the presence or absence of a particular dangerous property is available:

– further testing on vertebrate animals for that property shall be omitted,

– further testing not involving vertebrate animals may be omitted.

In all cases adequate and reliable documentation shall be provided.

1.3. Structure-activity relationship (SAR)

Results obtained from valid qualitative or quantitative structure-activity relationship models ((Q)SARs) may indicate the presence or absence of a certain dangerous property. Results of (Q)SARs may be used instead of testing when the following conditions are met:

– results are derived from a (Q)SAR model whose scientific validity has been established,

– results are adequate for the purpose of classification and labelling and risk assessment, and

– adequate and reliable documentation of the applied method is provided.

The Agency in collaboration with the Commission, Member States and interested parties shall develop and provide guidance in assessing which (Q)SARs will meet these conditions and provide examples.

1.4. *In vitro* methods

Results obtained from suitable *in vitro* methods may indicate the presence of a certain dangerous property. In this context, “suitable” means sufficiently well developed according to internationally agreed test development criteria (e.g. the ECVAM criteria for the entry of a test into the prevalidation process). Depending on the potential risk, immediate confirmation requiring testing beyond the information foreseen in Annex V or VI or proposed confirmation requiring testing beyond the information foreseen in Annex VII or VIII for the respective tonnage level may be necessary.

If the results obtained from the use of such *in vitro* methods do not indicate a certain dangerous property, the relevant test shall nevertheless be carried out at the appropriate tonnage level to confirm the negative result, unless testing is not required in accordance with Annexes V to VIII or the other rules in Annex IX.

Such confirmation may be waived, if the following conditions are met:

(1) results are derived from an in vitro method whose scientific validity has been established by a validation study, according to internationally agreed validation principles,

(2) results are adequate for the purpose of classification and labelling and risk assessment, and

(3) adequate and reliable documentation of the applied method is provided.

1.5. Grouping of substances and read-across approach

Substances whose physicochemical, toxicological and ecotoxicological properties are likely to be similar or follow a regular pattern as a result of structural similarity may be considered as a group, or "category" of substances. Application of the group concept requires that physicochemical properties, human health effects and environmental effects or environmental fate may be predicted from data for a reference substance within the group by interpolation to other substances in the group (read-across approach). This avoids the need to test every substance for every endpoint.

The similarities may be based on:

(1) a common functional group,

(2) the common precursors and/or the likelihood of common breakdown products via physical and biological processes, which result in structurally similar chemicals, or

(3) a constant pattern in the changing of the potency of the properties across the category.

If the group concept is applied, substances shall be classified and labelled on this basis.

In all cases adequate and reliable documentation shall be provided.

2. TESTING IS TECHNICALLY NOT POSSIBLE

Testing for a specific endpoint may be omitted, if it is technically not possible to conduct the study as a consequence of the properties of the substance: e.g. very volatile, highly reactive or unstable substances cannot be used, mixing of the substance with water may cause danger of fire or explosion or the radio-labelling of the substance required in certain studies may not be possible. The guidance given in the test guidelines of Annex X, more specifically on the technical limitations of a specific method, shall always be respected.

3. SUBSTANCE-TAILORED EXPOSURE-DRIVEN TESTING

Testing in accordance with Annexes VII and VIII may be omitted, based on the exposure scenario(s) developed in the Chemical Safety Report.

In all cases, adequate justification and documentation shall be provided.