



**Danish Ministry  
of the Environment**  
Environmental  
Protection Agency

## List of Undesirable Substances 2009



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# Preface

## **The provision of the List of Undesirable Substances as a guide**

The Danish Environmental Protection Agency's ('the Danish EPA') List of Undesirable Substances (LOUS) is intended as a guide for enterprises. It indicates substances of concern whose use should be reduced or halted completely. Companies should themselves initiate substitution of these substances with others.

Substances are included in LOUS if they have a number of undesirable effects and are used in Denmark in significant quantities. There is a wide overlap between criteria for inclusion in LOUS and for inclusion in the REACH candidate list. LOUS has wider aims than the candidate list. It also focusses in particular on substances that are used in Denmark. Enterprises wanting to be a step ahead can use LOUS whilst work on the REACH candidate list is ongoing.

When seeking substitute substances one should, in addition to verification of technical applicability, ensure that the alternative is less harmful to health and the environment than the original substance even if the alternative does not appear in LOUS. One should always endeavour to use alternatives the effects of which have been investigated and fully proven. It is also important to be aware of potential effects on the environment and on health with specific reference to the new use of the substitute substance. This applies both to the quantities of alternative substances used compared to the original substance and to the patterns of consumption in relation to exposure of employees, consumers and the environment.

LOUS 2009 is comprised of 40 chemical substances and groups of substances which have been documented as dangerous or which have been identified as problematic using computer models. For inclusion in the list, substances must fulfil several specific criteria. The substances can lead to very serious and long-term adverse effects on health or the environment. To adapt the list to the Danish market, only substances which are used industrially in large quantities in Denmark, i.e., over 100 tonnes per year, are included. Figures are from 2007-2008.

It should be pointed out that the list is not exhaustive and that new knowledge, changing patterns of consumption and new international initiatives must always be taken into account. New knowledge can also mean that substances can be less dangerous than assumed here, as some substances have been included on the basis of computer modelling (QSAR).

## **Who can use the list?**

The list can be used by product developers, manufacturers, professional purchasers and other actors in connection with environmentally-friendly production and purchasing, and by other parties interested in the use of chemical substances in products. Use of the list does presuppose a certain level of

knowledge in environmental matters and chemistry in order to be able to evaluate the use of the substances in products, the properties of alternatives and their suitability, etc.

### **Compiling LOUS and the List of Effects**

The first list of undesirable substances was published in 1998. It was decided then that monitoring and information dissemination on substances of concern should be ongoing. Revised lists were published in 2000 and 2004.

The new, updated list for 2009 is published exclusively as an electronic version. The selection criteria have been changed in certain areas compare to earlier publications. This and new patterns of consumption mean that several chemical substances or groups of substances no longer appear on the list. The substances/groups of substances concerned are listed in Annex D. Newly included substances are listed in Annex E. Certain criteria are no longer used at systematic selection. These are outlined in Annex F. More detailed information on selection criteria is given in the section on selection criteria.

The basis of LOUS 2009 is the Danish EPA's List of Effects 2009, which contains approximately 19,500 chemical substances. The List of Effects contains substances which fulfil the same criteria as apply for LOUS. The List of Effects does not however consider the substances' use or non-use in Denmark.

The new List of Effects is published electronically as a separate document.

LOUS 2009 and the List of Effects 2009 are snapshots because the use of chemicals changes continuously and new knowledge is acquired.

In the event of discrepancies between LOUS and the law, the law takes precedence. No responsibility can be accepted for printing errors.

Danish Environmental Protection Agency 2009

# Glossary

Additive:	A substance added to an article without chemical binding in the article.
Restrictions on use:	Restriction on how a given substance may be used. This can for example be a prohibition, a restriction to permitted concentrations, restrictions with regard to type of articles the substance may be used in, or the way it is used in the production of chemical products or articles.
Article:	An object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition.
CAS no:	Global identification number for chemicals assigned by the <u>C</u> hemical <u>A</u> bstracts <u>S</u> ervice.
CLP Regulation:	Abbreviation for the Classification Regulation (Classification, Labelling and Packaging):
CMR:	Classification of a substance as carcinogenic (C), mutagenic (M) or toxic to reproduction (R). Substances are labelled as Category 1, 2 or 3 depending on the weight of evidence for the relevant effect, with Category 1 representing substances with the greatest weight of evidence. Substances that are CMR classified in categories 1 or 2 are not permitted in chemical products for use by the general public.
EINECS:	The EU identification numbering system for chemical substances ( <u>E</u> uropean <u>I</u> nventory of <u>E</u> xisting <u>C</u> ommercial <u>C</u> hemical <u>S</u> ubstances).
List of Effects:	The Danish EPA's list of substances which fulfil the criteria for inclusion in LOUS, irrespective of the use or non-use of the substance in Denmark.
Exposure:	Exposure to a chemical substance via the skin/eyes, ingestion or inhalation, and environmental exposure.
Consumer product:	Product (substance/mixture or article) for use by the general public.
QSAR:	A computer-based programme for the evaluation of the properties of chemical substances based on the substance's chemical structure and its comparability with substances whose properties are well documented. QSAR stands for <u>Q</u> uantitative <u>S</u> tructure <u>A</u> c-

	<p>tivity <u>R</u>elationships. Substances that have been evaluated and classified using QSAR models are listed in the Danish EPA's 'Advisory list for self-classification of dangerous substances'.</p>
Harmonised classifications:	The EU official classification system for chemical substances and products that are hazardous to human health and to the environment.
Identification number:	CAS no and EINECS no.
Entry:	The name, classification/labelling and identification number of the substance.
Candidate list:	The list of substances of very high concern under REACH which are candidates for inclusion in the Authorisation Regulation in REACH. Substances can be subsequently moved from the candidate list to Annex XIV. This annex shall contain a regularly updated list of substances which may only be used for purposes that have been authorised by the authorities.
The Classification:	Regulation: EU regulation on the classification, labelling and packaging of substances and mixtures. Also known as the CLP Regulation. Annex VI of the Classification Regulation is now the 'List of hazardous substances'.
List of hazardous substances:	The EU's harmonised list of classified hazardous substances. Contained in Annex VI of the Classification Regulation.
LOUS:	The Danish EPA's List of Undesirable Substances. The list is an industry guide indicating substances that the Danish EPA wants to phase out, and for which substitutes should be found.
PBT/vPvB substances:	Non-degradable substances ( <u>P</u> ersistent), and which accumulate in humans and animals ( <u>B</u> ioaccumulative) and are toxic ( <u>T</u> oxic)/very persistent and very bioaccumulative.
The Danish Product Register:	Register of the industry's use of hazardous chemicals in Denmark.
REACH:	European Union regulation on chemicals legislation which came into force on 1 June 2007 and will be implemented in phases through to 2018. REACH stands for <u>R</u> egistration, <u>E</u> valuation and <u>A</u> uthorisation of <u>C</u> hemicals.

- R and H statements: Risk and hazard statements. These specify the danger associated with the substance.
- Self-classification List: The Danish EPA's 'Advisory list for self-classification of dangerous substances' that have been evaluated and classified according to their intrinsic properties using QSAR computer models.
- Safeguard clause: A special clause allowing EU member states to impose a stricter classification of a substance if it can be shown that the substance has particularly undesirable effects which are grounds for a supplementary classification in the member state.
- Substitution: The replacement of a chemical substance by another chemical substance which has a similar function but which is less harmful to the environment and to health during production, use, and the waste phase.



# 1 EU chemicals legislation – The universe of chemical substances

## 1.1 REACH

REACH<sup>1</sup> is a fundamental new regulation under the EU policy on chemicals which came into force on 1 June 2007 and will be fully implemented in 2018. REACH stands for Registration, Evaluation and Authorisation of Chemicals. The legislation is intended to help protect people and the environment from harmful effects. Manufacturers and importers of chemical substances must register these with ECHA, the European Chemicals Agency, if the substances are produced in or imported from countries outside the EU in quantities above 1 tonne per year.

The legislation gives companies responsibility for evaluating chemical substances for their health and environmental risks before they are used. If substances constitute a risk, they must be regulated either by prohibition, partial restriction on use, an authorisation, or harmonised classification. Furthermore, one of the central elements in REACH is to encourage the development of alternative test methods to replace animal testing and to support the internal market and enhance competitiveness and innovative capability.

The cornerstone of REACH is that companies themselves must secure evidence that the chemical substance they wish to import, produce, place on the market or use is safe from a health and environment perspective for that specific use. This means that there has been a 'reversal in the burden of proof' compared to previously, when authorities were obliged to provide evidence of the dangerous nature of the substance before regulation could take place.

There are three deadlines for the registration by manufacturers and importers of chemical substances already on the market. Substances produced in large quantities (over 1,000 tonnes per manufacturer/importer per year), or substances which are CMR classified, or are harmful to the aquatic environment and are produced in amounts exceeding 100 tonnes, must be registered in 2010. Substances produced/imported in quantities exceeding 100 tonnes must be registered in 2013, and substances which are produced/imported in quantities exceeding 1 tonne must be registered in 2018.

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<sup>1</sup> Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

For certain chemical substances classified as hazardous, the registrant must compile a so-called chemical safety report and exposure scenarios in order to inform customers about safe use.

The registration requirement applies to the specific chemical substance, irrespective of whether it is produced or imported as a pure substance or as a component of a chemical product. Furthermore, substances which are intended to be released from articles must also be registered.

Alongside the registration obligations, REACH also contains an Authorisation Regulation, as mentioned. In future, there will be ongoing identification of substances subject to this regulation. Substances included in the Authorisation Regulation may only be used for purposes that have been authorised by the authorities. Companies must apply for authorisation for each specific use and the application must also state which alternatives are available. The Authorisation Regulation is thus expected to significantly support the substitution of problematic chemicals.

## 1.2 Classification

Classification is the EU system under which the intrinsic properties of the chemical substance, that is its physical properties and hazards, are stated. The hazards of chemicals are identified in relation to human health and the environment. Classification is stated using danger symbols and risk phrases.

Producers or importers are responsible for classification, unless the substance is included on the EU harmonised list of hazardous substances<sup>2</sup>. The rules for classification and labelling are now contained in the EU Classification Regulation (also known as the CLP Regulation)<sup>3</sup>, which introduces a new classification system building in part on the Global Hazard System (GHS). This entails the introduction of new methodology for evaluating the hazards of chemicals, new classification codes, hazard statements and hazard pictograms. Annex VI, Table 3 of the Classification Regulation is now the 'List of hazardous substances'.

The new classification and labelling system will be phased in during the period up to 1 June 2015.

More information on EU chemicals legislation can be found on the Danish EPA website: <http://www.mst.dk/Kemikalier/>

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<sup>2</sup> The List of hazardous substances' is Table 3 in Annex VI of the Classification Regulation (see footnote 3) Until 20 January 2009, it was Annex I to Directive 67/548/EEC of 27 June 1967 on the approximation of the regulations relating to the classification, packaging and labelling of dangerous substances as implemented by Statutory Order no 923 of 28 September 2005 as the list of dangerous substances.

<sup>3</sup> Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. (The Classification Regulation or CLP regulation).

## 2 The format of LOUS

Chemical substances on the Danish EPA's 'List of Undesirable Substances 2009' (LOUS 2009) are listed alphabetically using their most common name. Some substances are listed discreetly whilst others are grouped according to function or chemical substance group. A general overview of substances is given in Annex A.

Substances on the list have been selected according to specific criteria determined by the Danish EPA. The list is not legally binding but is intended to represent a guide for the industry as to which substances the Danish EPA considers should be prioritised for substitution.

The substances and substance groups are listed with trivial name, systematic name and identification numbers (CAS and EINECS numbers). The substance's use and classification under existing and new classification rules are also stated. Both classifications are as under the EU's 'List of hazardous substances'. Annex G is a translation table between existing and new classification. An explanation of the reference asterisks (\*), which are part of the new classification methodology is given in Annex H. Only substances on the 'List of hazardous substances' have harmonised classifications, i.e. are part of the official EU classification system.

Substances under the EPA 'Advisory list for self-classification of dangerous substances'<sup>4</sup> (the Self-classification list) are classified based on their expected effects as derived from computer evaluation methods (so-called QSAR methods). As there is some uncertainty in connection with the use of QSAR, this classification is for guidance purposes only and not legally binding. This also means that if there is test data showing that substances should not have the proposed classification, the test data must be used instead. Translation of the stated classification of substances on the QSAR list to the new classification must be based on the Classification Regulation Annex VII which is also attached as Annex G to the LOUS.

Some substances which do not appear on the List of hazardous substances or on the Self-classification list, such as for example substances with particular focus in Denmark, have no classification.

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<sup>4</sup> The Danish EPA's 'Advisory list for self-classification of dangerous substances', which is based on computer models called QSAR (the Self-classification list) is described in Environment project no 1303, 2009: The Advisory List for self-classification of dangerous substances and can be found on the Danish EPA website [http://www.mst.dk/Virksomhed\\_og\\_myndighed/Kemikalier/Stofflister+og+databaser/Vejledende+liste+til+selvklassificering+af+farlige+stoffer/](http://www.mst.dk/Virksomhed_og_myndighed/Kemikalier/Stofflister+og+databaser/Vejledende+liste+til+selvklassificering+af+farlige+stoffer/)

However, additional information is given on the regulation of the substance within the Ministry of the Environment's remit, along with other relevant information. Focus is solely on the use of substances in chemical products or consumer articles; use in foodstuffs or medicine is not considered here.

# 3 Selection criteria

## 3.1 Selection criteria for inclusion of substances in LOUS 2009

Substances on LOUS have either been selected systematically because they possess a clearly defined undesirable property or because there is a focus in Denmark on finding substitutes for them.

The first step in the systematic selection of LOUS substances is the clarification of properties considered to be most problematic and thus undesirable, using defined selection criteria.

The Danish EPA has decided that the principles behind the Authorisation Regulation in the EU chemicals legislation, REACH, should be reflected in the criteria for selecting substances for inclusion in LOUS 2009. Thus, the definitions of very problematic substances, the so-called ‘Substances of Very High Concern’ (SVHC) used in REACH have been applied as part of the criteria for inclusion in LOUS.

The systematic selection therefore identifies substances which fulfil clearly defined criteria such as classification as substances of concern, for example CMR categories 1, 2 or 3 or because they are potential hormone disruptors.

Other substances which have not been captured by the systematic selection but nonetheless possess several undesirable effects, can have particular focus in Denmark, for example because they constitute a special problem in connection with drinking water or the waste stream.

The Danish EPA has laid down the following selection criteria for the inclusion of substances in LOUS 2009:

- Properties of concern according to the EU ‘List of hazardous substances’
- Properties of concern identified using computer-based model calculations outlined in the Danish EPA’s ‘Advisory list for self-classification of dangerous substances’ (the Self-classification list).
- PBT/vPvB substances as identified by the EU
- Substances on the EU ‘Priority list of substances for further evaluation of their role in endocrine disruption’
- Substances that are the subject of particular focus in Denmark

In order to provide the best protection of human health and the environment against undesirable substances in Denmark, a tonnage threshold has been used. Substances used in quantities exceeding 100 tonnes per year in Denmark have been included in LOUS 2009. For substances which are the subject of special focus in Denmark, the tonnage threshold can be different. Consumer figures and areas of use are based on the industry’s own obligatory re-

ports to the Danish Product Register which is administered by the Danish Working Environment Authority.

LOUS 2009 contains a total of 40 chemical substances or substance groups.

### 3.2 The systematic selection of substances for inclusion in LOUS

The following section examines the criteria used by the Danish EPA for the systematic selection of substances with properties of concern. The substances were chosen from the lists below.

#### 3.2.1 The EU List of hazardous substances

'The List of hazardous substances'<sup>2</sup> contains an overview of substances which the EU has evaluated and classified for their physicochemical properties, their hazards for human health and their effects on the environment. Each of the approximately 8,000 substances/substance groups is cited along with the EU harmonised hazard classification, including hazard statements which indicate the intrinsic hazardous properties of the substance.

The Danish EPA has used the 'List of hazardous substances' as a starting point for concentrating on substances which can lead to very serious and long-term damage. In other words, these are substances which can have chronic effects or which can damage future generations. They include substances classified as CMR categories 1, 2 or 3 (carcinogenic, mutagenic or reproductive toxicity). CMR substances in categories 1 and 2 have been identified as Substances of Very High Concern in REACH and are covered by an Authorisation Regulation. The Danish EPA has also included as relevant for LOUS 2009 substances which pose a serious health risk at long-term exposure, and substances that are highly toxic to aquatic organisms and/or can cause adverse long-term effects in the aquatic environment.

This means that substances classified with regard to one or more of the following properties are relevant for LOUS:

- R33 Danger of cumulative effects.
- R39 Danger of very serious irreversible effects.
- R40 Limited evidence of a carcinogenic effect.
- R45 May cause cancer.
- R46 May cause heritable genetic damage.
- R48 Danger of serious damage to health by prolonged exposure.
- R49 May cause cancer by inhalation.
- R50/53 Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment
- R58 May cause long-term adverse effects in the environment
- R59 Dangerous for the ozone layer.
- R60 May impair fertility.
- R61 May cause harm to the unborn child.
- R62 Possible risk of impaired fertility.
- R63 Possible risk of harm to the unborn child.
- R64 May cause harm to breastfed babies.
- R68 Possible risk of irreversible effects.

The prioritisation of substances for LOUS 2009 means that only substances used in quantities exceeding 100 tonnes per annum in Denmark are included.

For each substance on LOUS, the part of the classification which fulfils the criteria for inclusion in LOUS is emphasised in bold print. This is also true of substances from the Self-classification list.

### 3.2.2 The Danish EPA's 'Advisory list for self-classification of dangerous substances (the Self-classification list)

Lack of data on chemical substances is a significant problem, among other things in connection with the evaluation of hazardous properties of chemicals. The Danish EPA believes that for up to 90% of the nearly 100,000 substances or chemical compounds in the European Inventory of Existing Commercial Chemical Substances (EINECS), there are insufficient test results from animal experiments and similar tests.

Producers/importers have an obligation to evaluate whether substances placed on the market are dangerous on the basis of existing knowledge on the substance. Experience shows that lack of data on chemical substances makes it very difficult to fulfil this obligation. It is however expected that the registration requirements under the EU's new chemicals legislation reform, REACH, will make a significant contribution towards furnishing data for the majority of chemical substances on the market by 2018.

The Danish EPA has compiled an advisory list using computer-based QSAR models (Quantitative Structure Activity Relationships) for the self-classification of dangerous substances. The models are used to predict how substances should be classified. Using information on the substance's structure and physicochemical properties as well as comparing it with other substances with known hazardous properties allows a prediction of the intrinsic properties of a substance and thus its hazards. The exactness of the models used is around 80%. For approximately 20% of substances, the QSAR models overvalue or undervalue the hazard associated with the substance (false positive/false negative).

The Danish EPA has applied QSAR models to approximately 49,000 organic substances in EINECS, that are suitable for (Q)SAR testing. (That is to say, among other things, metal compounds and substances consisting of several discrete substances are not included). The Self-classification list includes advisory classifications for more than 30,000 substances with regard to the following properties:

- Mutagenic effect
- Carcinogenic effect
- Reproductive toxicity (developmental toxicant)
- Dangerous to the aquatic environment
- Acute lethal effects on ingestion
- Sensitising effect on skin contact

Substances from the self-classification list are included in LOUS 2009 if they have an advisory classification for mutagenic effect (Mut3;R68), (Carc 3, R40), reproductive toxicity effect (Rep3, R63), are dangerous to the aquatic environment (N; R50/53) or if they are used in quantities exceeding 100 tonnes per year in Denmark.

### 3.2.3 The EU List of possible PBT/vPvB substances

Under EU chemicals legislation, REACH, CMR categories 1 and 2 are not the only substances which may be covered by the requirement for authorisation before use. This also applies to so-called PBT substances (Persistent, Bioaccumulative and Toxic) and to vPvB (very persistent and very bioaccumulative substances).

Substances with PBT/vPvB properties are also included in LOUS 2009 precisely because they are of very high concern.

Criteria for PBT/vPvB substances are defined in REACH<sup>5</sup>. The EU has compiled a list of substances which are currently believed to have PBT or vPvB properties<sup>6</sup>. Annex C contains a concise description of the criteria for determining whether a substance has PBT or vPvB properties. The EU is revising the criteria, with work expected to be finished at the end of 2010.

The Danish EPA has chosen to incorporate all substances on the EU list of PBT/vPvB substances in LOUS if they are used in quantities exceeding 100 tonnes per year in Denmark. This will ensure increased focus on substances of very high concern.

It is however important to emphasise that work on identifying new PBT/vPvB substances or clearing suspected PBT/vPvB substances is ongoing. A technical working group in the EU constantly evaluates new scientific test data to determine whether specific chemical substances have PBT or vPvB properties. This means that some substances will be labelled as PBT/vPvB substances, whilst others will be cleared of these properties. Until a decision has been made, the substances in question are suspected PBT/vPvB substances. LOUS will state the status of the substance. PBT/vPvB substances in LOUS 2009 are all substances which fulfil the current EU criteria. As the evaluation of these substances is an ongoing process, investigation into the properties of a substance can mean that it will be considered as a PBT/vPvB substance in 2009, but this may not be the case in 2011 because new knowledge will have cleared the suspicion. The opposite may also occur.

### 3.2.4 Substances on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'

Potential hormone disruptors classified as CMR categories 1 and 2 are subject to the Authorisation Regulation in REACH. Other substances which are po-

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<sup>5</sup> Annex XIII to REACH states the criteria for identification of PBT/vPvB substances..

<sup>6</sup> The EU list of substances with PBT/vPvB properties:  
<http://ecb.jrc.ec.europa.eu/esis/index.php?PGM=pbt>

tential hormone disruptors may be subject to the Authorisation Regulation after special evaluation of the substance. This is because there are still no internationally accepted test methods for investigating whether a substance is a hormone disruptor, and therefore there are no fully standardised criteria for enabling classification of all hormone disruptors.

At the current time the EU work in prioritising substances for further evaluation of their role in endocrine disruption when recognised test methods have been developed, has resulted in a list of 194 substances. There are large differences in the evidence supporting inclusion of substances on the EU list.<sup>7</sup> The list is dynamic. Gradually, as more knowledge on the area is acquired, substances can be added to or removed from the list.

The Danish EPA has opted to include in LOUS all substances appearing in the EU 'Priority list of substances for further evaluation of their role in endocrine disruption' if they are used in quantities exceeding 100 tonnes per year in Denmark unless they are already regulated by a prohibition or Authorisation Regulation. Substances on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption' are listed in Annex B. This can also be found on the Danish EPA website:

[http://www.mst.dk/Virksomhed\\_og\\_myndighed/Kemikalier/Fokus+paa+saerlige+stoffer/Hormonforstyrrende+stoffer/EUs+liste+over+hormonforstyrrende+stoffer/](http://www.mst.dk/Virksomhed_og_myndighed/Kemikalier/Fokus+paa+saerlige+stoffer/Hormonforstyrrende+stoffer/EUs+liste+over+hormonforstyrrende+stoffer/)

### 3.2.5 Priority substances with regard to the Water Framework Directive

Substances included in LOUS 2009 have been checked against those included in the EU Water Framework Directive<sup>8</sup>. There are currently 33 substances/substance groups which are prioritised because of their incidence in the aquatic environment and their possible harmful effects on humans and the environment. Entries are designated either as priority substances, or priority hazardous substances which are potentially the most harmful substances. For all priority substances including the most hazardous, a progressive reduction in discharges (emissions, emission by air and losses) into the aquatic environment must be made with a view to fulfilling the quality objectives for the aquatic environment by 2015 at the latest. Furthermore, a halt to discharges to the aquatic environment of priority hazardous substances must be made by 2020 at the latest (within a generation).

Many of these substances are covered by the pesticides<sup>9</sup> and/or biocides regulations<sup>10</sup> and are therefore not included in LOUS 2009. The remaining sub-

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<sup>7</sup> The EU Priority list of substances for further evaluation of their role in endocrine disruption

[http://www.mst.dk/Virksomhed\\_og\\_myndighed/Kemikalier/Fokus+paa+saerlige+stoffer/Hormonforstyrrende+stoffer/EUs+liste+over+hormonforstyrrende+stoffer/](http://www.mst.dk/Virksomhed_og_myndighed/Kemikalier/Fokus+paa+saerlige+stoffer/Hormonforstyrrende+stoffer/EUs+liste+over+hormonforstyrrende+stoffer/)

<sup>8</sup> Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive).

<sup>9</sup> Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market (The Pesticide Directive)

<sup>10</sup> Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market (the Biocidal Products Directive).

stances, when used in quantities exceeding 100 tonnes in Denmark, are included in LOUS. Entries in LOUS stipulate whether the substance is a priority substance or a priority hazardous substance as noted in the Water Framework Directive.

### 3.2.6 Use in Denmark

After identification of substances with properties of concern, extracts from the Danish Product Register are used to ascertain the quantities being used in Denmark and the respective purposes. The focus is on tonnage thresholds and areas of use, including special reasons for including or omitting individual substances in LOUS 2009.

#### **3.2.6.1 Extracts from the Product Register**

In Denmark, dangerous chemical products must be registered in the Product Register if they are for commercial use. Manufacturers and importers are obliged to update information. The Danish Product Register is an important resource which gives an overview of specific chemical substances used in Denmark and the location of their use. The figures used in compiling the present List of undesirable substances relate to 2007-2008.

The Danish Product Register has investigated which substances fulfil the criteria for properties of concern and are used in Denmark.

#### **3.2.6.2 Tonnage thresholds**

Substances with properties of concern used in quantities exceeding 100 tonnes per annum in Denmark are included in LOUS.

Tonnage thresholds are set in order to focus on the substances of concern which are used in the largest quantities and thus present the greatest risk of exposure to consumers or the environment in Denmark.

Tonnage thresholds are not set for substances included as a result of supplemental selection, including substances with special focus in Denmark.

#### **3.2.6.3 Substitution of hazardous substances**

When substituting substances it is important to ensure that the alternative does not have effects which are as dangerous as those of the initial substance. All substances with one or more of the properties of concern defined using the same criteria as for LOUS, are listed in the Danish EPA's 'List of Effects', see section 3.5. The List of Effects does not feature tonnage thresholds and all substances of concern are included, irrespective of whether they are used in Denmark.

#### **3.2.6.4 De-selection criteria for substances in LOUS**

Even if a chemical substance fulfils all the criteria for inclusion in LOUS 2009 with regard to properties of concern and use, there may be circumstances that mean that the substance has not been included.

For example, substances that are used exclusively as biocides and pesticides are not included as these substances are regulated via an Authorisation Regulation. However, biocides and pesticides are included if they are also used in

another application and this use exceeds 100 tonnes per year. Similarly, substances that are used exclusively in connection with synthesis of other chemicals and in closed production systems, have been de-selected. Substances used exclusively in the pharmaceutical industry or as laboratory chemicals have also been de-selected. These are seen as presenting a minor risk of exposure with regard to human health and environment, or are subject to other research or control regulations.

Substances used in motor fuels and in combustion are not included in the list even if they are classified as substances of concern. This is because the uses indicated are not seen as undesirable. The same is true for petroleum derivatives. Undesirable uses do not arise from the natural processes involved in petrol products but only when the uses occur in other connections.

Consumer data, as reported to the Danish Working Environment Authority Product Register, is confidential. A special evaluation has thus been made of use of the substances, which are used by only 1-3 companies in Denmark. If the use is deemed safe, the substance is not included in LOUS.

Substances which are created in various industrial processes are not included on the list, as the list covers only those substances used as chemical substances. This means that substances such as dioxins or furans are not included as they are not directly used but may be created as by-products in connection with processes such as combustion. These substances are still the focus of studies but work under the cross-ministerial Dioxin Action Plan, which aims to continue minimising dioxin discharge and to develop more knowledge on previously unknown sources of dioxin, ceased in 2005. Control and monitoring of sources of dioxin pollution continues, amongst other things in connection with Council Directive 2002/32/EC on undesirable substances in feed-stuffs, and the substances are covered by the global Stockholm Convention on Persistent Organic Pollutants.

All substances included in LOUS because of their inclusion on the Self-classification list are subsequently evaluated by experts in QSAR. Only substances for which this additional expert evaluation supports QSAR data are included in LOUS.

### 3.3 Supplemental selection of substances for inclusion in LOUS

In connection with previous efforts to minimise as far as possible adverse effects of chemical substances on humans and the environment, some substances/substance groups were previously identified as substances of concern because of their effects on the environment and on health. These may be substances presenting a particular problem in the waste stream or groundwater, for instance.

To ensure that LOUS represents all substances deemed by the Danish EPA to be of concern for health and/or the environment, a more pragmatic selection of substances has been undertaken in addition to the systematic selection. The selection was undertaken using the following five criteria:

- Substances being phased out
- Substances with partial restriction on use
- Substances of concern in the waste stream
- Substances that are the subject of particular focus in Denmark
- Substances of concern for groundwater.

### 3.3.1 Substances being phased out

Substances being phased out nationally, in the EU, or globally due to health and environment risks, where time limits for certain areas of use have not yet been set because there is as yet no technically or economically feasible alternative, or substances for which restrictions on use are imminent or under consideration in the EU.

### 3.3.2 Substances with partial restrictions on use

Substances that are only subject to partial restrictions on use but for which other uses are also considered to be a cause for concern with regard to health and the environment.

### 3.3.3 Substances of concern for waste streams

Substances that make the use of the residual products of waste streams (flue-gas cleaning products, slag, sludge and compost) problematic.

### 3.3.4 Substances that are the subject of particular focus in Denmark

Substances that are the subject of focus in Denmark with regard to phasing out or restrictions on use.

### 3.3.5 Substances of concern for groundwater

Substances that are considered to be a cause of concern for groundwater.

## 3.4 Removal of selection criteria used in LOUS 2004

Only one criterion used in the previous LOUS of 2004 has been removed: R42 'May cause sensitisation by inhalation'. This is because the Danish EPA investigated substances included on LOUS 2004 purely as a result of this classification. The investigation showed that there was no risk for consumers in relation to exposure to these substances in consumer products. Use in consumer products was very limited, and in cases in which the substances were used, there was no exposure for consumers. There is therefore no reason to identify these substances as undesirable.

The professional use of these substances in industry is regulated by other legislation with rules on substitution, containment or personal protection, or is regulated by other means so that employees are not exposed to health risks.

### 3.5 The List of Effects

The List of Effects contains all substances which fulfil the criteria for inclusion in LOUS 2009 without consideration of the use or non-use of the substance in Denmark.

The List of Effects contains approximately 19,500 substances selected according to the following criteria which were described in the earlier chapter on selection criteria:

- Properties of concern according to the EU 'List of hazardous substances'
- Properties of concern identified using computer-based model calculations outlined in the Danish EPA's 'Advisory list for self-classification of dangerous substances' (the QSAR list).
- PBT/vPvB substances as identified by the EU
- Substances on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'.

The List of Effects assists companies in avoiding substances with similar effects when searching for better alternatives. Substances included in LOUS 2009 because of special focus in Denmark are therefore also included in the List of Effects.

The List of Effects is only published in an electronic version as a separate document on the Danish EPA website<sup>11</sup>.

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<sup>11</sup> The List of Effects can be found here:  
[http://www.mst.dk/Virksomhed\\_og\\_myndighed/Kemikalier/Stoflister+og+databaser/Effektlisten+-+saerligt+miljoe+og+sundhedsbelastende+stoffer/](http://www.mst.dk/Virksomhed_og_myndighed/Kemikalier/Stoflister+og+databaser/Effektlisten+-+saerligt+miljoe+og+sundhedsbelastende+stoffer/)



## 4 List of Undesirable Substances 2009

Alkylphenols and alkylphenol ethoxylates	
<b>CAS no: EINECS no:</b>	This group consists of many compounds, so no CAS number is given.
<b>Name</b>	<b><i>Examples from the group:</i></b> Nonylphenol, octylphenol, nonylphenol ethoxylates
<b>Product groups/functions:</b>	Surfactants used in paint and varnish hardeners and adhesives amongst other things.
<b>Classification:</b>	Nonylphenol (CAS no. 25154-52-3) and nonylphenol, branched (CAS no 84852-15-3). <b>Rep.3;R62 Rep.3;R63 Xn;R22 C;R34 N;R50/53</b>
<b>Classification under CLP Regulation:</b>	Repr. 2 Acute Tox. 4 * Skin Corr. 1B Aquatic Acute 1 Aquatic Chronic H361fd H302 H314 H400 H410
<b>Reason for selection:</b>	Some substances have properties of concern with regard to the List of hazardous substances'.  Nonylphenol, octylphenol and nonylphenol ethoxylate are on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'. Some octylphenol compounds have properties of concern with regard to 'Advisory list for self-classification of dangerous substances'. N; R50/53 and one compound also has R43. The substances are only subject to partial restrictions on use, however other uses are also considered to be a cause for concern with regard to the environment.
<b>Activity/further information:</b>	Risk assessment of nonylphenol and nonylphenol ethoxylates has been carried out in the EU. The results of the assessment and a strategy for risk reduction have been published under no 2001/838/EC. Compilation of common EU limits for the marketing and use of substances is recommended in order to protect the environment, as well as setting of threshold values for content in sludge for spreading on land. In veterinary medicine, the substances should be substituted with less harmful alternatives. Nonylphenol and nonylphenol ethoxylate are covered by the REACH regulation no 1907/2006, Annex XVII, nos 46 a and b on restrictions on use. The substances have a partial restriction on use to among other things cleaning, textile and leather processing, metal processing, paper

	<p>production and cosmetics.</p> <p>Nonylphenol has been identified as a priority hazardous substance on the list of priority substances under water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (Directive on environmental quality standards).</p> <p>The Danish EPA performance reports nos 45 and 46 2003 concern the substitution of alkylphenol ethoxylates in one or more types of paint and varnish.</p>
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<b>1,4-benzenediol, 2,5-bis(1,1-dimethylethyl)-</b>	
CAS no: EINECS no:	88-58-4 / 201-841-8
Other name	2,5-di-tert-butylhydroquinone
Product groups/functions:	Paint and varnish, biocides, stabilisers.
Classification:	No harmonised classifications.
Reason for selection:	Properties of concern according to the 'Advisory list for self-classification of dangerous substances'. <b>N;R50/53</b>
Activity/further information:	-

<b>Benzyl chloride</b>	
CAS no: EINECS no:	100-44-7 / 202-853-6
Other name	Chlorotoluene
Product groups/functions:	Raw materials, process control agents.
Classification:	<b>Carc2;R45</b> T;R23 <b>Xn</b> ;R22- <b>48/22</b> Xi;R37/38-41
Classification under CLP Regulation:	Carc. 1B Acute Tox. 3 * Acute Tox. 4 * STOT RE 2 * STOT SE 3 Skin Irrit. 2 Eye Dam. 1 H350 H331H302 H373 H335 H315 H318
Reason for selection:	Properties of concern according to the 'List of hazardous substances'.
Activity/further information:	CMR substances categories 1 and 2 may not be used in chemical consumer products.

<b>Biphenyl</b>	
CAS no: EINECS no:	92-52-4 / 202-163-5

Other name	Diphenyl, PHPH
Product groups/functions:	Impregnation products, construction materials, paint and varnish, raw materials.
Classification:	<b>Xi;R36/37/38 N;R50/53</b>
Classification under CLP Regulation:	Eye Irrit. 2 STOT SE 3 Skin Irrit. 2 Aquatic Acute 1 Aquatic Chronic 1 H319 H335 H315 H400 H410
Reason for selection:	Properties of concern according to the 'List of hazardous substances'.
Activity/further information:	-

<b>Bisphenol-A</b>	
CAS no: EINECS no:	80-05-7 / 201-245-8
Other name	4,4'-Isopropylidendiphenol
Product groups/functions:	Monomer in polycarbonate plastics and epoxy resins. Bisphenol A is a building block in polycarbonate plastics and bisphenol A content in polycarbonate is due to residual unreactive monomers.
Classification:	<b>Rep3;R62</b> R43 Xi;R37-41 R52
Classification under CLP Regulation:	Repr. 2 STOT SE 3 Eye Dam. 1 Skin Sens. 1 H361f*** H335 H318 H317
Reason for selection:	Properties of concern according to the 'List of hazardous substances'.  Bisphenol A and bisphenol B are on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'  Bisphenol is the subject of particular focus in Denmark
Activity/further information:	The use of bisphenol A as an industrial chemical has been evaluated under the regulation for existing substances 793/93/EEC (which has been replaced by REACH) by the EU technical committee for new and existing substances in April 2008.  The committee concluded that the current use of bisphenol A does not pose a risk for consumers and that there is thus no basis for further measures to reduce the risk associated with the use of the substance. The EU's risk assessment of bisphenol A in 2008 further concluded that 99.4% of the population's exposure to bisphenol A arises from materials that are in contact with foodstuffs.  For workers involved in the production of bisphenol A and the production of epoxy resin containing bisphenol A, a risk of toxicity with repeated exposure was identified, as

	<p>well as reproductive toxicity.</p> <p>With regard to the environment, studies of effects on snails are to be included when they become available. There was no further risk identified in connection with the current use of bisphenol A.</p> <p>There continues to be wide disagreement in scientific circles however on the role of bisphenol A in hormone disruption. An industry study illustrating bisphenol A's effect on the development of the brain during exposure at low levels is being evaluated by the EU food agency EFSA. In view of the ongoing evaluation of the study by the Danish National Food Institute, an interim prohibition has been laid down against the use of bisphenol A in food contact materials for 0-3 year olds. EFSA's evaluation is expected to be completed in the spring of 2010.</p> <p>There are several different bisphenols some of which have shown similar effects in trials, but they are generally not as well investigated as bisphenol A.</p> <p>Other bisphenols with the same effects as bisphenol A are similarly undesirable: before substitution for bisphenol A, bisphenol alternatives should therefore be further investigated to see if they have similar effects.</p>
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<b>Bisphenol A diglycidyl ether polymer</b>	
<b>CAS no: EINECS no:</b>	25036-25-3 / no EINECS number as a polymer.
<b>Product groups/functions:</b>	Binding agents, construction materials, paint and varnish, process control agents, filling agents.
<b>Classification:</b>	No harmonised classification.
<b>Reason for selection:</b>	On the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'.
<b>Activity/further information:</b>	The substance is composed of the two monomers bisphenol A and bisphenol A diglycidyl ether. See also comments on bisphenol A above.

<b>Lead and lead compounds</b>	
<b>CAS no: EINECS no:</b>	Pertains to several different CAS numbers.
<b>Product groups/functions:</b>	Electronic components, glazes, jewellery, ceramics and crystal glass.
<b>Classification:</b>	Examples from this group: <b>Lead acetate, basic (CAS no 1335-32-6): Rep1;R61 R33</b>

	<p><b>Carc3;R40 Xn;R48/22 Rep3;R62 N;R50/53</b>  <b>Lead alkyls:</b> (Index no 082-002-00-1): <b>Rep1;R61 Tx;R26/27/28 R33 Rep3;R62 N;R50/53</b>  <b>Lead chromate</b> (CAS no. 7758-97-6): <b>Carc2;R45 Rep1;R61 Rep3;R62 R33 N;R50/53</b>  <b>Lead diazide</b> (CAS no 13424-46-9): <b>E;R3 Rep1;R61 Rep3;R62 Xn;R20/22 R33 N;R50/53</b>  <b>Lead chromate molybdate sulfate red</b> (CAS no 12656-85-8): <b>Carc2;R45 Rep1;R61 Rep3;R62 R33 N;R50/53</b>  <b>Lead di(acetate)</b> (CAS no 301-04-2): <b>Rep1;R61 Rep3;R62 Xn;R48/22 R33 N;R50/53</b>  <b>Lead hexafluorosilicate</b> (CAS no 25808-74-6): <b>Rep1;R61 Rep3;R62 Xn;R20/22 R33 N;R50/53</b>  <b>Lead hydrogen arsenate</b> (CAS no 7784-40-9): <b>Carc1;R45 Rep1;R61 Rep3;R62 T;R23/25 R33 N;R50/53</b>  <b>Lead(II)methane sulfonate</b> (CAS no 17570-76-2): <b>Rep1;R61 Rep3;R62 Xn;R20/22-48/20/22 Xi;R38-41 R33 N;R58</b>  <b>Trilead bis(orthophosphate)</b> (CAS no 7446-27-7 <b>Rep1;R61 Rep3;R62 Xn;R48/22 R33 N;R50/53</b>  <b>Lead styphnate</b> (lead-2,4,6-trinitroresorcinat) (CAS no 15245-44-0): <b>E;R3 Rep1;R61 Rep3;R62 Xn;R20/22 R33 N;R50/53</b>  <b>Lead sulfochromate yellow</b> (CAS no 1344-37-2): <b>CI 77603: Carc2;R45 Rep1;R61 Rep3;R62 R33 N;R50/53</b>  <b>Other lead compounds:</b> (Index no 082-001-00-6): <b>Rep1;R61 Rep3;R62 Xn;R20/22 R33 N;R50/53</b></p>
<b>Classification under CLP Regulation:</b>	Please refer to Table 3.1 in Annex VI of the CLP Regulation.
<b>Reason for selection:</b>	<p>Properties of concern with regard to the 'List of hazardous substances'.</p> <p>The substances are the subject of particular focus in Denmark.</p>
<b>Activity/further information:</b>	<p>CMR substances categories 1 and 2 may not be used in chemical consumer products.</p> <p>Lead chromate has been proposed for inclusion in the candidate list of substances of very high concern under REACH from which substances can be selected for the Authorisation Regulation.</p> <p>Lead is forbidden in electrical and electronic products covered by Statutory Order. No 873 of 12 August 2006 on the limitation on import and sales of electrical and electronic equipment containing certain hazardous substances.</p> <p>The use of lead in Denmark is also regulated by Statutory Order no 856 of 5 September 2009 banning the import and sale of products containing lead. Problems can still arise with lead in the waste stream due to old products containing lead and products that are not covered by Dan-</p>

	<p>ish regulations.</p> <p>Lead and lead compounds have been identified as priority substances on the list of priority substances under the water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (on environmental quality standards).</p>
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<b>Boric compounds (classified)</b>	
<b>CAS no: EINECS no:</b>	<p>Examples from this group:</p> <p><b>Disodium tetraborate, borax:</b> 1303-96-4, 1330-43-4, 12179-04-3 /215-540-4</p> <p><b>Boric acid:</b> 10043-35-3/ 233-139-2</p> <p><b>Diboron trioxide:</b> 1303-86-2/ 215-125-8</p> <p><b>Sodium peroxyborate tetrahydrate:</b> 10486-00-7 / 231-556-4</p>
<b>Product groups/functions:</b>	Impregnation products, anti-freeze products, flame retardants in several consumer products such as coolants and lubricants, paint, varnish and printing inks.
<b>Classification:</b>	<p>Disodium tetraborate, including borax, boric acid and diboron trioxide; Rep2; R60-61</p> <p>Sodium peroxyborate tetrahydrate: has two different classifications depending on whether the substance contains sodium peroxoborate hexahydrate and in what concentration and particle size.</p> <p>If the content is &lt; 0.1% (w/w) and the particle size has an aerodynamic diameter of less than 50 µm: <b>Rep2;R61 Rep3;R62 Xi; R37-41</b></p> <p>If the content is 0.1% (w/w) and the particle size has an aerodynamic diameter of less than 50 µm: the classification is as above but with the addition of Xn;R20</p> <p>The CAS numbers below have the following classification limits for classification as harmful to reproduction: 1330-43-4 conc. ≥ 4.5% 12179-04-3 conc. ≥ 6.5% 1303-96-4 conc. ≥ 8.5% 12267-73-1 conc. ≥ 4.5%</p>
<b>Classification under CLP Regulation:</b>	<p>Borax, boric acid and diboron trioxide: Repr1B H360FD</p> <p>Sodium peroxyborate tetrahydrate: Repr.1B STOT SE 3 Eye Dam.1 H360Df H335 H318 but with the addition of Acute Tox.4* H332, if the content is 0.1% (w/w).</p>

<b>Reason for selection:</b>	<p>Properties of concern with regard to the 'List of hazardous substances'. Boric acid is also on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'.</p> <p>CMR substances categories 1 and 2 may not be used in chemical consumer products.</p> <p>Boric acid is under risk assessment in the EU with Austria as the Member State responsible. No risk assessment or recommendation from the EU Commission is currently available.</p> <p>In 2009 Denmark proposed inclusion of disodium tetraborates, including borax on the REACH candidate list. The decision was taken in June 2010 to include these substances on the candidate list.</p>
<b>Activity/further information:</b>	In Denmark borax compounds in particular are used but the group of boric compounds that is classified is already undesirable due to the effects of the boron ion.

<b>Certain brominated flame retardants</b>	
<b>Name</b>	The group consists of several compounds.
<b>CAS no: EINECS no:</b>	<p>Examples from this group:</p> <p><b>Decabromdiphenyl ether (deca-BDE):</b> 1163-19-5 / 214-604-9</p> <p><b>Tetrabromobisphenol A (TBBPA):</b> 79-94-7/ 201-236-9 – additive use.</p> <p><b>Hexabromcyclododecane (HBCDD):</b> 25637-99-4 / 247-148-4</p>
<b>Product groups/functions:</b>	Fire retardants in for example plastic, electronics and textiles.
<b>Classification:</b>	None.
<b>Reason for selection:</b>	<p>Certain brominated flame retardants are either persistent or can be degraded to persistent compounds, bioaccumulative or toxic. Octa-BDE and HBCDD are evaluated as PBT substances in the EU.</p> <p>Substances that are the subject of particular focus in Denmark.</p>
<b>Activity/further information:</b>	<p>Deca-BDE, TBBPA and HBCDD have all been risk-assessed in the EU.</p> <p>PentaBDE and octaBDE are covered by REACH Regulation no 1907/2006, Annex XVII, nos. 44 and 45. The</p>

	<p>substances may not be imported, sold, or used.</p> <p>HBCDD including alfa-, beta- and gamma-HBCDD were included in 2008 in the candidate list of substances of very high concern under REACH and are currently under consideration with regard to the Authorisation Regulation.</p> <p>Polybrominated biphenyls (PBB) and poly-BDE (penta-, octa- and deca-) are covered by the EU RoHS Directive no 2002/95/EC, which prohibits use in electronic and electrical products. The Directive was implemented in Danish Statutory Order no 873 of 11 August 2006.</p> <p>In 2009 the decision was made to include penta-BDE and octa-BDE under the global Stockholm Convention on POP substances. The substances are prohibited from use and production with certain exceptions. The Stockholm Convention was implemented in Regulation (EC) no 850/2004 of the European Parliament and of the Council of 29 April 2004.</p> <p>Brominated diphenyl ethers have been identified as priority substances on the list of priority substances under the water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (on environmental quality standards). Pentabromodiphenyl ether has been identified on the same list as a priority hazardous substance.</p> <p>TBBPA can be used reactively in chemical binding in the product or as an additive, when it does not form chemical bonds and can therefore migrate from the finished product. The additive use can imply a greater risk of migration to the environment and is therefore undesirable.</p>
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<b>Cadmium and cadmium compounds</b>	
<b>CAS no: EINECS no:</b>	This group consists of many compounds, so no CAS number or EINECS number is given.
<b>Product groups/functions:</b>	Electronic components, plastic, batteries, accumulators, colour pigments, cadmium plating.
<b>Classification:</b>	<p>Examples from this group:</p> <p><b>Cadmium chloride</b> (CAS no 10108-64-2): <b>Carc.2;R45; Mut2;R46 Rep2;R60-61 Tx;R26 T;R25-48/23/25, N;R50/53</b></p> <p><b>Cadmium cyanide</b> (CAS no 542-83-6): <b>Tx;R26/27/28 R32 R33 Mut3;R68 N;R50/53</b></p>

	<p><b>Cadmium fluoride</b> (CAS no 7790-79-6): <b>Carc2;R45, Mut.2;R46 Rep.2;R60-61, Tx;R26 T;R25-48/23/25 N;R50/53</b></p> <p><b>Cadmium diformate</b> (CAS no 4464-23-7) and <b>cadmium iodide</b> (CAS no 7790-80-9): <b>T;R23/25 R33 Mut3;R68 N;R50/53</b></p> <p><b>Cadmium hexafluorosilicate</b> (CAS no 17010-21-8): <b>T;R23/25 R33 Mut3;R68 N;R50/53</b></p> <p><b>Cadmium oxide</b> (CAS no 1306-19-0): <b>Carc2;R45 Mut3;R68 Rep3;R62-63 Tx;R26 T;R48/23/25 N;R50/53</b></p> <p><b>Cadmium sulphate</b> (CAS no 10124-36-4): <b>Carc.2;R45 Mut2;R46 Rep2;R60-61 Tx;R26 T;R48/23/25 T;R25 N;R50/53</b></p> <p><b>Cadmium sulphide</b> (CAS no 1306-23-6): <b>Carc2;R45 Mut3;R68 Rep3;R62-63 T;R48/23/25 Xn;R22 R53</b></p> <p><b>Other cadmium compounds</b> (Index no 048-001-00-5): <b>Xn;R20/21/22, N;R50/53</b></p>
<b>Classification under CLP Regulation:</b>	Please refer to Table 3.1 in Annex VI of the CLP Regulation.
<b>Reason for selection:</b>	<p>Substances that make the use of the residual products of waste streams (flue-gas cleaning products, slag, sludge and compost) problematic. Several compounds have properties of concern with regard to the 'List of hazardous substances'.</p> <p>Substances that are only subject to partial restrictions on use; other uses are also considered to be a cause for concern with regard to health and the environment.</p>
<b>Activity/further information:</b>	<p>CMR substances categories 1 and 2 may not be used in chemical consumer products.</p> <p>Cadmium (metal) and cadmium oxide have been risk-assessed in the EU. The result of the assessment and a strategy for risk reduction have been published under no 2008/C 149/03. It was concluded that there is a need to reduce the health risk for specific uses and the risk to the environment. With regard to cadmium oxide, the need to reduce the health risk relates only to employees and people inhaling the substance by smoking or as a result of living near a source of emission.</p> <p>The risk strategy recommends that common EU limits are set for the content of cadmium and cadmium oxide in tobacco and fertiliser, as well as the revision of the threshold for foodstuffs. Restrictions should furthermore be considered for marketing and use in jewellery designed to come into contact with the skin.</p>

	<p>According to Commission Recommendation 2008/446/EC, employees in sectors that work with the substances, e.g., in the production of batteries, alloys and jewellery, should pay attention to national sector-specific guidelines. It is furthermore recommended that countries set limits for the emission of cadmium or set similar parameters in authorisations to industrial facilities, to achieve processes that make best use of environmental technology.</p> <p>Cadmium is covered by REACH Regulation no 1907/2006, Annex XVII, no 23 with partial restriction on use as a colorant in various types of plastic, paint and varnish, as a surface treatment of a series of products and as a stabiliser in several products.</p> <p>The use of cadmium as a surface treatment, a colorant and a plastic stabiliser is furthermore regulated under the Danish Statutory Order no 858 of 5 September 2009.</p> <p>The use of cadmium is regulated in Section 3 of the Statutory Order no 857 of 5 September 2009 on the restriction on use of certain hazardous chemical substances and products for specially stipulated purposes.</p> <p>Cadmium is also forbidden in electrical and electronic products covered by Statutory Order. No 873 of 12 August 2006 on the limitation on import and sales of electrical and electronic equipment containing certain hazardous substances.</p> <p>The maximum content of cadmium in fertiliser containing phosphorus (P) is laid down in Statutory Order no 223 of 5 April 1989. The EU is working to harmonise cadmium content in P-fertilisers.</p> <p>Cadmium and cadmium compounds have been identified as priority hazardous substances on the list of priority substances under the water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (Directive on environmental quality standards).</p>
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<b>Chlorinated paraffins (short and medium chain)</b>	
<b>CAS no: EINECS no:</b>	Chlorinated paraffins are a non-homogeneous substance group for which there are many CAS numbers, depending on the chlorination and molecular length of the paraffins.
<b>Other name</b>	<b>Chloroalkanes, C10-13</b> (short chain chlorinated paraffins), SCCP

	<b>Chloroalkanes, C14-17</b> (medium chain chlorinated paraffins), MCCP
<b>Product groups/functions:</b>	Used amongst other things in coolants, lubricants and machining oils, adhesives, paints, plastics as plasticisers, fire retardants and solvents
<b>Classification:</b>	Short-chained chlorinated paraffins (CAS no 85535-84-8 / 287-476-5): <b>Carc3; R40 R66 N;R50/53.</b> Medium-chained chlorinated paraffins (CAS no 85535-85-9 / 287-477-0): <b>R64 R66 N;R50-53.</b>
<b>Classification under CLP Regulation:</b>	CAS no: 85535-84-8: Carc. 2 Aquatic Acute 1 Aquatic Chronic 1 H351 H400 H410 CAS no: 85535-85-9: Lact. Aquatic Acute 1 Aquatic Chronic 1 H362 H400 H410
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'. Substances that are only subject to partial restrictions on use; other uses are also considered to be a cause for concern with regard to health and the environment. Short-chained chlorinated paraffins are assessed as PBT substances whilst medium-chained chlorinated paraffins have suspected PBT properties.  Short chain and medium chain chlorinated paraffins are on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'.
<b>Activity/further information:</b>	Short chain chlorinated paraffins are covered by REACH Regulation no 1907/2006, Annex XVII, no 42. There are restrictions on marketing and use in relation to metal processing and fat liquoring of leather.  Short chain chlorinated paraffins are on the candidate list of substances of very high concern under REACH from which substances can be selected for the Authorisation Regulation.  Short chain chlorinated paraffins have been risk assessed in the EU as priority hazardous substances on the list of priority substances under the water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (Directive on environmental quality standards).  Short chain chlorinated paraffins have been proposed for inclusion under the global Stockholm Convention.  Medium chain chlorinated paraffins have been risk-assessed in the EU but only the final report on environmental risks has been published. With regard to health risks it has been concluded that the risk associated with use in the workplace of oil-based lubricants for metal

	<p>processing should be delimited. There is furthermore a need to delimit the risk for the aquatic and soil environments near industries which use the substance as a plasticiser in PVC, plastic and rubber and in the metal processing industry. A further conclusion is that the risk for toxicity via the food chain by accumulation in earthworms and possibly in fish should be delimited.</p> <p>No recommendation has yet been issued by the Commission, but the work has been transferred to REACH.</p>
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<b>N,N-dimethylformamide</b>	
<b>CAS no: EINECS no:</b>	68-12-2 / 200-679-5
<b>Other name</b>	DMF
<b>Product groups/functions:</b>	Solvents and thinners, raw materials, laboratory chemicals and hardeners
<b>Classification:</b>	<b>Rep2;R61</b> Xn;R20/21 Xi;R36
<b>Classification under CLP Regulation:</b>	Repr. 1B Acute Tox. 4(*) Acute Tox. 4(*) Eye Irrit. 2 H360-D (***) H332 H312 H319
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	CMR substances categories 1 and 2 may not be used in chemical consumer products.

<b>2,3-epoxypropyl neodecanoate</b>	
<b>CAS no: EINECS no:</b>	26761-45-5 / 247-979-2
<b>Other name</b>	Neodecanoic acid, oxiranylmethyl ester
<b>Product groups/functions:</b>	Binding agents, paint and varnish.
<b>Classification:</b>	No harmonised classifications.
<b>Reason for selection:</b>	Properties of concern in relation to the 'Advisory List for Self-classification of Dangerous Substances'. <b>Carc3;R40</b> R43 N;R51/53
<b>Activity/further information:</b>	-

<b>Fluorinated greenhouse gases (HFCs, PFCs and sulphur hexafluoride)</b>	
<b>Name:</b>	HFCs: HFC 134a, HFC 125, HFC 143a, HFC 152a and more

	<b>PFCs:</b> CF <sub>4</sub> , C <sub>2</sub> F <sub>6</sub> , C <sub>3</sub> F <sub>8</sub> and more Sulphur hexafluoride (SF <sub>6</sub> )
<b>CAS no: EINECS no:</b>	<b>HFC 134a:</b> 811-97-2/212-377-0 <b>HFC 125:</b> 354-33-6/206-557-8 <b>HFC 143a:</b> 420-46-2/206-996-5 <b>HFC 152a:</b> 75-37-6/200-866-1 <b>CF<sub>4</sub>:</b> 75-73-0/200-896-5 <b>C<sub>2</sub>F<sub>6</sub>:</b> 76-16-4/200-939-8 <b>C<sub>3</sub>F<sub>8</sub>:</b> 76-19-7/200-941-9 <b>SF<sub>6</sub>:</b> 2551-62-4/219-854-2
<b>Product groups/functions:</b>	Spray canisters, refrigeration systems, insulating foam.
<b>Classification:</b>	None.
<b>Reason for selection:</b>	Substances with particular focus in Denmark since they are potent greenhouse gases. Substances being phased out.
<b>Activity/further information:</b>	Covered by Statutory Order No 552 of 2 July 2002 regulating certain industrial greenhouse gases.

<b>Formaldehyde</b>	
<b>CAS no: EINECS no:</b>	50-00-0 / 200-001-8
<b>Product groups/functions:</b>	Raw materials and preservatives used in many products.
<b>Classification:</b>	T;R23/24/25 C;R34 <b>Carc3;R40</b> R43
<b>Classification under CLP Regulation:</b>	Carc. 2 Acute Tox. 3 * Acute Tox. 3 * Acute Tox. 3 * Skin Corr. 1B Skin Sens. 1 H351 H331 H311 H301 H314 H317
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	Covered by Statutory Order no 289 of 22 June 1983 on restriction on the use of formaldehyde in chipboard, plywood boards and similar boards used in furniture, equipment and other similar articles.

<b>Certain phthalates</b>	
<b>CAS no: EINECS no:</b>	Bis(2-ethylhexyl) phthalate (DEHP): 117-81-7 / 204-211-0: Dibutyl phthalate, (DBP): 84-74-2 / 201-557-4 Benzyl butyl phthalate, (BBP): 85-68-7 / 201-622-7

	<p>Bis(2-methoxyethyl) phthalate, (DMEP): 117-82-8 / 204-212-6</p> <p>Diisobutyl phthalate, (DBP): 84-69-5 / 201-553-2:</p>
<b>Product groups/functions:</b>	Plasticisers in several products, primarily PVC.
<b>Classification:</b>	<p>DEHP: <b>Rep2;R60-61</b></p> <p>DBP: <b>Rep2;R61 Rep3;R62 N;R50</b></p> <p>BBP: <b>Rep.2; R61; Rep.3;R62 N;R50/53</b></p> <p>DMEP and DiBP: <b>Rep2;R61 Rep3;R62</b></p>
<b>Classification under CLP Regulation:</b>	<p>DEHP: Repr. 1B H360-FD</p> <p>DBP: Repr. 1B Aquatic Acute 1 H360- Df H400</p> <p>BBP: Repr. 1B Aquatic Acute 1 Aquatic Chronic 1 H360- Df H400 H410</p> <p>DMEP and DiBP: Repr. 1B H360-Df</p>
<b>Reason for selection:</b>	All five phthalates have properties of concern with regard to the 'List of hazardous substances'. Furthermore DEHP, DBP and BBP are on the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'.
<b>Activity/further information:</b>	<p>All five phthalates are harmful to reproduction in categories 1 and 2 may not be used in chemical consumer products.</p> <p>Risk assessment of DEHP has been carried out in the EU. The result of the assessment has been published under no 2008/C 34/01.</p> <p>Risk assessment of DBP has been carried out in the EU. The result of the assessment has been published under no 2006/C 90/04.</p> <p>Risk assessment of BBP has been carried out in the EU. The result of the assessment has been published under no 2008/C 149/04.</p> <p>DEHP, DBP and BBP are covered by REACH Regulation no 1907/2006, Annex XVII, no 51 on partial restriction in toys and articles for infants.</p> <p>DEHP, DBP, DiBP and BBP have been identified as substances of very high concern and are therefore on the REACH candidate list for the Authorisation Regulation.</p> <p>The two phthalates (DMEP and DiBP) not regulated under REACH Annex XVII are covered by Statutory Order no 855 of 5 September 2009 on the prohibition of phthalates in toys and articles for infants and may not be used in toys and articles for infants under the age of 3.</p> <p>DEHP has been identified as a priority substance on the list of priority substances under the water policy, cf. An-</p>

	<p>nex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (Directive on environmental quality standards).</p> <p>The Danish EPA is currently gathering data for the possible prohibition of DEHP, DBP, DiBP and BBP in certain products.</p> <p>On the basis of a Danish investigation, the EPA recommends that the most dangerous phthalates are avoided in products for infants. Most dangerous phthalates are those that are classified. See the research on the Danish EPA website (<a href="http://www2.mst.dk/udgiv/publikationer/2009/978-87-92548-83-2/pdf/978-87-92548-84-9.pdf">http://www2.mst.dk/udgiv/publikationer/2009/978-87-92548-83-2/pdf/978-87-92548-84-9.pdf</a>)</p>
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<b>n-Hexane</b>	
<b>CAS no: EINECS no:</b>	110-54-3 / 203-777-6
<b>Product groups/functions:</b>	Solvents used in many products.
<b>Classification:</b>	F;R11 <b>Rep3;R62 Xn;R48/20</b> -65 Xi;R38 R67 N;R51/53
<b>Classification under CLP Regulation:</b>	Flam. Liq. 2 Repr. 2 Asp. Tox. 1 STOT RE 2 * Skin Irrit. 2 STOT SE 3 Aquatic Chronic 2 H225 H361f *** H304 H373 ** H315 H336 H411
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	Covered by Statutory Order No 571 of 21 November 1984 on the use of propellants and solvents in aerosol containers. Permitted with maximum concentration of 50% together with heptane, nonane, octane and pentane. Prohibited in cosmetic products and products for domestic indoor use.

<b>1,6-hexanediol diglycidyl ether</b>	
<b>CAS no: EINECS no:</b>	16096-31-4 / 240-260-4
<b>Other name</b>	1,6-bis(2,3-Epoxypropoxy)hexane
<b>Product groups/functions:</b>	Paint and varnish, solvents and thinners, fillers.
<b>Classification:</b>	No harmonised classifications.
<b>Reason for selection:</b>	Properties of concern in relation to the 'Advisory List for Self-classification of Dangerous Substances'. <b>Carc3;R40 R43 ;R52/53</b>
<b>Activity/further information:</b>	-

<b>2,2'-Iminodiethanol</b>	
<b>CAS no: EINECS no:</b>	111-42-2 / 203-868-0
<b>Other name</b>	Diethanolamine, DEA
<b>Product groups/functions:</b>	Solvents used in many products.
<b>Classification:</b>	<b>Xn</b> ;R22- <b>48/22</b> Xi;R3841
<b>Classification under CLP Regulation:</b>	3 * Acute Tox. 4 * STOT RE 2 * Skin Irrit. 2 Eye Dam. 1 H302 H373 ** H315 H318
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	-

<b>Certain isocyanates – MDI and TDI</b>	
<b>MDI</b>	
<b>Name</b>	Methylenediphenyl diisocyanate MDI
<b>Other name</b>	Ar,ar'-diphenylmethane diisocyanate (unspec.)
<b>CAS no: EINECS no:</b>	26447-40-5 / 247-714-0
<b>Other MDI CAS nos:</b>	5873-54-1/227-534-9 (2,4'-diphenylmethane diisocyanate) 101-68-8/202-966-0 (4,4'-diphenylmethane diisocyanate)
<b>Product groups/functions:</b>	Binding agents, hardeners, adhesives, paint and varnish, and moulding compounds.
<b>Classification:</b>	<b>Carc3;R40 Xn</b> ;R20- <b>48/20</b> Xi;R36/37/38 R42/43
<b>Classification under CLP Regulation:</b>	Carc. 2 Acute Tox. 4* STOT RE 2* Eye Irrit. 2 STOT SE 3 Skin Irrit. 2 Resp. Sens. 1 Skin Sens. 1 H351 H332 H373** H319 H335 H315 H334 H317
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	Risk assessment of MDI has been carried out in the EU. The result of the assessment has been published under no 2008/C 34/01. With regard to health risks in the workplace it has been concluded that more information is needed on effects on fertility and that the risk to employees should be delimited via the working environment law.  According to Commission Recommendation 2008/98/EC, employees on construction sites and those that inhale or have skin contact with the substance should be aware of national sector-specific guidelines.

	MDI is covered by REACH regulation no 1907/2006, Annex XVII, nos. 56 on restrictions on use. Products containing MDI may from 27 January 2010 only be marketed to the general public if suitable gloves are included with the product and the product is specifically labelled.
<b>TDI</b>	
<b>Name</b>	Toluene diisocyanate, TDI
<b>Other name</b>	Benzene, 1,3-diisocyanatomethyl (unspec.)
<b>CAS no: EINECS no:</b>	26471-62-5 / 247-722-4
<b>Flere TDI CAS-nr.</b>	584-84-9 /209-544-5 (2,4-Toluene diisocyanate) 91-08-7 /202-039-0 (2,6-Toluene diisocyanate)
<b>Product groups/functions:</b>	Hardeners, fillers and raw materials.
<b>Classification:</b>	<b>Carc3;R40</b> Tx;R26 Xi;R36/37/38 R42/43 R52-53
<b>Classification under CLP Regulation:</b>	Carc. 2 Acute Tox. 2(*) Eye Irrit. 2 STOT SE 3 Skin Irrit. 2 Resp. Sens. 1 Skin Sens. 1 Aquatic Chronic 3 H351 H330 H319 H335 H315 H334 H317 H412
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	-

<b>Certain copper compounds</b>	
<b>CAS no: EINECS no:</b>	<b>Copper(I) oxide:</b> (1317-39-1 / 215-270-7) <b>Copper(II) sulphate:</b> (7758-98-7 / 231-847-6) <b>Copper(I) chloride:</b> (7758-89-6 / 231-842-9)
<b>Other name</b>	Copper bis oxide/cuprous oxide, blue vitriol, copper chloride.
<b>Product groups/functions:</b>	Biocides, binding agents, impregnation products, paint and varnish, rust inhibitors, printing inks.
<b>Classification:</b>	Copper(I) oxide and copper (I) chloride: Xn;R22 <b>N;R50/53</b> Copper(II) sulphate: Xn;R22 Xi;R36/38 N; <b>R50-53</b>
<b>Classification under CLP Regulation:</b>	Acute Tox. 4 * Aquatic Acute 1 Aquatic Chronic 1 H302 H400 H410 Acute Tox. 4 * Eye Irrit. 2 Skin Irrit. 2 Aquatic Acute 1 Aquatic Chronic 1 H302 H319 H315 H400 H410
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	-

Mercury and mercury compounds	
<b>CAS no: EINECS no:</b>	This group consists of many compounds, so no CAS number or EINECS number is given.
<b>Product groups/functions:</b>	Batteries, dental fillings, energy-saving bulbs and ordinary fluorescent tubes.
<b>Classification:</b>	<p>Examples from this group:</p> <p>Mercury (CAS no) 7439-97-6): <b>Rep2;R61 Tx;R26 T;R48/23 N;R50/53</b></p> <p>Certain organic mercury compounds: Tx;R26/27/28 <b>R33 N;50/53</b> Index no 080-004-00-7</p>
<b>Classification under CLP Regulation:</b>	<p>7439-97-6: Repr. 1B Acute Tox. 2 * STOT RE 1 * Aquatic Acute 1 Aquatic Chronic 1 H360D*** H330 H372 ** H400 H410</p> <p>Index no 080-004-00-7: Acute Tox.2* Acute Tox.1 Acute Tox.2* STOT RE 2* Aquatic Acute 1 Aquatic Chronic 1 H330 H310 H300 H373 ** H400 H410</p>
<b>Reason for selection:</b>	<p>Substances that make the use of the residual products of waste streams (flue-gas cleaning products, slag, sludge and compost) problematic. Several compounds also have properties of concern with regard to the 'List of hazardous substances'.</p> <p>Mercury is in general a very toxic substance which may cause nerve damage even at low concentrations.</p> <p>The substances are the subject of particular focus in Denmark.</p>
<b>Activity/further information:</b>	<p>CMR substances categories 1 and 2 may not be used in chemical consumer products.</p> <p>Mercury compounds are covered by REACH Regulation no 1907/2006, Annex XVII, no 18 on restrictions on use as a biocide in paint or an impregnation product for, amongst other things, ship's hulls, woods, heavy textiles and yarn as well as treatment of industrial water.</p> <p>Mercury is covered by REACH Regulation no 1907/2006, Annex XVII, no 18a on restrictions on use in thermometers and other measuring instruments used by the general public. Special rules exist with regard to commissioning and age of measuring instruments.</p> <p>Statutory Order no 627 of 1 July 2003 furthermore prohibits the use in Denmark of mercury and mercury compounds in new products, with a few exceptions.</p> <p>The use of mercury and mercury compounds is regulated in Section 10 of the Statutory Order no 857 of 5 September 2009 on the restriction on use of certain hazardous</p>

	<p>chemical substances and products for specially stipulated purposes.</p> <p>Mercury is also forbidden in electrical and electronic products covered by <u>Statutory</u> Order. No 873 of 12 August 2006 on the limitation on import and sales of electrical and electronic equipment containing certain hazardous substances.</p> <p>Mercury and mercury compounds have been identified as priority hazardous substances on the list of priority substances under the water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (Directive on environmental quality standards).</p> <p>The UN Governing Council has reached a decision on a global convention on mercury. Negotiations start in 2010.</p>
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<b>Manganese(II) sulphate</b>	
<b>CAS no: EINECS no:</b>	7785-87-7 / 232-089-9
<b>Product groups/functions:</b>	Fertiliser and raw materials.
<b>Classification:</b>	<b>Xn;R48/20/22 N;R51-53</b>
<b>Classification under CLP Regulation:</b>	STOT RE 2 * Aquatic Chronic 2 H373 ** H411
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	-

<b>Methanol</b>	
<b>CAS no: EINECS no:</b>	67-56-1 / 200-659-6
<b>Other name</b>	Wood spirit, methyl alcohol
<b>Product groups/functions:</b>	Solvents used in many products.
<b>Classification:</b>	<b>F;R11 T;R23/24/25-39/23/24/25</b>
<b>Classification under CLP Regulation:</b>	Flam. Liq. 2 Acute Tox. 3 * Acute Tox. 3 * Acute Tox. 3 * STOT SE 1 H225 H331 H311 H301 H370 **
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	Statutory Order no 857 of 5 September 2009 on the restriction on sale and use of certain hazardous chemical

	substances and products for specially stipulated purposes. § 5: Prohibited in engine coolants, anti-freeze agents for carburettors and de-icing fluids.
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<b>MTBE</b>	
<b>CAS no: EINECS no:</b>	1634-04-4 / 216-653-1
<b>Other name</b>	2-Methoxy-2-methyl propane or methyl-tertiary butyl ether
<b>Product groups/functions:</b>	Fuel, fuel additives, solvents and thinners.
<b>Classification:</b>	F;R11 Xi;R38
<b>Classification under CLP Regulation:</b>	Flam. Liq. 2 Skin Irrit. 2 H225 H315
<b>Reason for selection:</b>	On the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'
<b>Activity/further information:</b>	<p>Risk assessment has been carried out in the EU. The results of the assessment and a strategy for risk reduction have been published under no 2001/838/EC. No health risk is expected but groundwater quality can be affected with regard to taste and smell as a result of leakage from underground tanks and overflow can represent the most serious risk. Upgrading of petrol stations will minimise the risk of effects on groundwater (Statutory Order no 555 of 9 June 2001 on prevention of soil and groundwater pollution from petrol and diesel installations).</p> <p>The Commission's strategy on risk reduction recommends an investigation into improving the location of fuel filters in vehicles and petrol pumps so that skin contact can be avoided and into improving the construction and use of underground tanks at petrol stations, particularly in areas with drinking water in the soil, so that seepage is avoided.</p>

<b>1-Methyl-2-pyrrolidinone</b>	
<b>CAS no: EINECS no:</b>	872-50-4 / 212-828-1
<b>Other name</b>	N-Methylpyrrolidinone
<b>Product groups/functions:</b>	Process control agents, raw materials and lubricants.
<b>Classification:</b>	<b>Rep2;R61</b> Xi;R36/37/38
<b>Classification under CLP Regulation:</b>	Repr. 1B STOT SE 3 Eye Irrit. 2 Skin Irrit. 2 H360D*** H335 H319 H315
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.

<b>Activity/further information:</b>	CMR substances categories 1 and 2 may not be used in chemical consumer products.
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Molybdenum trioxide	
<b>CAS no: EINECS no:</b>	1313-27-5 / 215-204-7
<b>Other name</b>	Molybdena
<b>Product groups/functions:</b>	Process control agents, raw materials, lubricants and catalysts.
<b>Classification:</b>	<b>Carc3;R40</b> Xi;R36/37
<b>Classification under CLP Regulation:</b>	Carc.2 Eye Irrit. 2 STOT SE 3 H351 H319 H335
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	-

Naphthalene	
<b>CAS no: EINECS no:</b>	91-20-3 / 202-049-5
<b>Product groups/functions:</b>	Solvent in many products including colouring agents, adhesives, paint and varnish, metal coatings, mothballs and lubricants.
<b>Classification:</b>	<b>Carc3;R40</b> Xn;R22 N; <b>R50/53</b>
<b>Classification under CLP Regulation:</b>	Carc. 2 Acute Tox. 4 * Aquatic Acute 1 Aquatic Chronic 1 H351 H302 H400 H410
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	<p>Risk assessment has been carried out in the EU. With regard to health risks in the working environment it has been concluded that the risk should be delimited due to concerns about the carcinogenic effect of the substance and effects at inhalation. With regard to risks for consumers, it has been concluded that the risk associated with use of mothballs and the installation of damp proofing should be delimited.</p> <p>No recommendation for reducing the risk associated with the substance has yet been issued by the EU Commission.</p> <p>Identified as a priority substance on the list of priority substances under the water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (on environmental</p>

	quality standards).
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<b>Sodium and calcium hypochlorite</b>	
<b>CAS no: EINECS no:</b>	<b>Sodium hypochlorite:</b> (7681-52-9 / 231-668-3) <b>Calcium hypochlorite:</b> (7778-54-3 / 231-908-7)
<b>Product groups/functions:</b>	Disinfectants, cleaning agents
<b>Classification:</b>	Sodium hypochlorite: R31 C;R34 N;R50 Calcium hypochlorite: O;R8 Xn;R22 R31 C;R34 N;R50
<b>Classification under CLP Regulation:</b>	Sodium hypochlorite: Skin Corr. 1B Aquatic Acute 1 H314 H400 Calcium hypochlorite: Ox. Sol. 2 Acute Tox. 4 * Skin Corr. 1B Aquatic Acute 1 H272 H302 H314 H400
<b>Reason for selection:</b>	Sodium chlorite can represent an environmental risk due to the risk of formation of organic chlorinated compounds.  Prioritised for special measures because of the use of this substance in consumer products (cleaning agents), where there is a risk of formation of toxic chlorinated vapours on mixing with acid.  The substances are the subject of particular focus in Denmark.
<b>Activity/further information:</b>	Risk assessments of sodium hypochlorite has been carried out in the EU. The assessment reveals that consolidated there is no risk either for the environment or for human health. But the EU Scientific Committee on Health and Environmental Risks (SCHER) has contradicted this finding with regard to the environment, stating that organic chlorinated compounds formed in several scenarios, including waste water, swimming pools, drinking water and the production of paper and paper pulp, constitute an environmental risk.

<b>Nickel (metal)</b>	
<b>CAS no: EINECS no:</b>	7440-02-0 / 231-111-4
<b>Product groups/functions:</b>	Used in various alloys.
<b>Classification:</b>	<b>Carc3;R40 T;R48/23 R43</b>
<b>Classification under CLP Regulation:</b>	Carc.2 STOT RE 1 Skin. Sens. 1 H351 H372** H317
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	Risk assessment has been carried out in the EU and risk reduction strategies have been published.

	<p>Covered by REACH regulation no 1907/2006, Annex XVII, no 27 on partial restrictions on use. Nickel may not be used in products intended to come into direct or lasting contact with the skin if the nickel release exceeds 0.5 mg per cm<sup>2</sup> per week or 0.2 mg per cm<sup>2</sup> per week for body piercing jewellery including earrings.</p> <p>Nickel and nickel compounds have been identified as priority substances on the list of priority substances under the water policy, cf. Annex X to Directive 2000/60/EC (the Water Framework Directive) as amended by Directive 2008/105/EC (Directive on environmental quality standards).</p>
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<b>Certain oil and coal derivatives</b>	
<b>White spirits</b>	
<b>CAS no: EINECS no:</b>	8052-41-3 /232-489-3
<b>Other name</b>	Stoddard Solvent
<b>Product groups/functions:</b>	Solvent in many products including paint and varnish, colorants.
<b>Classification:</b>	<p><b>Carc2;R45 Mut2;R46 Xn;R65</b></p> <p>The substance has been evaluated exclusively for its carcinogenic and mutagenic properties and/or its ability to cause chemical pneumonia.</p> <p>Denmark has furthermore classified this substance by means of a safeguard clause as R10 and <b>Xn;R48/20</b>.</p> <p>Classification as Car2 is dropped if the substance contains less than 0.1% benzene; however, classification as R10 Xn;<b>R48/20</b>-65 is retained.</p>
<b>Classification under CLP Regulation:</b>	<p>Carc. 1B Muta 1B Asp. Tox. 1 Flam Liq. 1, H224 H350 H340 H304</p> <p>The dossier submitted by Denmark in 2009 proposes the following additional classification: STOT RE 1, H372.</p>
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	<p>CMR substances categories 1 and 2 may not be used in chemical consumer products.</p> <p>In 2009 Denmark proposed harmonised classification.</p>
<b>Solvent naphtha (petroleum), medium aliphatic</b>	
<b>CAS no: EINECS no:</b>	64742-88-7 / 265-191-7

<b>Other name</b>	Solvent naphta petroleum
<b>Product groups/functions:</b>	Solvents used in many products.
<b>Classification:</b>	Xn;R65  The substance has been assessed exclusively for its carcinogenic and mutagenic properties and/or its ability to cause chemical pneumonia.  Denmark has furthermore classified this substance by means of a safeguard clause as R10 and <b>Xn;R48/20</b> .
<b>Classification under CLP Regulation:</b>	Asp. Tox. 1 H304 Flam Liq. 1, H224  The dossier submitted by Denmark proposes the following additional classification: STOT RE 1, H372.
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	In 2009 Denmark proposed harmonised classification.

<b>Organic solvents</b>	
<b>Styrene</b>	
<b>CAS no: EINECS no:</b>	100-42-5 / 202-851-5
<b>Product groups/functions:</b>	Solvents in many products including paint/varnish, cooling agents and lubricants.
<b>Classification:</b>	R10 Xn;R20 Xi;R36/38
<b>Classification under CLP Regulation:</b>	Flam. Liq. 3 Acute Tox. 4 * Eye Irrit. 2 Skin Irrit. 2 H226 H332 H319 H315
<b>Reason for selection:</b>	On the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'
<b>Activity/further information:</b>	Risk assessment has been carried out in the EU but the final report on health risks has not yet been published. With regard to health risks in the working environment, it has been concluded that the risk should be delimited with regard to among other things skin, eyes, the central nervous system, hearing and damage to the unborn child in connection with inhalation of styrene in the polymer industry and during processing of styrene-containing polymers such as glass fibre. With regard to risks for consumers, the risk associated with styrene vapour during work with styrene-containing glass fibre products should be delimited. The manufacture of alternative products has been suggested as well as the development of voluntary work procedures and information to consumers on the risks associated with styrene.  No recommendation for reducing the risk associated with

	the substance has yet been issued by the EU Commission.
<b>Toluene</b>	
<b>CAS no: EINECS no:</b>	108-88-3 / 203-625-9
<b>Product groups/functions:</b>	Solvent in many products including paint, varnish, cooling agents and lubricants.
<b>Classification:</b>	F;R11 <b>Rep3;R63 R48/20</b> -65 Xi;R38 R67
<b>Classification under CLP Regulation:</b>	Flam. Liq. 2 Repr. 2 Asp. Tox. 1 STOT RE 2 * Skin Irrit. 2 STOT SE 3 H225 H361d*** H304 H373** H315 H336
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	<p>Covered by REACH Regulation no 1907/2006, Annex XVII, no 48 which sets out a maximum concentration of toluene of 0.1% weight percent in adhesives and spray paints intended for sale to the general public.</p> <p>Covered by Statutory Order No 571 of 21 November 1984 on the use of propellants and solvents in aerosol containers.</p> <p>Permitted with maximum concentration of 20% together with xylene. Prohibited in cosmetic products and products for indoor domestic use.</p> <p>Risk assessment has been carried out in the EU under no 2004/394/EC. With regard to health risks it has been concluded that the risk should be delimited in the working environment and for consumers due to concerns about the toxicity of the substance on skin contact and at inhalation and well as suspected harmful effects on reproduction. Furthermore, the risk for the atmosphere and human health via the environment should be delimited due to the ability of the substance to form ozone and other harmful substances such as smog. With regard to the aquatic and soil environments as well as microorganisms in purification plants, it has been concluded that the risk associated with the use of toluene should be delimited in the production of oil and fuel and polymers and in the paint and textile industries. More information about the substance is needed in connection with suspected effects on reproduction.</p> <p>It is further recommended that toluene be covered by the Water Framework Directive and until that time that member states set national criteria with regard to pollution of the aquatic environment.</p>

Certain parabens (propyl and butyl paraben) for specific purposes	
<b>Name, CAS: No / EINECS no:</b>	Propyl paraben: 94-13-3 / 202-307-7 Butyl paraben: 94-26-8 / 202-318-7
<b>Other name:</b>	Propyl-4-hydroxybenzoate Butyl-4-hydroxybenzoate
<b>Product groups/functions:</b>	Preservatives in cosmetics and other.
<b>Classification:</b>	No harmonised classifications. Is included on the 'Advisory List for Self-classification of Dangerous Substances' propyl paraben: N;R50 and Butyl paraben: <b>N;R50/53</b> .
<b>Reason for selection:</b>	Substances that are the subject of particular focus in Denmark  On the EU 'Priority list of substances for further evaluation of their role in endocrine disruption'
<b>Activity/further information:</b>	On the basis of a Danish investigation, the EPA recommends that propyl and butyl parabens are avoided in products for baby care products.  See the report here: <a href="http://www.mst.dk/Udgivelser/Publikationer/2009/10/978-87-92548-83-2.htm?wbc_purpose=basic&amp;WBCMODE=presentationunpublished%23%23%23%23%23%23%23%23Knopurt%23Hvad">http://www.mst.dk/Udgivelser/Publikationer/2009/10/978-87-92548-83-2.htm?wbc_purpose=basic&amp;WBCMODE=presentationunpublished%23%23%23%23%23%23%23%23Knopurt%23Hvad</a>  According to the cosmetics regulation, all parabens are approved as preservatives in cosmetic products with certain restrictions.  Undergoing risk assessment by the EU Scientific Committee on Consumer Safety with regard to use of the two parabens in cosmetics. The assessment could form the basis for potential future regulation.

Perfume ingredients	
<b>Name, CAS no EINECS no:</b>	Perfume ingredients include a large number of CAS numbers and occur in both synthetic perfumes and those derived from plants, etc.
<b>Product groups/functions:</b>	Fragrances in cosmetics, cleaning agents, deodorizers and other consumer products.
<b>Classification:</b>	Some substances are on the 'List of hazardous substances' e.g.:

	<p>Benzyl alcohol (CAS no 100-51-6): Xn; (R20/22).  Benzyl benzoate (CAS no 120-51-4): Xn; (R22).  Citral (CAS no 5392-40-5): Xi; (R38), (R43).  d-Limonene (CAS no 5989-27-5): R10 Xi;R38 R43  <b>N;R50/53.</b></p>
<b>Reason for selection:</b>	<p>Substances that are only subject to partial restrictions on use; other uses can however also be a cause for concern with regard to health and the environment. As fragrances/perfume ingredients are mostly unnecessary for the main function of the product, there is thus unnecessary exposure of consumers to chemical substances which can pose a risk of the development of allergies.</p> <p>The substances are the subject of particular focus in Denmark.</p>
<b>Activity/further information:</b>	<p>Certain perfume ingredients must be declared if their use in cosmetics exceeds 0.01% in products that will be cleaned off and 0.001% in products that will not be cleaned off. With regard to the regulation on detergents, certain perfume ingredients must be declared if their use in washing/cleaning products exceeds 0.01%. Similarly several perfume ingredients must be declared if they are used in toys.</p> <p>The Danish EPA recommends in general non-perfumed products or alternatively the selection of a few perfumed products for use on special occasions.</p>

<b>C.I. Pigment yellow 34</b>	
<b>CAS no: EINECS no:</b>	1344-37-2 / 215-693-7
<b>Other name</b>	Lead sulfochromate (CAS no 1344-37-2):
<b>Product groups/functions:</b>	Binding agents, colorants, glazes, enamels and similar, paint and varnish, printing ink.
<b>Classification:</b>	<b>Carc2;R45 Rep1;R61 Rep3;R62 R33 N;R50/53</b>
<b>Classification under CLP Regulation:</b>	Carc. 1B Repr. 1A STOT RE 2 Aquatic Acute 1 Aquatic Chronic 1 H350 H360Df H373** H400 H410
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	<p>CMR substances categories 1 and 2 may not be used in chemical consumer products.</p> <p>C.I. Pigment yellow 34 has been proposed for inclusion in the candidate list of substances of very high concern under REACH from which substances can be selected for the Authorisation Regulation.</p>

PFOA and PFOS compounds	
<b>CAS no: EINECS no:</b>	This group consists of many compounds, so no CAS number or EINECS number is given. (175 listed in the below report from the Danish EPA)
<b>Other name</b>	PFOA: Perfluorooctanoic acid PFOS: Perfluorooctanesulfonic acid
<b>Product groups/functions:</b>	Impregnation products for textiles, leather and paper, wax and other polish, paint, varnish, printing inks and cleaning agents.
<b>Classification:</b>	No harmonised classifications.
<b>Reason for selection:</b>	PFOA and PFOS compounds are a series of compounds which are all potentially degradable to perfluorooctane sulfonate which has proven to be highly degradable and has been measured in human and animal blood.  The substances are toxic to animals.  The substances are the subject of particular focus in Denmark.
<b>Activity/further information:</b>	PFOS are covered by the REACH Regulation no 1907/2006, Annex XVII, no 53. PFOS may not be marketed or used as a substance or in mixtures, but there are several exceptions such as in chromium plating and galvanizing.  In 2009 the decision was taken to include PFOS under the global Stockholm Convention on POP substances. The substances are prohibited from use and production with certain exceptions. The Stockholm Convention was implemented in Regulation (EC) no 850/2004 of the European Parliament and of the Council of 29 April 2004.  Mapping and environmental and health assessment of fluoride compounds in impregnated products and impregnation agents. <a href="http://www.mst.dk/Udgivelser/Publikationer/2008/10/978-87-7052-843-6.htm">http://www.mst.dk/Udgivelser/Publikationer/2008/10/978-87-7052-843-6.htm</a> A survey of perfluorooctane sulfonate and similar substances in consumer products – phase 2 ( <a href="http://www.mst.dk/udgiv/Publikationer/2002/87-7972-122-2/html/default.htm">http://www.mst.dk/udgiv/Publikationer/2002/87-7972-122-2/html/default.htm</a> ) with list of 175 PFOS compounds

Phenol	
<b>CAS no: EINECS no:</b>	108-95-2 / 203-632-7

<b>Other name</b>	Phenols
<b>Product groups/functions:</b>	Solvents in many products including adhesives, paint, varnish and metal coatings.
<b>Classification:</b>	<b>Mut3;R68 T;R23/24/25 Xn;R48/20/21/22 C;R34</b>
<b>Classification under CLP Regulation:</b>	Muta. 2 Acute Tox. 3 * Acute Tox. 3 * Acute Tox. 3 * STOT RE 2 * Skin Corr. 1B H341 H331 H311 H301 H373** H314
<b>Reason for selection:</b>	Properties of concern with regard to the 'List of hazardous substances'.
<b>Activity/further information:</b>	<p>Risk assessment has been carried out in the EU under no 2008/C 34/01. With regard to health risks in the working environment and for consumers and human health via the environment, it has been concluded that the risk should be delimited due to concerns about the acute toxicity of the substance on skin contact and on inhalation.</p> <p>Following Commission Recommendation 2008/98/EC, EU member states must continuously monitor consumer products for phenol content. Further, EU member states were obliged to implement restrictions in authorisations for industrial sites before 31 October 2007. The restrictions were determined taking into account local conditions, especially for industrial treatment plants producing or processing phenols and sites which pose a risk of exposure to humans.</p>

<b>N'-tert-butyl-N-cyclopropyl-6-(methylthio)-1,3,5-triazine-2,4-diamine</b>	
<b>CAS no: EINECS no:</b>	28159-98-0 / 248-872-3
<b>Other name</b>	Igard 1051, 1,3,5-Triazine-2,4-diamine, N-cyclopropyl-N'-(1,1-dimethylethyl)-6-(methylthio)-
<b>Product groups/functions:</b>	Biocides, paint and varnish.
<b>Classification:</b>	No harmonised classifications.
<b>Reason for selection:</b>	Properties of concern in relation to the 'Advisory List for Self-classification of Dangerous Substances'. Xn;R22 <b>N;R50/53</b>
<b>Activity/further information:</b>	-

Trisodium nitrilotriacetate	
CAS no: EINECS no:	5064-31-3 / 225-768-6
Product groups/functions:	Biocides, complexing agents, pH regulating agents, cleaning agents.
Classification:	<b>Carc3; R40 Xn;R22 Xi;R36</b>
Classification under CLP Regulation:	Carc. 2 Acute tox 4* Eye Irrit. 2 H351 H302 H319
Reason for selection:	Properties of concern with regard to the 'List of hazardous substances'.
Activity/further information:	<p>Risk assessment has been carried out in the EU but the final report on health risks has not yet been published.</p> <p>The work has been transferred to REACH. The draft transfer document describes the need to delimit human health risks in the working environment associated with skin contact and inhalation due to the toxic and carcinogenic effects of the substance. It is proposed that setting a limit for discharge of the substance may be a means of protecting employees' safety and health.</p> <p>No recommendation has been issued by the EU Commission.</p>

Tris(2-chlor-1-methylethyl)phosphate	
CAS no: EINECS no:	13674-84-5 / 237-158-7
Other name	2-propanol, -1chloro; TCPP
Product groups/functions:	Binding agents, fire retardants, insulation materials, construction materials, adhesives, paint and varnish, raw materials, foaming agents, filling agents.
Classification:	No harmonised classifications.
Reason for selection:	Properties of concern in relation to the 'Advisory List for Self-classification of Dangerous Substances'. <b>Mut3;R68 Rep3;R63</b>
Activity/further information:	<p>Undergoing risk assessment in the EU. It has been concluded that the risk in the working environment should be delimited in connection with production of the substance, due to the risk of effects on fertility and development. Existing EU legislation has been evaluated as sufficient for the protection of employees.</p> <p>No recommendation for reducing the risk associated with the substance has yet been issued by the EU Commission.</p>

# Annex A – Overview of substances in LOUS 2009

CAS no:	EINECS no:	Substance name/group
25154-52-3 84852-15-3		Alkylphenols and alkylphenol ethoxylates Nonylphenol nonylphenol, branched
88-58-4	201-841-8	1,4-benzenediol, 2,5-bis(1,1-dimethylethyl)-
100-44-7	202-853-6	Benzyl chloride
92-52-4	202-163-5	Biphenyl
80-05-7	201-245-8	Bisphenol A
25036-25-3	-	Bisphenol A diglycidyl ether polymer
		Lead and lead compounds
1303-96-4 10043-35-3 1303-86-2 10486-00-7	215-540-4 233-139-2 215-125-8 231-556-4	Boric compounds (classified) Borax decahydrate Boric acid Diboron trioxide Sodium perborate tetrahydrate
		Certain brominated flame retardants Examples from the group are deca-BDE, TBBPA and HBCDD
		Cadmium and cadmium compounds
85535-84-8 85535-85-9	287-476-5 287-477-0	Chlorinated paraffins (short and medium-chain) Chloroalkanes, C10-13 (short chain chlorinated paraffins), SCCP Chloroalkanes, C14-17 (medium chain chlorinated paraffins), MCCP
68-12-2	200-679-5	N,N-dimethylformamide
26761-45-5	247-979-2	2,3-epoxypropyl neodecanoate
811-97-2 354-33-6 420-46-2 75-37-6 75-73-0 76-16-4 76-19-7 2551-62-4	212-377-0 206-557-8 206-996-5 200-866-1 200-896-5 200-939-8 200-941-9 219-854-2	Fluorinated greenhouse gases (HFCs, PFCs and sulphur hexafluoride) HFC 134a: HFC 125 HFC 143a HFC 152a CF4 C2F6 C3F8 SF6
50-00-0	200-001-8	Formaldehyde
117-81-7 84-74-2 85-68-7 117-82-8 84-69-5	204-211-0 201-557-4 201-622-7 204-212-6: 201-553-2:	Certain phthalates Di(2-ethylhexyl)phthalate (DEHP) Dibutyl phthalate, (DBP) Benzyl butyl phthalate, (BBP) Bis(2-methoxyethyl) phthalate, (DMEP) Diisobutyl phthalate, (DBP)
110-54-3	203-777-6	n-hexane

## Annex A – Overview of substances in LOUS 2009

16096-31-4	240-260-4	1,6-hexanediol diglycidyl ether
111-42-2	203-868-0	2,2'-Iminodiethanol
26447-40-5 5873-54-1 101-68-8 26471-62-5 584-84-9 91-08-7	247-714-0 227-534-9 202-966-0 247-722-4 209-544-5 202-039-0	Certain isocyanates – MDI and TDI Methylene diphenyl diisocyanate MDI 2,4'-MDI 4,4'-MDI Toluene-diisocyanate, TDI 2,4-TDI 2,6-TDI
1317-39-1 7758-98-7 7758-89-6	215-270-7 231-847-6 231-842-9	Certain copper compounds Copper(I) oxide Copper(II) sulphate Copper(I) chloride
		Mercury and mercury compounds
7785-87-7	232-089-9	Manganese(II) sulphate
67-56-1	200-659-6	Methanol
1634-04-4	216-653-1	MTBE
872-50-4	212-828-1	1-Methyl-2-pyrrolidinone
1313-27-5	215-204-7	Molybdenum trioxide
91-20-3	202-049-5	Naphthalene
231-668-3 231-908-7	7681-52-9 7778-54-3	Sodium and calcium hypochlorite Sodium hypochlorite Calcium hypochlorite
7440-02-0	231-111-4	Nickel (metal)
8052-41-3 64742-88-7	232-489-3 265-191-7	Certain oil and coal derivatives Mineral turpentine Solvent naphta (petroleum), medium aliphatic
100-42-5 108-88-3	202-851-5 203-625-9	Organic solvents Styrene Toluene
94-13-3 94-26-8	202-307-7 202-318-7	Certain parabens (propyl and butyl paraben) Propyl paraben Butyl paraben
		Perfume ingredients
1344-37-2	215-693-7	C.I. Pigment yellow 34
		PFOA and PFOS compounds
108-95-2	203-632-7	Phenol
28159-98-0	248-872-3	N'-tert-butyl-N-cyclopropyl-6-(methylthio)- 1,3,5-triazine-2,4-diamine
5064-31-3	225-768-6	Trisodium nitrilotriacetate
13674-84-5	237-158-7	Tris(2-chlor-1-methylethyl)phosphate

## Annex B – Substances on the EU ‘Priority list of substances for further evaluation of their role in endocrine disruption’.

The EU strategy with regard to hormone disrupting substances includes compilation of a candidate list of potential substances to be prioritised for further evaluation of their role in endocrine disruption.

Link to the EU strategy:

[http://ec.europa.eu/environment/endocrine/strategy/being\\_en.htm](http://ec.europa.eu/environment/endocrine/strategy/being_en.htm)

More information on EU prioritising work can be found on the EU website which also gives access to the database of all substances.

[http://ec.europa.eu/environment/endocrine/strategy/short\\_en.htm](http://ec.europa.eu/environment/endocrine/strategy/short_en.htm)

The following table lists the name and CAS number for the 194 substances for which evidence of hormone disrupting properties has been found in a least one live animal experiment (category 1).

CAS no:	Name
12789-03-6	Chlordane
57-74-9	Chlordane, - cis- and trans-
143-50-0	Kepone (Chlordecone)
2385-85-5	Mirex
8001-35-2	Toxaphene (Camphechlor)
50-29-3	DDT (technical) (Clofenotane)
50-29-3	p,p'-DDT
3563-45-9	Tetrachloro-DDT
50471-44-8	Vinclozolin
12427-38-2	Maneb
137-42-8	Metham Sodium
137-26-8	Thiram
12122-67-7	Zineb
58-89-9	Gamma-HCH (Lindane)
330-55-2	Linuron
1912-24-9	Atrazine
34256-82-1	Acetochlor
15972-60-8	Alachlor
100-42-5	Styrene
118-74-1	Hexachlorobenzene ( HCB)
85-68-7	Benzyl butyl phthalate ( BBP)
117-81-7	DEHP (Di-(2-ethylhexyl) phthalate)
84-74-2	DBP (Dibutyl phthalate)

Annex B – Substances on the EU Priority list of substances for further evaluation of their role in endocrine disruption

80-05-7	Bisphenol A (4,4'-isopropylidenediphenol)
1336-36-3	PCB
35065-27-1	PCB 153
32774-16-6	PCB 169
2437-79-8	PCB 47
32598-13-3	PCB 77
53469-21-9	PCB Aroclor 1242
12672-29-6	PCB Aroclor 1248
11097-69-1	PCB Aroclor1254
11096-82-5	PCB Aroclor 1260 (clophen A60)
59536-65-1	PBBs = polybrominated biphenyls (209 congeners)
40321-76-4	1,2,3,7,8 Pentachlorodibenzodioxin (1,2,3,7,8-PCDD)
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)
107555-93-1	1,2,3,7,8-Pentabromodibenzofuran
No CAS	Tributyltin compounds
688-73-3	Tributyltin hydride
56-35-9	Tributyl Oxide (bis(tributyltin)oxide)
26354-18-7	Stannane, tributylmecrylate (Stannane, tributylmethacrylate)
	Methoxyacrylate tributyltin copolymer
4342-30-7	Phenol, 2-(tributylstannyl)oxy) carbonyl-
4342-36-3	Stannane, benzoyloxytributyl-
4782-29-0	Stannane, (1,2- phenylenebis (carbonyloxy))bis(tributyl-
36631-23-9	Stannane, tributyl(naphthalenyloxy)- (Tributyltin naphthalate)
85409-17-2	Stannane, tributyl- , mono(naphthenoyloxy)-
24124-25-2	Stannane, tributyl (1-oxo-9,12-octadecadienyl)oxy)-
3090-35-5	Stannane, tributyl((1-oxo-9-octadecenyl)oxy)-
26239-64-5	Stannane, (1R-(1alpha,4abeta,4b alpha,10a alpha))- Tributyl(((1,2,3,4,4a,4b,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-1-phenanthryl) carbonyl)oxy)-
1983-10-4	Stannane, tributylfluoro-
2155-70-6	Stannane, tributyl ((2-methyl-1-oxo-2-propenyl)oxy)-
	Tributyltin carboxylate
26636-32-8	Tributyltin naphthalate*
	Tributyltinpolyethoxylate
2279-76-7	Tri-n-propyltin chloride (TPrT chloride)
	Triphenyltin
900-95-8	Fentin acetate
95-76-1	3,4-Dichloroaniline
108-46-3	Resorcinol
61-82-5	Amitrol (Aminotriazol)
1836-75-5	Nitrofen
140-66-9	4-tert-octylphenol

Annex B – Substances on the EU Priority list of substances for further evaluation of their role in endocrine disruption

25154-52-3	Phenol, nonyl-
1461-25-2	Tetrabutyltin (TTBT)
99-99-0	4-Nitrotoluene
63-25-2	Carbaryl
5103-73-1	Cis-Nonachlor
39765-80-5	Trans-Nonachlor
2971-22-4	1,1,1-trichloro-2,2-bis(4-chloro-phenyl)ethane
65148-80-3	3-MeO-o,p'-DDE
43216-70-2	3-OH-o,p'-DDT
65148-81-4	4-MeO-o,p'-DDE
65148-72-3	4-MeO-o,p'-DDT
65148-75-6	5-MeO-o,p'-DDD
65148-82-5	5-MeO-o,p'-DDE
65148-74-5	5-MeO-o,p'-DDT
65148-73-4	5-OH-o,p'-DDT
4329-12-8	m,p'-DDD
65148-83-6	o,p'-DDA-glycinate (N-[(2-chlorophenyl)4-chlorophenyl]acetyl]glycine)
53-19-0	o,p'-DDD
3424-82-6	o,p'-DDE
14835-94-0	o,p'-DDMU
789-02-6	o,p'-DDT
72-54-8	p,p'-DDD
1022-22-6	p,p'-DDMU
72-55-9	p,p'-DDE
32809-16-8	Procymidon
8018-01-7	Mancozeb
9006-42-2	Metiram (Metiram-complex)
319-85-7	Beta-HCH (isomer of gamma-HCH = Lindan)
608-73-1	Hexachlorocyclohexane = HCH mixed (includes gamma-HCH = Lindan)
1689-83-4	Ioxynil
No CAS 096	1,1,1-trichloro-2,2-bis(4-Hydroxyphenyl)ethane (HPTE)
30668-06-5	1,3-Dichloro-2,2-bis(4-methoxy-3-methylphenyl)propane
2971-36-0	Bis-OH-Methoxychlor (1,1,1-trichloro-2,2-bis(4-hydroxyphenyl)ethane (HTPE))
72-43-5	Methoxychlor
72-43-5	p,p'-Methoxychlor
122-14-5	Fenitrothion
82657-04-3	Bifenthrin (@Talstar)
91465-08-6	Cyhalothrin, lambda-
52918-63-5	Deltamethrin
10453-86-8	Resmethrin
60168-88-9	Fenarimol

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1918-02-1	Picloram
65277-42-1	Ketoconazol
1087-64-9	Metribuzin
86-50-0	Terbutryn
106-93-4	Ethylene Dibromide (1,2-dibromethane or EDB)
12002-48-1	Trichlorobenzene
608-93-5	Pentachlorobenzene
87-86-5	Pentachlorophenol (PCP)
1806-26-4	4-octylphenol
11081-15-5	4-isooctylphenol
9016-45-9	Nonyl phenol ethoxylate
85535-85-9	Medium chain chlorinated paraffins
85535-84-8	Short chain chlorinated paraffins
84-61-7	Dicyclohexyl phthalate (DCHP)
84-66-2	Diethyl phthalate (DEP)
101-53-1	Phenyl-4-hydroxy-phenylmethane (4-Benzylphenol or p-Benzylphenol)
25036-25-3	2,2'-bis(2-(2,3-epoxypropoxy) phenyl)propane (2,2-BPPP) (isomer til BADGE)
106-89-8	Epichlorohydrin (3-Chloro-1,2-epoxypropane)
No CAS 127	2,4,6-Trichlorobiphenyl
No CAS 128	3,4',5'-Trichlorobiphenyl
67651-37-0	3-Hydroxy-2',3',4',5'- tetrachlorobiphenyl
100702-98-5	4,4'-Dihydroxy-2,3,5,6-tetrachlorobiphenyl
13049-13-3	4,4'-Dihydroxy-3,3',5,5'-tetrachlorobiphenyl
67651-34-7	4-Hydroxy-2',3',4',5'-tetrachlorobiphenyl
14962-28-8	4-Hydroxy-2',4',6'-trichlorobiphenyl
53905-33-2	4-Hydroxy-2,2', 5'-trichlorobiphenyl
No CAS 040	4-Hydroxy-3,3',4',5'-tetrachlorobiphenyl
4400-06-0	4-Hydroxy-3,4', 5-trichlorobiphenyl
No CAS 097	4-OH-2,2',4',5,5'-pentachlorobiphenyl
54991-93-4	Clophen A30
8068-44-8	Clophen A50
No CAS 038	Mixture of 2,3,4,5-Tetrachlorobiphenyl (PCB 61), 2,2', 4,5,5'-Octachlorobiphenyl (PCB 101) og 2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)
No CAS 039	PCB 104 (2,2',4,6,6'-Pentachlorobiphenyl)
No CAS 092	PCB 114 (2,3,4,4',5-Pentachlorobiphenyl)
No CAS 042	PCB 122 (2,3,3',4,5-Pentachlorobiphenyl)
No CAS 037	PCB 126 (3,3',4,4',5-Pentachlorobiphenyl)
38380-07-3	PCB 128 (2,2',3,3',4,4'-Hexachlorobiphenyl)
37680-65-2	PCB 18 (2,2',5-Trichlorobiphenyl)
55702-46-0	PCB 21 (2,3,4-Trichlorobiphenyl)
No CAS 036	PCB Aroclor 1016
No CAS 041 (32598-14-4 According to guideline no. 9810 of 31/05/2006)	PCB 105 (2,3,3',4,4' -Pentachlorobiphenyl)

Annex B – Substances on the EU Priority list of substances for further evaluation of their role in endocrine disruption

7012-37-5	PCB 28 (2,4,4'-Trichlorobiphenyl)
35693-99-3	PCB 52 (2,2';5,5'-Tetrachlorobiphenyl)
No CAS 087 (35065-28-2 According to guideline no. 9810 of 31/05/2006)	PCB 138 (2,2',3,4,4',5'- Hexachlorobiphenyl)
No CAS 088 (35065-29-3 According to guideline no. 9810 of 31/05/2006)	PCB180 (2,2',3,4,4',5,5'- Heptachlorobiphenyl)
31508-00-6	PCB 118 (2,3',4,4',5-Pentachlorobiphenyl)
12642-23-8	PCT Aroclor 5442
56614-97-2	3,9-Dihydroxy-benz(a)anthracene (3,9-DBA)
7099-43-6	5,6-Cyclopento-1,2-benzanthracene (3,5-CPBA)
56-49-5	3-Methylcholanthrene (3-MC)
57-97-6	7,12-Dimethyl-1,2-benz(a)anthracene (DMBA)
50-32-8	Benzo[a]pyrene (BAP)
50585-41-6	2,3,7,8-TeBDD (tetrabrominated dibenzodioxin)
118174-38-2	6-Methyl-1,3,8-trichloro-dibenzofuran
94-82-6	2,4-dichlorophenoxy-butyric acid ( 2,4-DB)
72-33-3	Mestranol
10043-35-3	Boric Acid
104-40-5	Nonylphenol (4-NP)
1113-02-6	Omethoate
1131-60-8	4-Cyclohexylphenol
120-47-8	Ethyl 4-hydroxybenzoate (Ethyl paraben)
131-18-0	Di-n-pentylphthalate (DPP)
131-55-5	Benzophenone-2 ( 2,2',4,4' tetrahydroxybenzophenone)
131-56-6	2,4-Dihydroxybenzophenone (Benzophenone-1)
131-70-4	Mono-n-butylphthalate
13593-03-8	Quinalphos (Chinalphos)
15087-24-8	3-Benzylidene camphor (3-BC)
1582-09-8	Trifluralin
1634-04-4	Methyl tertiary butyl ether (MTBE)
25013-16-5	tertiary Butylated hydroxyanisole (BHA)
27193-28-8	Phenol, (1,1,3,3-tetramethylbutyl)-(Octylphenol)
33204-76-1	2,6-cis-Diphenylhexamethyl-cyclotetrasiloxane
36861-47-9	3-(4-methyl-benzylidene)camphor
4376-20-9	Mono-2-ethylhexylphthalate (MEHP)
50-18-0	Cyclophosphamide
5466-77-3	2-ethylhexyl-4-methoxycinnamate
556-67-2	Cyclotetrasiloxane
611-99-4	4,4'-Dihydroxy-benzophenone

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6164-98-3	Chlordimeform
7400-08-0	p-Coumaric acid (PCA)
77-09-8	3,3'Bis(4-hydroxyphenyl) phthalide (Phenolphthalein)
77-40-7	2,2-Bis(4-hydroxyphenyl)-n-butane (Bisphenol B)
92-69-3	4-Hydroxybiphenyl (4-Phenylphenol)
92-88-6	4,4'Dihydroxybiphenyl
94-13-3	n-Propyl p-hydroxybenzoate (Propyl paraben)
94-26-8	n-Butyl p-hydroxybenzoate (Butyl paraben)
96-12-8	Dibromochloropropane (DBCP)
96-45-7	Ethylene Thiourea (ETU)
99-76-3	Methyl p-hydroxybenzoate (Methyl paraben)
99-96-7	p-Hydroxybenzoic acid

\* The basic report to the EU contained this CAS number, which the EPA has noted as an error. Tributyltin naphthalate is already listed under CAS no 36631-23-9.

# Annex C – Criteria for identification of persistent, bioaccumulative and toxic substances (PBT) and very persistent and very bioaccumulative substances (vPvB).

Criteria for the identification of PBT/vPvB substances are described in Annex XIII of the EU chemicals legislation, REACH. These are given below.

The EU is currently revising the criteria. This work is expected to be completed at the end of 2010.

A substance is defined as a PBT substance if it fulfils the criteria in points 1.1, 1.2 and 1.3. A substance is defined as a vPvB substance if it fulfils the criteria in point 2.1 and 2.2. This annex does not apply to inorganic substances, but does apply to organometallic compounds.

## 1. PBT SUBSTANCES

A substance is identified as a PBT substance if it fulfils all three of the following criteria.

### 1.1. Persistence

A substance fulfils the persistence criterion (P-) when:

- the half-life in marine water is higher than 60 days, or
- the half-life in fresh or estuarine water is higher than 40 days, or
- the half-life in marine sediment is higher than 180 days, or
- the half-life in fresh or estuarine water sediment is higher than 120 days, or
- the half-life in soil is higher than 120 days.

Assessment of persistency in the environment is based on available data on half-life collected under appropriate conditions that are described by the registrant.

### 1.2. Bioaccumulation

A substance fulfils the bioaccumulation criterion (B-) when:

- the bioconcentration factor (BCF) is higher than 2,000.

Assessment of bioaccumulation is based on measured data on bioconcentration in aquatic species. Data from freshwater as well as marine water species can be used.

### 1.3. Toxicity

A substance fulfils the toxicity criterion (T-) when:

- the long-term no observed effect concentration (NOEC) for marine or freshwater organisms is less than 0.01mg/l, or
- the substance is classified as carcinogenic (category 1 or 2), mutagenic (category 1 or 2) or toxic for reproduction (category 1, 2 or 3), or

## Annex C – Criteria for identification of PBT and vPvB compounds

- there is other evidence of chronic toxicity, as identified by the classifications: T, R48 or Xn, R48 according to Directive 67/548/EEC.

### **2. vPvB SUBSTANCES**

A substance that fulfils the criteria of the sections below is a vPvB substance.

#### **2.1. Persistence**

A substance fulfils the very persistent criterion (vP-) when:

- the half-life in marine, fresh, or estuarine water is higher than 60 days, or
- the half-life in marine, fresh, or estuarine water sediment is higher than 180 days, or
- the half-life in soil is higher than 180 days.

#### **2.2. Bioaccumulation**

A substance fulfils the very bioaccumulative criterion (vB-) when:

The bioconcentration factor (BCF.) is higher than 5 000.

# Annex D – Substances removed from the previous LOUS

Overview of substances in LOUS 2004 that are not included in LOUS 2009.

CAS no	Substance name	Reason for removal from LOUS
79-06-1	Acrylamide	Used in quantities less than 100 tonnes
110-82-7 142-82-5	Cyclohexane Heptane	Consumption and use now less than 100 tonnes
90622-57-4	C9-C12 Isoalkanes	No longer suspected of having PBT/vPvB effects
91082-17-6	Alkyl sulfonic acid phenyl ester	No longer suspected of having PBT/vPvB effects
68442-68-2	Benzenamine, n-phenyl-, styrenated	Used in quantities less than 100 tonnes
68953-84-4	1,4-Benzendiamine, N, N-mixed phenyl and totyl derivatives	No longer suspected of having PBT/vPvB effects
54208-63-8	2,2'-Bisphenol F diglycidyl ether	Used in quantities less than 100 tonnes
96-29-7	Butanone oxime	Consumption and use now less than 100 tonnes
75-09-2 127-18-4 79-01-6	Dichloromethane Tetrachloroethylene Trichloroethylene	Consumption and use now less than 100 tonnes
1333-82-0 10588-01-9 7778-50-9 7789-06-2 13530-65-9	Chromium trioxide Sodium dichromate Potassium dichromate Strontium chromate Zinc chromate	Consumption and use now less than 100 tonnes
10124-43-3	Cobalt(II)sulphate	Used in quantities less than 100 tonnes
	Creosote compounds with carconogenic 'impurities'	Used in quantities less than 100 tonnes
85-42-7	Cyclohexane-1,2-dicarboxylic anhydride (unspec.)	Does not fulfil new criteria for undesirable effects as R 42 is no longer a criterion. Studies have shown that the substance does not pose a risk in consumer products.
26898-17-9	Dibenzyl(methyl) benzene	Used in quantities less than 100 tonnes
95-76-1	3,4-Dichloroaniline	Used in quantities less than

Annex D – Substances removed from the previous LOUS

		100 tonnes
75-08-1	Ethanethiol	Consumption and use now less than 100 tonnes
75-12-7	Formamide	Used in quantities less than 100 tonnes
111-30-8	Glutaraldehyde	Does not fulfil new criteria for undesirable effects as R 42 is no longer a criterion. Studies have shown that the substance does not pose a risk in consumer products.
110-80-5 111-15-9 109-86-4 110-49-6 1589-47-5 70657-70-4	2-Ethoxyethanol 2-Ethoxyethyl acetate 2-Methoxyethanol 2-Methoxyethyl acetate 2-Methoxypropanol 2-Methoxypropyl acetate	Consumption and use now less than 100 tonnes
19438-60-9	Hexahydro-4-methylphthalic anhydride	Does not fulfil new criteria for undesirable effects as R 42 is no longer a criterion. Studies have shown that the substance does not pose a risk in consumer products.
93685-81-5	Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated	No longer suspected of having PBT/vPvB effects
123-31-9 108-46-3	Hydroquinone Resorcinol	Consumption and use now less than 100 tonnes
10039-54-0	Hydroxylammonium sulphate	Used in quantities less than 100 tonnes
31807-55-3	Isododecane	Further assessment of QSAR data has shown that there is no basis for classification as N;R50/53.
101-77-9	4,4'-methylenedianiline	Used in quantities less than 100 tonnes
149-30-4	Mercaptobenzothiazole (MBT)	Used in quantities less than 100 tonnes
1313-99-1	Nickel oxide	Consumption and use now less than 100 tonnes
99-99-0	4-nitrotoluene	Used in quantities less than 100 tonnes
2082-79-3	Octadecyl-3-(3,5-di-tert butyl-4-hydroxyphenyl)propionate	Consumption and use now less than 100 tonnes
556-67-2	Octamethylcyclotetrasiloxane	No longer suspected of having PBT/vPvB effects
8002-05-9 97722-04-8 64742-05-8 64741-51-1 64742-04-7 64742-90-1	Petroleum for certain uses Hydrocarbons, C26-55, arom-rich Extracts (petroleum), light paraffinic distillate solvent Distillates (petroleum), heavy paraffinic Extracts (petroleum), heavy paraffinic distillate solvent Residues (petroleum), steam-cracked	Used in quantities less than 100 tonnes
	Organo-chlorine compounds Examples in the group are dibutyltin (DBT), di-	Used in quantities less than

Annex D – Substances removed from the previous LOUS

	cotyltin (DOT) and triphenyltin (TPT).	100 tonnes
	Surfactants that do not completely break down under anaerobic conditions.	Changed patterns of consumption have shown that the substances do not pose the same problem with regard to the waste stream.  Further data also shows that LAS is not as problematic as previously thought.
6683-19-8	Pentaerythritol tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	No longer suspected of having PBT/vPvB effects
122-60-1	Phenyl glycidyl ether	Used in quantities less than 100 tonnes
11070-44-3	Phthalic anhydride, tetrahydromethyl- (uspec.)	Does not fulfil new criteria for undesirable effects as R 42 is no longer a criterion. Studies have shown that the substance does not pose a risk in consumer products.
1533-78-4 5567-15-7 5102-83-0 3520-72-7 128-69-8 5468-75-7	Acetamide, N-(5-(bis(2-(acetyloxy)ethyl)amino)-2-((2-chlor-4-nitrophenyl)azo)phenyl)- C.I. Pigment yellow 83 C.I. Pigment yellow 13 C.I. Pigment yellow 13 C.I. Pigment red 224 C.I. Pigment yellow 14	No longer suspected of having PBT/vPvB effects
85136-74-9	6-hydroxy-1-(3-isopropoxypropyl)-4-methyl-2-oxo-5-[4-(phenylazo)phenylazo]1,2-Dihydropyridine-3-carbonitrile	Used in quantities less than 100 tonnes
75-56-9	Propylene oxide	Used in quantities less than 100 tonnes
26140-60-3	Terphenyl (unspec.)	Used in quantities less than 100 tonnes
137-26-8	Thiram	Used in quantities less than 100 tonnes
65996-89-6 65996-93-2 8007-45-2	Tar, coal, high-temp. Coal-tar pitch, high-temp. Coal tar	Does not fulfil the criteria
2451-62-9	Triglycidyl isocyanurate	Used in quantities less than 100 tonnes
101-02-0	Triphenyl phosphite	Consumption and use now less than 100 tonnes
115-96-8	Tris(2-chloroethyl)phosphate	Consumption and use now less than 100 tonnes
31570-04-4	Tris(2,4-di-tert-butylphenyl)phosphite	Used in quantities less than 100 tonnes
12122-67-7	Zineb	Used in quantities less than 100 tonnes



# Annex E – New substances in LOUS 2009

Several new substances have joined LOUS since its 2004 edition. Reasons for inclusion on the new list are apparent from the description of each substance on the list.

CAS no	Substance name
88-58-4	1,4-benzenediol, 2,5-bis(1,1-dimethylethyl)-
25036-25-3	Bisphenol A diglycidyl ether polymer
16096-31-4	1,6-hexanediol diglycidyl ether
7785-87-7	Manganese(II) sulphate
67-56-1	Methanol
872-50-4	1-Methyl-2-pyrrolidinone
108-88-3	Toluene
94-13-3	Propyl paraben in certain uses
94-26-8	Butyl paraben in certain uses
28159-98-0	N'-tert-butyl-N-cyclopropyl-6-(methylthio)-1,3,5-triazine-2,4-diamine
1344-37-2	C.I. Pigment yellow 34
108-95-2	Phenol
5064-31-3	Trisodium nitrilotriacetate
13674-84-5	Tris(2-chlor-1-methylethyl)phosphate



# Annex F – Selection criteria no longer used

List of criteria that the Danish EPA has omitted as part of the updating of LOUS.

**Risk phrases that no longer automatically indicate that a substance has undesirable effects.**

R42 May cause sensitisation by inhalation.

**Tonnage limits no longer applicable**

There are no longer several different tonnage limits for substances. The tonnage threshold for all substances is now 100 tonnes per year. However this does not apply to substances that are the subject of particular focus in Denmark.



# Annex G – Translation table for existing and new classification

The translation of classifications of substances on The Danish EPA's Advisory list for self-classification of dangerous substances (the QSAR list) to the new classification is based on the Classification Regulation Annex VII which assists translation of a classification made for a substance under Directive 1999/45/EC.

## Overview of allocation of codes for hazard statements in Regulation 1272/2008 on Classification and labelling

The following extended Annex VII is an overview of Risk/hazard statements under old and new rules as well as hazard pictograms assigned. The following is an overview of hazard statements and associated codes (as stated in Regulation Annex III). Please see Annex IV for the criteria for assignment of safety phrases and the list of phrases. In the case of discrepancy between the following and the information in the Regulation, the Regulation takes precedence.

### Extended Annex VII

Classifications under Directive 67/548/EEC	Physical state of the substance (when relevant)	Hazard Class and Category	Hazard statement	Note:	Hazard pictogram	Signal word
Xn;R20	gas	Acute Tox. 4	H332	(1)	GHS07	Warning
Xn; R20	vapours	Acute Tox. 4	H332	(1)	GHS07	Warning
Xn; R20	dust/mist	Acute Tox. 4	H332		GHS07	Warning
Xn; R21		Acute Tox. 4	H312	(1)	GHS07	Warning
Xn; R22		Acute Tox. 4	H302	(1)	GHS07	Warning
T; R23	gas	Acute Tox. 3	H331		GHS06	Danger
T; R23	vapours	Acute Tox. 2	H330	(1)	GHS06	Danger
T; R23	dust/mist	Acute Tox. 3	H331	(1)	GHS06	Danger
T; R24		Acute Tox. 3	H311	(1)	GHS06	Danger
T; R25		Acute Tox. 3	H301	(1)	GHS06	Danger
T+; R26	gas	Acute Tox. 2	H330	(1)	GHS06	Danger
T+; R26	vapours	Acute Tox. 1	H330		GHS06	Danger

## Annex G – Translation table for existing and new classification

Classifications under Directive 67/548/EEC	Physical state of the substance (when relevant)	Hazard Class and Category	Hazard statement	Note:	Hazard pictogram	Signal word
T+; R26	dust/mist	Acute Tox. 2	H330	(1)	GHS06	Danger
T+; R27		Acute Tox. 1	H310		GHS06	Danger
T+; R28		Acute Tox. 2	H300	(1)	GHS06	Danger
R33		STOT RE 2	H373	(3)	GHS08	Warning
C; R34		Skin Corr. 1B	H314	(2)	GHS05	Danger
C; R35		Skin Corr. 1A	H314		GHS05	Danger
Xi; R36		Eye Irrit. 2	H319		GHS07	Warning*
Xi; R37		STOT SE 3	H335		GHS07	Warning
Xi; R38		Skin Irrit. 2	H315		GHS07	Warning
T; R39/23		STOT SE 1	H370	(3)	GHS08	Danger
T; R39/24		STOT SE 1	H370	(3)	GHS08	Danger
T; R39/25		STOT SE 1	H370	(3)	GHS08	Danger
T+; R39/26		STOT SE 1	H370	(3)	GHS08	Danger
T+; R39/27		STOT SE 1	H370	(3)	GHS08	Danger
T+; R39/28		STOT SE 1	H370	(3)	GHS08	Danger
Xi; R41		Eye Dam. 1	H318		GHS05	Danger
R42		Resp. Sens. 1	H334		GHS08	Danger
R43		Skin Sens. 1	H317		GHS07	Warning

\*incorrect signal word for this hazard category. Corrected in version 2 of 20 April 2009

Annex G – Translation table for existing and new classification

Classifications under Directive 67/548/EEC	Physical state of the substance (when relevant)	Hazard Class and Category	Hazard statement	Note:	Hazard pictogram	Signal word
Xn; R48/20		STOT RE 2	H373	(3)	GHS08	Warning
Xn; R48/21		STOT RE 2	H373	(3)	GHS08	Warning
Xn; R48/22		STOT RE 2	H373	(3)	GHS08	Warning
T; R48/23		STOT RE 1	H372	(3)	GHS08	Danger
T; R48/24		STOT RE 1	H372	(3)	GHS08	Danger
T; R48/25		STOT RE 1	H372	(3)	GHS08	Danger
R64		Lact.	H362		None	None
Xn; R65		Asp. Tox. 1	H304		GHS08	Danger
R67		STOT SE 3	H336		GHS07	Warning
Xn; R68/20		STOT SE 2	H371	(3)	GHS08	Warning
Xn; R68/21		STOT SE 2	H371	(3)	GHS08	Warning
Xn; R68/22		STOT SE 2	H371	(3)	GHS08	Warning
Carc. Cat. 1; R45		Carc. 1A	H350		GHS08	Danger
Carc. Cat. 2; R45		Carc. 1B	H350		GHS08	Danger
Carc. Cat. 1; R49		Carc. 1A	H350i		GHS08	Danger
Carc. Cat. 2; R49		Carc. 1B	H350i		GHS08	Danger
Carc. Cat. 3; R40		Carc. 2	H351		GHS08	Warning
Muta. Cat. 2; R46		Muta. 1B	H340		GHS08	Danger
Muta. Cat. 3; R68		Muta. 2	H341		GHS08	Warning
Repr. Cat. 1; R60		Repr. 1A	H360F	(4)	GHS08	Danger
Repr. Cat. 2; R60		Repr. 1B	H360F	(4)	GHS08	Danger
Repr. Cat. 1; R61		Repr. 1A	H360D	(4)	GHS08	Danger
Repr. Cat. 2; R61		Repr. 1B	H360D	(4)	GHS08	Danger
Repr. Cat. 3; R62		Repr. 2	H361f	(4)	GHS08	Warning

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Repr. Cat. 3; R63		Repr. 2	H361d	(4)	GHS08	Warning
Repr. Cat. 1; R60 – 61		Repr. 1A	H360FD		GHS08	Danger
Repr. Cat. 1; R60 Repr. Cat. 2; R61		Repr. 1A	H360FD		GHS08	Danger
Repr. Cat. 2; R60 Repr. Cat. 1; R61		Repr. 1A	H360FD		GHS08	Danger
Repr. Cat. 2; R60 – 61		Repr. 1B	H360FD		GHS08	Danger
Repr. Cat. 3; R62 – 63		Repr. 2	H361fd		GHS08	Warning
Repr. Cat. 1; R60 Repr. Cat. 3; R63		Repr. 1A	H360Fd		GHS08	Danger
Repr. Cat. 2; R60 Repr. Cat. 3; R63		Repr. 1B	H360Fd		GHS08	Danger
Repr. Cat. 1; R61 Repr. Cat. 3; R62		Repr. 1A	H360Df		GHS08	Danger
Repr. Cat. 2; R61 Repr. Cat. 3; R62		Repr. 1B	H360Df		GHS08	Danger

Annex G – Translation table for existing and new classification

Classifications under Directive 67/548/EEC	Physical state of the substance (when relevant)	Hazard Class and Category	Hazard statement	Note:	Hazard pictogram	Signal word
N; R50		Aquatic Acute 1	H400		GHS09	Warning
N; R50 – 53		Aquatic Acute 1 Aquatic Chronic 1	H400 H410		GHS09 GHS09	Warning Warning
N; R51 – 53		Aquatic Chronic 2	H411		GHS09	None
R52 – 53		Aquatic Chronic 3	H412		None	None
R53		Aquatic Chronic 4	H413		None	None
N; R59		Ozone	EUH059			Danger

**Note 1**

For these classes it is possible to use the recommended minimum classification as defined in section 1.2.1.1. in Annex VI. Data or other information may be available which indicate that reclassification to a more hazardous category is appropriate.

**Note 2**

It is recommended to classify in Category 1B even if Category 1C may be applicable in certain cases. Original data may not enable a distinction between Category 1B or 1C, because the exposure period has normally been up to 4 hours according to Regulation (EC) No 440/2008. However, for the future, when data are derived from tests following a sequential approach as described in Regulation (EC) No 440/2008, Category 1C should be considered.

**Note 3**

In the future, the route of exposure can be added to the hazard statement if it is conclusively proven that no other routes of exposure cause the hazard.

**Note 4**

Hazard statements H360 and H361 indicate a general concern for reproductive properties related to both fertility and developmental effects:

‘May damage/Suspected of damaging fertility or the unborn child’. According to the classification criteria (Annex I, section 3.7) the general hazard statement can be replaced by the hazard statement indicating only the property of concern, if either fertility or developmental effects are proven to be not relevant.

**Danish section of Annex III**

## Annex G – Translation table for existing and new classification

Hazard statements starting with 200 are used for physical hazards.

Hazard statements starting with 300 are used for health hazards.

Hazard statements starting with 400 are used for environmental hazards.

### Part 1: Hazard statements

H200	2.1 Explosives, unstable explosives	Unstable explosive
H201	2.1 Explosives, Division 1.1	Explosive; mass explosion hazard
H202	2.1 Explosives, Division 1.2	Explosive, severe projection hazard.
H203	2.1 Explosives, Division 1.3	Explosive; fire, blast or projection hazard.
H204	2.1 Explosives, Division 1.4	Fire or projection hazard.
H205	2.1 Explosives, Division 1.5	May mass explode in fire.
H220	2.2 Flammable gasses, Hazard Category 1	Extremely flammable gas.
H221	2.2 Flammable gasses, Hazard Category 2	Flammable gas.
H222	2.3 Flammable aerosols Hazard Category 1	Flammable aerosol.
H223	2.3 Flammable aerosols Hazard Category 2	Flammable aerosol.
H224	2.6 Flammable liquids, Hazard Category 1	Extremely flammable liquid and vapour.
H225	2.6 Flammable liquids, Hazard Category 2	Highly flammable liquid and vapour.
H226	2.6 Flammable liquids, Hazard Category 3	Flammable liquid and vapour.
H228	2.3 Flammable solids, Hazard Category 2	Flammable solid.
H240	2.8 Self-Reactive Substances and Mixtures, Type A 2.15 Organic peroxides, Type A	Heating may cause an explosion.
H241	2.8 Self-Reactive Substances and Mixtures, Type 2.15 Organic peroxides, Type	Heating may cause a fire or explosion.
H242	2.8 Self-Reactive Substances and Mixtures, Types C, D, E, F 2.15 Organic peroxides, Types C, D, E, F	Heating may cause a fire.
H250	2.9 Pyrophoric liquids, Hazard Category 1 2.10 Pyrophoric solids, Hazard Category 1	Catches fire spontaneously if exposed to air.
H251	2.8 Self-Heating Substances and Mixtures, Hazard Category 1	Self-heating: may catch fire.
H252	2.11 Self-Heating Substances and Mixtures, Hazard Category 2	Self-heating in large quantities; may catch fire.
H260	2.12 Substances and Mixtures which, in contact with water, emit flammable gases, Hazard Category 1	In contact with water emits flammable gases which may ignite spontaneously.
H261	2.12 Substances and Mixtures which,	In contact with water releases flam-

Annex G – Translation table for existing and new classification

	in contact with water, emit flammable gases, Hazard Category 2 and 3	flammable gases.
H270	2.4 Oxidising gases, Hazard Category 1	May cause or intensify fire; oxidiser.
H271	2.13 Oxidising Liquids, Hazard Category 1 2.14 Oxidising Solids, Hazard Category 1	May cause or fire or explosion; strong oxidiser.
H272	2.13 Oxidising Liquids, Hazard Category 2, 3 2.14 Oxidising Solids, Hazard Category 2, 3	May intensify fire; oxidiser.
H280	2.5 Gases under pressure: Compressed gas, Liquefied gas, Dissolved gas	Contains gas under pressure; may explode if heated.
H281	2.5 Gases under pressure: Refrigerated liquid gas	Contains refrigerated gas; may cause cryogenic burns or injury.
H290	2.16 Corrosive to metals, Hazard Category 1	May be corrosive to metals.
H300	3.1 Acute toxicity (oral), Hazard Category 1, 2	Fatal if swallowed.
H301	3.1 Acute toxicity (oral), Hazard Category 3	Toxic if swallowed.
H302	3.1 Acute toxicity (oral), Hazard Category 4	Harmful if swallowed.
H304	3.10 Aspiration hazard, Hazard Category 1	May be fatal if swallowed and enters airways.
H310	3.1 Acute toxicity (dermal), Hazard Category 1, 2	Fatal in contact with skin.
H311	3.1 Acute toxicity (dermal), Hazard Category	Toxic in contact with skin.
H312	3.1 Acute toxicity (dermal), Hazard Category 4	Harmful in contact with skin.
H314	3.2 Skin corrosion/irritation, Hazard Category 1A, 1B, 1C	Causes severe skin burns and eye damage.
H315	3.2 Skin corrosion/irritation, Hazard Category 2	Causes skin irritation.
H317	3.4 Sensitisation – Skin, Hazard Category 1	May cause an allergic skin reaction.
H318	3.3 Serious eye damage/eye irritation, Hazard Category 1	Causes serious eye damage.
H319	3.3 Serious eye damage/eye irritation, Hazard Category 2	Causes serious eye irritation.
H330	3.1 Acute toxicity (inhal.), Hazard Category 1, 2	Fatal if inhaled.
H331	3.1 Acute toxicity (inhal.), Hazard Category 3	Toxic if inhaled.
H332	3.1 Acute toxicity (inhal.), Hazard Category 4	Harmful if inhaled.
H334	3.4 Sensitisation – Respirat., Hazard Category 1	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	3.8 Specific target organ toxicity – Single exposure, Hazard Category 3, Respiratory tract irritation	May cause respiratory irritation.

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H336	3.8 Specific target organ toxicity – Single exposure, Hazard Category 3, Narcosis	May cause drowsiness or dizziness.
H340	3.5 Germ cell mutagenicity, Hazard Category 1A, 1B	May cause genetic defects <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H341	3.5 Germ cell mutagenicity, Hazard Category 2	Suspected of causing genetic defects <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H350	3.6 Carcinogenicity, Hazard Category 1A, 1B	May cause cancer <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H351	3.6 Carcinogenicity, Hazard Category 2	Suspected of causing cancer <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H360	3.7 Reproductive toxicity, Hazard Category 1A, 1B	May damage fertility or the unborn child <b>&lt;state specific effect if known&gt;</b> <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b>
H361	3.7 Reproductive toxicity, Hazard Category 2	Suspected of damaging fertility or the unborn child <b>&lt;state specific effect if known&gt;</b> <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H362	3.7 Reproductive toxicity, Additional category, Effects on or via lactation	May cause harm to breast-fed children.
H370	3.8 Specific target organ toxicity – Single exposure, Hazard Category 1	Causes damage to organs <b>&lt;or state all organs affected, if known&gt;</b> <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H371	3.8 Specific target organ toxicity – Single exposure, Hazard Category 2	May cause damage to organs <b>&lt;or state all organs affected, if known&gt;</b> <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H372	3.9 Specific target organ toxicity – Repeated exposure, Hazard Category 1	Causes damage to organs <b>&lt;or state all organs affected, if known&gt;</b> through prolonged or repeated exposure <b>&lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;</b> .
H373	3.9 Specific target organ toxicity – Repeated exposure, Hazard Category 2	May cause damage to organs <b>&lt;or state all organs affected, if known&gt;</b> through prolonged or repeated exposure <b>&lt;state route of exposure if it</b>

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		<b><i>is conclusively proven that no other routes of exposure cause the hazard&gt;</i></b> .
H400	4.1 Hazardous to the aquatic environment – Acute Hazard, Category 1	Very toxic to aquatic life.
H410	4.1 Hazardous to the aquatic environment – Chronic Hazard, Category 1	Very toxic to aquatic life with long lasting effects.
H411	4.1 Hazardous to the aquatic environment – Chronic Hazard, Category 2	Toxic to aquatic life with long lasting effects.
H412	4.1 Hazardous to the aquatic environment – Chronic Hazard, Category 3	Harmful to aquatic life with long lasting effects.
413	4.1 Hazardous to the aquatic environment – Chronic Hazard, Category 4	May cause long lasting harmful effects to aquatic life.

**Part 2: Supplemental hazard information**

Physical properties

EUH 001	Explosive when dry
EUH 006	Explosive with or without contact with air.
EUH 014	Reacts violently with water.
EUH 018	In use may form flammable/explosive vapour-air mixture.
EUH 019	May form explosive peroxides.
EUH 044	Risk of explosion if heated under confinement.

Health properties

EUH 029	Contact with water liberates toxic gas.
EUH 031	Contact with acids liberates toxic gas.
EUH 032	Contact with acids liberates very toxic gas.
EUH 066	Repeated exposure may cause skin dryness or cracking.
EUH 070	Toxic by eye contact.
EUH 071	Corrosive to the respiratory tract.

Environmental properties

EUH 059	Note: Supplemental EU Hazard Class, may have to be revised	Hazardous to the ozone layer.
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**Part 3: Supplemental label elements/information on certain substances and mixtures.**

EUH 201/201A	Contains lead. Should not be used on surfaces liable to be chewed or sucked by children. Warning! Contains lead.
EUH 202	Cyanoacrylate. Danger. Bonds skin and eyes in seconds. Keep out of the reach of children.
EUH 204	Contains isocyanates. May produce an allergic skin reaction.
EUH 205	Contains epoxy constituents. May produce an allergic skin reaction.
EUH 206	Warning! Do not use together with other products. May release dangerous gases (chlorine).
EUH 207	Warning! Contains cadmium. Dangerous fumes are formed during use. See information supplied by the manufacturer. Comply with the safety instructions.
EUH 208	Contains <b>&lt;name of sensitising substance&gt;</b> . May produce an allergic skin reaction.
EUH 209/	Can become highly flammable in use. Can become flammable in use.

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209A	
EUH 210	Safety data sheet available on request.
EUH 401	To avoid risks to human health and the environment, comply with the instructions for use.

## Annex H – Explanation of asterisks in the new classification

Extract from Annex VI (Harmonised classification and labelling for certain hazardous substances) of the Classification Regulation.

The tables referred to below are respectively the List of hazardous substances, for which classification is based on the criteria in Annex I to the Classification Regulation (Table 3.1.) and the List of dangerous substances, for which classification is based on the criteria in Annex VI to Directive 67/548/EEC (Table 3.2).

### ***Minimum classification***

For certain hazard classes, including acute toxicity and STOT repeated exposure, the classification according to the criteria in Directive 67/548/EEC does not correspond directly to the classification in a hazard class and category under this Regulation. In these cases the classification in this Annex shall be considered as a minimum classification. This classification shall be applied if none of the following conditions are fulfilled:

- the manufacturer or importer has access to data or other information as specified in Part 1 of Annex 1 that lead to classification in a more hazardous category compared to the minimum classification. Classification in the more hazardous category must then be applied;
- the minimum classification can be further refined based on the translation table in Annex VII when the physical state of the substance used in the acute inhalation toxicity test is known to the manufacturer or importer. The classification as obtained from Annex VII shall then substitute the minimum classification indicated in this Annex if it differs from it.

Minimum classification for a category is indicated by the reference \* in the column 'Classification' in Table 3.1. The reference \* can also be found in the column 'Specific concentration Limits and M-factors' where it indicates that the entry concerned has specific concentration limits under Directive 67/548/EEC (Table 3.2) for acute toxicity. These concentration limits cannot be 'translated' into concentration limits under this

Regulation, especially when a minimum classification is given. However, when the reference \* is shown, the classification for acute toxicity for this entry may be of special concern.

### ***Route of exposure cannot be excluded***

For certain hazard classes, e.g. STOT, the route of exposure should be indicated in the hazard statement only if it is conclusively proven that no other route of exposure can cause the hazard in accordance with the criteria in Annex I. Under Directive 67/548/EEC the route of exposure is stated for classifications with R48 when available data justified the classification for this route of exposure. Classification under 67/548/EEC indicating the route of exposure has been translated into the

corresponding class and category in accordance with this Regulation, but with a general hazard statement that does not specify the route of exposure as the necessary information is not available.

These hazard statements are indicated by the reference \*\* in Table 3.1.

***Hazard statements for reproductive toxicity***

Hazard statements H360 and H361 indicate a general concern for effects both on fertility and development: 'May damage/Suspected of damaging fertility or the unborn child'.

According to the criteria, the general hazard statement can be replaced by the hazard statement indicating only the property of concern, where either fertility or developmental effects are proven to be not relevant. In order not to lose information from the harmonised classifications for fertility and developmental effects under Directive 67/548/EEC, the classifications have been translated only for those effects classified under that Directive. These hazard statements are indicated by the reference \*\*\* in Table 3.1.

***Correct classification for physical hazards could not be established.***

For some entries the correct classification for physical hazards could not be established because sufficient data are not available for the application of the classification criteria in this Regulation. The entry might be assigned to a different (i.e. higher) category or even another hazard class than indicated. The correct classification shall be confirmed by testing. The entries with physical hazards that need to be confirmed by testing are indicated by the reference \*\*\*\* in Table 3.1.