



Trade Union Priority List for REACH Authorisation

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Foreword

REACH, the new EU regulation to control the trade and use of chemicals came into effect in June 2007. It requires manufacturers and importers of chemicals to register them with the European Chemicals Agency (ECHA) to show that they can be used safely. For chemicals of very high concern, industrialists must also get authorisation for each use in order to continue marketing them. Authorisation is a procedure designed to identify the most hazardous chemicals currently on the European market, control the risks arising from their use and replace them with safer alternatives. There are thought to be between 1 500 and 2 000 substances of very high concern on the European market.

The European Trade Union Confederation took a very clear stance in favor of this reform because, by encouraging industry to develop safer substances, REACH combines increased competitiveness for European industry with improved protection of workers, consumers and the environment.

That is why the ETUC has consistently worked to give a constructive input to REACH throughout its development via its conferences, a wide array of publications and ongoing dialogue with all stakeholders.

Now the regulation is being rolled out and trade unions again intend to play their part by having a representative on the Management Board of the European Chemicals Agency and trade union observers in all ECHA's committees.

■ **Trade Union Priority List for REACH Authorisation,**
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In October 2008, ECHA published its first list of substances identified as candidates for authorisation. With just 15 chemicals listed, ETUC believes that this very low-key start for REACH authorisation could put the entire procedure's credibility on the line and undermine REACH's substitution aims.

The purpose of the Trade Union Priority List presented here is therefore to feed into the debate on the choice of substances of very high concern for inclusion in the Candidate List and potentially in the Authorisation List.

The ETUC is convinced that including the union-listed chemicals in the Candidate List for REACH authorisation would cut the incidence of chemical-related occupational diseases and the attendant costs for the community, workers and industry itself.

Finally, a debt of thanks is due to all those involved in producing the Trade Union Priority List: the researchers from ISTAS and from the ETUC's Research Institute, the ETUI, but also all the trade union experts on chemicals all over Europe who worked on this project.

Joël Decaillon

Confederal Secretary, European Trade Union Confederation

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Executive Summary

The purpose of the Trade Union Priority List is to contribute to the practical implementation of REACH, in particular the authorisation procedure by proposing Substances of Very High Concern (SVHC) which from a union's perspective should have priority for inclusion in the Candidate List and potentially in the Authorisation List.

The chemicals considered as SVHC in the Trade Union Priority List are CMRs category 1, 2 or 3 listed in Annex I of Directive 67/548/EEC, carcinogens classified 1, 2A or 2B by IARC, PBT substances listed in the framework of the OSPAR Convention, known and suspected endocrine disruptors listed in the Community Strategy for Endocrine Disruptors, neurotoxic substances listed by Vela et al (2003) and sensitisers listed in the Annex I of Directive 67/548/EEC.

Due to the lack of reliable data on occupational exposure to these SVHC, the high production volume has been used as a proxy for wide occupational and environmental exposure. All chemicals included in the Trade Union Priority List are High Production Volume Chemicals (HPVC) and as a consequence also meet the criteria to be eventually prioritised in the Authorisation List.



But where the union list goes further is in ranking chemicals by reference to their intrinsic (eco) toxicological properties, and identifying those that cause recognised occupational diseases at EU level. The European Risk Ranking Method (EURAM) for ranking the HPVC by scores has been adapted to cover all chemicals considered to be SVHC. The highest score (10 points) was attributed to CMRs category 1 or 2 and the lowest (7 points) to sensitisers, neurotoxicants and suspected endocrine disruptors.

In the Trade Union's view the most urgent SVHC are the ones which accumulate the criteria to be identified as SVHC and, in particular, those which according to the Commission Recommendation on Occupational Diseases are known to cause recognised work-related diseases at Community level.

The resulting Trade Union List includes 306 HPVC entries ordered by score. 191 out of these entries are substances or groups of substances identified as causative agents for recognised occupational diseases and 52 entries are substances or group of substances that cause diseases suspected of being occupational in origin. In addition, all entries also listed in Annex I of Directive 67/548/EEC are flagged to facilitate the preparation of Annex XV dossiers for CMRs category 1 or 2.

The ETUC believes that including the union-listed chemicals in the Candidate List will allow professional users to get more information on their uses. If they are subsequently prioritised in the Authorisation List (or subject to restrictions), it would surely promote the development of safer alternatives and cut both the incidence of chemical-related occupational diseases and the attendant costs for the community, workers and industry itself.

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1. Introduction

On 1st June 2007, a new EU regulation for chemicals called REACH¹ (Registration, Evaluation and Authorisation of Chemicals) came into force in the 27 EU Member States and in the European Economic Area (EEA). REACH has the potential to considerably impact on the protection of workers who are exposed to hazardous substances in several industrial sectors and especially to reduce the number of occupational diseases caused by chemicals in the future².

Prioritising substances subject to regulation has become a need for many governments or supra-governmental organizations which aim at implementing legislative actions to limit or prohibit the use of certain chemicals considered particularly dangerous to human health or to the environment³.

This is the aim of Annex XIV, the list of substances subject to authorisation under the REACH Regulation.

“A manufacturer, importer or downstream user shall not place a substance on the market for a use or use it himself if that substance is included in Annex XIV”⁴.

“The aim of authorisation is to ensure the good functioning of the internal market while assuring that the risks from substances of very high concern are properly controlled and that these substances are progressively replaced by suitable alternative substances or technologies where these are economically and technically viable.”⁵

¹ EC 1907/2006.

² The impact of REACH on occupational health , Simon Pickvance et al, University of Sheffield, ETUI, 2005.

³ Institute for Environment and Health. A review of prioritisation methodologies for screening chemicals with potential human health effects as result of low level environmental exposure. Leicester, 2004. <http://www.silsoe.cranfield.ac.uk/ieh/pdf/W13.pdf>.

⁴ Art. 56. REACH. EC 1907/2006.

⁵ Art. 55. REACH. EC 1907/2006.

This list will be established by the end of 2009, when the European Commission in agreement with Member States - assisted by a recommendation from the European Chemicals Agency (ECHA⁶) -, will publish a list of Substances of Very High Concern (SVHC) which must undergo an authorisation procedure.

In October 2008, ECHA published its first list of SVHC⁷ identified as candidates for authorisation under the REACH rules (the so-called "Candidate List"). Just 15 chemicals are listed, when it could easily have been many more. In the official list of hazardous substances with a harmonised classification and labelling at the Community level⁸, more than 900 automatically meet the criteria for being identified as SVHC.

The aim of the Trade Union Priority List and its prioritisation methodology is to help the Authorities identify the most urgent Substances of Very High Concern for inclusion in the Candidate List and, eventually later, in the Annex XIV (the Authorisation List).

In the Trade Unions' view, the most urgent substances for inclusion in the authorisation list are the ones which fulfill the criteria to be identified as SVHC, are being widely used at the workplace and, in particular, those which are known to cause recognised occupational diseases at Community level.

If the substances proposed by Trade Unions are included in the Candidate List, professional users will get more information on their uses in the form of a safety data sheet. Like any consumers, they will also have the right to be informed about the presence of those SVHC in articles. In addition, if those substances are prioritised in the Authorisation List, the development of safer alternatives will be promoted and the occupational diseases they cause will be reduced.

⁶ <http://echa.europa.eu/>.

⁷ http://www.echa.europa.eu/chem_data/candidate_list_table_en.asp.

⁸ See Annex VI of Regulation (EC) No 1272/2008 (former Annex I of Directive 67/548/EEC).

2. Background

Several lists of extremely hazardous chemicals developed by government agencies or non governmental organisations with different purposes exist, but with the common denominator of containing those substances that are considered of special concern because of their negative effects on human health or environment.

These lists of hazardous substances are available on their websites:

- United States Environmental Protection Agency (US-EPA): Extremely Hazardous Substance List⁹
- Danish- Environmental Protection Agency (EPA): List of Undesirable Substances¹⁰
- Canadian-EPA: Priority Substances List¹¹
- Finnish Environment Institute: Proposal for a Selection of National Priority Substances¹²
- KEMI-PRIO: PRIO database¹³
- SIN List¹⁴



⁹ <http://www.epa.gov/EPA-WATER/1994/October/Day-12/pr-14.html>.

¹⁰ <http://glwww.mst.dk/homepage/>.

¹¹ http://www.ec.gc.ca/CEPARegistry/subs_list/Priority.cfm.

¹² <http://www.ymparisto.fi/download.asp?contentid=15659&lan=en>.

¹³ http://www.kemi.se/templates/PRIOEngframes____4144.aspx.

¹⁴ <http://www.sinlist.org/>.

3. Methodology

The following stages have been followed in order to draw up the Trade Union Priority List of substances for REACH:

1. Selection of the most concerning properties of substances >	SVHC
2. Identifying substances for prioritisation >	CMR, PBT, ED, Neurotoxicant, Sensitiser
3. Selecting the priority criteria >	HPVC, health and environment effects
4. Defining values for each criterion >	Based on the EURAM criteria
5. Developing the list >	Ordering by score Exclusion/Inclusion of substances Identification of substances linked to occupational diseases and/or classified as hazardous in the EU
FINAL LIST	



3.1. Selecting the most concerning properties of substances

There are more than 100,000 substances listed in the European market. Millions of European workers are therefore exposed to chemical substances on a daily basis, not only in the sector manufacturing them but also in the many downstream sectors where these substances are used. It is estimated that around one in three of all occupational diseases recognised in Europe each year is due to exposure to hazardous chemicals¹⁵.

From the Trade Union's point of view, several aspects should be considered when prioritising substances for regulation, such as intrinsic hazard, relation with occupational diseases, human or environmental exposure.

However, there is little or incomplete information on most of these factors, for example, CAREX¹⁶ databases offer an estimation of workers exposed to carcinogenic substances in some of the EU countries, EU registers on occupational diseases¹⁷ offer data of a limited number of substances related to occupational diseases, data on environmental exposure is based mainly on estimations and do not cover all European countries, etc.

Considering the lack of real exposure data, it seems necessary to make an estimation of the exposure levels.

Occupational and environmental exposure could be estimated from the volume of production of the given substance, assuming that substances with high production volume will be present in higher amounts at workplaces and will end up in different environmental compartments in higher amounts.

¹⁵ REACHing the workplace. How workers stand to benefit from the new European policy on chemical agents. Tony Musu, 2006. European Trade Union Technical Bureau for Health and Safety.

¹⁶ International Information System on Occupational Exposure to Carcinogens. Europe Against Cancer Program of the European Union. <http://www.ttl.fi/Internet/English/Organization/Collaboration/Carex/>.

¹⁷ Commission Recommendation of 19 September 2003 concerning the European schedule of occupational diseases (notified under document number C(2003) 3297) (Text with EEA relevance) (2003/670/EC) ANNEX I.

The most reliable information that can be used to set the priority list up, is intrinsic hazard. From a Trade Union's point of view, the most worrying substances on a long term basis are those that cause irreversible damage to workers' health and to the environment.

Occupational health and preventive environmental care are based on the assumption that the harm caused by a substance depends on the substance toxicity and exposure, and therefore, the implementation of reduction and control measures may prevent or at least reduce occupational health diseases and damage to the environment. However, there are groups of substances of special concern due to their intrinsic properties, they may bioaccumulate, be persistent or may cause damage at very low levels of exposure or even at any level of exposure, such as:

- **Persistent, Bioaccumulative and Toxic substances (PBT)**
- **Carcinogenic, Mutagenic & substances that are toxic for Reproduction (CMR's)**
- **Endocrine Disrupters (ED)**
- **Neurotoxic substances**
- **Sensitisers**

The above-mentioned intrinsic hazards are also covered by the REACH criteria for SVHC identification as defined in **Article 57**:

"The following substances may be included in Annex XIV in accordance with the procedure laid down in Article 58:

- (a) substances meeting the criteria for classification as carcinogenic category 1 or 2 in accordance with Directive 67/548/EEC;
- (b) substances meeting the criteria for classification as mutagenic category 1 or 2 in accordance with Directive 67/548/EEC;
- (c) substances meeting the criteria for classification as toxic for reproduction category 1 or 2 in accordance with Directive 67/548/EEC;
- (d) substances which are persistent, bioaccumulative and toxic in accordance with the criteria set out in Annex XIII of this Regulation;
- (e) substances which are very persistent and very bioaccumulative in accordance with the criteria set out in Annex XIII of this Regulation;

- (f) substances - such as those having endocrine disrupting properties or those having persistent, bioaccumulative and toxic properties or very persistent and very bioaccumulative properties, which do not fulfill the criteria of points (d) or (e) - for which there is scientific evidence of probable serious effects to human health or the environment which give rise to an equivalent level of concern to those of other substances listed in points (a) to (e) and which are identified on a case-by-case basis in accordance with the procedure set out in Article 59.”

REACH Art 57 does not explicitly include neurotoxic substances or sensitisers, but the regulation does mention sensitisers as substances of high concern in several other sections; such as recital (115), Article 40(1), Article 115(1), Annex I and Annex XV. Due to their high impact on occupational health¹⁸ and frequent use in industry¹⁹, we consider that these substances actually raise a high level of concern and should be taken into consideration for drawing the Trade Union List up.

¹⁸ – Commission Recommendation of 19 September 2003 concerning the European schedule of occupational diseases (notified under document number C(2003) 3297) (Text with EEA relevance) (2003/670/EC) ANNEX I.

- ILO encyclopedia of Occupational Health and Safety 4th Edition: Chapter 7 - Nervous System, Chapter 12 - Skin Diseases, Chapter 10 - Respiratory System, Chapter 104 - Guide to Chemicals, Chapter 13 - Systemic Conditions, etc.
- “Potentials for exposure to industrial chemicals suspected of causing developmental neurotoxicity” Philippe Grandjean, MD, PhD, Adjunct Professor; Marian Perez, MPH, Project Coordinator. Department of Environmental Health, Harvard School of Public Health, Boston, MA, USA.
- CHARGE TO THE NORA CROSS-SECTOR COUNCIL. Version of March 8, 2007. Appendix 1: Generic and cross-sector issues for consideration by NORA Sector Councils.
- “Developmental neurotoxicity of industrial chemicals - A silent pandemic” The Lancet epub 8 Nov. 2006. Grandjean P, Landrigan PJ.
- “Exposure-response relationships of occupational inhalative allergens”. Baur X, Chen Z, Liebers V. Research Institute for Occupational Medicine (BGFA), Institute at the Ruhr-Universität Bochum, Germany. Clin Exp Allergy. 1998 May;28(5):537-44.
- “Epidemiology and etiologic agents of occupational asthma” Ameille J, Larbanos A, Descatha A, Vandenplas O. Rev Mal Respir. 2006 Dec;23(6):726-40.
- “The state of occupational safety and health in the European Union”. European agency for safety and health at work.

¹⁹ HPV, high-production volume; CERCLA, Comprehensive Environmental Response, Compensation, and Liability Act; TRI, Toxic Release Inventory.

3.2. Identifying substances for prioritisation

The next step is the identification of substances with the selected hazardous properties.

Carcinogenic substances

REACH includes substances meeting the criteria for classification as carcinogenic category 1 or 2 in accordance with Directive 67/548/EEC. These substances are labelled with risk phrases R45 and R49. However this Directive does not include substances that are identified in the IARC²⁰ volumes as substances that are human carcinogens (IARC 1) and probable human carcinogens (IARC 2A). The scientific evidence behind IARC reports is strong enough to include these substances in the priority list since they raise a level of concern equivalent to those substances classified as carcinogenic category 1 or 2, in accordance with Directive 67/548/EEC.

Category 3 substances have possible carcinogenic effects on humans but the available information is not adequate for making a satisfactory assessment. This lack of data can't be translated into a non dangerous equivalence. As category 3 carcinogens present some evidence on carcinogenicity from appropriate animal studies, we believe with many others that the precautionary principle has to be applied^{21, 22, 23, 24}. Along the same line, the Council and the European Parliament, based on an opinion from the Scientific Committee on cosmetic products and non-food products intended for consumers²⁵, introduced in Directive 76/768/EEC a new provision namely Article 4b that prohibits the use in cosmetic products of the substances CMR category 1, 2 and 3 as classified in the Annex I of Directive 67/548/EEC.

²⁰ International Agency for Research on Cancer: <http://www.iarc.fr/>.

²¹ Carcinogens. Notes for Guidance. University of Leicester. <http://www.le.ac.uk/safety/documents/pdfs/carcinogens-guide.pdf>.

²² Carcinogens, Mutagens and Substances Toxic to Reproduction. University of Bristol. <http://www.chm.bris.ac.uk/safety/carcinogens.htm>.

²³ French Agency for Environmental and Occupational Health Safety (Afsset). <http://www.afsset.fr/index.php?pageid=1464&parentid=805#>.

²⁴ GUIDELINES FOR THE MANAGEMENT OF CARCINOGENS. LA TROBE UNIVERSITY. <http://www.latrobe.edu.au/pc/ohs/ohs-manual/carcinogens.pdf>.

²⁵ SCCNFP/0825/04.

Therefore, substances considered as carcinogens in the Trade Union list include:

- Substances classified as category 1, 2 or 3 in accordance with Directive 67/548/EEC. Identified as substances belonging to Annex I of the above mentioned Directive labelled with risk phrases R45, R49 and R40.
- Substances classified by IARC as human carcinogens (IARC 1), that are probable human carcinogens (IARC 2A) and that are possible human carcinogens (IARC 2B).

Mutagenic substances

REACH includes substances meeting the criteria for classification as mutagenic category 1 or 2 in accordance with Directive 67/548/EEC. These substances are labelled with risk phrase R46.

Furthermore, substances classified as mutagenic substances category 3 (possible human mutagens) in accordance with Directive 67/548/EEC, have also been included in the TU List in coherency with the precautionary approach used for category 3 carcinogens.

Therefore, substances considered as mutagenic in the Trade Union List include:

- Substances classified as mutagenic category 1, 2 or 3 in accordance with Directive 67/548/EEC. Identified as substances belonging to Annex I of the above mentioned Directive labelled with risk phrases R46 and R68.

Substances that are toxic for reproduction

REACH includes chemicals meeting the criteria for classification as toxic for reproduction category 1 or 2 in accordance with Directive 67/548/EEC. These substances are labelled with risk phrases R60 and R61.

Furthermore, substances classified as toxic for reproduction category 3 (may impair fertility and may cause harm to the unborn child) in accordance with Directive 67/548/EEC have also been included in the TU List in coherency with the precautionary approach used for category 3 carcinogens.

Therefore, substances considered as toxic for reproduction in the Trade Union List include:

- Substances classified as toxic for reproduction category 1, 2 or 3 in accordance with Directive 67/548/EEC. Identified as substances belonging to Annex I of the above mentioned Directive labelled with risk phrases R60, R61, R62 and R63.

Persistent, Bioaccumulative and Toxic substances (PBT)

REACH includes substances which are persistent, bioaccumulative and toxic in accordance with the criteria set out in Annex XIII of this Regulation. We believe that Annex XIII criteria cover less PBT substances than the criteria set out by the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic²⁶ which aims at eliminating the release of these substances into the marine environment by year 2020. The OSPAR Convention has been signed by the European Union.

Another list of PBT substances has been published by the EU²⁷ as part of the interim-strategy between the “old” European Chemicals legislation and REACH, by a working group established as subgroup of TCNES in 2003. The group evaluated 127 Existing Chemicals and 101 New Substances for their PBT/vPvB properties. For the moment, nevertheless, it only comprises 27 substances, all of them already included in the OSPAR list.

The scientific evidence behind OSPAR PBT substances list is strong enough to include these substances in the list for prioritisation as they give rise to an equivalent level of concern to the substances classified as PBT by REACH.

As OSPAR criteria for listing PBT show a greater level of protection to human health and the environment, the OSPAR list has been taken into consideration in the Trade Union list of priority substances.

²⁶ <http://www.ospar.org/>.

²⁷ EU's PBT/vPvB working group. 16th Joint Meeting of the Competent Authorities for the implementation of Council Directive 67/548/EEC (Dangerous Substances) and Council Regulation (EEC) 793/93 (Existing Substances). 11 December 2007. Ispra, 6 December 2007. Doc: JM/19/2007.

Endocrine disrupters

Ongoing research on endocrine disruption continuously provides new lists of substances with these properties. Several publications provide updated lists of endocrine disrupters taking into account scientific publications on the issue. More than 2,250 substances have been identified worldwide as having these properties. The short term action plan of the EU Strategy on endocrine disrupters foresees the setting up of a priority list of endocrine disrupting substances. Until now, the Commission has published two communications²⁸ on the issue with tables of priority substances that are known to be endocrine disrupters and substances with insufficient data. These lists include around 400 substances.

The Trade Union proposal for a Priority List includes both the known and suspected substances included in the Commission's communications. Experts participating in the scientific task groups on these lists believe that there is sufficient evidence to consider the suspected substances as endocrine disrupters.

Furthermore, those substances have also been classified as endocrine disrupters by international scientific publications.

Neurotoxic substances

An article from Vela, Laborda and García²⁹ published in 2003, proposed some classification criteria and a provisional list for occupational neurotoxicants.

The proposed Trade Union Priority List includes as neurotoxicants those substances listed in the provisional list published by Vela, Laborda and García.

²⁸ "Community Strategy for Endocrine Disrupters - a range of substances suspected of interfering with the hormone systems of humans and wildlife" COM(2001) 262, which covers the time period 1999 to 2001.

COMMISSION STAFF WORKING DOCUMENT on the implementation of the "Community Strategy for Endocrine Disrupters" - a range of substances suspected of interfering with the hormone systems of humans and wildlife (COM (1999) 706), (COM (2001) 262) and (SEC (2004) 1372).

²⁹ "Vela, M.M., Laborda, R. and García, A.M., in *Neurotóxicos en el ambiente laboral: criterios de clasificación y listado provisional*. Arch Prev Riesgos Labor 2003; 6 (1): 17-25.

Sensitisers

The proposed Trade Union Priority List includes as sensitisers, the substances included in Annex I of Directive (67/548/EEC) with risk phrases R42 (May cause sensitisation by inhalation) and R43 (May cause sensitisation by skin contact).

The data source used to document the Trade Union list was the RISCTOX database (<http://www.istas.net/risctox/>) which contains information on more than 100,000 chemicals. Risctox database includes:

- data of identification and classification of substances
- health effects (cancer, mutagenicity, reproductive toxicity, neurotoxicity, endocrine disruption and sensitisation)
- environmental effects (aquatic and soil toxicity, persistence, bioaccumulation and damage to the atmosphere)
- threshold limit values and occupational diseases related to substances
- environmental regulation applicable to the substances
- information on restricted or banned substances

As a result, RISCTOX was used to obtain information on the following properties:

- | | |
|----------------------------------|---|
| ■ Carcinogens | 67/548/EEC (R40, R45, R49)
IARC (1, 2A and 2B groups) |
| ■ Mutagens | (67/548/EEC) (R46, R68) |
| ■ Toxics for Reproduction | (67/548/EEC) (R60, R61, R62 and R63) |
| ■ PBT | (OSPAR and EU's PBT/vPvB working group ³⁰) |
| ■ Endocrine Disrupters | EU COM (2001) 262 |
| ■ Neurotoxicants | Document: Vela, M.M., Laborda, R. & García, A.M., in <i>Neurotóxicos en el ambiente laboral</i> |
| ■ Sensitisers | (67/548/EEC) (R42, R43) |

³⁰ 16th Joint Meeting of the Competent Authorities for the implementation of Council Directive 67/548/EEC (Dangerous Substances) and Council Regulation (EEC) 793/93 (Existing Substances). 11 December 2007. Ispra, 6 December 2007. Doc: JM/19/2007.

3.3. Selecting the priority criteria

REACH article 58(3) specifies that the substances that shall normally be given priority to enter the Authorisation List (Annex XIV) are:

- 1) PBT/very Persistent and very Bioaccumulative (vPvB), or
- 2) those substances which have dispersive use, or
- 3) those which are produced in high volumes

Based on these requirements, the priority criteria chosen in the Trade Union List are:

1. Workers' exposure estimated through High Production Volume Chemicals (HPVC).
2. Occupational health and environmental effects.

The starting point of the Trade Union Priority List is therefore, the 2,782 substances included in the HPV Chemicals Information System which is part of ESIS (European chemical Substances Information System), from ECB³¹.

These substances are produced in or imported into the EU in quantities greater than 1,000 tonnes/year.

Due to the lack of real occupational and environmental exposure data, this HPV-chemical starting point is used as an indicator of wide exposure.

However, we are aware that, for this same reason, many substances that have very dangerous properties for workers' health and the environment may fall out of this priority list.

Among these substances, there are:

- 378 carcinogens (categories 1 or 2)
- 78 carcinogens (IARC 1 or 2A)
- 63 known endocrine disruptors
- 109 mutagens (categories 1 or 2)
- 80 reprotoxicants (categories 1 or 2)
- 137 sensitisers
- 182 neurotoxicants
- 60 carcinogens (category 3)
- 62 carcinogens (IARC 2B)
- 32 mutagens (category 3)
- 24 reprotoxicants (category 3)

At least 400 of these substances fall under any of the category of priority substances according to REACH Regulation (Article 57): CMR, PBT, etc.

3.4. Defining values for each criterion

The priority criteria used to draw the Trade Union Priority List up are based on the European Union Risk Ranking Method for ranking the HPVC (EURAM), which takes into account several issues like the release into the environment, environmental exposure, human exposure, human health effects, etc. This is illustrated in the following table. >

³¹ European Chemicals Bureau: <http://ecb.jrc.it/esis/index.php?PGM=hpv>.

■ Table 3.18 Health effects scores used by EURAM and MAFF prioritisation schemes

Health effect (Type of exposure) ^a		R-pharse	Health effect score	
			EURAM ^b	MAFF ^c
Acute toxicity	Very toxic (Oral)	R28	3	2/3
	Very toxic (Dermal)	R27	3	2/3
	Very toxic (Inhalation)	R26	3	2/3
	Toxic (Oral)	R25	2	Not used
	Toxic (Dermal)	R24	2	Not used
	Toxic (Inhalation)	R23	2	Not used
	Harmful (Oral)	R22	1	1
	Harmful (Dermal)	R21	1	1
	Harmful (Inhalation)	R20	1	1
Chronic toxicity	Causes severe burns	R35	6	2
	Causes burns	R34	6	2
	Irritancy			
	Irritating to skin	R38	5	Not used
	Risk of serious damage to eyes	R41	6	2
	Irritating to eyes	R36	5	Not used
	Irritating to respiratory system	R37	5	Not used
	Sensitisation			
	May cause sensitisation by inhalation	R42	7	7
	May cause sensitisation by skin contact	R43	6	6
	Carcinogenicity			
	May cause cancer in humans	R45	10	10
	May cause cancer in humans (inhalation)	R49	10	10
	Possible risk of irreversible effects	R40 ^d	9	9
	Mutagenicity			
	May cause heritable genetic damage	R46	10	10
	Possible risk of irreversible effects	R40 ^d	9	Not used
	Reproductive toxicity			
	May impair fertility	R60	10	10
	Possible risk of impaired fertility	R62	9	9
	May cause harm to unborn child	R61	10	10
	Possible risk of harm to the unborn child	R63	9	9
	May cause harm to breast-fed babies	R64	9	9
	Other health effects			
	Danger of cumulative effects on health (Repeat Dose)	R33	5	5
	Toxic to health (Prolonged)	R48	7	7
	Harmful to health (Prolonged)	R48	6	6

Default categories= 5 (MAFF) or 0 (EURAM). ^a Definitions from HSC (1997); ^b Hansen et. al. (1999); ^c Wearne et. al. (1996); ^d R40 has been redefined as "Limited evidence of a carcinogenic effect": see <http://www.hse.gov.uk/chip/phrases.htm> (accessed 10/03/04).

These prioritisation criteria have been adapted to include endocrine disrupters and PBT, as shown in the next table:

SUBSTANCES	Score
Carcinogens: cat.1 or cat.2	
IARC Carcinogens : 1 or 2A groups	
Mutagens: cat.1 or cat.2	
Reprotoxics: cat.1 or cat.2	10
EU known Endocrine Disrupters	
PBT	
Carcinogens: cat.3. IARC Carcinogens : 2B group	
Mutagens: cat. 3	
Reprotoxics: cat. 3	9
Sensitisers	
Neurotoxicants	
EU Endocrine Disrupters with insufficient data	7

Score will be applied by effect. Hence one substance that is a carcinogen according to 67/548/EEC and also according to IARC, will have the points of one of them (the one with maximum score). The same rule will be applied for substances that are toxic for reproduction which may both impair fertility and cause harm to the foetus.

3.5. Developing the list

3.5.1. Ordering by score

The HPVC list was combined with the selected lists of substances with hazardous properties and ordered by score.

3.5.2. Exclusion of exemptions

Since not all of these substances are eligible for inclusion in the upcoming REACH candidate list, the following substances were removed:

1. **Substances already banned** by other means (POPs, Stockholm convention; Annex A substances -terphenyl-)
2. **Speisses, mattes, sludges, slimes, drosses, skims, calcines and residues**³².
3. **Pesticides and biocides**; Pesticides and biocides are exempted from REACH. However, some of the substances used as pesticides may have other uses, consequently covered by REACH.

Major uses of substances have been checked in the Hazardous Substances Data Bank (HSDB)³³, a comprehensive, peer-reviewed toxicology database for about 5,000 chemicals. Substances that only have pesticide or biocide use have been removed from the list
4. **Complex hydrocarbon distillates**; Almost all hydrocarbon distillates (90-95%) occur only in fuel streams, coming from refined or unrefined petroleum; therefore, many of them might be exempted from REACH authorisation and were removed from the list.

³² Annex V. REACH.

³³ <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?>

3.5.3. Inclusion of refractory ceramic fibres

According to the European Association (ECFIA), in Europe in 2005, 25,000 tonnes of aluminium silicate wools (as RCF are called nowadays) have been used (89.7 % in industry, 8 % in car production, 2 % for fire protection, and 0.3 % for household goods)³⁴.

In Europe, annually about 25,000 - 30,000 workers are exposed to all three types of "high temperature wools" (altogether about 45,000 t/year for the three types: earthalkaline silicate wools [AES wools]: 18,000 t; polycrystalline wools: 2,000 t; aluminium silicate wools: 25,000 t).

RCF have been also proposed by the Commission as a candidate substances for which an Occupational Exposure Limit Value might be defined at EU level³⁵, which means that they are recognized to be highly relevant for workers.

Therefore, RCF have been included in the List.

3.5.4. Identification of substances linked to occupational diseases and/or classified as hazardous in the EU

■ Occupational diseases

Inclusion of substances linked to occupational diseases in the Candidate List and in the Authorisation List, is crucial for the improvement of workers' health and environment. That's why substances listed in Annex I to the Commission Recommendation (19/09/2003) concerning the European schedule of occupational diseases have been highlighted in the TU List.

These substances are involved in scientifically recognised occupational diseases liable for compensation in most EU countries.

³⁴ <http://www.ecfia.eu/>.

³⁵ Proposal for addition in Annex III of the Carcinogens Directive: (2004/37/EC)No VT/2008/063.

We have also highlighted the substances included in the “**additional list of diseases suspected of being occupational in origin which should be subject to notification and which may be considered at a later stage for inclusion in Annex I to the European schedule**”³⁶.

Nevertheless no scoring was applied to the substances capable of producing an occupational disease, considering that this approach is not consistent with scoring the different health and environmental effects.

■ Already classified substances

According to REACH article 59, the European Chemicals Agency (on behalf of the European Commission) or Member State Competent Authorities have to identify substances meeting the criteria referred to in Article 57 and establish a candidate list for eventual inclusion in Annex XIV.

The Agency or any individual Member State may prepare a dossier (Annex XV) suggesting substances that scientifically speaking would belong to the above groups of substances of very high concern. This dossier “**may be limited, if appropriate, to a reference to an entry in Annex I of Directive 67/548/EEC**”, as these substances are already assessed.

This means, according to the article 57 criteria, that at least, all the CMR substances category 1 or 2 included in the list of hazardous substances with an harmonised classification at EU level don’t need the submission of a whole annex XV dossier. It would be enough if a Member State or the Commission refers to the respective entry in Annex I.

In order to facilitate the identification of these substances in the TU list, all entries also listed in Annex I of Directive 67/548/EEC have been flagged with the corresponding reference (see “Annex I entry” in the TU list).

³⁶ Annex II from Commission Recommendation (19/09/2003) concerning the European schedule of occupational diseases. C(2003) 3297 final.

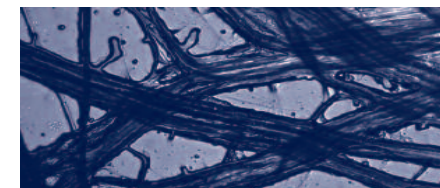
4. Results

The resulting Trade Union Priority List³⁷ includes 306 HPVC entries with at least one of the selected dangerous properties ordered by score. 191 out of these entries are substances or groups of substances related with recognised occupational diseases and 52 entries are from substances that cause diseases suspected of being occupational in origin.

This ranking is the result of applying the corresponding score to each substance. Acrylamide, has the maximum score (43 points), therefore, among the high production substances, it is considered the most dangerous for health and environment, because it is:

- carcinogen category 2, according to 67/548/EEC and also according to IARC (category 2A); 10 points
- mutagen category 2; 10 points
- toxic for reproduction (category 3); 9 points
- sensitiser; 7 points
- neurotoxicant; 7 points

In order to reduce the matrix, substances with very high similarities, have been grouped like “xylene/m-xylene/p-xylene/o-xylene” or “anthracene compounds” together. As a result, entries can be substances but also group entries covering a whole range of substances. Out of the 306 substances included in the TU list, 247 are also listed in Annex I of Directive 67/548/EEC (including 90 substances classified as CMR category 1 or 2).



³⁷ See Annex I: Trade Union Priority List

5. Discussion

5.1. Lack of information

5.1.1. Toxicity information

It is important to mention that, due to the lack of information on certain substances, SVHC with complete data might be over-represented at the top of the Trade Union List. Other substances not assessed yet, may be not included in the TU List, since only officially reviewed data on substances have been taken into account.

Moreover, when grouping chemicals, several isomers had different official extent (or lack) of available test data –marked with * in the List–. In those cases, the most hazardous substance was taken as a reference for the whole group.

For instance p-cresol has been assessed by the EU working group³⁸, as a substance with potential evidence of endocrine disrupter effects. This is not the case for its other isomers (ortho and meta cresols). p-cresol properties were taken as reference for the whole group “cresol and its isomers”.

Errors might be introduced into the prioritisation scheme due to these data gaps.



³⁸ Commission staff working document. SEC(2007) 1635.

5.1.2. Production Volume information

The high production volume data used for this project are from the European Chemicals Bureau and were published in 1999. This high production chemicals database was established by the Existing Chemicals Regulation on the evaluation and control of the risks of existing substances³⁹, for substances produced in the European market between 1971 and 1981⁴⁰. Thus this information may not be properly updated and it is clear that many substances produced nowadays in high production volumes in Europe, are not considered in the TU List.

Triethyl arsenate for instance, has been identified as SVHC in the REACH Candidate list⁴¹, but it is not in the TU List because it is a "new substance" (registered after 1981) and it is not included in the ECB's HPVC database.

One example of substance with non updated information is musk xylene which might be recommended by ECHA for inclusion in Annex XIV⁴², and is registered as Low Production Volume Chemical (LPVC) in the ECB database⁴³.

In the near future, a possible new starting point for the TU List could be the substances registered in the ECHA database. Information on chemicals currently on the EU market whose production is more than 1 ton/year including their general types of use (widespread or not) would then be available. Nevertheless, for all of these other substances not belonging to the EU list of "existing substances", it will be rather difficult to get sufficiently reliable data on production volumes before the end of 2010. This information might be obtained from IUCLID data in ESIS or the OECD HPV program.

At present the list of pre-registered substances contains more than 140,000 entries. These substances have been pre-registered with an indication of the envisaged deadline for registration linked to the tonnage band and the hazardous properties of the substance.

³⁹ Council Regulation (EEC) 793/93.

⁴⁰ EINECS inventory of existing chemical substances on the EC market.

⁴¹ http://echa.europa.eu/chem_data/candidate_list_table_en.asp.

⁴² http://echa.europa.eu/consultations/authorisation/draft_recommendations/recommendations_en.asp.
Date of publication: 14/01/09.

⁴³ <http://ecb.jrc.ec.europa.eu/esis/>.

Almost one third of those substances (54,816) are envisaged to be registered by the 30 November 2010 deadline. These substances are thus being produced in more than 1,000 t/y, are CMR 1 or 2; produced in more than 1 t/y; or R50/53 produced in more than 100 t/y. Therefore these substances are directly related with workers' exposure or they can be considered as substances of very high concern.

If this data is compared with the 2,782 substances covered by ECB HPVC database, it becomes clear that the number and the amount of highly produced substances in Europe are dramatically increasing.

5.1.3. Information on occupational exposure

Because of the large number of chemicals produced annually, it is not feasible to conduct real assessments of human exposure and possible health effects for all chemicals. Perhaps it would be possible to calculate an acceptable estimation on exposure with the available data, but this would require a considerable amount of resources.

It is extremely important to choose substances widely used at the workplace –in different sectors– as they can be considered substances of dispersive use.

To find out which substances are widely used, we explored occupational exposure databases. However, it is complicated to find updated occupational exposure databases that cover all EU countries, and most of the existing databases are private.

An additional source to obtain workers' exposure data is the European list of occupational diseases⁴⁴. These substances have been marked in the list as we have mentioned before.

⁴⁴ Commission Recommendation of 19 September 2003 concerning the European schedule of occupational diseases.

Nevertheless, it is very difficult to relate with certainty an occupational disease to a particular substance. On the other hand, the procedure to include substances related with occupational diseases is long and complicated. Therefore, some widely used substances that are related with occupational diseases might not be included in our project.

5.1.4. Wide dispersive use information

Since there is no official available information on substances uses in Europe, it becomes difficult to assess the dispersive use of substances. A complete review on the uses and exposure scenarios of the chemical agents might be needed.

This information won't be accessible before 2010, due to the REACH Registration procedure subject to substances that are produced in more than one ton per year in Europe. More complete information will be available in the exposure scenarios required for substances produced in Europe in more than 10 tonnes per year.

5.1.5. Updated information

It is necessary to update the priority list when additional data is available to create an "active" list of the most concerning substances. Therefore, new substances of very high concern should be gradually included in the TU List.



5.2. SIN List

The SIN* List (*Substitute It Now!) was published in September 2008 by a group of environmental NGOs⁴⁵ coordinated by ChemSec. It contains 267 chemicals that meet the REACH criteria for identification as SVHC.

"The REACH SIN List identifies a set of chemicals through the combined efforts of public interest groups, scientists and technical experts. The list is based on credible, publicly available substance information from existing databases, scientific studies and new research. The aim of the SIN List is to influence European authorities and to provide advance guidance to companies and consumers"⁴⁶.

This is to ensure that REACH is an effective tool to fast-track urgent Substances of Very High Concern for substitution and to facilitate toxic use reduction by businesses.

The TU List is to a large extent based on the REACH methodology just as the SIN List is. The main difference is that the TU List also takes into account the specific issues concerning workers' health at the workplace, applies a precautionary approach towards chemicals 'suspected' of certain harmful effects, and includes a proposal for ranking SVHCs. Therefore the TU list comprises a wider set of chemicals with potential to cause health issues to workers, which partially overlaps with the SIN List, using the official REACH criteria. Both lists however consist of substances that are indeed of high concern for human health and the environment, and should consequently be replaced by safer alternatives or phased out as soon as possible.

The SIN List has 89 substances in common with the TU List. Thus, these 89 substances are jointly of very high concern for workers, consumers and environment and should be urgently included in the REACH candidate list. Furthermore 66 of these common substances are linked with occupational diseases. It is also worth noting that the sum of substances identified as SVHC in the SIN List and in the TU List amounts at 484 (267 + 306 - 89).

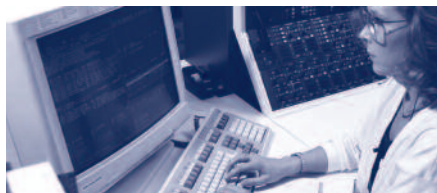
⁴⁵ The Project is guided by an NGO advisory committee including the European Environmental Bureau (EEB), WWF European Policy Office, Greenpeace European Unit, Friends of the Earth Europe (FoEE), Instituto Sindical de Trabajo, Ambiente y Salud (ISTAS), Women in Europe for a Common Future (WECF), the Health and Environment Alliance (HEAL), the European Consumers' Organisation (BEUC) and the Center for International Environmental Law (CIEL).

⁴⁶ http://www.chemsec.org/documents/081021_what_is_the_sin_list.pdf.

5.3. Use of the Candidate List

REACH foresees two processes by which the placing on the market and use of substances may be limited in order to control risks arising from them: the authorization and the restriction processes. Both can be triggered by a Member State or the Commission and they both start with the preparation of an Annex XV dossier.

Since the Candidate List's aim is to identify SVHC, it could be used as a portal to either authorisation or restriction REACH procedures.



6. Conclusions

The aim of the Trade Union Priority List is to feed into the debate on the choice of substances of very high concern for inclusion in the Candidate List.

In the Trade Union's view the most urgent SVHC are those to which workers are most exposed and are known to cause recognised work-related diseases.

We believe that including the union-listed chemicals in the Candidate List will allow professional users to get more information on their uses. If they are subsequently prioritised in the Authorisation List (or subject to restrictions), it would surely promote the development of safer alternatives and cut both the incidence of chemical-related occupational diseases and the attendant costs for the community, workers and industry itself.

Moreover, we also believe that the Candidate List should include all relevant SVHC present on the EU market and at least all CMRs classified in category 1 or 2 in accordance with Annex I of Directive 67/548/EEC.

Prioritising substances subject to authorisation or restriction under REACH has become a need for the Authorities. In this work, the Trade Unions propose a method for ranking Substances of Very High Concern by scores which also takes into consideration endocrine disruptors, neurotoxic substances and sensitisers. In addition, it includes a precautionary approach towards category 3 CMRs and other chemicals suspected of certain harmful effects. The proposed methodology might be useful to choose the SVHC to start with.

Annex I: Trade Union Priority List

- ◆ Substances or group of substances related with recognised occupational diseases.
- Substances or group of substances related with diseases suspected of being occupational in origin which should be subject to notification and which may be considered at a later stage for inclusion in Annex I to the European schedule.

Groups marked with * in the list: several isomers of this group might have different extent (or lack) of available test data. In those cases, most hazardous substance was taken as a reference for the whole group.

Annex I entry: Entry for Directive 67/548/EEC Annex I

C1: Carcinogen Category 1 according to Directive 67/548/EEC classification criteria

C2: Carcinogen Category 2 according to Directive 67/548/EEC classification criteria

C3: Carcinogen Category 3 according to Directive 67/548/EEC classification criteria

CAS: Registry number from Chemical Abstracts Service

ED: Endocrine Disrupter

ED1: Known to be endocrine disrupters according with Community Strategy for Endocrine Disrupters

ED2: Suspected to be endocrine disrupter according with Community Strategy for Endocrine Disrupters

EINECS: European Inventory of Existing Chemical Substances

IARC: International Agency for Research of Cancer

IARC 1: Human carcinogen according to IARC criteria

IARC 2A: Probable human carcinogen according to IARC criteria

I 2B: Possible human carcinogen according to IARC criteria

M1: Mutagen category 1 according to Directive 67/548/EEC classification criteria

M2: Mutagen category 2 according to Directive 67/548/EEC classification criteria

M3: Mutagen category 3 according to Directive 67/548/EEC classification criteria

n: neurotoxic

PBT: Persistent, Bioaccumulative and Toxic

R: Toxic for Reproduction

R1: Reprotoxic category 1 according to Directive 67/548/EEC classification criteria

R2: Reprotoxic category 2 according to Directive 67/548/EEC classification criteria

R3: Reprotoxic category 3 according to Directive 67/548/EEC classification criteria

s: sensitiser

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
1. acrylamide	616-003-00-0	201-173-7	79-06-1	10	0	10						9	7	7		43		
2. nitrotoluene *	609-065-00-5 / 609-006-00-3	201-853-3 / 202-808-0	88-72-2 / 99-99-0	10		10		9				9				38	Nitrated derivatives of aromatic hydrocarbons	
3. sodium chromates	024-018-00-3 / 024-004-00-7	231-889-5 / 234-190-3	7775-11-3 / 10588-01-9	10	0	10	10						7			37	Chromium or compounds thereof	
4. diphenyl ether, octabromo derivative	602-094-00-4	251-087-9	32536-52-0				10	9	9	9						37	Ethers or their halogenated derivatives	
5. ammonium dichromate	024-003-00-1	232-143-1	7789-09-5	10	0	10	10						7			37	Chromium or compounds thereof	
6. cobalt sulphate	027-005-00-0	233-334-2	10124-43-3	10			10			0	9		7			36	Esters or their halogenated derivatives	
7. Nickel and its compounds *	028-002-00-7 / 028-012-00-1 / 028-011-00-6 / 028-010-00-0 / 028-009-00-5 / 028-003-00-2	231-111-4 / 236-068-5 / 231-743-0 / 222-068-2 / 232-104-9 / 215-215-7	7440-02-0 / 13138-45-9 / 7718-54-9 / 3333-67-3 / 7786-81-4 / 1313-99-1	10	0		10				9		7			36	Nickel or compounds thereof	
8. chromium trioxide	024-001-00-0	215-607-8	1333-82-0	10	0	10						9	7			36	Chromium or compounds thereof	
9. dinitrotoluene and its isomers *	609-007-00-9	204-450-0 / 246-836-1	121-14-2 / 25321-14-6	10						0	9	9		7		35	Nitrated derivatives of aromatic hydrocarbons	
10. hexachlorobenzene	602-065-00-6	204-273-9	118-74-1	10				9	9	0				7		35	Halogenated derivatives of the aromatic hydrocarbons	
11. Di alkyl phthalates*: DEHP / Butyl benzyl phthalate / Di-n-butyl phthalate	607-317-00-9 / 607-430-00-3 / 607-318-00-4	204-211-0 / 201-622-7 / 201-557-4	117-81-7 / 85-68-7 / 84-74-2				10	9	9					7		35	Esters or their halogenated derivatives	
12. Bisphenol A	604-030-00-0	201-245-8	80-05-7					9	9			9	7			34	Phenols or counterparts or halogenated derivatives thereof	
13. dimethyl sulphate	016-023-00-4	201-058-1	77-78-1	10	0						9		7	7		33	Esters or their halogenated derivatives	
14. alachlor	616-015-00-6	240-110-8	15972-60-8					9		9			7	7		32	Halogenated derivatives of the aromatic hydrocarbons	
15. Hydroquinone	604-005-00-4	204-617-8	123-31-9							9	9		7	7		32	Ketones or their halogenated derivatives	
16. alfa,alfa,alfa,4-tetrachlorotoluene	602-093-00-9	226-009-1	5216-25-1	10				9				9				28	Halogenated derivatives of the aromatic hydrocarbons	

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
17. divanadium pentaoxide	◆ 023-001-00-8	215-239-8	1314-62-1							9	9	9				27	Vanadium or compounds thereof	◆
18. 1,2-Epoxypropane	◆ 603-055-00-4	200-879-2	75-56-9	10		10				0				7		27	Encephalopathies or polyneuropathies due to organic solvents	◆
19. Naphthas *	◆ 649-262-00-3 / 649-308-00-2 / 649-264-00-4 / 649-265-00-X / 649-266-00-5 / 649-271-00-2 / 649-367-00-4 / 649-370-00-0 / 649-371-00-6 / 649-374-00-2 / 649-273-00-3 / 649-274-00-9 / 649-275-00-4 / 649-276-00-X / 649-277-00-5 / 649-278-00-0 / 649-279-00-6 / 649-282-00-2 / 649-286-00-4 / 649-289-00-0 / 649-290-00-6 / 649-292-00-7 / 649-294-00-8 / 649-295-00-3 / 649-299-00-5 / 649-300-00-9 / 649-307-00-7 / 649-316-00-6 / 649-317-00-1 / 649-326-00-0 / 649-327-00-6 / 649-328-00-1 / 649-329-00-7 / 649-330-00-2 / 649-335-00-X / 649-338-00-6 / 649-339-00-1 / 649-342-00-8 / 649-348-00-0 / 649-349-00-6 / 649-350-00-1 / 649-355-00-9 / 649-377-00-9 / 649-384-00-7 / 649-392-00-0 / 649-393-00-6 / 649-397-00-8 / 649-383-00-1 / 649-304-00-0	232-443-2 / 273-271-8 / 265-041-0 / 265-042-6 / 265-046-8 / 272-186-3 / 271-138-9 / 271-264-4 / 271-266-5 / 272-206-0 / 309-945-6 / 265-066-7 / 265-067-2 / 265-068-8 / 265-073-5 / 265-086-6 / 265-095-5 / 271-267- / 295-440-5 / 265-055-7 / 265-056-2 / 272-185-8 / 295-431-6 / 295-441-0 / 265-065-1 / 265-070-9 / 272-895-8 / 265-075-6 / 265-085-0 / 295-447-3 / 265-150-3 / 265-151-9 / 265-178-6 / 265-185-4 / 285-511-9 / 295-433- / 295-438-4 / 296-942-7 / 265-071-4 / 265-079-8 / 265-089-2 / 265-187-5 / 285-510-3 / 295-442-6 / 308-713-1 / 308-714-7 / 309-976-5 / 295-434-2 / 270-993-5	8030-30-6 / 68955-35-1 / 64741-41-9 / 64741-42-0 / 64741-46-4 / 68783-12-0 / 68516-20-1 / 68527-23-1 / 68527-26-4 / 68783-66-4 / 101631-20-3 / 64741-64-6 / 64741-65-7 / 64741-66-8 / 64741-70-4 / 64741-84-0 / 64741-92-0 / 68527-27-5 / 92045-58-4 / 64741-54-4 / 64741-55-5 / 68783-09-5 / 92045-50-6 / 92045-59-5 / 64741-63-5 / 64741-68-0 / 68919-37-9 / 64741-74-8 / 64741-83-9 / 92045-65-3 / 64742-48-9 / 64742-49-0 / 64742-73-0 / 64742-82-1 / 85116-60-5 / 92045-52-8 / 92045-57-3 / 93165-55-0 / 64741-69-1 / 64741-78-2 / 64741-87-3 / 64742-83-2 / 85116-59-2 / 92045-60-8 / 98219-46-6 / 98219-47-7 / 101795-01-1 / 92045-53-9 / 68513-03-1	10		10								7		27	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
20. ethylene oxide	◆ 603-023-00-X	200-849-9	75-21-8	10	0	10								7		27	Encephalopathies or polyneuropathies due to organic solvents	◆
21. nonylphenol *	◆ 601-053-00-8	246-672-0 / 284-325-5	25154-52-3 / 84852-15-3					9	9			9				27	Phenols or counterparts or halogenated derivatives thereof	◆
22. Lead chromates	◆ 082-009-00-X / 082-010-00-5	215-693-7 / 235-759-9	1344-37-2 / 12656-85-8	10	0	10								7		27	Chromium + lead or compounds thereof	◆
23. Lead, inorganic compounds *	◆ 082-001-00-6	235-067-7 / 235-252-2 / 235-380-9 / 215-235-6 / 215-267-0 / 270-148-0 / 231-100-4	12065-90-6 / 12141-20-7 / 12202-17-4 / 1314-41-6 / 1317-36-8 / 68411-78-9 / 7439-92-1		10	10								7		27	Lead or compounds thereof	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
24. 4,4'-methylenedianiline	◆ 612-051-00-1	202-974-4	101-77-9	10						0	9		7			26	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
25. anthracene compounds	◆ 648-107-00-7 / 648-079-00-6 / 648-103-00-5 / 648-104-00-0 / 648-106-00-1 / 648-108-00-2	295-276-4 / 292-602-7 / 292-603-2 / 292-604-8 / 295-275-9 / 295-278-5	91995-16-3 / 90640-80-5 / 90640-81-6 / 90640-82-7 / 91995-15-2 / 91995-17-4	10					9						7	26	Anthracene or compounds thereof	◆
26. 3,3'-dichlorobenzidine / 3,3'-dichlorobenzidine dihydrochloride	◆ 612-068-00-4 / 611-024-00-1	202-109-0 / 210-323-0	91-94-1 / 612-83-9	10	0				9				7			26	Halogenated derivatives of the aromatic hydrocarbons	◆
27. phenylhydrazine	◆ 612-023-00-9 [1]	202-873-5	100-63-0	10							9		7			26	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
28. tetrachloroethylene	◆ 602-028-00-4	204-825-9	127-18-4		10			9		0				7		26	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
29. trichloroethylene	◆ 602-027-00-9	201-167-4	79-01-6	10	0						9			7		26	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
30. Lead, organic compounds *	◆ 082-002-00-1	200-897-0 / 201-075-4 / 241-894-4 / 273-688-5 / 214-005-2 / 235-702-8 / 217-170-9	75-74-1 / 78-00-2 / 17976-43-1 / 69011-06-9 / 1072-35-1 / 12578-12-0 / 1762-27-2				10		9					7		26	Lead or compounds thereof	◆
31. nitromethane	◆ 609-036-00-7	200-876-6	75-52-5						9	9				7		25	Aliphatic nitrated derivatives	◆
32. styrene	◆ 601-026-00-0	202-851-5	100-42-5					9		9				7		25	Vinylbenzene	◆
33. nitrobenzene	◆ 609-003-00-7	202-716-0	98-95-3							9		9		7		25	Nitrated derivatives of aromatic hydrocarbons	◆
34. Chlorinated paraffins, C10-13/ Paraffin waxes and Hydrocarbon waxes, chloro / Paraffin oils, chloro	◆ 602-080-00-8	287-476-5 / 264-150-0 / 287-196-3	85535-84-8 / 63449-39-8 / 85422-92-0						9	9				7		25	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
35. 3,4-dichloroaniline	◆ 612-202-00-1	202-448-4	95-76-1					9	9				7			25	Halogenated derivatives of the aromatic hydrocarbons	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, 12B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
36. o-phenylenediamine	612-145-00-2	202-430-6	95-54-5							9	9		7			25	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	
37. aniline	612-008-00-7	200-539-3	62-53-3							9	9		7			25		
38. bromomethane	602-002-00-2	200-813-2	74-83-9					9			9			7		25	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	
39. carbon disulphide	006-003-00-3	200-843-6	75-15-0					9				9		7		25	Carbon disulphide	
40. acrylonitrile	608-003-00-4	203-466-5	107-13-1	10						0			7	7		24	Acrylonitrile +Aliphatic nitrated derivatives	
41. hydrazine	007-008-00-3	206-114-9	302-01-2	10						0			7	7		24		
42. N,N-dimethylformamide	616-001-00-X	200-679-5	68-12-2				10							7	7	24	Dimethylformamide	
43. 1-chloro-2,3-epoxypropane	603-026-00-6	203-439-8	106-89-8	10	0								7		7	24	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	
44. Dichlorophenoxyacetic acid	607-039-00-8	202-361-1	94-75-7					9					7	7		23	Organic acids	
45. ziram	006-012-00-2	205-288-3	137-30-4					9					7	7		23		
46. thiram	006-005-00-4	205-286-2	137-26-8					9					7	7		23		
47. aziridine	613-001-00-1	205-793-9	151-56-4	10		10				0						20		
48. Alkanes, C1-5	649-114-00-8 / 649-193-00-9 / 649-194-00-4 / 649-195-00-X / 649-196-00-5	292-456-4 / 270-651-5 / 270-652-0 / 270-653-6 / 270-654-1	90622-55-2 / 68475-57-0 / 68475-58-1 / 68475-59-2 / 68475-60-5	10		10										20	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	
49. Hydrocarbons, C1-5-rich	649-083-00-0 / 649-089-00-3 / 649-090-00-9 / 649-091-00-4 / 649-093-00-5 / 649-094-00-0 / 649-116-00-9 / 649-113-00-2 / 649-199-00-1 / 649-200-00-5 / 649-201-00-0	270-990-9 / 271-038-5 / 271-259-7 / 271-261-8 / 271-734-9 / 271-735-4 / 295-405-4 / 289-339-5 / 270-681-9 / 270-682-4 / 270-689-2	68512-91-4 / 68514-36-3 / 68527-16-2 / 68527-19-5 / 68606-25-7 / 68606-26-8 / 92045-23-3 / 87741-01-3 / 68476-40-4 / 68476-42-6 / 68476-49-3	10		10										20	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	
50. Solvent naphthas	648-020-00-4 / 649-341-00-2 / 649-267-00-0 / 649-356-00-4	266-013-0 / 295-529-9 / 265-192-2 / 265-199-0	65996-79-4 / 92062-15-2 / 64742-89-8 / 64742-95-6	10		10										20	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, 12B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
51. 1,2,3-trichloropropane	602-062-00-X	202-486-1	96-18-4	10	0	10										20	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
52. buta-1,3-diene	601-013-00-X	203-450-8	106-99-0	10	0	10										20	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
53. Isobutane (containing >= 0.1 % butadiene (203-450-8))	601-004-01-8 [2]	200-857-2	75-28-5	10		10										20	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
54. diethyl sulphate	016-027-00-6	200-589-6	64-67-5	10	0	10										20	Esters or their halogenated derivatives	■
55. o-anisidine	612-035-00-4	201-963-1	90-04-0	10						0	9					19		
56. furan	603-105-00-5	203-727-3	110-00-9	10						0	9					19		
57. 1,2-Benzenedicarboxylic acid, alkyl esters *	607-480-00-6 / 607-483-00-2	271-084-6 / 276-158-1 / 271-090-9	68515-42-4 / 71888-89-6 / 68515-48-0				10	9								19	Esters or their halogenated derivatives	■
58. dibutyltin dichloride	050-022-00-X	211-670-0	683-18-1				10				9					19		
59. Cadmium (pyrophoric)	048-011-00-X	231-152-8	7440-43-9	10	0						9					19	Cadmium or compounds thereof	◆
60. cadmium oxide	048-002-00-0	215-146-2	1306-19-0	10							9					19	Cadmium or compounds thereof	◆
61. boric acid	005-007-00-2	233-139-2	10043-35-3				10	9								19		
62. 2,4-dichlorophenol	604-011-00-7	204-429-6	120-83-2					9		9						18	Halogenated derivatives of the aromatic hydrocarbons + Phenols or counterparts or halogenated derivatives thereof	◆
63. thiourea	612-082-00-0	200-543-5	62-56-6							9		9				18		
64. 1-chloro-4-nitrobenzene	610-005-00-5	202-809-6	100-00-5							9	9					18	Halogenated derivatives of the aromatic hydrocarbons + Nitrated derivatives of aromatic hydrocarbons	◆
65. 3-chloropropene	602-029-00-X	203-457-6	107-05-1							9	9					18	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
66. bis(tributyltin) oxide	050-008-00-3	200-268-0	56-35-9					9	9							18		

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, C2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
67. octamethylcyclotetrasiloxane	014-018-00-1	209-136-7	556-67-2					9				9				18		
68. bis(pentabromophenyl) ether		214-604-9	1163-19-5					9	9							18	Ethers or their halogenated derivatives	
69. 4-(1,1,3,3-tetramethylbutyl)phenol		205-426-2	140-66-9					9	9							18	Phenols or counterparts or halogenated derivatives thereof	
70. 4-tert-butylphenol		202-679-0	98-54-4					9	9							18	Phenols or counterparts or halogenated derivatives thereof	
71. di-“isoalkyl” phthalates *		249-079-5 / 247-977-1 / 201-553-2 / 248-523-5	28553-12-0 / 26761-40-0 / 84-69-5 / 27554-26-3					9	9							18	Encephalopathies or polyneuropathies due to organic solvents	
72. 4,4'-methylenedi-o-toluidine	612-085-00-7	212-658-8	838-88-0	10						0			7			17		
73. 2-chlorobuta-1,3-diene	602-036-00-8	204-818-0	126-99-8	10						0				7		17	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	
74. Pitch, coal tar, high-temp.	648-055-00-5	266-028-2	65996-93-2	10	0										7	17	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol + Tar + Pitch	
75. coal tar	648-048-00-7	295-312-9	91995-51-6	10											7	17	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol + Tar	
76. diaminotoluene	612-151-00-5	246-910-3	25376-45-8	10									7			17	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	
77. C,C'-azodi(formamide)	611-028-00-3	204-650-8	123-77-3		10								7			17		
78. formaldehyde	605-001-00-5	200-001-8	50-00-0		10					0			7			17	Formaldehyde	
79. 2-(2-aminoethylamino)ethanol	603-194-00-0	203-867-5	111-41-1				10						7			17	Alcohols or their halogenated derivatives	
80. 2-methoxyethanol	603-011-00-4	203-713-7	109-86-4				10							7		17	Methyl ether of ethylene glycol	
81. chloroethylene	602-023-00-7	200-831-0	75-01-4	10	0									7		17	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
82. 1,2-dibromoethane	◆ 602-010-00-6	203-444-5	106-93-4	10	0										7	17	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
83. benzene	◆ 601-020-00-8	200-753-7	71-43-2	10	0									7		17	Benzene or counterparts thereof	◆
84. cobalt	■ 027-001-00-9	231-158-0	7440-48-4		10								7			17	Pulmonary fibroses due to metals	■
85. dichromium iron tetraoxide / chromium (III) hydroxide	◆ 024-017-00-8	215-159-3 / 215-158-8	1308-31-2 / 1308-14-1	10									7			17	Chromium or compounds thereof	◆
86. potassium hydroxyoctaoxodizincate dichromate(1-)	◆ 024-007-00-3	234-329-8	11103-86-9	10	0								7			17	Chromium or compounds thereof	◆
87. carbon monoxide	◆ 006-001-00-2	211-128-3	630-08-0				10							7		17	Carbon monoxide	◆
88. ethyl acrylate	■ 607-032-00-X	205-438-8	140-88-5							9			7			16	Esters or their halogenated derivatives	■
89. vinyl acetate	■ 607-023-00-0	203-545-4	108-05-4							9				7		16	Esters or their halogenated derivatives	■
90. 1,3-dichloropropene	◆ 602-030-00-5 [1]	208-826-5	542-75-6							9			7			16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
91. ethylbenzene	◆ 601-023-00-4	202-849-4	100-41-4							9				7		16	Benzene or counterparts thereof	◆
92. cobalt sulphide	027-003-00-X	215-273-3	1317-42-6							9			7			16		
93. 4-vinylcyclohexene	■	202-848-9	100-40-3							9				7		16	Other aliphatic hydrocarbons	■
94. diisocyanates *	◆ 615-011-00-1 / 615-009-00-0 / 615-007-00-X / 615-006-00-4 / 615-005-00-9	212-485-8 / 225-863-2 / 221-641-4 / 247-722-4 / 247-714-0	822-06-0 / 5124-30-1 / 3173-72-6 / 26471-62-5 / 26447-40-5							9			7			16	Isocyanates	◆
95. 1,4-dichlorobenzene	◆ 602-035-00-2	203-400-5	106-46-7							9				7		16	Halogenated derivatives of the aromatic hydrocarbons	◆
96. carbon tetrachloride	◆ 602-008-00-5	200-262-8	56-23-5							9				7		16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
97. chloroform	◆ 602-006-00-4	200-663-8	67-66-3							9				7		16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
98. dichloromethane	◆ 602-004-00-3	200-838-9	75-09-2							9				7		16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
99. naphthalene	◆ 601-052-00-2	202-049-5	91-20-3							9				7		16	Naphthalene or naphthalene counterparts	◆
100. 2-chloroacetamide	616-036-00-0	201-174-2	79-07-2									9	7			16		
101. p-phenetidine	◆ 612-207-00-9	205-855-5	156-43-4								9		7			16	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
102. p-toluidine	◆ 612-160-00-4 [I]	203-403-1	106-49-0							9			7			16	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
103. m-phenylenediamine	◆ 612-147-00-3	203-584-7	108-45-2								9		7			16	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
104. bis(hydroxylammonium) sulphate	612-123-00-2 [2] ■	233-118-8	10039-54-0							9			7			16	Esters or their halogenated derivatives	■
105. N,N-dimethylaniline	612-016-00-0	204-493-5	121-69-7							9				7		16		
106. 3,5,5-trimethylcyclohex-2-enone	606-012-00-8 ■	201-126-0	78-59-1							9				7		16	Ketones or their halogenated derivatives	■
107. glyoxal	605-016-00-7	203-474-9	107-22-2								9		7			16		
108. phenols	◆ 604-001-00-2 / 648-111-00-9	203-632-7 / 284-881-9	108-95-2 / 84988-93-2								9			7		16	Phenols or counterparts or halogenated derivatives thereof	◆
109. tert-butyl methyl ether	■ 603-181-00-X	216-653-1	1634-04-4					9						7		16	Ethers or their halogenated derivatives	■
110. Bisphenol A diglycidyl ether	■ 603-073-00-2	216-823-5	1675-54-3					9						7		16	Ethers or their halogenated derivatives	■
111. [(tolylxy)methyl]oxirane	603-056-00-X [4]	247-711-4	26447-14-3								9		7			16		
112. 1,1-dichloroethylene	◆ 602-025-00-8	200-864-0	75-35-4							9				7		16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
113. trichloroethane *	◆ 602-014-00-8 / 602-013-00-2	201-166-9 / 200-756-3	79-00-5 / 71-55-6							9				7		16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
114. chloroethane	◆ 602-009-00-0	200-830-5	75-00-3							9				7		16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
115. chloromethane	◆ 602-001-00-7	200-817-4	74-87-3							9				7		16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
116. n-hexane	◆ 601-037-00-0	203-777-6	110-54-3									9		7		16	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
117. (R)-p-mentha-1,8-diene	◆ 601-029-00-7 [2]	227-813-5	5989-27-5						9					7		16	Encephalopathies or polyneuropathies due to organic solvents	◆
118. tributyl phosphate	◆ 015-014-00-2	204-800-2	126-73-8							9				7		16	Organophosphorus esters	◆
119. isooctylphenol	◆	234-304-1	11081-15-5						9						7	16	Phenols or counterparts or halogenated derivatives thereof	◆
120. 4-tert-butyltoluene	◆	202-675-9	98-51-1						9					7		16	Encephalopathies or polyneuropathies due to organic solvents	◆
121. Alkanes, C14-17, chloro	◆	287-477-0	85535-85-9						9						7	16	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
122. maleic anhydride	607-096-00-9	203-571-6	108-31-6										7		7	14		
123. methyl methacrylate	■ 607-035-00-6	201-297-1	80-62-6										7	7		14	Esters or their halogenated derivatives	■
124. biphenyl	■ 601-042-00-8	202-163-5	92-52-4											7	7	14	Diphenyl	■
125. 2-nitroanisole	◆ 609-047-00-7	202-052-1	91-23-6	10						0						10	Nitrated derivatives of aromatic hydrocarbons	◆
126. 2-nitropropane	◆ 609-002-00-1	201-209-1	79-46-9	10						0						10	Aliphatic nitrated derivatives	◆
127. 1,2-dichloroethane	◆ 602-012-00-7	203-458-1	107-06-2	10						0						10	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
128. glass, oxide, chemicals	■	266-046-0	65997-17-3	10						0						10	Broncho-pulmonary ailments caused by man-made mineral fibres	■
129. Refractory Ceramic Fibres	■ 650-017-00-8			10												10	Broncho-pulmonary ailments caused by man-made mineral fibres	■

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, C2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:
130. Disodium tetraborates	005-011-00-4 / 005-011-01-1 / 005-011-02-9	235-541-3 / 215-540-4	12267-73-1 / 1330-43-4				10									10	
131. diboron trioxide	005-008-00-8	215-125-8	1303-86-2				10									10	
132. Diarsenic trioxide	◆ 033-003-00-0	215-481-4	1327-53-3	10												10	Occupational disease: Arsenic or compounds thereof ◆
133. silicon carbide	650-017-00-8	206-991-8	409-21-2	10												10	
134. Lubricating oils and greases	◆ 649-481-00-4 / 649-482-00-X / 649-483-00-5 / 649-484-00-0 / 649-498-00-7 / 649-497-00-1 / 649-527-00-3 / 649-528-00-9 / 649-530-00-X / 649-243-00-X	276-736-3 / 276-737-9 / 276-738-4 / 278-012-2 / 295-424-8 / 295-423-2 / 309-874-0 / 309-875-6 / 309-877-7 / 278-011-7	72623-85-9 / 72623-86-0 / 72623-87-1 / 74869-22-0 / 92045-43-7 / 92045-42-6 / 101316-69-2 / 101316-70-5 / 101316-72-7 / 74869-21-9	10												10	Mineral and other oils ◆
135. Paraffin oils (petroleum), catalytic dewaxed heavy	◆ 649-477-00-2	265-174-4	64742-70-7	10												10	Mineral and other oils ◆
136. Natural gas (petroleum), raw liq. mix	◆ 649-347-00-5 / 649-346-00-X / 649-375-00-8	265-048-9 / 265-047-3 / 272-896-3	64741-48-6 / 64741-47-5 / 68919-39-1	10												10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol ◆
137. Aromatic hydrocarbons	649-310-00-3 / 649-311-00-9 / 649-321-00-3 / 649-313-00-X / 649-357-00-X	295-279-0 / 297-401-8 / 270-658-3 / 297-465-7 / 268-618-5	91995-18-5 / 93571-75-6 / 68475-70-7 / 93572-35-1 / 68131-49-7	10												10	
138. Petrolatums (petroleum)	◆ 649-255-00-5 / 649-257-00-6 / 649-258-00-1 / 649-260-00-2 / 649-254-00-X	265-206-7 / 295-459-9 / 308-149-6 / 309-706-6 / 232-373-2	64743-01-7 / 92045-77-7 / 97862-97-0 / 100684-33-1 / 8009-03-8	10												10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol ◆
139. Slack waxes (petroleum)	◆ 649-244-00-5 / 649-246-00-6 / 649-247-00-1 / 649-248-00-7 / 649-253-00-4	265-165-5 / 292-660-3 / 295-523-6 / 295-524-1 / 309-723-9	64742-61-6 / 90669-78-6 / 92062-09-4 / 92062-10-7 / 100684-49-9	10												10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol ◆
140. Alkanes, C12-26-branched and linear	◆ 649-242-00-4	292-454-3	90622-53-0	10												10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol ◆
141. hydrocarbons (naphta)	◆ 649-237-00-7 / 649-285-00-9 / 649-287-00-X / 649-380-00-5 / 649-385-00-2 / 649-398-00-3	307-757-9 / 295-436-3 / 295-446-8 / 295-298-4 / 295-444-7 / 310-012-0	97722-08-2 / 92045-55-1 / 92045-64-2 / 91995-38-9 / 92045-62-0 / 102110-14-5	10												10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol ◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
142. Hydrocarbons	◆ 649-118-00-X / 649-235-00-6 / 649-236-00-1 / 649-291-00-1 / 649-296-00-9 / 649-297-00-4 / 649-298-00-X / 649-343-00-3 / 649-386-00-8 / 649-399-00-9 / 649-401-00-8 / 649-488-00-2	306-004-1 / 307-659-6 / 307-660-1 / 270-686-6 / 295-794-0 / 309-974-4 / 309-987-5 / 297-852-0 / 295-445-2 / 310-013-6 / 270-690-8 / 292-617-9	95465-89-7 / 97675-85-9 / 97675-86-0 / 68476-46-0 / 92128-94-4 / 101794-97-2 / 101896-28-0 / 93763-33-8 / 92045-63-1 / 102110-15-6 / 68476-50-6 / 90640-95-2	10												10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
143. Petroleum	◆ 649-049-00-5 / 649-306-00-1	232-298-5 / 271-058-4	8002-05-9 / 68514-79-4	10												10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
144. Clarified oils (petroleum), catalytic cracked	◆ 649-011-00-8	265-064-6	64741-62-4	10	0											10	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol + Mineral and other oils	◆
145. Creosote oil, acenaphthene fraction / Creosote	◆ 648-098-00-X / 648-101-00-4	292-605-3 / 232-287-5	90640-84-9 / 8001-58-9	10	0											10	Mineral and other oils	◆
146. Coal tar and tar acids *	◆ 648-081-00-7 / 648-116-00-6 / 648-120-00-8 / 648-121-00-3 / 648-123-00-4 / 648-139-00-1	232-361-7 / 266-019-3 / 284-892-9 / 284-893-4 / 284-891-3 / 272-361-4	8007-45-2 / 65996-85-2 / 84989-04-8 / 84989-05-9 / 84989-03-7 / 68815-21-4	10												10	Tar + Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol + Organic acids	◆
147. Absorption oils, bicyclo arom. and heterocyclic hydrocarbon fraction	◆ 648-041-00-9	309-851-5	101316-45-4	10												10	Mineral and other oils	◆
148. formamide	◆ 616-052-00-8	200-842-0	75-12-7													10	Encephalopathies or polyneuropathies due to organic solvents	◆
149. N,N-dimethylacetamide	◆ 616-011-00-4	204-826-4	127-19-5													10	Encephalopathies or polyneuropathies due to organic solvents	◆
150. cis-4-[3-(p-tert-butylphenyl)-2-methylpropyl]-2,6-dimethylmorpholine	613-124-00-0	266-719-9	67564-91-4													10		
151. o-toluidine	◆ 612-091-00-X	202-429-0	95-53-4	10	0											10	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
152. 2-ethoxyethyl acetate	◆ 607-037-00-7	203-839-2	111-15-9													10	Encephalopathies or polyneuropathies due to organic solvents	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, C2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
153. benzoyl chloride	607-012-00-0	202-710-8	98-88-4		10											10	Halogenated derivatives of the aromatic hydrocarbons	◆
154. bis(2-methoxyethyl) ether	603-139-00-0	203-924-4	111-96-6				10									10	Encephalopathies or polyneuropathies due to organic solvents	◆
155. 2-methoxypropanol	603-106-00-0	216-455-5	1589-47-5				10									10	Alcohols or their halogenated derivatives	■
156. 2-ethoxyethanol	603-012-00-X	203-804-1	110-80-5				10									10	Ethyl ether of ethylene glycol	◆
157. 1,4-dichlorobut-2-ene	602-073-00-X	212-121-8	764-41-0	10												10	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
158. alfa-chlorotoluenes *	602-038-00-9 / 602-058-00-8 / 602-037-00-3	202-634-5 / 202-709-2 / 202-853-6	98-07-7 / 98-87-3 / 100-44-7	10	0					0						10	Halogenated derivatives of the aromatic hydrocarbons	◆
159. arsenic acid	033-005-00-1	231-901-9	7778-39-4	10	0											10	Arsenic or compounds thereof	◆
160. strontium chromate	024-009-00-4	232-142-6	7789-06-2	10	0											10	Chromium or compounds thereof	◆
161. 4,4'-[(3,3'-dichloro[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one]		222-530-3	3520-72-7		10											10	Ketones or their halogenated derivatives	■
162. 2,2'-[(3,3'-dichloro[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[N-(2-methylphenyl)-3-oxobutyramide]		226-789-3	5468-75-7		10											10	Halogenated derivatives of the aromatic hydrocarbons	◆
163. pyrocatechol	604-016-00-4	204-427-5	120-80-9							9						9	Encephalopathies or polyneuropathies due to organic solvents	◆
164. isoprene	601-014-00-5	201-143-3	78-79-5							9						9	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
165. Asphalt		232-490-9	8052-42-4							9						9	Broncho-pulmonary ailments and cancers associated with exposure to bitumen	■
166. tetrafluoroethylene		204-126-9	116-14-3							9						9	Fluorine or compounds thereof + Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
167. trisodium nitrilotriacetate	◆	225-768-6	5064-31-3							9						9	Aliphatic nitrated derivatives	◆
168. Carbon black		215-609-9	1333-86-4							9						9		
169. Carrageenan		232-524-2	9000-07-1							9						9		
170. phenytoin		200-328-6	57-41-0							9						9		
171. titanium dioxide		236-675-5	13463-67-7							9						9		
172. tricobalt tetraoxide		215-157-2	1308-06-1							9						9		
173. 2,6-xylidine	◆ 612-161-00-X	201-758-7	87-62-7							9						9	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
174. acetaldehyde	605-003-00-6	200-836-8	75-07-0							9						9		
175. 1,2-epoxybutane	603-102-00-9	203-438-2	106-88-7							9						9		
176. 1,4-dioxane	◆ 603-024-00-5	204-661-8	123-91-1							9						9	Encephalopathies or polyneuropathies due to organic solvents	◆
177. diantimony trioxide	◆ 051-005-00-X	215-175-0	1309-64-4							9						9	Antimony and derivatives thereof	◆
178. 1-vinyl-2-pyrrolidone	◆ 613-168-00-0	201-800-4	88-12-0							9						9	Encephalopathies or polyneuropathies due to organic solvents	◆
179. 1,2,4-triazole	◆ 613-111-00-X	206-022-9	288-88-0									9				9	Encephalopathies or polyneuropathies due to organic solvents	◆
180. 1,3-diphenylguanidine	◆ 612-149-00-4	203-002-1	102-06-7									9				9	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
181. 1,5-naphthylenediamine	◆ 612-089-00-9	218-817-8	2243-62-1							9						9	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
182. aminophenol	■ 612-033-00-3 / 612-128-00-X	202-431-1 / 204-616-2	95-55-6 / 123-30-8								9					9	Alcohols or their halogenated derivatives	■

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
183. 4-nitrophenol	◆ 609-015-00-2	202-811-7	100-02-7					9								9	Nitrated derivatives of phenols or their counterparts	◆
184. 2-ethylhexanoic acid	◆ 607-230-00-6	205-743-6	149-57-5									9				9	Organic acids	◆
185. propargite	607-151-00-7	219-006-1	2312-35-8							9						9		
186. 2-furaldehyde	■ 605-010-00-4	202-627-7	98-01-1							9						9	Furfural	■
187. crotonaldehyde	605-009-00-9 [1]	224-030-0	4170-30-3								9					9		
188. 1,3,5-trioxane	◆ 605-002-00-0	203-812-5	110-88-3									9				9	Encephalopathies or polyneuropathies due to organic solvents	◆
189. 4-chloro-o-cresol	◆ 604-050-00-X	216-381-3	1570-64-5					9								9	Halogenated derivatives of the aromatic hydrocarbons	◆
190. biphenyl-2-ol	◆ 604-020-00-6	201-993-5	90-43-7					9								9	Encephalopathies or polyneuropathies due to organic solvents	◆
191. resorcinol	■ 604-010-00-1	203-585-2	108-46-3					9								9	Alcohols or their halogenated derivatives	■
192. cresol and isomers *	■ 604-004-00-9	215-293-2 / 202-423-8 / 203-577-9 / 203-398-6	1319-77-3 / 95-48-7 / 108-39-4 / 106-44-5					9								9	Alcohols or their halogenated derivatives	■
193. 2-(2-methoxyethoxy)ethanol	◆ 603-107-00-6	203-906-6	111-77-3									9				9	Encephalopathies or polyneuropathies due to organic solvents	◆
194. 1,2,4-trichlorobenzene	◆ 602-087-00-6	204-428-0	120-82-1						9							9	Halogenated derivatives of the aromatic hydrocarbons	◆
195. hexachlorocyclopentadiene	◆ 602-078-00-7	201-029-3	77-47-4						9							9	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
196. 2,3,4-trichlorobut-1-ene	◆ 602-076-00-6	219-397-9	2431-50-7							9						9	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
197. toluene	◆ 601-021-00-3	203-625-9	108-88-3									9				9	Benzene or counterparts thereof	◆
198. molybdenum trioxide	042-001-00-9	215-204-7	1313-27-5							9						9		
199. tris(2-chloroethyl) phosphate	◆ 015-102-00-0	204-118-5	115-96-8							9						9	Organophosphorus esters	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
200. 3-(4-isopropylphenyl)-1,1-dimethylurea	006-044-00-7	251-835-4	34123-59-6							9						9		
201. pentachlorobenzenethiol ■		205-107-8	133-49-3						9							9	Thiophenols or counterparts or halogenated derivatives	■
202. 2-ethylhexyl 4-methoxycinnamate ■		226-775-7	5466-77-3					9								9	Esters or their halogenated derivatives	■
203. vinyl neodecanoate ■		256-905-8	51000-52-3						9							9	Esters or their halogenated derivatives	■
204. 3-methyl-1-(2,6,6-trimethylcyclohex-1-en-1-yl)penta-1,4-dien-3-ol ■		226-006-5	5208-93-5						9							9	Alcohols or their halogenated derivatives	■
205. 4,6-di-tert-butyl-m-cresol ■		207-847-7	497-39-2						9							9	Alcohols or their halogenated derivatives	■
206. triphenylphosphine ◆		210-036-0	603-35-0						9							9	Phosphorus or compounds thereof	◆
207. 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol ◆		201-236-9	79-94-7						9							9	Phenols or counterparts or halogenated derivatives thereof	◆
208. 2-ethylhexyl diphenyl phosphate ◆		214-987-2	1241-94-7						9							9	Organophosphorus esters	◆
209. isodecyl diphenyl phosphate ◆		249-828-6	29761-21-5						9							9	Organophosphorus esters	◆
210. bis(isopropyl)naphthalene ◆		254-052-6	38640-62-9						9							9	Naphthalene or naphthalene counterparts	◆
211. acenaphthene ◆		201-469-6	83-32-9						9							9	Naphthalene or naphthalene counterparts	◆
212. alpha-pinene ◆		201-291-9	80-56-8						9							9	Encephalopathies or polyneuropathies due to organic solvents	◆
213. N-1,3-dimethylbutyl-N'-phenyl-p-phenylenediamine ◆		212-344-0	793-24-8						9							9	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
214. Anthracene ◆		204-371-1	120-12-7						9							9	Anthracene or compounds thereof	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
215. cyclododecane	◆	206-033-9	294-62-2						9							9	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
216. tetrabutyltin		215-960-8	1461-25-2					9								9		
217. 1-(2-hydroxy-5-tert-nonylphenyl)ethan-1-one oxime		271-190-2	68517-09-9						9							9		
218. 5-nonylsalicylaldehyde oxime		256-798-8	50849-47-3						9							9		
219. camphene		201-234-8	79-92-5						9							9		
220. cyclododeca-1,5,9-triene		225-533-8	4904-61-4						9							9		
221. hexamethyldisiloxane		203-492-7	107-46-0						9							9		
222. Tall-oil rosin	◆ 650-015-00-7	232-484-6	8052-10-6										7			7	Mineral and other oils	◆
223. Rosin	650-015-00-7	232-475-7	8050-09-7										7			7		
224. Turpentine, oil	◆ 650-002-00-6	232-350-7	8006-64-2										7			7	Mineral and other oils	◆
225. cyanamide	615-013-00-2	206-992-3	420-04-2										7			7		
226. 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	◆ 615-008-00-5	223-861-6	4098-71-9										7			7	Isocyanates	◆
227. N-cyclohexylbenzo-thiazole-2-sulfenamide	613-136-00-6	202-411-2	95-33-0										7			7		
228. di(benzothiazol-2-yl) disulphide	613-135-00-0	204-424-9	120-78-5										7			7		
229. 2-(morpholiniothio) benzothiazole	◆ 613-113-00-0	203-052-4	102-77-2										7			7	Encephalopathies or polyneuropathies due to organic solvents	◆
230. epsilon-caprolactam	613-069-00-2	203-313-2	105-60-2											7		7		
231. 2,4,6-trichloro-1,3,5-triazine	613-009-00-5	203-614-9	108-77-0										7			7		

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
232. phenylenediamines	◆ 612-132-00-1 / 612-136-00-3 / 612-028-00-6 [3]	200-806-4 / 202-969-7 / 203-404-7	74-31-7 / 101-72-4 / 106-50-3										7			7	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	◆
233. benzothiazole-2-thiol	■ 612-108-00-3	205-736-8	149-30-4										7			7	Thioalcohols	■
234. 2-piperazin-1-ylethylamine	◆ 612-105-00-4	205-411-0	140-31-8										7			7	Aliphatic amines and halogenated derivatives thereof	◆
235. methenamine	◆ 612-101-00-2	202-905-8	100-97-0										7			7	Aliphatic amines and halogenated derivatives thereof	◆
236. 3-aminomethyl-3,5,5-trimethylcyclohexylamine	◆ 612-067-00-9	220-666-8	2855-13-2										7			7	Aliphatic amines and halogenated derivatives thereof	◆
237. 3-aminopropylidimethylamine	◆ 612-061-00-6	203-680-9	109-55-7										7			7	Aliphatic amines and halogenated derivatives thereof	◆
238. 3,6,9-triazaundecamethylenediamine	◆ 612-060-00-0	203-986-2	112-57-2										7			7	Aliphatic amines and halogenated derivatives thereof	◆
239. trientine	612-059-00-5	203-950-6	112-24-3										7			7		
240. 2,2'-iminodi(ethylamine)	◆ 612-058-00-X	203-865-4	111-40-0										7			7	Aliphatic amines and halogenated derivatives thereof	◆
241. piperazine (solid and liquid)	612-057-00-4	203-808-3	110-85-0										7			7		
242. sulphanilic acid	◆ 612-014-00-X	204-482-5	121-57-3										7			7	Organic acids	◆
243. ethylenediamine	◆ 612-006-00-6	203-468-6	107-15-3										7			7	Aliphatic amines and halogenated derivatives thereof	◆
244. sodium 3-nitrobenzenesulphonate	◆ 609-048-00-2	204-857-3	127-68-4										7			7	Nitrated derivatives of aromatic hydrocarbons	◆
245. acetonitrile	■ 608-001-00-3	200-835-2	75-05-8											7		7	Acetonitrile	■
246. 4H-3,1-benzoxazine-2,4(1H)-dione	■ 607-250-00-5	204-255-0	118-48-9										7			7	Ketones or their halogenated derivatives	■
247. alkyl diacrylates	■ 607-249-00-X / 607-111-00-9 / 607-109-00-8	256-032-2 / 239-701-3 / 235-921-9	42978-66-5 / 15625-89-5 / 13048-33-4										7			7	Esters or their halogenated derivatives	■


Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
248. Alkyl acrylates	■ 607-245-00-8 / 607-034-00-0 / 607-062-00-3 / 607-072-00-8 / 607-107-00-7	216-768-7 / 202-500-6 / 205-480-7 / 212-454-9 / 203-080-7	1663-39-4 / 96-33-3 / 141-32-2 / 818-61-1 / 103-11-7											7		7	Esters or their halogenated derivatives	■
249. tetrahydrophthalic anhydrides	■ 607-240-00-0 / 607-099-00-5 / 607-241-00-6	234-290-7 / 201-605-4 / 243-072-0	11070-44-3 / 85-43-8 / 19438-60-9											7		7	Aromatic acids - aromatic anhydrides or their halogenated derivatives	■
250. O-(6-chloro-3-phenylpyridazin-4-yl) S-octyl thiocarbonate	607-232-00-7	259-686-7	55512-33-9											7		7		
251. heptanoic acid	◆ 607-196-00-2	203-838-7	111-14-8											7		7	Organic acids	◆
252. alkyl methacrylates	■ 607-113-00-X / 607-071-00-2 / 607-033-00-5 / 607-124-00-X / 607-132-00-3	202-613-0 / 202-597-5 / 202-615-1 / 212-782-2 / 220-688-8	97-86-9 / 97-63-2 / 97-88-1 / 868-77-9 / 2867-47-2											7		7	Esters or their halogenated derivatives	■
253. cyclohexane-1,2-dicarboxylic anhydride	607-102-00-X [1]	201-604-9	85-42-7											7		7		
254. benzene-1,2,4-tricarboxylic acid 1,2-anhydride	■ 607-097-00-4	209-008-0	552-30-7											7		7	Aromatic acids - aromatic anhydrides or their halogenated derivatives	■
255. phthalic anhydride	■ 607-009-00-4	201-607-5	85-44-9											7		7	Aromatic acids - aromatic anhydrides or their halogenated derivatives	■
256. butanone oxime	606-082-00-X	202-496-6	96-29-7											7		7		
257. glutaral	605-022-00-X	203-856-5	111-30-8											7		7		
258. citral	605-019-00-3	226-394-6	5392-40-5													7		
259. acrylaldehyde	◆ 605-008-00-3	203-453-4	107-02-8											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆
260. 2,3,5-trimethylhydroquinone	◆ 604-045-00-2	211-838-3	700-13-0											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆
261. naphthol	◆ 604-029-00-5 / 604-007-00-5	201-969-4 / 205-182-7	90-15-3 / 135-19-3												7	7	Naphthols or counterparts or halogenated derivatives thereof	◆
262. 2-(2-butoxyethoxy)ethanol	◆ 603-096-00-8	203-961-6	112-34-5											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
263. but-2-yne-1,4-diol	◆ 603-076-00-9	203-788-6	110-65-6										7			7	Encephalopathies or polyneuropathies due to organic solvents	◆
264. 1-methoxypropan-2-ol	◆ 603-064-00-3	203-539-1	107-98-2											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆
265. 2-diethylaminoethanol	◆ 603-048-00-6	202-845-2	100-37-8											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆
266. 2-chloroethanol	◆ 603-028-00-7	203-459-7	107-07-3											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆
267. ethylene glycol	◆ 603-027-00-1	203-473-3	107-21-1											7		7	Ethylene glycol	◆
268. 2-butoxyethanol	◆ 603-014-00-0	203-905-0	111-76-2											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆
269. cyclohexanol	◆ 603-009-00-3	203-630-6	108-93-0											7		7	Encephalopathies or polyneuropathies due to organic solvents	◆
270. methanol	◆ 603-001-00-X	200-659-6	67-56-1											7		7	Methyl	◆
271. 3-chloro-2-methylpropene	◆ 602-032-00-6	209-251-2	563-47-3										7			7	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
272. 1,2-dichloropropane	◆ 602-020-00-0	201-152-2	78-87-5											7		7	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
273. 1,1,2,2-tetrachloroethane	◆ 602-015-00-3	201-197-8	79-34-5											7		7	Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
274. 2-phenylpropene	601-027-00-6	202-705-0	98-83-9											7		7		
275. cumene	◆ 601-024-00-X [1]	202-704-5	98-82-8											7		7	Benzene or counterparts thereof	◆
276. xylene and isomers	◆ 601-022-00-9	215-535-7 / 202-422-2 / 203-396-5 / 203-576-3	1330-20-7 / 95-47-6 / 106-42-3 / 108-38-3											7		7	Benzene or counterparts thereof	◆
277. propane	◆ 601-003-00-5	200-827-9	74-98-6											7		7	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
278. manganese sulphate	◆ 025-003-00-4	232-089-9	7785-87-7											7		7	Manganese or compounds thereof	◆
279. potassium permanganate	■ 025-002-00-9	231-760-3	7722-64-7											7		7	Esters or their halogenated derivatives	■

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
280. manganese oxides	◆ 025-001-00-3	215-695-8 / 215-202-6	1344-43-0 / 1313-13-9											7		7	Manganese or compounds thereof	◆
281. peroxodisulphates	■ 016-060-00-6	231-786-5 / 231-781-8	7727-54-0 / 7727-21-1										7			7	Esters or their halogenated derivatives	■
282. hydrogen sulphide	◆ 016-001-00-4	231-977-3	7783-06-4											7		7	Hydrogen sulphide	◆
283. aluminium	013-001-00-6	231-072-3	7429-90-5											7		7		
284. zinc bis(dialkylthiocarbamate)	■ 006-082-00-4 / 006-081-009	238-270-9 / 205-232-8	14324-55-1 / 136-23-2										7			7	Esters or their halogenated derivatives	■
285. tetramethylthiuram monosulphide	006-080-00-3	202-605-7	97-74-5										7			7		
286. disulfiram	006-079-00-8	202-607-8	97-77-8										7			7		
287. hydrogen cyanide and its salts: hydrogen cyanide / sodium cyanide / potassium cyanide	◆ 006-006-00-X / 006-007-00-5	200-821-6 / 205-599-4 / 205-792-3	74-90-8 / 143-33-9 / 151-50-8											7		7	Hydrocyanic acid + Cyanides and compounds thereof	◆
288. tin	■	231-141-8	7440-31-5											7		7	Pulmonary fibroses due to metals	■
289. tungsten	■	231-143-9	7440-33-7											7		7	Pulmonary fibroses due to metals	■
290. 3-(hydroxymethyl)-1,2,3-benzotriazin-4(3H)-one	■	246-151-8	24310-40-5												7	7	Ketones or their halogenated derivatives	■
291. benzophenone	■	204-337-6	119-61-9												7	7	Ketones or their halogenated derivatives	■
292. sodium hydrogen glutamate	■	205-538-1	142-47-2											7		7	Esters or their halogenated derivatives	■
293. melamine	■	203-615-4	108-78-1												7	7	Aromatic amines or aromatic hydrazines or halogenated, phenolic, nitrified, nitrated or sulfonated derivatives thereof	■
294. dinitrogen oxide	◆	233-032-0	10024-97-2											7		7	Oxides of nitrogen	◆
295. triphenyl phosphate	◆	204-112-2	115-86-6											7		7	Organophosphorus esters	◆
296. manganese	◆	231-105-1	7439-96-5											7		7	Manganese or compounds thereof	◆

Name	Annex I entry	EINECS	CAS	C1, C2	IARC 1, 2A	M1, M2	R1, R2	ED1	PBT	C3, I2B	M3	R3	s	n	ED2	TOTAL	Occupational disease:	
297. trichlorofluoromethane	◆	200-892-3	75-69-4											7		7	Fluorine or compounds thereof + Halogenated derivatives of the aliphatic or alicyclic hydrocarbons	◆
298. bis(2-ethylhexyl) adipate	◆	203-090-1	103-23-1												7	7	Encephalopathies or polyneuropathies due to organic solvents	◆
299. dicyclohexyl phthalate	◆	201-545-9	84-61-7												7	7	Encephalopathies or polyneuropathies due to organic solvents	◆
300. diethyl phthalate	◆	201-550-6	84-66-2												7	7	Encephalopathies or polyneuropathies due to organic solvents	◆
301. carbazole	◆	201-696-0	86-74-8											7		7	Carbazole or compounds thereof	◆
302. hex-1-ene	◆	209-753-1	592-41-6											7		7	Aliphatic or alicyclic hydrocarbons derived from petroleum spirit or petrol	◆
303. perhydro-1,3,5-trinitro-1,3,5-triazine	◆	204-500-1	121-82-4											7		7	Aliphatic nitrated derivatives	◆
304. propineb		235-134-0	12071-83-9											7		7		
305. vinyltoluene		246-562-2	25013-15-4											7		7		
306. 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran		214-946-9	1222-05-5												7	7		

Annex II: Acronyms



C1:	Carcinogen Category 1 according to Directive 67/548/EEC classification criteria
C2:	Carcinogen Category 2 according to Directive 67/548/EEC classification criteria
C3:	Carcinogen Category 3 according to Directive 67/548/EEC classification criteria
CAREX:	International Information System on Occupational Exposure to Carcinogens
CMR:	Carcinogen, Mutagen and Reprotoxic
COM:	European Commission
ECB:	European Chemicals Bureau
ECHA:	European Chemicals Agency
ED:	Endocrine Disrupter
ESIS:	European chemical Substances Information System
EU:	European Union
EURAM:	European Union Risk Ranking Method
HPVC:	High Production Volume Chemical
HSDB:	Hazardous Substances Data Bank
IARC:	International Agency for Research of Cancer
IARC 1:	Human carcinogen according to IARC criteria
IARC 2A:	Probable human carcinogen according to IARC criteria
IARC 2B:	Possible human carcinogen according to IARC criteria
IUCLID:	International Uniform Chemical Information Database

M1:	Mutagen category 1 according to Directive 67/548/EEC classification criteria
M2:	Mutagen category 2 according to Directive 67/548/EEC classification criteria
M3:	Mutagen category 3 according to Directive 67/548/EEC classification criteria
MS:	Member State
n:	neurotoxic
OECD:	Organisation for Economic Co-operation and Development
OSPAR:	Convention for the Protection of the Marine Environment of the North-East Atlantic
PBT:	Persistent, Bioaccumulative and Toxic
POP:	Persistent Organic Pollutant
R1:	Reprotoxic category 1 according to Directive 67/548/EEC classification criteria
R2:	Reprotoxic category 2 according to Directive 67/548/EEC classification criteria
R3:	Reprotoxic category 3 according to Directive 67/548/EEC classification criteria
REACH:	Registration, Evaluation, Authorisation and restriction of CHemicals
RCF:	Refractory Ceramic Fibres
s:	sensitiser
SVHC:	Substances of Very High Concern
TCNES:	Technical Committee on New and Existing Substances
TFR:	Toxic for Reproduction
TU:	Trade Union
vPvB:	Very Persistent, very Bioaccumulative

European Trade Union Confederation

The European Trade Union Confederation currently comprises 81 member organisations, from a total of 36 countries in Western, Central and Eastern Europe, and 12 industry federations. All in all, the ETUC represents the interests of 60 million workers at European level.



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European Trade Union Institute

The Health and Safety Department of the European Trade Union Institute (ETUI) supports the European Trade Union Confederation and its member organizations with expertise and research in occupational health. It has set up an Observatory on the application of the European Directives and runs a network of trade union experts on technical standardization (ergonomics, safety of machinery) and dangerous substances.



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ISTAS (Union Institute of Work, Environment and Health)

Is a self-managed trade union's technical foundation supported by the Spanish Trade Union Confederation CCOO to promote the improvement of working conditions, occupational health and safety and environmental protection in Spain.



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