HEALTH AND SAFETY AUTHORITY

2020
Code of Practice

for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)

Our Vision:

Healthy, safe and productive lives and enterprises

Contents

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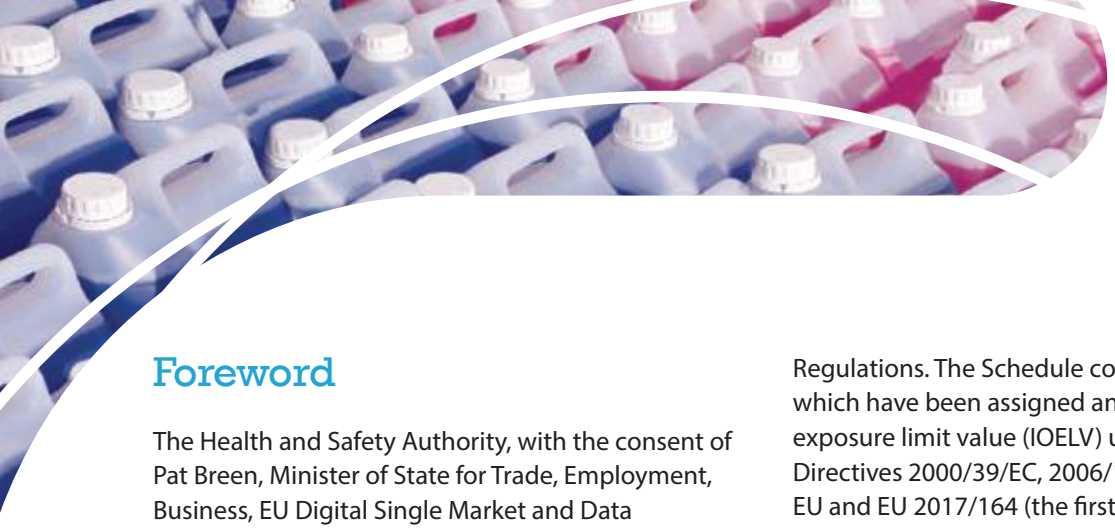


Foreword

The Health and Safety Authority, with the consent of Pat Breen, Minister of State for Trade, Employment, Business, EU Digital Single Market and Data Protection, and following public consultation, publishes this Code of Practice entitled "2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)" in accordance with Section 60 of the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005).

This Code of Practice provides practical guidance as to the observance of Regulations 4(1)(e), 4(5)(d), 6(1)(c), (d) and (e) and 9(1)(b) of the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), as amended by S.I. No. 623/2015 - Safety, Health and Welfare at Work (Chemical Agents) (Amendment) Regulations 2015 (hereinafter collectively referred to as the 'Chemical Agents Regulations') in relation to occupational exposure limit values (OELVs) for a number of chemical agents as listed in Schedule 1 to the Code, having regard to the provisions of the Safety, Health and Welfare at Work Act 2005. This Code of Practice also provides practical advice as to the observance of the Safety, Health and Welfare at Work (Carcinogens) Regulations, 2001 (S.I. No. 78 of 2001), as amended by S.I. No. 622/2015 – Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations, 2015 and by S.I. No. 592/2019 Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations, 2019[1].

This Code of Practice comes into operation on 17th January 2020 and from that date it replaces the "2018 Code of Practice for the Chemical Agents Regulations", which was issued in accordance with the Safety, Health and Welfare at Work Act 2005.

Schedule 1 to this Code of Practice stipulates the OELVs which are currently legally binding under the Chemical Agents Regulations and Carcinogens Regulations. The Schedule contains all the substances which have been assigned an indicative occupational exposure limit value (IOELV) under Commission Directives 2000/39/EC, 2006/15/EC, 2009/161/EU and EU 2017/164 (the first, second, third and fourth IOELV Directives). The Schedule also contains all the substances which have been assigned as binding occupational exposure limit values (BOELVs) under Commission Directives 91/322/EEC, 98/24/EC, 2003/18/EC, 2004/37/EC, (EU) 2017/2398, (EU) 2019/130 and (EU) 2019/983.

Schedule 2 to this Code of Practice provides an Advisory List of OELVs derived from authoritative sources other than EU Commision Directives.

Schedule 3 to this Code of Practice provides a list of OELVs under review by the Health and Safety Authority and the European Commission.

Schedule 4 to this Code of Practice provides a list of Carcinogenic Substances, Mixtures and Processes which are listed in Annex 1 of the Carcinogens and Mutagens Directive [2004/37/EC].

Schedule 5 to this Code of Practice contains a Chemical Abstracts Service (CAS) Number index of all substances included in the Code of Practice.

Notice of the publication of this Code of Practice, and the withdrawal of the 2018 Code of Practice, was published in the Iris Oifigiúil on 10th January 2020.

As regards the use of Codes of Practice in criminal proceedings, Section 61 of the 2005 Act provides as follows -

> "61.—(1) Where in proceedings for an offence under this Act relating to an alleged contravention of any requirement or prohibition imposed by or under a relevant statutory provision being a provision for which a code of practice had been published or approved by the Authority under *Section 60* at the time of the alleged contravention, *subsection (2)* shall have

[1] S.I. No 592/2019 reference to the Carcinogens Regulations or Chemical Agents Regulations refers to the latest version of those regulations.

effect with respect to that Code of Practice in relation to those proceedings.

(2) (a) Where a Code of Practice referred to in *subsection (1)* appears to the court to give practical guidance as to the observance of the requirement or prohibition alleged to have been contravened, the Code of Practice shall be admissible in evidence.

(b)Where it is proved that any act or omission of the defendant alleged to constitute the contravention—

(i) is a failure to observe a Code of Practice referred to in *subsection (1)*, or

(ii) is a compliance with that Code of Practice,

then such failure or compliance is admissible in evidence.

(3) A document bearing the seal of the Authority and purporting to be a Code of Practice or part of a Code of Practice published or approved of by the Authority under this section shall be admissible as evidence in any proceedings under this Act."

Periodic revision of the Code of Practice

A revision of the OELVs listed in **Schedule 1** and **Schedule 2**, to reflect current knowledge concerning the health hazards of the listed chemical agents, will be undertaken by the Health and Safety Authority periodically, through public consultation.

Schedule 3 to this Code of Practice provides a list of chemical agents which are under review by the European Commission and various international groups. This Schedule therefore serves to highlight the possibility of a change occurring to these substances, including, for example the introduction of an OELV or a change to an existing OELV, when appropriate. As the Code of Practice is updated periodically, specific attention should be paid to those substances listed in **Schedule 3**, as they are candidates for revision when the Code of Practice is next updated.

Comments concerning any of the limit values proposed may be made in writing to the Occupational Hygiene Unit, Health and Safety Authority, at Metropolitan Building, James Joyce Street, Dublin 1, **Lo-call: 1890 289 389** or e-mail **chemicals@hsa.ie**.

Dr. Marie Dalton
Secretary to the Board

1. Introduction

Occupational exposure limit values **(OELVs)** provide a basis for ensuring that exposure to airborne contaminants in the workplace is controlled in such a way as to prevent adverse health effects. Existing information has been used to establish limit values for exposures which, for the majority of chemicals listed, even when repeated regularly throughout a working lifetime, are not expected to result in adverse effects on the health of exposed workers. Exceptions to this may be (1) certain risk groups such as employees known to be sensitised or (2) certain chemicals listed in the Code of Practice as carcinogenic, mutagenic or as chemicals causing respiratory sensitisation, where identification of a safe level of exposure is extremely difficult.

An OELV for a given chemical represents the maximum exposure to the chemical in workplace air, which is considered consistent with this objective. In practice, exposure levels should be maintained well below the OELV and should always be as low as reasonably achievable. This is particularly important for carcinogens, mutagens, reprotoxins (CMRs) and substances causing sensitisation (occupational asthma or allergic contact dermatitis).

Schedules 1 and 2 to this Code of Practice stipulate the OELVs for over 700 substances. Within these Schedules, carcinogens are identified by the notation **"Carc.1A/1B"**, mutagens by **"Muta.1A/1B",** reproductive toxins by **"Repr.1A/1B "** and sensitizers as **"Sens."**.

"Occupational Exposure Limit Value", as defined in the Definitions/Glossary, is the term used in this Code of Practice to describe an exposure standard for a chemical in workplace air, with reference to either an **8 hour reference period** or a **15-minute reference period**.

The exposure limit values are based on time-weighted average **(TWA)** concentrations of airborne substances. These terms are also defined in the Definitions/Glossary. Terms used by other regulatory bodies throughout the world to describe exposure standards include Threshold Limit Value **(TLV)**, Occupational Exposure Standard **(OES)** and Short Term Exposure Limit **(STEL).** These terms may appear in Safety Data Sheets **(SDSs)** or other information on chemicals.

It should be noted that exposure to r**adioactive material is excluded** from the scope of this Code of Practice.

This Code of Practice, in **Schedule 1**, in conjunction with the Chemical Agents Regulations, transposes the provisions of :

- Commission Directive 2000/39/EC[2] establishing a first list of IOELVs in implementation of Council Directive 98/24/EC[3];
- Commission Directive 2006/15/EC[4] establishing a second list of IOELVs in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC[5] and 2000/39/EC;
- Commission Directive 2009/161/EU[6] of 17 December 2009 establishing a third list of IOELVs;
- Commission Directive (EU) 2017/164[7] of 31 January 2017 establishing a fourth list of IOELVs.

This Code of Practice, in conjunction with the Carcinogens Regulations, transposes limit values from the following Commission Directives:

- Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work[8];
- Directive (EU) 2017/2398 of the European Parliament and of the Council of 12 December 2017 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work[9];
- Directive (EU) 2019/130 of the European Parliament and of the Council of 16 January 2019 amending Directive 2004/37/EC on the protection of workers

[2] OJ No. L 142, 16.06.2000, p. 47
[3] OJ No. L 131, 05.05.1998, p. 11
[4] OJ No. L 38, 09.02.2006, p. 36
[5] OJ No. L 177, 05.07.1991, p. 22
[6] OJ No. L 338, 19.12.2009, p. 87
[7] OJ No. L 27, 01.02.2017, p. 115
[8] OJ No. L 158, 30.04.2004, p. 50
[9] OJ No. L 345, 27.12.2007, p. 87

from the risks related to exposure to carcinogens or mutagens at work[10];

- Directive (EU) 2019/983 of the European Parliament and of the Council of 5 June 2019 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work[11]; and

other directly related provisions e.g. transitional measures, of Annex III of Commission Directive 2004/37/EC (as amended).

Schedule 2 of this Code of Practice provides a list of Advisory OELVs derived from sources other than EU Commission Directives. Advisory OELVs are generally health based and therefore may not incorporate socio-economic and technical feasibility factors. Employers should take all reasonably practicable measures to comply with the advisory OELVs set out in Schedule 2.

Schedule 3 to this Code of Practice provides a list of OELVs under review by the Health and Safety Authority and the European Commission.

There is no direct link between the health hazard categories identified in the legislation on the classification, packaging and labelling of dangerous substances and mixtures[12] and the OELVs in this Code of Practice. In general, however, chemicals classified as carcinogenic, mutagenic, reprotoxic or as skin/respiratory sensitizers, are more likely to have an OELV assigned to them than chemicals which are not classified as hazardous for health, particularly if they have been classified as hazardous by inhalation or in contact with skin.

Within **Schedules 1 and 2**, five groups of substances are identified as having the potential to cause particular and significant reactions following exposure. These groups may be identified by certain notations, as follows:

- Substances, which have the capacity to penetrate the skin and be absorbed into the body, are likely to have the skin **(Sk)** notation.
- Chemicals classified as carcinogenic **(Carc.1A/1B)** and mutagenic **(Muta.1A/1B)** chemicals, sensitizers **(Sens.)** and chemicals which are toxic for reproduction **(Repr.1A/1B)** are specifically identified as such in the notes column of **Schedules 1 and 2,** because of the particularly serious nature of these effects.

For these substances, in particular, where an OELV exists, exposure must be maintained well below that OELV, and should always be as low as reasonably achievable. In some cases no OELV is assigned to such substances because of the difficulty in identifying a safe level of exposure, and for these substances exposure levels should also be as low as reasonably achievable.

Classification, packaging and labelling (CLP) legislation is a hazard-based system and the particular hazards of a chemical are identified by standardised methods. These hazards must be clearly identified on the labels of containers and in the associated Safety Data Sheet along with advice on protective measures to be taken. If exposure to a hazardous chemical is prevented or minimised, e.g. by maintaining the exposure level below the OELV, then the risk to health will also be prevented or minimised. OELVs are thus an important part of chemical risk assessments.

While this Code of Practice is based on the requirements of the Chemical Agents Regulations and Carcinogens Regulations, it is also worth noting other relevant chemicals legislation such as the EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) Regulation (EC) No. 1907/2006[13] and the EU Classification, Labelling and Packaging (CLP) Regulation (EC) No. 1272/2008 and their related amendments. REACH is based on the principle that industry shall ensure that chemicals placed on the European market do not adversely affect human health and the environment. One requirement is that industry complete hazard and exposure assessments and to put adequate controls in place. The hazard assessments comprise of the following steps:

- evaluation of non-human and human information,

[10] OJ No. L 30, 31.1.2019, p. 112
[11] OJ No. L 164, 20.6.2019, p. 23
[12] EU Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures. OJ No. L353, 31.12.2008 p1-1355
[13] OJ No. L 396, 30.12.2006, p. 1

- classification and labelling, and
- the calculation of derived no-effect levels (DNELs).

Where the quantity of the material manufactured or imported is greater than 10 tonnes per annum, the manufacturers and importers are required to calculate DNELs as part of the Chemical Safety Assessment (CSA) for chemical(s) used. The DNELs will be published in the manufacturer's Chemical Safety Report and included in an extended Safety Data Sheet (eSDS). REACH specifies that it may be necessary to identify different DNELs for each relevant human endpoint exposure scenario and possibly for certain vulnerable sub-populations and for different routes of exposure and different exposure durations.

An exposure limit value (IOELV, BOELV or OELV) can be used as a DNEL in limited cases where the scientific background for setting the exposure limit can be evaluated and the potential exposure route and duration are similar. If, however, the registrant of a substance has obtained new scientific information then the registrant should develop a DNEL and not apply the exposure limit. For further information see the European Chemical Agency (ECHA) guidance on hazard assessment at www.echa.europa.eu.

2. Definitions/Glossary

Asphx. - Gaseous chemical substances which may not produce significant physiological effects in the exposed employee, but when present in high concentrations will act as simple asphyxiants.

Advisory OELV - Advisory Occupational Exposure Limit Values are derived from sources other than EU Commission Directives. Advisory OELVs are generally health based and therefore may not incorporate socio-economic and technical feasibility factors. Employers should take all reasonably practicable measures to comply with the advisory OELVs set out in Schedule 2.

BLV - Biological Limit Value, as defined in the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), means the limit of the concentration in the appropriate biological medium of the relevant agent, its metabolite or an indicator of effect.

BOELV - Binding Occupational Exposure Limit Values are transposed from the relevant EU Directives through a range of national legislation comprising the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006 (S.I. No. 386 of 2006), as amended, the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), as amended, and the Safety, Health and Welfare at Work (Carcinogens) Regulations 2001 (S.I. No. 78 of 2001), as amended. BOELVs take account of socio-economic and technical feasibility factors as well as the factors considered when establishing IOELVs. For any chemical for which a BOELV is established at EU level, Member States must establish a corresponding BOELV, which can be stricter but cannot exceed the Community limit value.

Carc.1A - substances known to have carcinogenic potential for humans; classification is largely based on human evidence to which the EU Classification, Labelling and Packaging Regulation (EC) No. 1272/2008 applies and as defined in the Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations 2015.

Carc.1B - substances presumed to have carcinogenic potential for humans; classification is largely based on animal evidence to which Classification, Labelling and Packaging Regulation (EC) No. 1272/2008 apply and as defined in the Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations 2015.

Carcinogens Regulations - means the Safety, Health and Welfare at Work (Carcinogens) Regulations 2001 (S.I. No. 78 of 2001), as amended by the Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations 2015 (S.I. No. 622 of 2015) and the Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations 2019 (S.I. No. 592 of 2019).

Chemical Abstracts Service (CAS) Number - a CAS Registry Number, also referred to as CASRN or CAS Number, is a unique numerical identifier assigned by the American Chemical Abstracts Service to every chemical substance described in the open scientific literature, including organic and inorganic compounds, minerals, isotopes, alloys and non-structurable materials. Online searches can be carried out using the Chemical Abstracts Service at http://support.cas.org/.

Chemical Agent - as defined in the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), means any chemical element or compound, on its own or admixed, as it occurs in the natural state or as produced, used or released, including release as waste, by any work activity, whether or not produced intentionally and whether or not placed on the market.

Chemical Agents Regulations - means the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), as amended by the Safety, Health and Welfare at Work (Chemical Agents) (Amendment) Regulations 2015 (S.I. No. 623 of 2015).

CLP - Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures.

CMD - Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work, as amended by Directives 2017/2398, 2019/130 and 2019/983.

CMRs - Carcinogens, Mutagens and Reprotoxins.

DNEL - The Derived No-Effect Level is defined as the level of exposure above which humans should not be exposed (EU REACH Regulation (EC) No. 1907/2006).

8 hour reference period - relates to the procedure whereby the occupational exposures in any 24-hour period are treated as equivalent to a single uniform exposure for eight hours (the eight hour time-weighted average (TWA) exposure). The TWA may be expressed mathematically by:

$$(C_1 T_1 + C_2 T_2 + \ldots\ldots\ldots + C_n T_n) / 8,$$

where C_1 .....C_n are the occupational exposures and T_1 .... T_n are the associated exposure times in hours in any 24-hour period.

EC No. - The European Community number, or EC number, also known as EC No., EINECS No., and EC#, is a unique seven-digit identifier that is assigned to chemical substances for regulatory purposes within the European Union by the regulatory authorities. Online searches can be carried out using the European Chemical Agency's Dissemination Portal at https://echa.europa.eu/information-on-chemicals/registered-substances.

Fibre - a respirable fibre is defined as having a length of >5µm, with a length:width ratio of ≥3:1, as determined by the membrane filter method, using phase-contrast illumination.

15-minute reference period - means the short term exposure reference period and is the sampling period used for assessing compliance with the associated short term exposure limit (STEL).

Hazardous chemical agent - has the meaning given to it by the Chemical Agents Regulations.

Inhalable Fraction (I) - the Inhalable Fraction note is used for those materials that are hazardous when deposited anywhere in the respiratory tract. (See Respirable Fraction (R) below).

Inhalable Fraction and Vapour (IFV) - the Inhalable Fraction and Vapour note is used when a material exerts sufficient vapour pressure such that it may be present in both particle and vapour phases.

IOELV - Indicative Occupational Exposure Limit Values are health based limits set under the Chemical Agents Directive 98/24/EC. The European Commission is advised on limits by its Scientific Committees e.g. ECHA's Risk Assessment Committee (RAC) which evaluates the scientific information available on hazardous substances and makes recommendations for the establishment of an IOELV. IOELVs are listed in Directives [91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, EU 2017/164] which Member States are obliged to implement by introducing national limits for the substances.

Muta.1A - substances which are known to induce heritable mutations in the germ cells of humans; classification is based on positive evidence from human studies to which the Regulation (EC) No. 1272/2008 on Classification, Labelling and Packaging of substances and mixtures apply and as defined in the Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations 2015.

Muta.1B - substances which should be regarded as if they induce heritable mutations in the germ cells of humans; classification is based on evidence from mutagenicity tests in mammals or humans, to which the Regulation (EC) No. 1272/2008 on Classification, Labelling and Packaging of substances and mixtures apply and as defined in the Safety, Health and Welfare at Work (Carcinogens) (Amendment) Regulations 2015.

Occupational Exposure Limit Value (OELV) - is defined in the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001) as meaning, unless otherwise specified, the limit of the time-weighted average of the concentration of a chemical agent in the air within the breathing zone of a worker in relation to a specified reference period (8 hour or a 15 minute reference period), as approved by the Health and Safety Authority. The concentration of the chemical agent in the air is expressed as parts per million (ppm), milligrams per cubic metre (mg/m^3), fibre(s) per milliliter (fibre(s)/ml) or fibre(s) per cubic centimeter (fibre(s)/cm^3) as appropriate.

OES - Occupational Exposure Standard is a generic term which includes all occupational exposure limit values such as OELV, TLV etc.

REACH - European Regulation (EC) 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals.

Repr.1A - substances which are known human reproductive toxicants, largely based on evidence from human studies to which the Regulation (EC) No. 1272/2008 on Classification, Labelling and Packaging of substances and mixtures apply.

Repr.1B - substances which are presumed human reproductive toxicants, largely based on data from animal studies, to which the Regulation (EC) No. 1272/2008 on Classification, Labelling and Packaging of substances and mixtures apply.

Respirable Fraction (R) - particles of inhalable aerosols that are inhaled and are not captured in the upper airways (nasopharyngeal and tracheobronchial regions) but penetrate to the pulmonary region containing the respiratory bronchioles, alveolar ducts and alveolar sacs are considered to comprise of the Respirable Fraction of the aerosol.

Sens. - in the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of Personal Protective Equipment (PPE). The absence of a "Sens." note does not signify that the chemical agent lacks the ability to produce a sensitisation but may reflect the lack of, or inconclusiveness of, scientific evidence.

Sk - substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body.

STEL - Short Term Exposure Limit, defined as the concentration to which workers can be exposed for short periods of time, usually 15 minutes, four times per day, without suffering adverse effects and are set to help prevent effects such as eye irritation which may occur following exposure for a few minutes. *(Note: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit value should be used)* (U.S.A., American Conference of Governmental Industrial Hygienists (ACGIH) and European Union (EU)).

TLV - Threshold Limit Value, defined as the time-weighted average concentration of airborne substances to which nearly all workers may be repeatedly exposed, without adverse effect. (U.S.A., American Conference of Governmental Industrial Hygienists (ACGIH) and European Union (EU)).

TWA - Time-Weighted Average, defined as the time-weighted average concentration for a conventional 8 hour day/40 hour week. (U.S.A., American Conference of Governmental Industrial Hygienists (ACGIH) and European Union (EU)).

3. Calculations

3.1 CONVERSION OF UNITS OF CONCENTRATION (ppm and mg/m³)

Concentrations of substances in workplace air can sometimes be expressed in different units. For dusts, fumes and aerosols the units are normally mg/m³ (except for fibres for which fibres/millilitre or fibres/cm³ is used). However, gases and vapours tend to be expressed in parts per million (ppm) of volume although the two different units are in common use (mg/m³ and ppm) and the OELV will have a different value depending on which unit is chosen.

It is possible to convert from ppm to mg/m³ and vice versa, but the conversion factor differs from substance to substance and depends on its molecular weight. A formula to allow exact conversions from mg/m³ to ppm takes the form:

$$\text{ppm} = \frac{\text{mg/m}^3 \times \text{Molar Volume}}{\text{Molecular Weight}}$$

The Molar Volume varies with temperature, but at 25°C (the temperature usually used for OELVs) the formula becomes:

$$\text{ppm} = \frac{\text{mg/m}^3 \times 24.45}{\text{Molecular Weight}}$$

By way of example, 10 mg/m³ of hydrogen sulphide (molecular weight 34) at 25°C is equivalent to

$$\frac{10 \times 24.45}{34} = 7.2 \text{ ppm}$$

Such conversions are usually rounded off to two significant figures for values below 100 and to three significant figures for values above 100.

3.2 CALCULATIONS FOR MIXTURES

When two or more hazardous substances, which act upon the same target organ, are present, their combined effect, rather than that of either individually, should be taken into account. In the absence of information to the contrary, the effects of the different hazards should be considered as ***additive***. That is, if the sum of the following fractions:

$C_1/ OELV_1 + C_2/ OELV_2 + C_3/ OELV_3 + ...C_n/ OELV_n$

exceeds 1.0, then the OELV of the mixture should be considered as being exceeded. C_1 indicates the observed atmospheric concentration of substance 1 over 8 hours, and $OELV_1$, its corresponding OELV; C_2 indicates the observed atmospheric concentration of substance 2 over 8 hours, and $OELV_2$, its corresponding OELV etc. to the nth term.

Example - Mixtures/Additive Effect

Workplace air contains 400 ppm of acetone (OELV, 500 ppm), 25 ppm of dipropyl ketone (OELV, 50 ppm) and 100 ppm of methyl ethyl ketone (OELV, 200 ppm).

$C_1/OEL_1 + C_2/OEL_2 + C_3/OEL_3$
$= 400/500 + 25/50 + 100/200$
$= 0.8 + 0.5 + 0.5$
$= 1.8$

As the sum exceeds 1.0, the combined OELV based on an additive effect is well exceeded.

Exceptions to the above rule may be made when there is good reason to believe that the principal effects of the different harmful substances are not in fact additive but ***independent***, as when purely local effects on different organs of the body are produced by the various components of the mixture. In such cases the OELV for the mixture is exceeded only when at least one member of the series ($C_1/OELV_1$ or $C_2/OELV_2$ etc.) itself has a value exceeding unity.

Synergistic effects, when substances combine to give a greater effect than expected from simple linear addition. This may occur with some combinations of atmospheric contaminants; such cases at present must be determined individually. For example, carbon tetrachloride and alcohol together are more toxic to the liver than expected from the sum of the two individual toxic effects.

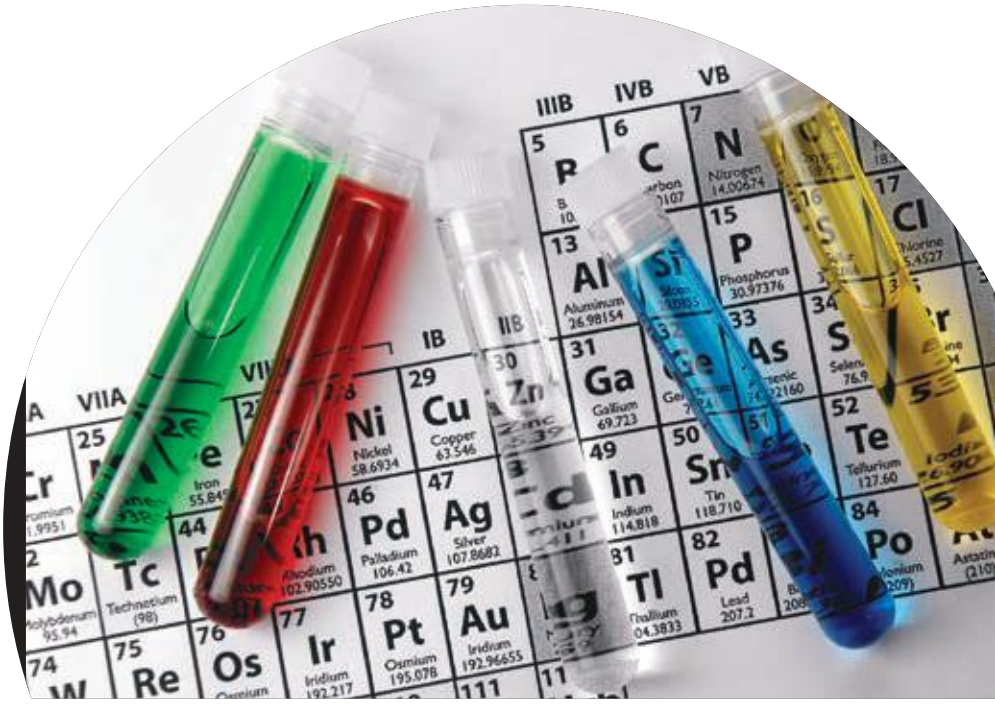
4. Further Information

1. Health and Safety Authority Chemicals webpages (www.hsa.ie/chemicals)

2. "Published Recommendations/Opinions/SUMs", Scientific Committee on Occupational Exposure Limits

3. "Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices", American Conference of Governmental Industrial Hygienists (ACGIH) https://www.acgih.org/.

4. 4. Risk Assessment Committee (RAC)-European Chemicals Agency: https://echa.europa.eu/oel



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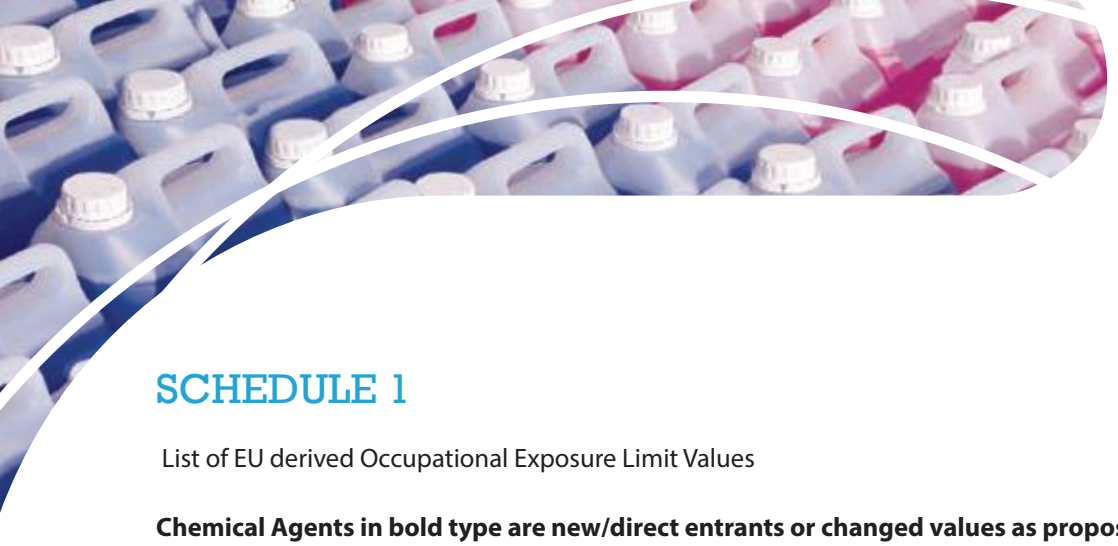


SCHEDULE 1

List of EU derived Occupational Exposure Limit Values

Chemical Agents in bold type are new/direct entrants or changed values as proposed in Schedule 2 of the 2018 Code of Practice

Substance			Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
	EC No.	CAS No.	ppm	mg/m³	ppm	mg/m³	
Acetic acid	200-580-7	64-19-7	10	25	20	50	IOELV
Acetone	200-662-2	67-64-1	500	1210	-	-	IOELV
Acetonitrile	200-835-2	75-05-8	40	70	-	-	Sk, IOELV
Acrolein	203-453-4	107-02-8	0.02	0.05	0.05	0.12	IOELV
Acrylaldehyde, See Acrolein							
Acrylamide	**201-173-7**	**79-06-1**		**0.1**	**-**	**-**	**Sk, BOELV**
Acrylic acid	201-177-9	79-10-7	10	29	20	59	IOELV STEL is for a 1 minute reference period
Allyl alcohol	203-470-7	107-18-6	2	4.8	5	12.1	Sk, IOELV
2-Aminoethanol	205-483-3	141-43-5	1	2.5	3	7.6	Sk, IOELV
3-Amino-1,2,4 Triazole, (Amitrole)	200-521-5	61-82-5	-	0.2	-	-	IOELV
Ammonia, anhydrous	231-635-3	7664-41-7	20	14	50	36	IOELV
Tert-Amyl acetate	211-047-3	625-16-1	50	270	100	540	IOELV
n-Amyl acetate, see Pentyl acetate							
Arsenic acid and its salts] [See footnote 14				**0.01 (I)**			**BOELV, Carc 1A, For copper smelting sector, the limit value shall apply from 11 July 2023[14].**
Asbestos[15]							
Crocidolite		2001-28-4		0.1 fibres/cm³ of air			BOELV, Carc.1A
Amosite		12172-73-5		0.1 fibres/cm³ of air			
Chrysotile		12001-29-5		0.1 fibres/cm³ of air			
Actinolite		77536-66-4		0.1 fibres/cm³ of air			
Anthophyllite		77536-67-5		0.1 fibres/cm³ of air			
Tremolite		77536-68-6		0.1 fibres/cm³ of air			
Barium compounds, (soluble compounds as Ba)	231-149-1	7440-39-3	-	0.5	-	-	IOELV
Benzene	**200-753-7**	**71-43-2**	**1**	**3.25**	**-**	**-**	**BOELV, Sk, Carc.1A, Muta.1B**
Beryllium and its inorganic compounds [See footnote 16]	**231-150-7**	**7440-41-7**	**-**	**0.0002mg/m³ (I)**			**BOELV, Sens, Limit value 0.0006mg/m³ until 11 July 2026[16] .**
Bisphenol A (4,4'-isopropylidenediphenol) (Inhalable dust)	201-245-8	80-05-7		2 (I)	-	-	IOELV, Sens.
Bromine	231-778-1	7726-95-6	0.1	0.7			IOELV
Bromoethylene	**209-800-6**	**593-60-2**	**1**	**4.4**	**-**	**-**	**BOELV. Carc.1B**

[14] Transitional measure introduced by Directive (EU) 2019/983 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (CMD).

[15] All types of asbestos fibre, as listed in Directive 2003/18/EC, and implemented by S.I. No. 386 of 2006.

[16] Transitional measure introduced by Directive (EU) 2019/983 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (CMD).

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m³	ppm	mg/m³	
1,3-Butadiene	**203-450-8**	**106-99-0**	**1**	**2.2**	**-**	**-**	**BOELV**
Butan-2-one, see Methyl ethyl ketone (MEK)							
But-2-yne-1,4-diol	203-788-6	110-65-6		0.5			IOELV
2-Butoxyethanol (EGBE)	203-905-0	111-76-2	20	98	50	246	Sk, IOELV
2-(2-Butoxyethoxy)ethanol	203-961-6	112-34-5	10	67.5	12	101.2	IOELV
2-Butoxyethyl acetate (EGBEA)	203-933-3	112-07-2	20	133	50	333	Sk, IOELV
n-Butyl acrylate	205-480-7	141-32-2	2	11	10	53	IOELV, Sens
Tert-Butyl-methyl ether	216-653-1	1634-04-4	50	183.5	100	367	IOELV
Cadmium and its inorganic compounds [See footnote 17]				**0.001mg/m³ (I)**			**BOELV, Carc 1B, Limit value 0.004mg/m³ until 11 July 2027. [17]**
Calcium dihydroxide	215-137-3	1305-62-0		1 (R)		4 (R)	IOELV
Calcium oxide	215-138-9	1305-78-8		1 (R)		4 (R)	IOELV
ε-Caprolactam	203-313-2	105-60-2	-	10	-	40	IOELV
Carbon dioxide	204-696-9	124-38-9	5000	9000			IOELV
Carbon disulphide	200-843-6	75-15-0	5	15	-	-	Sk, IOELV
Carbon monoxide	211-128-3	630-08-0	20	23	100	117	Repr 1A, IOELV
Carbon tetrachloride	200-262-8	56-23-5	1	6.4	5	32	Sk, IOELV
Carbonyl chloride, see Phosgene							
Chlorine	231-959-5	7782-50-5	-	-	0.5	1.5	IOELV
Chlorobenzene (as monochlorobenzene)	203-628-5	108-90-7	5	23	15	70	IOELV
Chlorodifluoromethane, see Difluorochloromethane							
Chloroethane, see Ethyl chloride							
Chloroform	200-663-8	67-66-3	2	9.8	-	-	Sk, IOELV
Chromium metal	231-157-5			2			IOELV
Chromium (II) compounds (as Cr)	-	-	-	2	-	-	IOELV
Chromium (III) compounds (as Cr)	-	-	-	2	-	-	IOELV
Chromium (VI) compounds (as Cr) [See footnote 18]	**-**	**-**	**-**	**0.005**			**BOELV[18]**
Cresols, all isomers	215-293-2	1319-77-3	5	22	-	-	Sk, IOELV
Cristobalite, respirable dust, see silica, crystalline							
Cumene, see Isopropylbenzene							
Cyanamide	206-992-3	420-04-2	0.58	1	-	-	Sk, IOELV, Sens
Cyclohexane	203-806-2	110-82-7	200	700	-	-	IOELV
Cyclohexanone	203-631-1	108-94-1	10	40.8	20	81.6	Sk, IOELV
Diacetyl; 2,3-Butanedione	207-069-8	431-03-8	0.02	0.07	0.1	0.36	IOELV
1,2 Dibromoethane, see Ethylene dibromide							
1,2-Dichlorobenzene	202-425-9	95-50-1	20	122	50	306	Sk, IOELV
1,4-Dichlorobenzene	203-400-5	106-46-7	2	12	10	60	Sk, IOELV
1,1-Dichloroethane	200-863-5	75-34-3	100	412	-	-	Sk, IOELV
1,2-Dichloroethane, see Ethylene dichloride							
1,1-Dichloroethylene	200-864-0	75-35-4	2	8	5	20	IOELV
Dichloromethane	200-838-9	75-09-2	100	353	200	706	IOELV, Sk
2,2'-Dichloro-4, 4'methylene-dianiline (MbOCA), see 4,4'Methylene bis-(2-chloroaniline)							
Diesel Engine Exhaust Emissions (as elemental carbon) [see footnote 19]	**-**	**-**		**0.05**			**BOELV[19]**
Diethylamine	203-716-3	109-89-7	5	15	10	30	IOELV

[17] Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of Directive (EU) 2019/983, a biomonitoring system with a biological limit value not exceeding 0.002mg Cd/g creatinine.

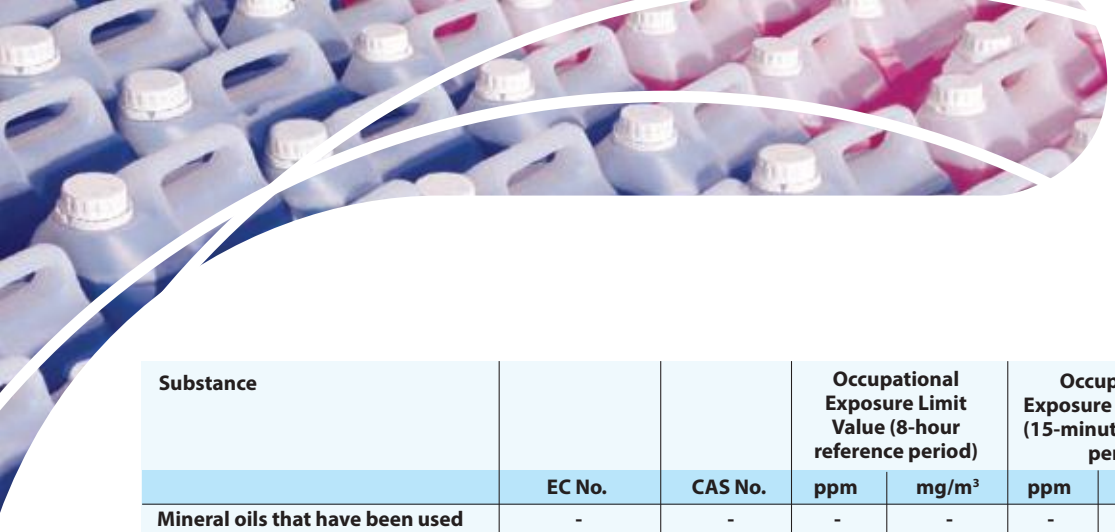
[18] Limit value 0.01mg/m³ until 17 January 2025, Limit value: 0.025mg/m³ for welding or plasma cutting processes or similar work processes that generate fume until 17 January 2025.

[19] The limit value shall apply from 21 February 2023. For underground mining and tunnel construction the limit value shall apply from 21 February 2026.

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Diethyl ether, see Ether							
Difluorochloromethane	200-871-9	75-45-6	1000	3600			IOELV
Dihydrogen selenide (as Se)	231-978-9	7783-07-5	0.02	0.07	0.05	0.17	IOELV
m-Dihydroxybenzene, see Resorcinol							
N,N'-dimethylacetamide	204-826-4	127-19-5	10	36	20	72	Repr 1B, Sk, IOELV
Dimethylamine	204-697-4	124-40-3	2	3.8	5	9.4	IOELV
Dimethyl ether	204-065-8	115-10-6	1000	1920	-	-	IOELV
Dimethylformamide	200-679-5	68-12-2	5	15	10	30	Repr 1B, Sk, IOELV
1,4-Dioxane, tech grade	204-661-8	123-91-1	20	73	-	-	Sk, IOELV
Diphenyl ether (vapour)	202-981-2	101-84-8	1	7	2	14	IOELV
Diphosphorous pentasulphide, see Phosphorous pentasulphide							
Diphosphorous pentoxide	215-236-1	1314-56-3	-	1	-	-	IOELV
Dipropylene glycol methyl ether, see (2-Methoxymethyl ethoxy)-1-propanol							
Epichlorohydrine	**203-439-8**	**106-89-8**		**1.9**	**-**	**-**	**Sk, Carc.1B, Sens. BOELV**
1,2-Epoxypropane	**200-879-2**	**75-56-9**	**1**	**2.4**	**-**	**-**	**BOELV, Carc.1B, Muta.1B**
Ethane-1,2-diol,	203-473-3	107-21-1	20	52	104	40	Sk, IOELV
Ethanolamine, see 2-Amino ethanol							
Ether	200-467-2	60-29-7	100	308	200	616	IOELV
2-Ethoxyethanol	203-804-1	110-80-5	2	8	-	-	Repr 1B, Sk, IOELV
2-Ethoxyethyl acetate	203-839-2	111-15-9	2	11	-	-	Repr 1B, Sk, IOELV
Ethyl acetate	205-500-4	141-78-6	200	734	400	1468	IOELV
Ethyl acrylate	205-438-8	140-88-5	5	20	10	41	IOELV, Sk, Sens
Ethylamine	200-834-7	75-04-7	5	9.4	-	-	IOELV
Ethyl amyl ketone, see 5-Methylheptan-3-one							
Ethylbenzene	202-849-4	100-41-4	100	442	200	884	Sk, IOELV
Ethyl butyl ketone, see Heptan-3-one							
Ethyl chloride	200-830-5	75-00-3	100	268	-	-	IOELV
Ethylene dibromide	**203-444-5**	**106-93-4**	**0.1**	**0.8**	**-**	**-**	**BOELV, Sk, Carc.1B**
Ethylene dichloride	**203-458-1**	**107-06-2**	**2**	**8.2**	**-**	**-**	**BOELV, Sk, Carc.1B**
Ethylene glycol, particulate and vapour, see Ethane-1,2-diol							
Ethylene glycol monobutyl ether, see 2-Butoxyethanol							
Ethylene glycol monoethyl ether, see 2-Ethoxyethanol							
Ethylene glycol monomethyl ether acetate, see 2-Methoxyethyl acetate							
Ethylene glycol monomethyl ether, see 2-Methoxyethanol							
Ethylene oxide	**200-849-9**	**75-21-8**	**1**	**1.8**	**-**	**-**	**BOELV, Carc.1B, Muta.1B, Sk**
Ethyl ether, see Ether							
2-Ethylhexan-1-ol	203-234-3	104-76-7	1	5.4	-	-	IOELV
Ethylidene dichloride, see 1,1-Dichloroethane							
Ethyl silicate (Tetraethyl orthosilicate)	201-083-8	78-10-4	5	44	-	-	IOELV
Fluorides, inorganic	-	-	-	2.5	-	-	IOELV
Flourine	231-954-8	7782-41-4	1	1.58	2	3.16	IOELV
Formaldehyde [see footnote 20]	**200-001-8**	**50-00-0**	**0.3**	**0.37**	**0.6**	**0.738**	**BOELV, Carc 1B, Sens, Limit value 0.5ppm/0.62mg/m³ for the healthcare, funeral and embalming sectors until 11 July 2024[20].**
Formic Acid	200-579-1	64-18-6	5	9	-	-	IOELV
Glycerol trinitrate	200-240-8	55-63-0	0.01	0.095	0.02	0.19	Sk, IOELV

[20] Transitional measure introduced by Directive (EU) 2019/983 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (CMD).

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Glycol mono ethyl ether, see 2-ethoxyethanol							
n-Heptane	205-563-8	142-82-5	500	2085	-	-	IOELV
Heptan-2-one	203-767-1	110-43-0	50	238	100	475	Sk, IOELV
Heptan-3-one	203-388-1	106-35-4	20	95	-	-	IOELV
n-Hexane	203-777-6	110-54-3	20	72	-	-	IOELV, Sk
1,6 Hexanolactam, dust and vapour, see ε-Caprolactam							
Hexone, see Methyl isobutyl ketone							
Hydrazine	**206-114-9**	**302-01-2**	**0.01**	**0.013**	**-**	**-**	**BOELV, Sk, Carc.1B, Sens**
Hydrogenated terphenyls	262-967-7	61788-32-7	2	19	5	48	IOELV
Hydrogen bromide	233-113-0	10035-10-6	-	-	2	6.6	IOELV
Hydrogen chloride	231-595-7	7647-01-0	5	8	10	15	IOELV
Hydrogen cyanide (as cyanide)	200-821-6	74-90-8	0.9	1	4.5	5	IOELV, Sk
Hydrogen fluoride (as F)	231-634-8	7664-39-3	1.8	1.5	3	2.5	Sk, IOELV
Hydrogen selenide (as Se) see dihydrogen selenide							
Hydrogen sulphide	231-977-3	7783-06-4	5	7	10	14	IOELV
Isoamyl acetate, see isopentyl acetate							
Isoamyl methyl ketone	203-737-8	110-12-3	20	95	-	-	IOELV
Isobutyl methyl ketone, see methyl isobutyl ketone							
Isopentyl acetate	204-662-3	123-92-2	50	260	100	520	IOELV
Isopropyl benzene (Cumene)	202-704-5	98-82-8	20	100	50	250	Sk, IOELV
Lead and its compounds (except tetraethyl lead)		7439-92-1	-	0.15	-	-	Repr 1A, BOELV
Lithium hydride	231-484-3	7580-67-8	-	-	-	0.02 (I)	IOELV
Manganese and inorganic manganese compounds (as Mn)			-	0.2 (I) 0.05 (R)	-	-	IOELV
MDA, see 4-4'-methylenedianiline							
Mercury & divalent inorganic mercury compounds	-	7439-97-6	-	0.02	-	-	IOELV Repr 1B
Mesitylene (Trimethylbenzenes)	203-604-4	108-67-8	20	100	-	-	IOELV
Methanol	200-659-6	67-56-1	200	260	-	-	Sk, IOELV
2-Methoxyethanol	203-713-7	109-86-4	1	-	-	-	Sk, Repr 1B, IOELV
2-(2-Methoxyethoxy) ethanol	203-906-6	111-77-3	10	50.1	-	-	Sk, IOELV
2-Methoxyethyl acetate	203-772-9	110-49-6	1	-	-	-	Sk, Repr 1B, IOELV
2-Methoxy-1-methylethylacetate	203-603-9	108-65-6	50	275	100	550	Sk, IOELV
(2-Methoxymethylethoxy)-1-propanol	252-104-2	34590-94-8	50	308	-	--	Sk, IOELV
1-Methyoxypropan2-ol, see Propylene glycol monomethyl ether							
Methylacrylate	202-500-6	96-33-3	5	18	10	36	Sk, IOELV, Sens
Methyl alcohol, see methanol							
Methyl-n-amyl-ketone, see Heptan-2-one							
1-Methyl butyl acetate	210-946-8	626-38-0	50	270	100	540	IOELV
Methyl chloroform, see 1,1,1-trichloroethane							
4-4'-Methylene-bis(2-chloroaniline) (MOCA)	**202-918-9**	**101-14-4**		**0.01**			**BOELV,Sk, Carc 1B,**
Methylene chloride, see Dichloromethane							
4,4'-Methylenedianiline	**202-974-4**	**101-77-9**	**-**	**0.08**	**-**	**-**	**BOELV, Sk, Carc.1B, Sens.**
Methyl ethyl ketone (MEK)	201-159-0	78-93-3	200	600	300	900	Sk, IOELV
Methyl formate	203-481-7	107-31-3	50	125	100	250	Sk, IOELV
5-Methylheptan-3-one	208-793-7	541-85-5	10	53	20	107	IOELV
5-Methylhexan-2-one, see Isoamyl methyl ketone							
Methyl isoamyl ketone, see Isoamyl methyl ketone							
Methyl isobutyl ketone (MIBK)	203-550-1	108-10-1	20	83	50	208	Sk, IOELV
Methyl isocyanate (as NCO)	210-866-3	624-83-9	-	-	0.02	-	Sens, IOELV
Methyl methacrylate	201-297-1	80-62-6	50	-	100	-	IOELV, Sens
4-Methylpentan-2-one, see Methyl isobutyl ketone							
n-Methyl-2-pyrrolidone	212-828-1	872-50-4	10	40	20	80	Sk, IOELV
α-Methylstyrene, see 2-Phenylpropene							

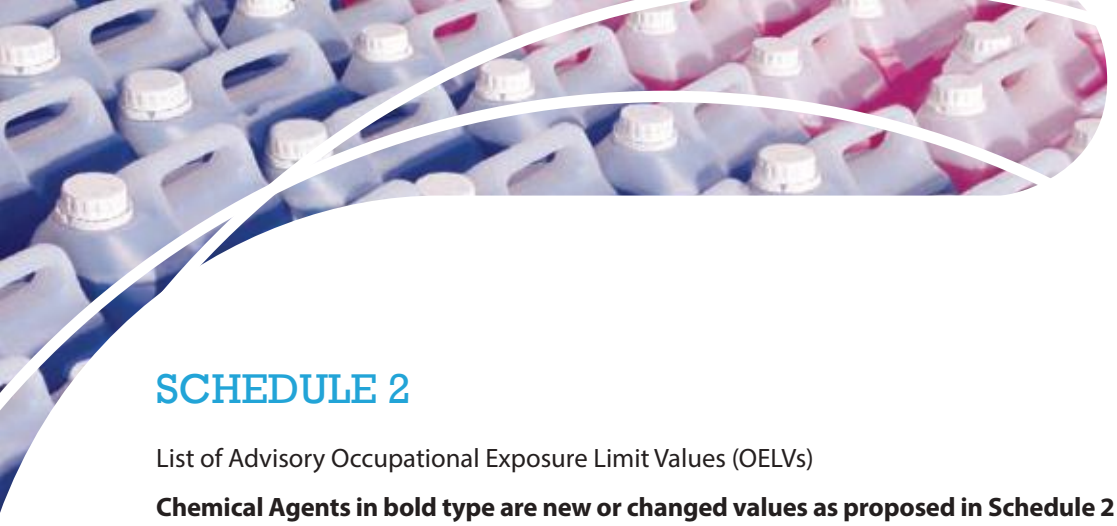


Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Mineral oils that have been used before in internal combustion engines to lubricate and cool the moving parts within the engine	-	-	-	-	-	-	**Sk**
Monochlorobenzene, see chlorobenzene							
Morpholine	203-815-1	110-91-8	10	36	20	72	Sk, IOELV
Naphthalene	202-049-5	91-20-3	10	50	-	-	IOELV
Nicotine	200-193-3	54-11-5	-	0.5	-	-	Sk, IOELV
Nitric Acid	231-714-2	7697-37-2	-	-	1	2.6	IOELV
Nitric oxide [see footnote 22]	233-271-0	10102-43-9	2 25	2.5 (30)	- (35)	- (45)	IOELV[21]
Nitrobenzene	202-716-0	98-95-3	0.2	1	-	-	Sk, IOELV
Nitroethane	201-188-9	79-24-3	20	62	100	312	IOELV, Sk
Nitrogen dioxide [see footnote 23]	233-272-6	10102-44-0	0.5 (3)	0.96 (5)	1 (5)	1.91 (9)	IOELV[22]
Nitrogen monoxide, see Nitric Oxide							
Nitroglycerin, see Glycerol trinitate							
2-Nitropropane	**201-209-1**	**79-46-9**	**5**	**18**	**-**	**-**	**BOELV, Carc.1B**
Orthophosphoric acid	231-633-2	7664-38-2	-	1	-	2	IOELV
Oxalic Acid	205-634-3	144-62-7	-	1	-	-	IOELV
Pentane	203-692-4	109-66-0	1000	3000	-	-	IOELV
iso-Pentane	201-142-8	78-78-4	1000	3000	-	-	IOELV
neo-Pentane	207-343-7	463-82-1	1000	3000	-	-	IOELV
Pentyl acetate	211-047-3	628-63-7	50	270	100	540	IOELV
3-Pentylacetate	211-047-3	620-11-1	50	270	100	540	IOELV
Phenol	203-632-7	108-95-2	2	8	4	16	Sk, IOELV
2-Phenylpropene	202-705-0	98-83-9	50	246	100	492	IOELV
Phosgene	200-870-3	75-44-5	0.02	0.08	0.1	0.4	IOELV
Phosphine	232-260-8	7803-51-2	0.1	0.14	0.2	0.28	IOELV
Phosphoric acid, see Orthophosphoric acid							
Phosphorus pentachloride	233-060-3	10026-13-8	-	1	-	-	IOELV
Phosphorus pentasulphide	215-242-4	1314-80-3	-	1	-	-	IOELV
Picric acid	201-865-9	88-89-1	-	0.1	-	0.3	Sk, IOELV
Piperazine	203-808-3	110-85-0	-	0.1	-	0.3	Sens, IOELV
Platinum metal	231-116-1	7440-06-4	-	1	-	-	IOELV
Polycyclic aromatic hydrocarbon mixtures, particularly those containing benzo[a] pyrene							**Sk**
Potassium cyanide	205-792-3	151-50-8		1		5	IOELV, Sk
Propionic acid	201-176-3	79-09-4	10	31	20	62	IOELV
Propylene glycol monomethyl ether	203-539-1	107-98-2	100	375	150	568	IOELV
Propylene oxide (see 1,2-epoxypropane)							
Prop-2-enal, see Acrolein							
Pyrethrins (ISO)	232-319-8	8003-34-7	-	1	-	-	IOELV
Pyrethrum, see Pyrethrins							
Pyridine	203-809-9	110-86-1	5	15	10	30	IOELV
Quartz, see Silica							
Refractory Ceramic Fibres (RCFs)	-	-	-	**0.3 fibre/ml**	-	-	**BOELV, Carc.1B,**
Resorcinol	203-585-2	108-46-3	10	45	-	-	Sk, IOELV
Silica, crystalline, respirable dust, (Cristobalite, Quartz, Tridymite, Tripoli)	-	-		**0.1**	-	-	**BOELV**
Silver (metallic)	231-131-3	7440-22-4	-	0.1	-	-	IOELV
Silver (soluble compounds as Ag)	231-131-3	-	-	0.01	-	-	IOELV
Sodium azide (as NaN3)	247-852-1	26628-22-8	-	0.1	-	0.3	Sk, IOELV
Sodium cyanide (as cyanide)	205-599-4	143-33-9	-	1	-	5	IOELV, Sk

[21] Limit values in () apply to underground mining and tunnelling sector only until 21 August 2023.
[22] Limit values in () apply to underground mining and tunnelling sector only until 21 August 2023.

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m³	ppm	mg/m³	
Sulphur dioxide	231-195-2	7446-09-5	0.5	1.3	1	2.7	IOELV
Sulphuric acid	231-639-5	7664-93-9	-	0.05	-	-	IOELV
Sulphotep (TEDP) (ISO), see O,O,O',O'-Tetraethyl dithiopyrophosphate (ISO)							
TEDP(ISO), see O,O,O,O'-Tetraethyl dithio-pyrophosphat							
Tetrachloroethylene	204-825-9	127-18-4	20	138	40	275	IOELV, Sk
Tetrachloromethane, see carbon tetrachloride							
O,O,O,O'-Tetraethyl dithio-pyrophosphate (ISO)	222-995-2	3689-24-5	-	0.1	-	-	Sk, IOELV
Tetraethyl orthosilicate, see Ethyl silicate							
Tetrahydrofuran	203-726-8	109-99-9	50	150	100	300	Sk, IOELV
Tin, as Sn Metal Oxide & inorganic compounds, except tin hydride Organic compounds	231-141-8	7440-31-5	-	 2 2 0.1		 0.2	IOELV
Toluene	203-625-9	108-88-3	50	192	100	384	Sk, IOELV
o-Toluidine	**202-429-0**	**95-53-4**	**0.1**	**0.5**	**-**	**-**	**BOELV, Sk, Carc.1B,**
1,2,4-Trichlorobenzene	204-428-0	120-82-1	2	15.1	5	37.8	Sk, IOELV
1,1,1-Trichloroethane	200-756-3	71-55-6	100	555	200	1110	IOELV
Trichloroethylene	**201-167-4**	**79-01-6**	**10**	**54.7**	**30**	**164.1**	**BOELV, Sk, Carc.1B**
Trichloromethane, see Chloroform							
Triethylamine	204-469-4	121-44-8	2	8.4	3	12.6	Sk, IOELV
1,2,3-Trimethylbenzene	208-394-8	526-73-8	20	100	-	-	Sk, IOELV
1,2,4-Trimethylbenzene	202-436-9	95-63-6	20	100	-	-	IOELV
2,4,6-Trinitrophenol, see Picric acid							
Tripoli, respirable dust, see Silica							
Vinyl acetate	203-545-4	108-05-4	5	17.6	10	35.2	IOELV
Vinyl bromide, see bromoethylene							
Vinyl chloride monomer (VCM)	**200-831-0**	**75-01-4**	**1**	**2.6**	**-**	**-**	**BOELV, Carc 1A**
Vinylidene chloride, see 1,1-Dichloroethylene							
Wood dust (hard wood) [See footnote 23]	**-**	**-**		**2**			**Sens, BOELV [23]**
Xylene, mixed isomers	215-535-7	1330-20-7	50	221	100	442	Sk, IOELV
Xylene, o-isomer	202-422-2	95-47-6	50	221	100	442	Sk, IOELV
Xylene, m-isomer	203-576-3	108-38-3	50	221	100	442	Sk, IOELV
Xylene, p-isomer	203-396-5	106-42-3	50	221	100	442	Sk, IOELV

[23] 3mg/m³ until 17 January 2023, 2mg/m³ thereafter



SCHEDULE 2

List of Advisory Occupational Exposure Limit Values (OELVs)

Chemical Agents in bold type are new or changed values as proposed in Schedule 2 of the 2018 Code of Practice

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m³	ppm	mg/m³	
Acetaldehyde	200-836-8	75-07-0	-	-	25	45	-
Acetic anhydride	203-564-8	108-24-7	1	2.5	3	10	-
Acetone cyanohydrin as CN	200-909-4	75-86-5	-	-		5	-
Acetophenone	202-708-7	98-86-2	10	49	-	-	-
Acetylene	200-816-9	74-86-2	-	-	-	-	Asphx.
Acetylene Dichloride	208-750-2	540-59-0	200	790	-	-	-
Acetylene Tetrabromide, see 1,1,2,2-Tetrabromoethane							
o-Acetylsalicylic acid, (Aspirin)	200-064-1	50-78-2	-	5	-	-	-
Acrylonitrile	203-466-5	107-13-1	2	4.5	-	-	Sk, Carc.1B, Sens.
Adipic acid	204-673-3	124-04-9	-	5	-	-	-
Adiponitrile	203-896-3	111-69-3	2	-	-	-	-
Alachlor	240-110-8	15972-60-8	-	1 (IFV)	-	-	-
Aldrin (ISO)	206-215-8	309-00-2	-	0.05 (IFV)	-	-	Sk
Aliphatic hydrocarbon gases Alkanes (C1-C3)							-
Ethane	200-814-8	74-84-0					Asphx.
Methane	200-812-7	74-82-8					Asphx.
Propane	200-827-9	74-98-6					Asphx.
Allyl bromide	203-446-6	106-95-6	0.1	-	0.2	-	Sk
Allyl chloride	203-457-6	107-05-1	1	3	2	6	Sk
Allyl 2,3-epoxypropyl ether	203-442-4	106-92-3	5	22	-	-	Sens.
Allyl glycidyl ether (AGE), see Allyl 2,3-epoxypropyl ether							
Allyl propyl disulphide	218-550-7	2179-59-1	0.5	-	-	-	-
Aluminium alkyl compounds	-	-	-	2	-	-	-
Aluminium metal;	231-072-3	7429-90-5	-	1 (R)	-	-	-
Aluminium oxides;	215-691-6	1344-28-1					
total inhalable dust			-	10	-	-	-
respirable dust	-	-	-	4	-	-	-
Aluminium salts, soluble	-	-	-	2	-	-	-
Aminodimethylbenzene, see Xylidine							
4-Aminodiphenyl	202-177-1	92-67-1	-	-	-	-	Sk, Carc.1A
2-Aminopyridine	207-988-4	504-29-0	0.5	2			-
Ammonium chloride, fume	235-186-4	12125-02-9	-	10	-	20	-
Ammonium Perflurooctanoate	223-320-4	3825-26-1	-	0.01	-	-	Sk
Ammonium sulphamidate	231-871-7	7773-06-0	-	10	-	-	-
Sec-Amyl acetate, see 1-Methyl butyl acetate							
Aniline	200-539-3	62-53-3	1	3.8	-	-	Sk, Sens
o-Anisidine	201-963-1	90-04-0	0.1	0.5	-	-	Sk, Carc.1B
p-Anisidine	203-254-2	104-94-9	0.1	0.5	-	-	Sk
Antimony & compounds (as Sb)	231-146-5	7440-36-0	-	0.5	-	-	-
Antimony hydride (see Stibine)							
Araldite PT 810, see Triglycidyl isocyanurate, (TGIC)							
Argon	231-147-0	7440-37-1	-	-	-	-	Asphx.
Arsine	232-066-3	7784-42-1	0.005	0.02	-	-	-
Asphalt (Bitumen), petroleum fumes, *(inhalable fraction)*	232-490-9	8052-42-4	-	0.5	-		-
Aspirin, see o-Acetylsalicylic acid							
Atrazine (ISO)	217-617-8	1912-24-9	-	2	-	-	Sens.
Azinphos-methyl (ISO), see Guthion							

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m³	ppm	mg/m³	
Aziridine, see Ethylenimine							
Azodicarbonamide (C, C'-azodi(formamide))	204-650-8	123-77-3	-	1	-	3	Sens.
Barium sulphate, respirable dust	231-784-4	7727-43-7	-	5	-	-	-
Benomyl (ISO)	241-775-7	17804-35-2	-	10	-		Muta.1B, Repr.1B, Sens.
Benz[α]anthracene	200-280-6	56-55-3	-	-	-	-	Carc.1B
Benzenethiol	203-635-3	108-98-5	-	-	-	-	Sk
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride, see Trimelletic anhydride							
Benzidene	202-199-1	92-87-5	-	-	-	-	Sk, Carc.1A
Benzo[β]fluroanthene	205-911-9	205-99-2	-	-	-	-	Carc.1B
Benzo[β]pyrene	200-028-5	50-32-8	-	-	-	-	Carc.1B, Muta.1B, Repr.1B, Sens.
p-Benzoquinone, see Quinone							
Benzoyl chloride	202-710-8	98-88-4	-	-	0.5	-	-
Benzoyl peroxide, see Dibenzoyl peroxide							
Benzyl acetate	205-399-7	140-11-4	10	-	-	-	-
Benzyl butyl phthalate, see Butyl benzyl phthalate							
Benzyl chloride	202-853-6	100-44-7	1				Carc.1B
γ-BHC (ISO), see γ-Hexachlorocyclohexane							
Biphenyl	202-163-5	92-52-4	0.2	1.5	-	-	-
BCME, see bis(Chloromethyl) ether							
2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane, see 1,1,1-Trichlorobis (chlorophenyl)ethane							
Bis(2,3-epoxypropyl)ether, see Diglycidyl ether (DGE)							
Bis(2-ethylhexyl) Phthalate, see Di-sec-octyl-phthalate							
2,2Bis(p-methoxyphenyl) -1,1,1-trichloroethane, see Methoxychlor(ISO)							
Bismuth telluride	215-135-2	1304-82-1	-	10	-	-	-
Bismuth telluride, selenium-doped	-	-	-	5	-	-	-
Borate compounds inorganic	215-540-4	1330-43-4 1303-96-4 10043-35-3 12179-04-3		2			Repr.1B
Bornan-2-one	200-945-0	76-22-2	2	12	3	18	-
Boron oxide	215-125-8	1303-86-2	-	10	-		Repr.1B
Boron tribromide	233-657-9	10294-33-4	-	-	1	10	-
Boron trifluoride	231-569-5	7637-07-2	-	-	1	3	-
Bromacil (ISO)	206-245-1	314-40-9	1	10	-	-	-
Bromine pentafluoride	232-157-8	7789-30-2	0.1	0.7	-	-	-
Bromochloromethane	200-826-3	74-97-5	200	1050	-	-	-
Bromoethane, see Ethyl bromide							
Bromoform, see Tribromomethane							
Bromomethane	200-813-2	74-83-9	5	20	15	60	Sk
1-Bromopropane (n-Propyl bromide)	203-445-0	106-94-5	0.1				
Bromotrifluoromethane, see Trifluorobromomethane							
Butane, all isomers	203-448-7 200-857-2	106-97-8 75-28-5			1000		
Butanethiol	203-705-3	109-79-5	0.5	1.8	-	-	-
Butan-1-ol	200-751-6	71-36-3	20	-	-	-	-
Butan-2-ol	201-158-5	78-92-2	100	300	150	450	-
tert-Butanol - see 2-Methylpropan-2-ol							
Butenes, all isomers incl. Isobutene		106-98-9 107-01-7 115-11-7 590-18-1 624-64-6 25167-67-3	250	-	-	-	-
trans But-2-enal	204-647-1	123-73-9	2	6	6	18	-
Butyl acetate	204-658-1	123-86-4	150	710	200	950	

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
sec-Butyl acetate	203-300-1	105-46-4	200				
tert-Butyl acetate	208-760-7	540-88-5	200				-
n-Butyl alcohol, see Butan-1-ol							
sec-Butyl alcohol, see Butan-2-ol							
tert-Butyl alcohol, see 2-Methyl propan-2-ol							
n-Butylamine	203-699-2	109-73-9	-	-	5	15	Sk
Butylated hydroxytoluene (BHT) see 2,6-Ditertiary-butyl-para-cresol							
Butyl benzyl phthalate	201-622-7	85-68-7	-	5	-	-	Repr.1B
n-Butyl chloroformate	209-750-5	592-34-7	1	5.6	-	-	-
tert-Butyl chromate		1189-85-1	-	-	-	0.1	-
Butyl-2,3-epoxypropyl ether(BGE)	219-376-4	2426-08-6	3	-	-	-	Sens., Sk
Butyl glycidyl ether, see Butyl-2,3-epoxypropylether							
Butyl lactate	205-316-4	138-22-7	5	25	-	-	-
n-Butyl mercaptan, see Butanethiol							
2-sec- Butylphenol	201-933-8	89-72-5	5	30	-	-	Sk
p-tert Butyltoluene	202-675-9	98-51-1	1	6.1	-	-	-
Caesium hydroxide	244-344-1	21351-79-1	-	2	-	-	-
Calcium carbonate	215-279-6	1317-65-3					
total inhalable dust			-	10	-	-	-
respirable dust			-	4	-	-	-
Calcium cyanamide	205-861-8	156-62-7	-	0.5	-	1	-
Calcium silicate	215-710-8	1344-95-2	-		-	-	-
Non fibrous particles				1			
Fibrous particles				1f/cc			
Calcium sulphate	231-900-3	7778-18-9	-	10	-	-	-
Camphor, synthetic, see Bornan-2-one							
Captafol (ISO)	219-363-3	2425-06-1	-	0.1	-	-	Sk, Carc.1B, Sens.
Captan (ISO)	205-087-0	133-06-2	-	5	-	-	Sens.
Carbaryl (ISO)	200-555-0	63-25-2	-	0.5 (IFV)	-	-	-
Carbofuran (ISO)	216-353-0	1563-66-2	-	0.1	-	-	-
Carbon black	215-609-9	1333-86-4	-	3 (I)	-	-	-
Carbon tetrabromide	209-189-6	558-13-4	0.1	1.4	0.3	4	-
Carbonyl fluoride	206-534-2	353-50-4	2	5.4	5	13	-
Carbonyl sulphide	207-340-0	463-58-1	5	-	-	-	-
Catechol	204-427-5	120-80-9	5	20	-	-	Sk
Cellulose	232-674-9	9004-34-6	-	10	-	-	-
Cement (Portland) (See Portland cement)							
Chlordane (ISO)	200-349-0	57-74-9	-	0.5	-	-	Sk
Chlorinated biphenyls	215-648-1		-		-	-	Sk
(42% chlorine)		53469-21-9	-	1	-	-	
(54% chlorine)		11097-69-1		0.5	-	-	
Chlorinated camphene	232-283-3	8001-35-2	-	0.5	-	-	-
o-Chlorinated diphenyl oxide		31242-93-0	-	0.5	-	-	-
Chlorine dioxide	**233-162-8**	**10049-04-4**	**-**	**-**	**0.1**	**-**	**-**
Chlorine trifluoride	232-230-4	7790-91-2	-	-	0.1	0.4	-
Chloroacetaldehyde	203-472-8	107-20-0	-	-	1	3	-
Chloroacetone	201-161-1	78-95-5	-	-	1		Sk
2-Chloroacetophenone	208-531-1	532-27-4	0.05	0.3	-	-	-
Chloroacetyl chloride	201-171-6	79-04-9	0.05	0.2	-	-	-
o-Chlorobenzylidene malonitrile	220-278-9	2698-41-1			0.05		Sk
Chlorobromomethane, see Bromochloromethane							
2-Chlorobuta-1,3-diene, see β-Chloroprene							
2-Chloroethanol, see Ethylene chlorohydrin							
Chloroethylene, see Vinyl chloride							
Chloromethane	200-817-4	74-87-3	50	105	100	210	
Bis(Chloromethyl) ether	208-832-8	542-88-1	0.001	0.005	-	-	Carc.1A
Chloromethyl methyl ether	203-480-1	107-30-2	-	-	-	-	Carc.1A
1-Chloro-4-nitrobenzene	202-809-6	100-00-5	-	1	-	2	Sk

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
1-Chloro-1-nitropropane	209-990-0	600-25-9	2	10	-	-	-
Chloropentafluoroethane	200-938-2	76-15-3	1000	6320	-	-	-
Chloropicrin	200-930-9	76-06-2	0.1	0.7	-	-	-
β-Chloroprene	204-818-0	126-99-8	10	36	-	-	Carc.1B, Sk
3-Chloropropene, see Allyl chloride							
1-Chloro-2-propanol	204-819-6	127-00-4	1	-	-	-	-
2-Chloro-1-propanol	78-89-7		1				
2-Chloropropionic acid	209-952-3	598-78-7	0.1	-	-	-	Sk
o-Chlorostyrene	218-026-8	2039-87-4	50	283	75	425	-
Chlorosulphonic acid	232-234-6	7790-94-5	-	1	-	-	-
α-Chlorotoluene, see Benzyl chloride							
2-Chlorotoluene	202-424-3	95-49-8	50	250	-	-	-
2-Chloro-6-(trichloromethyl) pyridine, see Nitrapyrin							
Chlorpyrifos (ISO)	220-864-4	2921-88-2	-	0.1 (IFV)	-	-	Sk
Citral	226-394-6	5392-40-5	5 (IFV)	-	-	-	-
Clopidol	221-008-2	2971-90-6	-	3	-	-	-
Coal dust, respirable dust Anthracite Bituminous	-	-	-	 0.4 (R) 0.9 (R)	-	-	-
Coal tar pitch volatiles, (as cyclohexane solubles)	266-028-2	65996-93-2	-	0.2	-	-	Carc.1B
Cobalt & cobalt compounds (as Co)	231-158-0	7440-48-4	-	0.02	-	-	Sens.
Cobalt carbonyl as Co	233-514-0	10210-68-1	-	0.1	-	--	-
Copper (as Cu) Fume Dusts and mists (as Cu)	231-159-6	7440-50-8	 - -	 0.2 1	 - -	 - -	 - -
Cotton dust (raw or waste cotton)	-	-	-	2.5	-	-	-
Coumaphos	-	56-72-4	-	0.05 (IFV)	-	-	-
Crotonaldehyde	224-030-0	4170-30-0	-	-	0.3	-	Sk
Crufomate	206-083-1	299-86-5	-	5	-	-	-
Cryofluorane, see 1,2-Dichlorotetrafluoroethane							
Cyanides, except hydrogen cyanide, cyanogen and cyanogen chloride, (as -CN)		57-12-5	-	5	-	-	Sk
Cyanoacrylates, Ethyl and Methyl		**7085-85-0 137-05-3**	**0.2**		**1**		
Cyanogen	207-306-5	460-19-5	-	-	10		-
Cyanogen bromide	208-051-2	506-68-3	-	-	0.3	-	-
Cyanogen chloride	208-052-8	506-77-4	-	-	0.3	0.6	-
Cyclohexanol	203-630-6	108-93-0	50	200	-	-	-
Cyclohexene	203-807-8	110-83-8	300	1015	-	-	-
Cyclohexylamine	203-629-0	108-91-8	10	40	-	-	-
Cyclonite, see Hexahydro-1,3,5-trinitro-1,3,5 triazine							
Cyclopentadiene	208-835-4	542-92-7	75	203	-	-	-
Cyclopentane	206-016-6	287-92-3	600	1720	-	-	-
Cyhexatin (ISO), see Tricyclohexyltin hydroxide							
2,4-D (ISO), see 2,4-Dichloro- phenoxyacetic acid							
DDM, see 4-4' Diaminodiphenylmethane							
DDT, see 1,1,1-Trichlorobis (chlorophenyl) ethane							
DDVP, see Dichlorvos (ISO)							
Decaborane	241-711-8	17702-41-9	0.05	0.25	0.15	0.75	Sk
Demeton		8065-48-3	0.01	0.05 (IFV)			Sk
Demeton-S-methyl (methyl demeton)	213-052-6	919-86-8	-	0.05 (IFV)	-		-
2,4-DES, see 2-(2,4-Dichlorophenoxy)ethyl hydrogen sulphate							
Derris, commercial, see Rotenone							
Diacetone alcohol	204-626-7	123-42-2	50	240	-	-	-

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Dialkyl 79 phthalate	-	-	-	5	-	-	-
Diallyl phthalate	205-016-3	131-17-9	-	5	-	-	-
2,2-Diaminodiethylamine, see Diethylene triamine							
1,2-Diaminoethane, see Ethylenediamine							
Diammonium peroxodisulphate (measured as[S_2O_3]) See Persulphate salts							
Diatomaceous earth, natural, respirable dust	272-489-0	68855-54-9	-	1.2	-	-	-
Diazinon (ISO)	206-373-8	333-41-5	-	0.01 (IFV)	-	-	Sk
Diazomethane	206-382-7	334-88-3	0.2	0.4	-	-	Carc.1B
Dibenzoyl peroxide	202-327-6	94-36-0	-	5	-	-	Sens.
Dibismuth tritelluride, see Bismuth telluride							
Dibismuth tritelluride, selenium doped, see Bismuth telluride selenium doped							
Diborane	242-940-6	19287-45-7	0.1	0.1	-	-	-
Diboron trioxide, see Boron oxide							
Dibrom, see 1,2 Dibromo-2, 2 dichloro ethyl dimethyl phosphate (Naled)							
1,2 Dibromo-2,2 dichloro ethyl dimethyl phosphate	206-098-3	300-76-5	-	0.1 (IFV)	-	6	-
Dibromodifluoromethane, see Difluorodibromomethane							
2-N-Dibutylaminoethanol	203-057-1	102-81-8	0.5	3.5	-	-	Sk
Dibutyl hydrogen phosphate	203-509-8	107-66-4		5 (IFV)	2	10	-
Dibutyl phenyl phosphate	219-772-7	2528-36-1	0.3	3.5	-	-	Sk
Di-n-butyl phosphate, see Dibutyl hydrogen phosphate							
Dibutyl phthalate	201-557-4	84-74-2	-	5	-	10	Repr.1B
Dichloroacetic acid	201-207-0	79-43-6	0.5	-	-	-	-
Dichloroacetylene		7572-29-4	-	-	0.1	0.4	-
3,3-Dichlorobenzidine	202-109-0	91-94-1	-	-	-	-	Carc.1B, Sens.
1,4-Dichloro-2-butene	212-121-8	764-41-0	0.005	0.025	-	-	Sk, Carc.1B
Dichlorodifluoromethane	200-893-9	75-71-8	1000	4950	-	-	-
1,3-Dichloro-5,5-dimethyl-hydantoin	204-258-7	118-52-5	-	0.2	-	0.4	-
Dichlorodiphenyltrichloroethane, see 1,1,1'-Trichlorobis (chlorophenyl) ethane							
1,2-Dichloroethylene (cis:trans isomers 60:40), see Acetylene dichloride							
Dichloroethyl ether	203-870-1	111-44-4	5	29	10	58	Sk
Dichlorofluoromethane	200-869-8	75-43-4	10	40	-	-	-
1,1-Dichloro-1-nitroethane	209-854-0	594-72-9	2	12	-	-	-
2,4-Dichlorophenoxyacetic acid [2,4-D (ISO)]	202-361-1	94-75-7	-	10	-	--	Sk, Sens.
2-(2,4-dichlorophenoxy) ethyl hydrogen sulphate and sodium 2-(2,4-dichlorophenoxy) ethyl sulphate	205-259-5	149-26-8	-	10	-	20	-
1,3-Dichloropropene, cis and trans isomers	208-826-5	542-75-6	1	5	-	-	Sk, Sens.
Dichloropropionic acid	200-923-0	75-99-0	1	5.8	-	-	-
1,2-Dichlorotetrafluoroethane	200-937-7	76-14-2	1000	7000	-	-	-
Dichlorvos (ISO)	200-547-7	62-73-7	0.1	1	0.3	3	Sk, Sens.
Dicrotophos	205-494-3	141-66-2	-	0.05 (IFV)	-	-	Sk
Dicyclohexyl phthalate	201-545-9	84-61-7	-	5	-	-	-
Dicyclopentadiene	201-052-9	77-73-6	5	30	-	-	-
Dicyclopentadienyl iron, see Ferrocene							
Dieldrin (ISO)	200-484-5	60-57-1	-	0.1	-	-	Sk
Diesel fuel/kerosene	-	-	-	100	-	-	Sk
Diethanolamine	203-868-0	111-42-2	0.2	1(IFV)	-	-	-
2-Diethylaminoethanol	202-845-2	100-37-8	2	-	-	-	Sk
Diethylene glycol	203-872-2	111-46-6	23	100	-	-	-
Diethylene triamine	203-865-4	111-40-0	1	4	-	-	Sk
Di-(2-ethylhexyl) phthalate, see Di-sec-octyl-phthalate							
N, N-Diethylhydroxylamine	223-055-4	3710-84-7	2	-	-	-	-
Diethyl ketone, see Pentan-3-one							
Diethyl phthalate	201-550-6		-	5	-	10	-

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m³	ppm	mg/m³	
Diethyl sulphate	200-589-6	64-67-5	0.05	-	-	-	Carc.1B, Muta.1B
Difluorodibromomethane	200-885-5	75-61-6	100	860	-	-	-
Difluorodichloromethane, see Dichlorodifluoromethane							
Diglycidyl ether (DGE)	218-802-6	2238-07-5	0.01	0.05	-	-	-
o-Dihydroxybenzene, see Catechol							
p-Dihydroxybenzene, see Hydroquinone							
Diisobutyl ketone	203-620-1	108-83-8	25	150	-	-	-
Diisobutyl phthalate	201-553-2	84-69-5	-	5	-	-	Repr.1B
Diisodecyl phthalate	247-977-1	26761-40-0	-	5	-	-	-
Diisononyl phthalate	249-079-5	28553-12-0	-	5	-	-	-
Diisooctyl phthalate	248-523-5	27554-26-3	-	5	-	-	Repr.1B
Diisopropylamine	203-558-5	108-18-9	5	20	-	-	Sk
Diisopropyl ether, see Isopropyl ether							
Di-linear 79 phthalate	-	-	-	5	-	-	-
Dimethoxymethane, see Methylal							
Bis-(2-Dimethylaminoethyl) ether		3033-62-3	0.05	-	0.15	-	-
N,N-Dimethylaniline	204-493-5	121-69-7	5	25	10	50	Sk
1,3-Dimethylbutyl acetate	203-621-7	108-84-9	50	300	-	-	-
Dimethyl carbamoyl chloride	201-208-6	79-44-7	0.005	0.2	-	-	Carc.1B
Dimethyl disulphide	210-871-0	624-92-0	0.5	1.9	-	-	-
N,N-Dimethylethylamine	209-940-8	598-56-1	10	30	15	45	-
2,6-Dimethylheptan-4-one, see Di-isobutyl ketone							
N,N-Dimethylhydrazine	200-316-0	57-14-7	0.01	0.02	-	-	Carc.1B
Dimethyl phthalate	205-011-6	131-11-3	-	5	-	10	-
Dimethyl sulphate	201-058-1	77-78-1	0.1	0.5	0.1	0.5	Sk, Carc.1B, Sens.
Dimethyl sulphide	200-846-2	75-18-3	10	-	-	-	-
Dimethylethoxysilane	238-921-7	14857-34-2	0.5	-	1.5	-	-
Dinitolmide	205-706-4	148-01-6	-	1	-	-	-
Dinitrobenzene, all isomers	246-673-6	25154-54-5	0.15	1	0.5	3	Sk
Dinitro-o-cresol	208-601-1	534-52-1	-	0.2	-	-	Sk, Sens.
Dinitrotoluene	246-836-1	25321-14-6	-	0.2	-	-	Carc.1B, Sk
Dinonyl phthalate	201-560-0	84-76-4	-	5	-	-	-
Dioxathion (ISO)	201-107-7	78-34-2	-	0.1 (IFV)	-	-	Sk
1,3-Dioxolane	211-463-5	646-06-0	20	-	-	-	-
Diphenyl, see Biphenyl							
Diphenylamine	204-539-4	122-39-4	-	10	-	20	-
Dipotassium peroxodisulphate (measured as [S2O8]); see Persulphate salts, potassium							
Dipropyl ketone	204-608-9	123-19-3	50	233	-	-	-
Diquat dibromide(ISO)	201-579-4	85-00-7	-	0.5 (I) 0.1 (R)	-	-	Sens.
Di-sec-octyl phthalate	204-211-0	117-81-7	-	5	-	10	Repr. 1B
Disodium disulphite	231-673-0	7681-57-4	-	5	-	-	-
Disodium peroxodisulphate (measured as S_2O_8); see Persulphate salts, sodium							
Disodium tetraborate, anhydrous, decahydrate & pentahydrate, see Borates (tetra) sodium							
Disulfiram	202-607-8	97-77-8	-	2	-	-	-
Disulfoton (ISO)	206-054-3	298-04-4	-	0.05 (IFV)	-	-	Sk
Disulphur dichloride, see Sulphur monochloride							
Disulphur decafluoride	227-204-4	5714-22-7	-	-	0.01		-
2,6-Ditertiary-butyl-para-cresol	204-881-4	128-37-0	-	2	-	-	-
6,6'-Di-tert-butyl-4,4'-thio-di-m-cresol	202-525-2	96-69-5	-	1 (I)	-	-	-
Diuron (ISO)	206-354-4	330-54-1	-	10	-	-	-
Divanadium pentaoxide (as V), total inhalable faction	215-239-8	1314-62-1	-	0.05	-	-	-
Divinylbenzene	203-595-7	108-57-6	10	50	-	-	-
DMDT, see Methoxychlor (ISO)							
Dodecyl mercaptan	203-984-1	112-55-0	0.1	-	-	-	Sens.
Dusts non-specific	-	-					
total inhalable			-	10	-	-	-
respirable	-	-	-	4	-	-	-

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Emery	-	1302-74-5					
total inhalable dust			-	10	-	-	-
respirable dust			-	4	-	-	-
Endosulfan (ISO)	204-079-4	115-29-7	-	0.1	-	0.3	Sk
Endrin (ISO)	200-775-7	72-20-8	-	0.1	-	-	Sk
Enflurane	237-553-4	13838-16-9	50	380	-	-	-
EPN (O-ethyl O-4-nitrophenyl phenylphosphothioate)	218-276-8	2104-64-5	-	0.1	-	-	-
1,2 Epoxy-4-epoxyethylcyclohexane, see Vinylcyclohexene dioxide							
2,3-Epoxypropyl isopropyl ether, see Isopropyl glycidyl ether							
Ethane (see aliphatic hydrocarbon gases)							
Ethanethiol (ethyl mercaptan)	200-837-3	75-08-1	0.5		-	-	-
Ethanol	200-578-6	64-17-5	-	-	1000	-	-
Ethion	209-242-3	563-12-2	-	0.05 (IFV)	-	-	-
2-Ethoxy-2-methylpropane	211-309-7	637-92-3	25	-	-	-	-
Ethyl alcohol, see Ethanol							
Ethyl bromide	200-825-8	74-96-4	5	22	-	-	Sk
Ethyl chloroformate	208-778-5	541-41-3	1	4.4	-	-	-
Ethyl cyanoacrylate	**230-391-5**	**7085-85-0**	**0.2**	**-**	**1**	**-**	**-**
Ethylene	200-815-3	74-85-1	200	-	-	-	Asphx.
Ethylene chlorohydrin	203-459-7	107-07-3	-	-	1	3	Sk
Ethylenediamine	203-468-6	107-15-3	10	25	-	-	Sens.
Ethylene dinitrate, see Ethylene glycol dinitrate							
Ethylene glycol dinitrate	211-063-0	628-96-6	0.05	0.3	-	-	Sk
Ethylenimine	205-793-9	151-56-4	0.05	0.1	-	-	Sk, Carc.1B, Muta.1B
Ethyl formate	203-721-0	109-94-4	-	-	100	-	-
Ethyl hexanoic acid	205-743-6	149-57-5	-	5	-	-	-
2-Ethylhexyl chloroformate	246-278-9	24468-13-1	1	7.9	-	-	-
5-Ethylidene-8,9,10-trinorborn-2-ene (Ethylidene norbornene)	240-347-7	16219-75-3	2	-	4	-	-
Ethyl isocyanate	203-717-9	109-90-0	0.02	-	0.06	-	-
Ethyl tert-butyl ether (see 2-ethoxy-2-methylpropane)							
Ethyl mercaptan, see Ethanethiol							
4-Ethylmorpholine	202-885-0	100-74-3	5	23	20	95	Sk
Fenamiphos (ISO)Ethyl-4-methylthio-m-tolyl isopropyl phosporamidate))	244-848-1	22224-92-6	-	0.05	-	-	-
Fenchlorphos (ISO), see Ronnel							
Fensulfothion (ISO) (O,O-Diethyl O-4-methylsulfinylphenyl phosphorothioate)	204-114-3	115-90-2	-	0.01	-	-	-
Fenthion (ISO) (O,O-Dimethyl-O-(4-methylthion-m-tolyl) phosphorothioate	200-231-9	55-38-9	-	0.05	-	-	-
Ferbam (ISO)	238-484-2	14484-64-1	-	5	-	-	-
Ferrocene (Dicyclopentadienyl iron)	203-039-3	102-54-5	-	10	-	-	-
Ferrovanadium Dust	-	12604-58-9	-	1	-	3	-
Flour dust	-	-	-	1	-	-	Sens.
Fluoride (as F)	-	16984-48-8	-	2.5	-	-	-
Fluorodichloromethane, see Dichlorofluoromethane							
Fluorotrichloromethane, see Trichlorofluoromethane							
Fonofos (ISO) (O-Ethyl phenyl ethylphosphonodithioate)	213-408-0	944-22-9	-	0.1 (IFV)	-	-	-
Formamide	200-842-0	75-12-7	10	18	-	-	Repr.1B
2-Furaldehyde (Furfural)	202-627-7	98-01-1	2	8	5	20	Sk
Furfuryl alcohol	202-626-1	98-00-0	10	40	15	60	Sk
Germane	231-961-6	7782-65-2	0.2	0.6	0.6	1.8	-
Germanium tetrahydride, see Germane							
Glutaraldehyde	203-856-5	111-30-8	-	-	0.05	0.2	Sens.
Glycidol	209-128-3	556-52-5	2	6	-	-	Carc.1B, Repr.1B

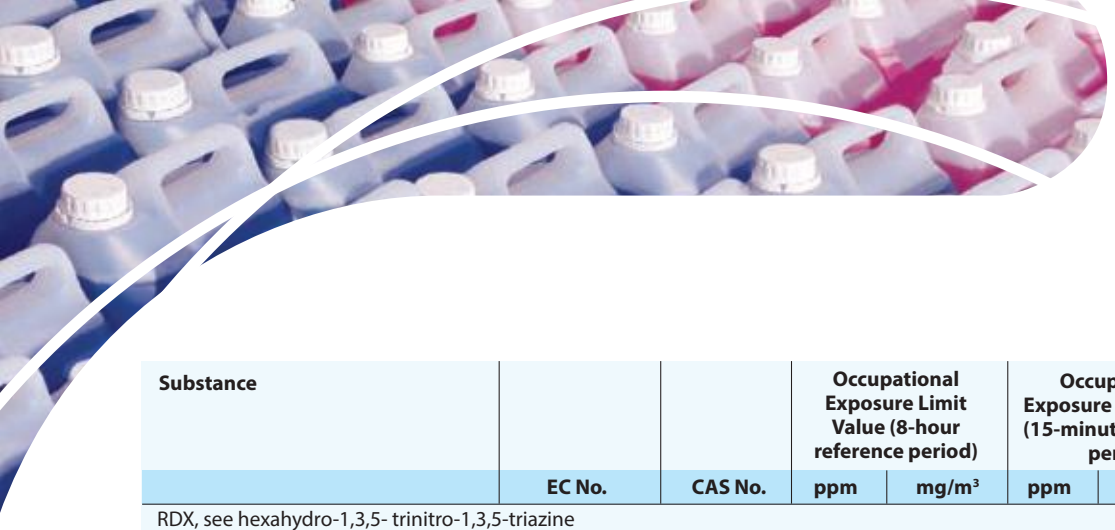
Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Glyoxal	-	107-22-2	-	0.1 (IFV)	-	-	-
Grain dust	-	-	-	4	-	-	Sens.
Graphite (all forms except fibres)	231-955-3	7782-42-5	-	2 (R)	-	-	-
Guthion	201-676-1	86-50-0	-	0.2	-		Sk, Sens.
Gypsum total inhalable dust respirable dust		10101-41-4 4	- -	10 4	- -	- -	- -
Hafnium	231-166-4	7440-58-6	-	0.5	-		-
Halothane	205-796-5	151-67-7	50		-	-	-
γ-HCH (ISO), see γ Hexachlorocyclohexane							
Helium	231-168-5	7440-59-7	-	-	-	-	Asphx.
Heptachlor (ISO)	200-962-3	76-44-8	-	0.05	-	-	Sk
Heptachlor epoxide	213-831-0	1024-57-3	-	0.05	-	-	
Hexachlorobutadiene	201-765-5	87-68-3	0.02	0.21	-	-	Sk
γ-Hexachlorocyclohexane	210-168-9	608-73-1	-	0.5	-	1.5	Sk
Hexachlorocyclopentadiene	201-029-3	77-47-4	0.01	0.1	-	-	-
Hexachloroethane vapour	200-666-4	67-72-1	1	10	-	-	-
Hexachloronaphthalene	215-641-3	1335-87-1	-	0.2	-	-	Sk
Hexafluoroacetone	211-676-3	684-16-2	0.1	0.68	-	-	Sk
Hexafluoropropene (Hexafluoropropylene)	204-127-4	116-15-4	0.1	-	-	-	-
Hexahydrophthalic anhydride All isomers (Inhalable)	201-604-9 236-086-3 238-009-9	85-42-7 13149-00-3 14166-21-3	-	-	-	0.005	Sens.
Hexahydro-1,3,5-trinitro-1,3,5-triazine	204-500-1	121-82-4	0.5	-	-	-	Sk
Hexamethylene diisocyanate (as -NCO)	212-485-8	822-06-0	0.005	-	-	-	Sens.
Hexane, all isomers except n-hexane	-	-	500	1800	1000	3600	-
1,6 Hexanediamine	204-679-6	124-09-4	0.5	2.3	-	-	-
Hexan-2-one	209-731-1	591-78-6	5	10	-	-	Sk
1-Hexene	209-753-1	592-41-6	50	-	-	-	-
Hexylene glycol	203-489-0	107-41-5	-	-	25	125	-
Hydrazoic acid (as vapour)	231-965-8	7782-79-8	-	-	0.1	-	-
Hydrogen	215-605-7	1333-74-0	-	-	-	-	Asphx.
Hydrogen peroxide	231-765-0	7722-84-1	1	1.5	2	3	-
Hydroquinone	204-617-8	123-31-9	-	0.5	-	-	Sens.
4-Hydroxy-4-methyl-pentan-2-one, see Diacetone alcohol							
2-Hydroxypropyl acrylate	213-663-8	999-61-1	0.5	3	-	-	Sk, Sens.
2,2′-Iminodiethanol, see Diethanol amine							
2,2′-Iminodi (ethylamine), see Diethylene triamine							
Indene	202-393-6	95-13-6	5	24	-	-	-
Indium & Compounds (as In)	231-180-0	7440-74-6	-	0.1	-	0.3	-
INN, see 1,2-Dichlorotetrafluoroethane							
Iodine and Iodides	231-442-4	7553-56-2	0.01 (IFV) 0.01 (IFV)		0.1		
Iodoform	**200-874-5**	**75-47-8**	**0.2 (IFV)**				**-**
Iodomethane, see methyl iodide							
Iron oxide, fume (as Fe)	215-168-2	1309-37-1	-	5	-	10	-
Iron pentacarbonyl, see Pentacarbonyl iron (as Fe)							
Iron salts (as Fe)	-	-	-	1	-	2	-
Isoamyl alcohol	204-633-5	123-51-3	100	360	125	450	
Isobutyl acetate	201-148-0	78-83-1	50	150	75	225	-
Isobutyl alcohol	203-745-1	110-19-0	150	700			
Isobutyl nitrite	208-819-7	542-56-3	-	-	1	-	-
Isocyanates, All, (as -NCO) except Methyl isocyanate (CAS No. 624-83-9) nd Toluene (2,4 or 2,6 diisocyanate (CAS No. 584-84-9, 91-08-7)	-	-	-	0.02	-	0.07	Sens.

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Isoflurane	247-897-7	26675-46-7	50	380	-	-	-
Isoctyl alcohol (mixed isomers)	248-133-5	26952-21-6	50	270	-	-	-
Isophorone, see 3,5,5-trimethyl cyclohex-2-enone							
Isophorone diisocyanate (IPDI) (as -NCO)	223-861-6	4098-71-9	0.005	-	-	-	Sens.
Isopropoxyethanol	203-685-6	109-59-1	25	106	-	-	Sk
Isopropyl alcohol	200-661-7	67-63-0	200	-	400	-	Sk
Isopropylamine	200-860-9	75-31-0	5	12	10	24	-
n-Isopropylaniline	212-196-7	768-52-5	2	11	-	-	Sk
Isopropyl chloroformate	203-563-2	108-23-6	1	5	-	-	-
Isopropyl ether	203-560-6	108-20-3	250	1050	310	1320	-
Isopropyl glycidyl ether (IGE)	223-672-9	4016-14-2	50	240	75	360	-
Kaolin,respirable dust	-	1332-58-7	-	2	-	-	-
Kerosene see Diesel fuel							
Ketene	207-336-9	463-51-4	0.5	0.9	1.5	3	-
Lead chromate	231-846-0	7758-97-6	-	0.1 as Pb 0.012 as Cr	-	-	-
Limestone, see Calcium carbonate							
Lindane, see γ hexachlorocyclohexane							
Lithium hydroxide	215-183-4	1310-65-2	-	-	-	1	-
Magnesium oxide	215-171-9	1309-48-4					
respirable dust			-	4	-	-	-
fume			-	5	-	10	-
total inhalable dust			-	10	-	-	-
Malathion (ISO)	204-497-7	121-75-5	-	1 (IFV)	-	-	Sk, Sens.
Maleic anhydride	203-571-6	108-31-6	0.01(IFV)	-	-	-	Sens.
Manganese, fume (as Mn)	231-105-1	7439-96-5	-	0.2 (I)	-	3	
				0.02 (R)			
Manganese cyclopentadienyl tricarbonyl	235-142-4	12079-65-1	-	0.1	-	0.3	Sk
Manganese tetraoxide, see Trimanganese tetraoxide							
Machine made mineral fibre (excluding refractory ceramic fibres) (MMMF)	-	-	1 fibres per milli litre of air	5	-	-	-
Marble, see Calcium carbonate							
MDI, see 4-4'-methylene-diphenyl diisocyanate							
Mequinol, see 4-methoxyphenol							
Mercaptoacetic acid	200-677-4	68-11-1	1	5	-	-	-
Mercury alkyls (as Hg)	-	-	-	0.01	-	0.03	Sk
Mesityl oxide	205-502-5	141-79-7	15	60	25	100	-
Methacrylic acid	201-204-4	79-41-4	20	70	40	140	-
Methacrylonitrile	204-817-5	126-98-7	1	2.8	-	-	Sk
Methane (see aliphatic hydrocarbon gases)							
Methanethiol	200-822-1	74-93-1	0.5	1	-	-	-
Methomyl (ISO)	240-815-0	16752-77-5	-	0.2	-	-	Sk
Methoxychlor (ISO)	200-779-9	72-43-5	-	10	-	-	-
4-Methoxyphenol	205-769-8	150-76-5	-	5	-	-	-
Methyl acetate	201-185-2	79-20-9	200	610	250	760	-
Methyl acetylene	200-828-4	74-99-7	1000	1610	-	-	-
Methyl acetylene-propadiene mixture		59355-75-8	1000	-	1250	-	-
Methylacrylonitrile, see methacrylonitrile							
Methylal	203-714-2	109-87-5	1000	3100	-	-	-
Methylamine	200-820-0	74-89-5	5	6	15	19	-
N-Methylaniline	202-870-9	100-61-8	0.5	2	-	-	Sk
Methyl bromide, See Bromomethane							
3-Methylbutan-1-ol, see Isoamyl alcohol							
Methyl chloride, See Chloromethane							
Methylcyclohexane	203-624-3	108-87-2	400	1600	-	-	-
Methylcyclohexanol	247-152-6	25639-42-3	50	235	-	-	-
2-Methylcyclohexanone	209-513-6	583-60-8	50	230	75	345	Sk

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Methylcyclopentadienyl manganese, tricarbonyl (as Mn), see Tricarbonyl (methylcyclopentadienyl) manganese							
2-Methyl-4, 6-dinitrophenol, see Dinitro-o-cresol							
4,4'-Methylene-diphenyl diisocyanate (as —NCO)	202-966-0	101-68-8	0.005	-	-		Sens.
Methyl ethyl ketone peroxides (MEKP)	215-661-2	1338-23-4	-	-	0.2	1.5	-
Methyl ethyl ketoxime	202-496-6	96-29-7	3	10	10	33	Sens.
Methylhydrazine	200-471-4	60-34-4	0.01	0.02	-	-	Sk, Carc.1B
Methyl iodide	200-819-5	74-88-4	2	11	-	-	Sk
Methyl isobutyl carbinol	203-551-7	108-11-2	25	100	40	160	Sk
Methyl isopropyl ketone	209-264-3	563-80-4	20	70.5	-	-	-
Methyl mercaptan, see Methanethiol							
1-Methylnaphthalene 2-Methylnaphthalene	201-966-8 202-078-3	90-12-0 91-57-6	0.5	-	-	-	-
Methyl parathion, see Parathion-methyl (ISO)							
2-Methylpentane-2,4-diol, see Hexylene glycol							
4-Methylpentan-2-ol, see Methyl isobutyl carbinol							
4-Methylpent-3-en-2-one, see Mesityl oxide							
4-Methyl-m-phenylene diisocyanate (as -NCO)	-	-	-	0.02	-	0.07	Sens.
2-Methylpropan-1-ol, see Iso-butyl alcohol							
2-Methylpropan-2-ol	200-889-7	75-65-0	100	300	-	-	-
Methyl propyl ketone, see Pentan-2-one							
Methyl silicate	211-656-4	681-84-5	1	6	-	-	-
Methylstyrene, all isomers	246-562-2	25013-15-4	50	242	10	483	-
N-Methyl-N, 2,4,6-tetranitro-aniline, see Tetryl							
Methyl vinyl ketone	201-160-0	78-94-4	-	-	0.2	-	Sk, Sens.
Metribuzin	244-209-7	21087-64-9	-	5	-	-	-
Mevinphos (ISO)	232-095-1	7786-34-7	0.01	0.1	-	-	Sk
Mica	-	12001-26-2	-	3 (R)	-	-	-
Mineral oil Pure, Highly & Severely Refined (Inhalable)	-	-	-	5	-	-	-
Mineral wool	-	-	2 fibres per milli litre of air	5	-	-	-
Molybdenum compounds (as Mo), soluble compounds insoluble compounds	231-107-2	7439-98-7	-	0.5 (R) 10 (I) 3 (R)	- -	- -	- -
Monochloroacetic acid	201-178-4	79-11-8	0.5(IFV)	2	-	-	Sk
Monocrotophos	230-042-7	6923-22-4	-	0.05	-	-	Sk
Naled (ISO), see 1,2 dibromo-2, 2 dichloro ethyl dimethyl phosphate							
Naphtha (rubber solvent)	232-443-2	8030-30-6	-	-	-	-	Carc.1B
β-Napthylamine	202-080-4	91-59-8	-	-	-	-	Carc.1A
1,5-Naphthylene diisocyanate (as -NCO)	221-641-4	3173-72-6	-		-	-	Sens.
Natural Rubber Latex (as inhalable allergenic proteins)	232-689-0	9006-04-6	-	0.0001	-	-	-
Neon	231-110-9	7440-01-9	-	-	-	-	Asphx.
Nickel	231-111-4	7440-02-0	-	0.5	-	-	Sens.
Nickel carbonyl	236-669-2	13463-39-3	0.05	0.12	-	-	Repr.1B
Nickel, inorganic compounds (as Ni) soluble compounds insoluble compounds	-	-	- -	0.1 0.5	- -	- -	- -
Nickel, organic compounds (as Ni)	-	-	-	1	-	3	-
Nitrapyrin	217-682-2	1929-82-4	-	10	-	20	-
4-Nitroaniline	202-810-1	100-01-6	-	3	-	-	Sk
4-Nitrodiphenyl	202-204-7	92-93-3	-	-	-	-	Sk, Carc.1B
Nitrogen	231-783-9	7727-37-9	-	-	-	-	Asphx.

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Nitrogen trifluoride	232-007-1	7783-54-2	10	30	-	-	-
Nitromethane	200-876-6	75-52-5	20	50	-	-	-
1-Nitropropane	203-544-9	108-03-2	25	90	-	-	-
2-Nitrotoluene	201-853-3	88-72-2	2	11	-	-	Carc.1B Muta.1B
3-Nitrotoluene	202-728-6	99-08-1	2	11	-	-	-
4-Nitrotoluene	202-808-0	99-99-0	-	-	-	-	-
Nitro-o-toluidine	202-765-8	99-55-8	-	1	-	-	-
Nitrous oxide	233-032-0	10024-97-2	50	90	-	-	-
Nonane, all isomers	203-913-4	111-84-2	200	1050	-	-	-
Octachloronaphthalene	218-778-7	2234-13-1	-	0.1	-	0.3	Sk
n-Octane	203-892-1	111-65-9	300	1450	-	-	-
Osmium tetraoxide (as Os)	244-058-7	20816-12-0	0.0002	0.002	0.0006	0.006	-
Oxalonitrile, see Cyanogen							
4,4'-Oxydi(benzenesulphonohydrazide)	201-286-1	80-51-3	-	0.1	-	-	-
2,2'-Oxydiethanol, see Diethylene glycol							
Oxygen difluoride	231-996-7	7783-41-7	0.05	0.11	0.05	0.11	-
Ozone	233-069-2	10028-15-6					
Heavy work			0.05	-	-	-	-
Moderate work			0.08	-	-	-	-
Light work			0.10	-	-	-	-
Heavy, moderate or light workloads (≤2 hrs)			0.20	-	-	-	-
Paracetamol,total inhalable dust	203-157-5	103-90-2	-	10	-	-	-
Paraffin wax, fume	232-315-6	8002-74-2	-	2	-	6	-
Paraquat	225-141-7	4685-14-7	-	0.05 (I)	-	-	-
Paraquat dichloride (ISO) respirable dust	217-615-7	1910-42-5	-	0.08	-	-	-
Parathion (ISO)	200-271-7	56-38-2	-	0.05 (IFV)	-	-	Sk
Parathion-methyl (ISO)	206-050-1	298-00-0	-	0.02 (IFV)	-	-	Sk
Pentaborane	243-194-4	19624-22-7	0.005	0.01	0.015	0.039	-
Pentachloronapthalene	215-320-8	1321-64-8	-	0.5	-	-	Sk
Pentachloronitrobenzene	201-435-0	82-68-8	-	0.5	-	-	Sens.
Pentacarbonyl iron (as Fe)	236-670-8	13463-40-6	0.1	-	0.2	-	-
Pentachlorophenol	201-778-6	87-86-5	-	0.5	-	-	Sk
Pentaerythritol	204-104-9	115-77-5					
total inhalable dust			-	10	-	20	-
respirable dust			-	4	-	-	-
2,4-Pentanedione	204-634-0	123-54-6	25	-	-	-	-
Pentan-2-one	203-528-1	107-87-9	200	700	250	875	-
Pentan-3-one	202-490-3	96-22-0	200	700	250	875	-
Peracetic acid	201-186-8	79-21-0	-	-	0.4 (IFV)	-	-
Perchloroethylene, see Tetrachloroethylene							
Perchloromethyl mercaptan	209-840-4	594-42-3	0.1	0.76	-	-	-
Perchloryl fluoride	231-526-0	7616-94-6	3	14	6	28	-
Perfluorobutyl ethylene (3,3,4,4,5,5,6,6,6,-nonafluorohexene)	243-053-7	19430-93-4	100	-	-	-	-
Perfluoroisobutylene	-	382-21-8	0.01	0.082	0.01	0.082	-
Persulphate salts, inorganic;			-		-	-	
Ammonium persulphate	231-786-5	7727-54-0		0.1			Sens.
Potassium persulphate	231-781-8	7727-21-1		0.1			Sens.
Sodium persulphate	231-892-1	7775-27-1		0.1			Sens.
Petrol (Gasoline)	86290-81-5	86290-81-5	300	-	500	-	-
Phenacyl chloride, see 2-Chloroacetophenone							
Phenothiazine	202-196-5	92-84-2	-	5	-	-	-
m-Phenylenediamine	203-584-7	108-45-2	-	0.1	-	-	-
p-Phenylenediamine	203-404-7	106-50-3	-	0.1	-	-	Sk
Phenyl-2,3-epoxypropyl ether	204-557-2	122-60-1	0.1	0.6	-	-	Carc.1B
Phenylethylene, see Styrene							

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m³	ppm	mg/m³	
Phenyl glycidyl ether, see Phenyl-2,3-epoxypropyl ether							
Phenylhydrazine	202-873-5	100-63-0	0.1	0.44	-	-	Carc.1B, Sk
Phenyl isocyanate	203-137-6	103-71-9	0.005	-	0.015	-	-
Phenyl mercaptan, see Benzenethiol							
Phenylphosphine	211-325-4	638-21-1	-	-	0.05	-	-
Phorate (ISO)	206-052-2	298-02-2	-	0.05	-	0.2	Sk
Phosdrin, see Mevinphos (ISO)							
Phosphorus, yellow	231-768-7	7723-14-0	-	0.1	-	0.3	-
Phosphorus trichloride	231-749-3	7719-12-2	0.2	1.5	0.5	3	-
Phosphoryl trichloride	233-046-7	10025-87-3	0.1				
Phthalic anhydride	201-607-5	85-44-9	1	-	-	12	Sens.
m-Phthalodinitrile (Benzene-1,3-dicarbonitrile)	210-933-7	626-17-5	-	5 (IFV)	-	-	-
o-Phthalodinitrile	202-044-8	91-15-6	-	1 (IFV)	-	-	-
Picloram (ISO)	217-636-1	1918-02-1	-	10	-	20	-
Piperidine	203-813-0	110-89-4	1	3.5	-	-	Sk
Pindone (ISO) (2-pivaloylindan-1,3-dione)	201-462-8	83-26-1	-	0.1	-	-	-
Plaster of Paris	-	26499-65-0					
total inhalable dust			-	10	-	-	-
respirable dust			-	4	-	-	-
Platinum salts, soluble (as Pt)	231-116-1	7440-06-4	-	0.002	-	-	.
Polychlorinated biphenyls (PCBs), see Chlorinated biphenyls							
Polyvinyl chloride (PVC)	-	9002-86-2					
total inhalable dust			-	10	-	-	-
respirable dust			-	1(R)	-	-	-
Portland Cement	266-043-4	65997-15-1		1 (R)			
			-		-	-	-
			-		-	-	-
Potassium hydroxide	215-181-3	1310-58-3	-	-	-	2	-
Propane (see aliphatic hydrocarbon gases)							
Propane-1,2-diol	200-338-0	57-55-6					
total (vapour and particulates)			150	470	-	-	-
particulates			-	10	-	-	-
1,3-Propane sultone	214-317-9	1120-71-4	-	-	-	-	Carc.1B
n-Propanol	200-746-9	71-23-8	100	-	-	-	Sk
Propan-1-ol see n-Propanol							
Propan-2-ol, see Isopropyl alcohol							
Propargyl alcohol, see 2-Propyn-ol							
Propiolactone	200-340-1	57-57-8	0.5	1.5	-	-	Carc.1B
Propionaldehyde (Propanal)	204-623-0	123-38-6	20	-	-	-	-
Propoxur (ISO)	204-043-8	114-26-1	-	0.5	-	2	-
Propyl acetate isomers [n-propyl acetate & Isopropyl acetate]	**203-686-1**	**109-60-4 108-21-4**	**100**		**150**		**-**
n-Propyl alcohol, see n-Propanol							
Propylene	204-062-1	115-07-1	500	-	-	-	Asphx.
Propylene dinitrate (PGDN)	229-180-0	6423-43-4	0.05	0.3	-	-	Sk
Propylene dichloride	201-152-2	78-87-5	10	46	-	-	-
Propylene glycol, see propane-1,2-diol							
Propylene glycol dinitrate, see propylene dinitrate							
Propyleneimine	200-878-7	75-55-8	0.2	-	0.4	-	Carc.1B
n-Propyl nitrate	210-985-0	627-13-4	25	107	40	172	-
2-Propyn-1-ol	203-471-2	107-19-7	1	2	3	6	Sk
Pulverised fuel ash	-	-					
total inhalable dust			-	10	-	-	-
respirable			-	4	-	-	-
2-Pyridylamine, see 2-Amino pyridine							
Pyrocatechol, see Catechol							
Quinone	203-405-2	106-51-4	0.1	0.4	-	-	-

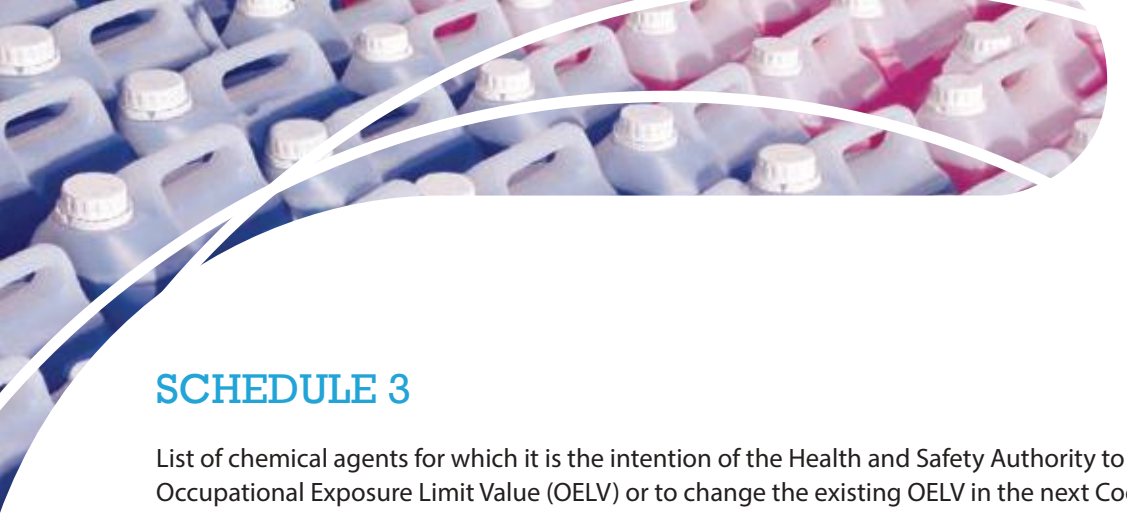


Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
RDX, see hexahydro-1,3,5- trinitro-1,3,5-triazine							
Rhodium (as Rh),	231-125-0	7440-16-6					
metal fume and dust			-	0.1	-	0.3	-
soluble salts			-	0.001	-	0.003	-
Ronnel	206-082-6	299-84-3	-	5	-	-	-
Rosin core solder pyrolysis products (as airborne total resin acid)	-	-	-	0.05	-	0.15	Sens.
Rotenone (ISO)	201-501-9	83-79-4	-	5	-	-	-
Rouge	215-168-2	1309-37-1					
total inhalable dust			-	10	-	-	-
respirable dust			-	4	-	-	-
Rubber							
fume			-	0.6	-	-	-
process dust			-	6	-	-	-
Rubber solvent (naphtha), see Naphtha (rubber solvent)							
Selenium and compounds, except hydrogen selenide (as Se)	231-957-4	7782-49-2	-	0.1	-	-	-
Selenium hexafluoride		7783-79-1	0.05	0.16	-	-	-
Sesone, see Sodium 2-(2,4- dichlorphenoxy) ethyl sulphate							
Silane	232-263-4	7803-62-5	5	-	-	-	-
Silica, amorphous	-	-					
total inhalable dust			-	6	-	-	-
respirable dust			-	2.4	-	-	-
Silica, fused respirable dust	-	60676-86-0	-	0.08	-	-	-
Silicon Si	231-130-8	7440-21-3					
total inhalable dust			-	10	-	-	-
respirable dust			-	4	-	-	-
Silicon carbide	206-991-8	409-21-2					
total inhalable dust			-	10	-	-	-
respirable dust			-	3 Fibrous: 0.1 fibre/cc	-	-	-
Silicon tetrahydride, see Silane							
Simazine	204-535-2	122-34-9	-	0.5	-	-	-
Sodium bisulfite	231-548-0	7631-90-5	-	5	-	-	-
Sodium 2-(2,4- dichlorphenoxy) ethyl sulphate	205-259-5	136-78-7	-	10	-	20	-
Sodium fluoroacetate	200-548-2	62-74-8	-	0.05	-	-	Sk
Sodium hydrogensulphite, see Sodium bisulfite							
Sodium hydroxide	215-185-5	1310-73-2	-	-	-	2	-
Sodium metabisulphite, see Disodium disulphite							
Starch	232-679-6	9005-25-8					
total inhalable dust			-	10	-	-	-
respirable dust			-	4	-	-	-
Stearates (except lead stearate)	-	-	-	10	-	-	-
Stibine		7803-52-3	0.1		-	-	-
Stoddard solvent	232-489-3	8052-41-3	100	573	-	-	Carc.1B Muta.1B
Strontium chromate	**232-142-6**	**7789-06-2**	**-**	**-**	**-**	**-**	**Carc.1B**
Strychnine	200-319-7	57-24-9	-	0.15	-	-	-
Styrene	202-851-5	100-42-5	20	85	40	170	-
Subtilisins (proteolytic enzymes as 100% pure cystalline enzyme)	232-752-2	9014-01-1	-	0.00006	-	0.00006	Sens.
Sucrose	200-334-9	57-50-1	-	10	-	20	-
Sulfometuron methyl [Methyl 2[[[[(4,6-dimethyl-2-pyrimidinyl)amino]carbonyl]amino]sulphonyl]benzoate]	277-780-6	74222-97-2	-	5	-	-	-

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
Sulphur hexafluoride	219-854-2	2551-62-4	1000	6000	1250	7500	-
Sulphur monochloride	233-036-2	10025-67-9	-	-	1	6	-
Sulphur pentafluoride, see Disulphur decafluoride							
Sulphur tetrafluoride	232-013-4	7783-60-0	0.1	0.4	0.3	1	-
Sulphuryl difluoride	220-281-5	2699-79-8	5	20	10	40	-
Sulprofus	252-545-0	35400-43-2	-	0.1 (IFV)	-	-	-
2,4,5-T (ISO)2,4,5- Trichloro-phenoxyacetic acid)	202-273-3	93-76-5	-	10	-	20	-
TDI, see Toluene diisocyanate							
TEPP (ISO), see O,O,O',O'- Tetraethyl pyrophosphate							
TNT, see 2,4,6- trinitrotoluene							
Talc total inhalable dust respirable dust	238-877-9	14807-96-6	 - -	 10 0.8	 - -	 - -	 - -
Tantalum	231-135-5	7440-25-7	-	5	-	10	-
Tellurium & compounds, except hydrogen telluride, (as Te)	236-813-4	13494-80-9	-	0.1	-	-	-
Tellurium hexafluoride	-	7783-80-4	0.02	-	-	-	-
Temephos	222-191-1	3383-96-8	-	1	-	-	-
Terbufos (ISO) (S-tert-Butylthiomethyl O,O-diethylphosphorodithioate)	235-963-8	13071-79-9	-	0.01 (IFV)	-	-	-
Terephthalic acid	202-830-0	100-21-0	-	10	-	-	-
Terphenyls, all isomers	247-477-3	26140-60-3	-	-	0.5	5	-
1,1,2,2-Tetrabromoethane	201-191-5	79-27-6	0.1 (IFV)	-	-	-	Sk
Tetrabromomethane, see Carbon tetrabromide							
Tetracarbonylnickel (as Ni), see nickel carbonyl							
1,1,1,2-Tetrachloro-2,2-difluoroethane	200-934-0	76-11-9	100	834	100	834	-
1,1,2,2-Tetrachloro-1,2-difluoroethane	200-935-6	76-12-0	50	417	-	-	-
1,1,2,2, Tetrachloroethane	201-197-8	79-34-5	1	6.9	-	-	Sk
Tetrachloronaphthalenes, all isomers	215-642-9	1335-88-2	-	2	-	-	-
O,O,O'O'-Tetraethyl pyrophosphate(ISO)	203-495-3	107-49-3	0.0008	0.01	-	-	Sk
Tetraethyl lead	201-075-4	78-00-2	-	0.10	-	-	Sk
Tetrafluorodichloroethane, see 1,2-Dichlorotetrafluoroethane							
Tetrafluoroethylene	204-126-9	116-14-3	2	--	-	-	-
Tetrakis (hydroxymethyl) phosphonium chloride	204-707-7	124-64-1	-	2	-	-	-
Tetrakis (hydroxymethyl) phosphonium sulphate	-	55566-30-8	-	2	-	-	-
Tetramethyl lead	200-897-0	75-74-1	-	0.15	-	-	Sk, Repr.1A
Tetramethyl orthosilicate, see Methyl silicate							
Tetramethyl succinonitrile	-	3333-52-6	0.5	3	-	-	Sk
Tetranitromethane	208-094-7	509-14-8	0.005	0.040	-	-	-
Tetrasodium pyrophosphate	231-767-1	7722-88-5	-	5	-	-	-
Tetryl	207-531-9	479-45-8	-	1.5	-	3	Sk
Thallium and compounds (as Tl)	231-138-1	7440-28-0	-	0.02	-	-	Sk
4,4'-Thiobis (6-tert-butyl-m-cresol), see 6,6'-Di-tert-butyl-4,4'-thio-di-m-cresol							
Thioglycollic acid, see Mercaptoacetic acid							
Thionyl chloride	231-748-8	7719-09-7	-	-	0.2	1.0	-
Thiram (ISO)	205-286-2	137-26-8	-	0.05 (IFV)	-	-	
Titanium dioxide total inhalable dust respirable dust	236-675-5	13463-67-7	 - -	 10 4	 - -	 - -	 - -
o-Tolidine	204-358-0	119-93-7	-	-	-	-	Sk, Carc.1B
Toluene-2,4- or 2,6- diisocyanate (as -NCO)	209-544-5	584-84-9 91-08-7	0.001 (IFV)	-	0.003 (IFV)	-	Sens.
p-Toluenesulphonyl chloride	202-684-8	98-59-9	-	-	-	5	-

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period) ppm	Occupational Exposure Limit Value (8-hour reference period) mg/m³	Occupational Exposure Limit Value (15-minute reference period) ppm	Occupational Exposure Limit Value (15-minute reference period) mg/m³	Notes
m-Toluidine	203-583-1	108-44-1	0.2	0.9	-	-	Sk
p-Toluidine	203-403-1	106-49-0	0.2	0.9	-	-	Sk
1,4,7-Tri-(aza)-heptane, see Diethylene triamine							
Tribromomethane	200-854-6	75-25-2	0.5	5	-	-	Sk
Tributyl phosphate, all isomers	204-800-2	126-73-8	-	5	-	-	-
Tricarbonyl (etacyclopenta-dienyl) manganese (as Mn), see Manganese cyclopentadienyl tricarbonyl							
Tricarbonyl (methylcyclo-pentadienyl) manganese (as Mn)	235-166-5	12108-13-3	-	0.2	-	-	Sk
Trichloroacetic acid	200-927-2	76-03-9	0.5	-	-	-	-
1,1,1-Trichlorobis (chlorophenyl) ethane	200-024-3	50-29-3	-	1	-	-	-
1,1,2-Trichloroethane	201-166-9	79-00-5	10	45	-	-	Sk
Trichlorofluoromethane	200-892-3	75-69-4	-	-	1000	5619	-
Trichloronaphthalene	215-321-3	1321-65-9	-	5	-	-	Sk
Trichloronitromethane, see Chloropicrin							
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T(ISO))	202-273-3	93-76-5	-	10	-	-	-
1,2,3-Trichloropropane	202-486-1	96-18-4	0.005	-	-	-	Carc..1B Repr. 1B
1,1,2-Trichlorotrifluoroethane	200-936-1	76-13-1	1000	7600	1250	9500	-
Tri-o-cresyl phosphate, see Tri-o-tolyl phosphate							
Tricyclohexyltin hydroxide (Cyhexatin)	236-049-1	13121-70-5	-	5	-	-	-
Triethanolamine	203-049-8	102-71-6	-	5	-	-	-
Trifluorobromomethane	200-887-6	75-63-8	1000	6100	-	-	-
Triglycidyl isocyanurate, TGIC	219-514-3	2451-62-9	-	0.05	-	-	Muta.1B
Trimanganese tetraoxide	215-266-5	1317-35-7	-	0.5	-	-	-
Trimellitic anhydride	209-008-0	552-30-7	-	0.0005	-	0.002	Sens.
Trimetacresyl phosphate	209-241-8	563-04-2	-	0.05 (IFV)	-	-	-
Trimethylamine	200-875-0	75-50-3	5				
Triorthocresyl phosphate	201-103-5	78-30-8	-	0.02 (IFV)	-	-	-
Triparacresyl phosphate	201-105-6	78-32-0	-	0.05 (IFV)	-	-	-
3,5,5-Trimethylcyclohex-2-enone	201-126-0	78-59-1	-	-	5	25	-
Trimethyl phosphite	204-471-5	121-45-9	2	10	-	-	-
2,4,6-Trinitrotoluene	204-289-6	118-96-7	-	0.1	-	-	Sk
Triorthocresyl phosphate, see Tri-o-tolyl phosphate,							
Triphenyl phosphate	204-112-2	115-86-6	-	3	-	-	-
Tri-o-tolyl phosphate	201-103-5	78-30-8	-	0.1	-	0.3	-
Tungsten (as W), Metal and insoluble compounds Soluble compounds	231-143-9	7440-33-7	 - -	 5 1	 -	 10 3	 - -
Turpentine	232-350-7	8006-64-2	20	112	150	840	Sens.
Uranium compounds, natural, soluble (as U)	231-170-6	7440-61-1	-	0.2	-	0.6	-
n-Valeraldehyde	203-784-4	110-62-3	50	176	-	-	Sens.
Vanadium pentoxide, see Divanadium pentaoxide							
Vinyl benzene, see Styrene							
4-Vinylcyclohexene	202-848-9	100-40-3	0.1	0.4	-	-	-
4-Vinylcyclohexene dioxide	203-437-7	106-87-6	0.1	0.6	-	-	-
Vinyl fluoride	200-832-6	75-02-5	1	-	-	-	-
Vinylidene fluoride	200-867-7	75-38-7	500	-	-	-	Carc.1A, Muta.1B
N-Vinyl -2-pyrrolidone	201-800-4	88-12-0	0.05	-	-	-	-
Vinyl toluene, all isomers, see Methylstyrene							
VM and P Naptha	232-453-7	8032-32-4	-	-	-	-	Carc.1B, Muta.1B
Warfarin (ISO)	201-377-6	81-81-2	-	0.1	-	0.3	Repr.1A
White spirit, see Stoddard solvent							

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m³	ppm	mg/m³	
Wood dust, (soft wood)	-	-	-	5	-	-	Sens.
m-Xylene α,α′-diamine (m-phenylenebis(methylamine))	216-032-5	1477-55-0	-	0.1	-	-	-
Xylidine, all isomers	215-091-4	1300-73-8	0.5 (IFV)	2.5	-	-	Sk
Yttrium	231-174-8	7440-65-5	-	1	-	3	-
Zinc chloride, fume	231-592-0	7646-85-7	-	1	-	2	-
Zinc chromates	**236-878-9**	**13530-65-9**	**-**	**-**	**-**	**-**	**Carc.1A**
Zinc distearate	209-151-9	557-05-1					
total inhalable dust			-	10	-	20	-
respirable dust			-	4	-	-	-
Zinc oxide, fume	215-222-5	1314-13-2	-	2 (R)	-	10	-
Zirconium compounds (as Zr)	231-176-9	7440-67-7	-	5	-	10	-



SCHEDULE 3

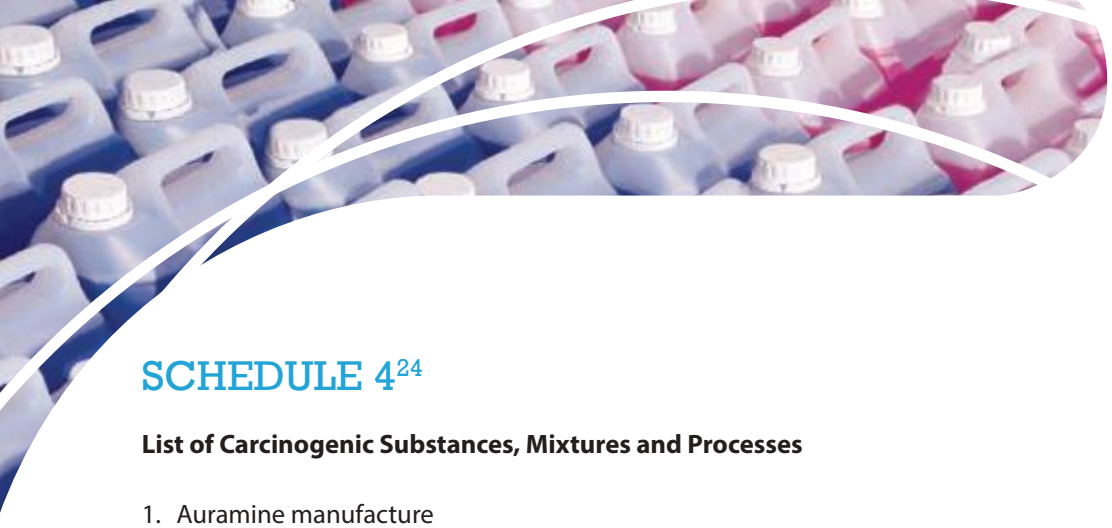
List of chemical agents for which it is the intention of the Health and Safety Authority to introduce an Occupational Exposure Limit Value (OELV) or to change the existing OELV in the next Code of Practice

Chemical Agents typed in bold face are proposed new entrants

Comments may be made in writing to the Chemicals and Prevention Division of the Health and Safety Authority at Hebron House, Hebron Road, Kilkenny or its headquarters, Metropolitan Building, James Joyce Street, Dublin 1, Lo-call: 1890 289 389 or email chemicals@hsa.ie concerning any of the limits referred to in this Schedule.

Substance	EC No.	CAS No.	2018-OELV (8-hour reference period except where STEL indicated)	New CoP-OELV (8 hour reference period except where STEL indicated)	Notes
Acetonitrile	200-835-2	75-05-8	40ppm/70mg/m^3	-	Under review
Acrylonitrile	203-466-5	107-13-1	2ppm/4.5mg/m^3	-	Under review
Aniline	200-539-3	62-53-3	1ppm/3.8mg/m^3	2ppm/7.74mg/m^3 STEL 5ppm/19.35mg/m^3	5th IOELV list, Sk
n-Butyl acetate	204-658-1	123-86-4	150ppm/710mg/m^3 STEL 200ppm/950mg/m^3	50ppm/241mg/m^3 STEL 150ppm/723mg/m^3	5th IOELV list
sec-Butyl acetate	203-300-1	105-46-4	200ppm	50ppm/241mg/m^3 STEL 150ppm/723mg/m^3	5th IOELV list
4-tert-Butylbenzoic acid	**202-696-3**	**98-73-7**	**None**	**0.1mg/m3 (I)**	**Sk**
Chloromethane	200-817-4	74-87-3	50ppm/105mg/m^3 STEL 100ppm/210mg/m^3	20ppm/42mg/m^3	5th IOELV list
Cyclohexene	203-807-8	110-83-8	300ppm/1015mg/m^3	20ppm	
Cyclopentadiene		542-92-7	75ppm/203mg/m^3	Withdraw OELV	Included with Dicyclopentadiene
Dicyclopentadiene including Cyclopentadiene	201-052-9	77-73-6	5ppm/30mg/m^3	0.5ppm/STEL 1ppm	Included with Cyclopentadiene
Di(2-ethylhexyl) phthalate (Di-sec-octyl phthalate)	204-211-0	117-81-7	5mg/m^3 /0.3ppm STEL 10mg/m^3/0.6ppm	0.03ppm Remove STEL	Sk, Repr 1B
Formamide	200-842-0	75-12-7	10ppm/18mg/m^3	1ppm	Sk, Repr 1B
Hexamethylenetetramine	**202-905-8**	**100-97-0**	**None**	**1mg/m3 (I)**	**Sens**
Hexazinone	**257-074-4**	**51235-04-2**	**None**	**3mg/m3 (I)**	
Isoamyl alcohol	204-633-5	123-51-3	100ppm/360mg/m^3 STEL 125ppm/450mg/m^3	5ppm/18mg/m^3 STEL 10ppm/37mg/m^3	5th IOELV list
Isobutyl acetate	203-745-1	110-19-0	150ppm/700mg/m^3	50ppm/241mg/m^3 STEL 150ppm/723mg/m^3	5th IOELV list
Isopropyl benzene (2-Phenylpropane or Cumene)	202-704-5	98-82-8	20ppm/100mg/m^3 STEL 50ppm/250mg/m^3	10ppm/50mg/m^3 STEL 50ppm/250mg/m^3	5th IOELV list, Sk
Isoflurane	247-897-7	26675-46-7	50ppm/380mg/m^3	5ppm	
Methyl isobutyl carbinol	203-551-7	108-11-2	25ppm/100mg/m^3 STEL 40ppm/160mg/m^3	20ppm STEL same	Sk
Nickel and its organic compounds	-	-	1mg/m^3 STEL=3mg/m^3		Sk
Phosphoryl trichloride	233-046-7	10025-87-3	0.1ppm	0.01ppm/0.064mg/m^3 STEL 0.02ppm/0.13mg/m^3	5th IOELV list
Resin acids, as total resin acids (Colophony)	232-475-7	8050-09-7	None	0.001mg/m^3 (I)	Sens
Rosin core solder pyrolysis products (as airborne total resin acid) (Colophony)	-	-	0.05mg/m^3 STEL 0.15mg/m^3	Withdraw OELV, see Resin acids	Sens

Substance	EC No.	CAS No.	2018-OELV (8-hour reference period except where STEL indicated)	New CoP-OELV (8 hour reference period except where STEL indicated)	Notes
Styrene	202-851-5	100-42-5	20ppm/85mg/m^3	10ppm	
			STEL 40ppm/170mg/m^3	STEL 20ppm	
Stryene oxide	**202-476-7**	**96-09-3**	**None**	**1ppm**	**Sk, Sens**
Disulphur decafluoride (Sulphur pentafluoride)	227-204-4	5714-22-7	0.01ppm STEL	0.001ppm STEL	
Thiodicarb	**261-848-7**	**59669-26-0**	**None**	**0.1mg/m^3 (IFV)**	**Sens**
Titanium tetrachloride	**231-441-9**	**7550-45-0**	**None**	**STEL 0.5ppm**	
p-Toluidine (4-aminotoluene)	203-403-1	106-49-0	0.2ppm/0.9mg/m^3	1ppm/4.46mg/m^3 STEL 2ppm/8.92mg/m^3	5th IOELV list, Sk
Trimethylamine	200-875-0	75-50-3	5ppm	2ppm/4.9mg/m^3 STEL 5ppm/12.5mg/m^3	5th IOELV list



SCHEDULE 4[24]

List of Carcinogenic Substances, Mixtures and Processes

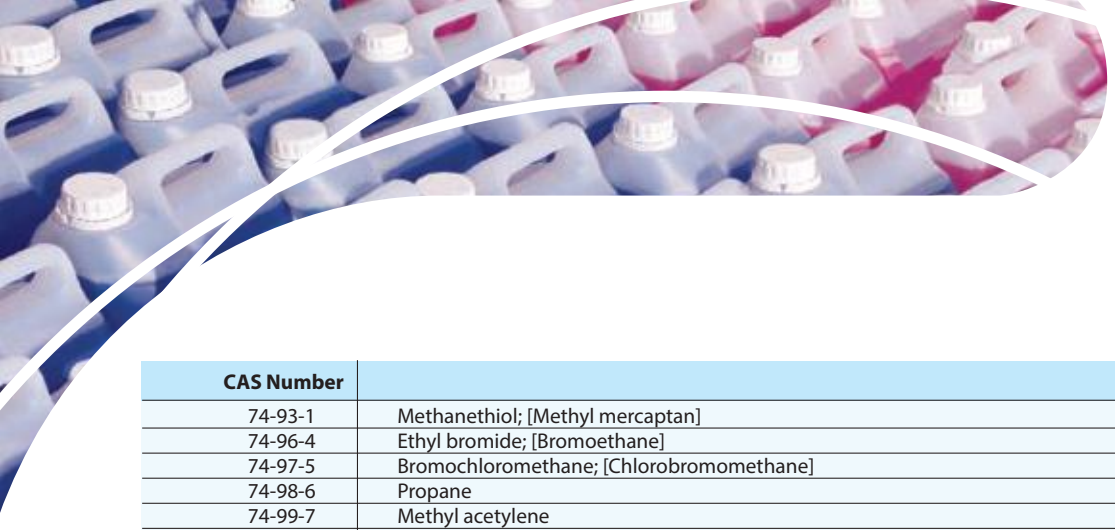
1. Auramine manufacture
2. Isopropyl alcohol manufacture (strong acid process)
3. Work involving exposure to aromatic polycyclic hydrocarbons present in coal soot, coal tar or coal pitch
4. Work involving exposure to dusts fumes and sprays produced during the roasting and electro-refining of cupro-nickel mattes
5. Work involving exposure to hardwood dusts
6. Work involving exposure to respirable crystalline silica generated by a work process
7. Work involving dermal exposure to mineral oils that have been used before in internal combustion engines to lubricate and cool moving parts within the engine
8. Work involving exposure to diesel engine exhaust emissions

[24] See Regulation 3(b) of Safety, Health and Welfare at Work (Carcinogens) (Amendment), 2019.

SCHEDULE 5

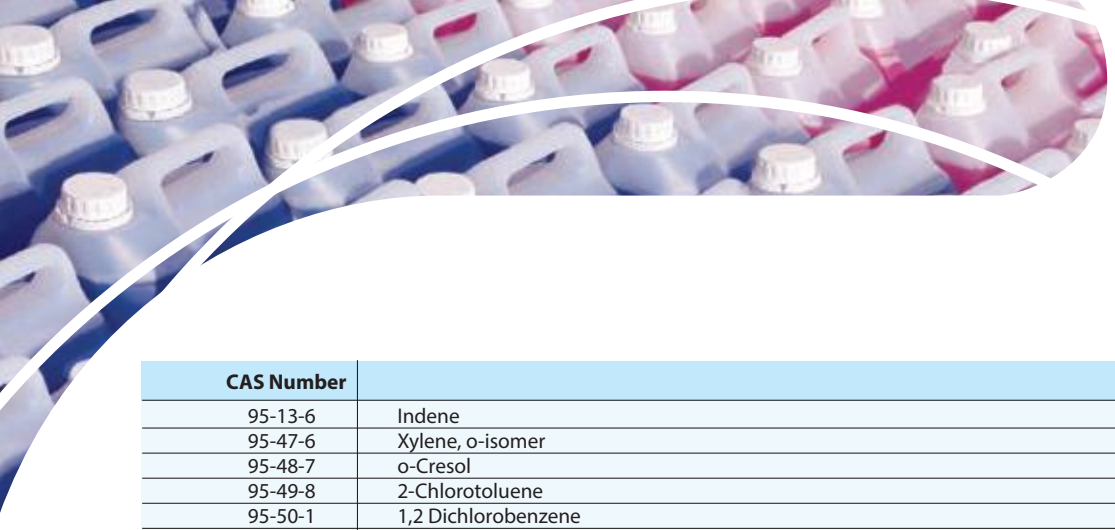
Chemical Abstracts Service (CAS) Number Index

CAS Number	
50-00-0	Formaldehyde
50-29-3	1,1,1-Trichlorobis (chlorophenyl) ethane, [DDT], [Dichlorodiphenyl trichloroethane]; 2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane)
50-32-8	Benzo[α]pyrene
50-78-2	o-Acetylsalicylic acid; [Aspirin]
52-68-6	Trichlorphon
54-11-5	Nicotine
55-63-0	Glycerol trinitrate; [Nitroglycerine]
56-23-5	Carbon tetrachloride; [tetrachloromethane]
56-38-2	Parathion (ISO)
56-55-3	Benz[α]anthracene
56-72-4	Coumaphos
56-81-5	Glycerol, mist
57-11-4	Stearic acid
57-12-5	Cyanides
57-14-7	Dimethylhydrazine
57-24-9	Strychnine
57-50-1	Sucrose
57-55-6	Propan-1, 2-diol; [Propylene glycol]
57-57-8	Propiolactone
57-74-9	Chlordane (ISO)
58-89-9	Lindane
60-29-7	Ether; [Diethyl ether]; [Ethyl ether]
60-34-4	Methylhydrazine
60-35-5	Acetamide
60-57-1	Dieldrin (ISO)
61-82-5	3-Amino-1,2,4 Triazole
62-53-3	Aniline
62-73-7	Dichlorvos (ISO); [DDVP]
62-74-8	Sodium fluoroacetate
62-75-9	N-Nitrosodimethylamine
63-25-2	Carbaryl (ISO)
64-17-5	Ethanol; [Ethyl alcohol]
64-18-6	Formic acid
64-19-7	Acetic acid
64-67-5	Diethyl sulphate
67-56-1	Methanol; [Methyl alcohol]
67-63-0	Isopropyl alcohol; [Propan-2-ol]
67-64-1	Acetone
67-66-3	Chloroform; [Trichloromethane]
67-72-1	Hexachloroethane
68-11-1	Mercaptoacetic acid; [Thioglycollic acid]
68-12-2	Dimethylformamide
71-23-8	n-Propanol; [n-Propyl alcohol]; [Propan-1-ol]
71-36-3	Butan-1-ol; [n-Butyl alcohol]
71-43-2	Benzene
71-55-6	1,1,1-Trichloroethane; [Methyl chloroform]
72-20-8	Endrin (ISO)
72-43-5	Methoxychlor (ISO); [DMDT]; [2,2 Bis(p-methoxyphenyl)-1,1,1-trichloroethane]
74-82-8	Methane
74-83-9	Bromomethane; [Methyl bromide]
74-84-0	Ethane
74-85-1	Ethylene
74-86-2	Acetylene
74-87-3	Chloromethane; [Methyl chloride]
74-88-4	Methyl iodide; [Iodomethane]
74-89-5	Methylamine
74-90-8	Hydrogen cyanide



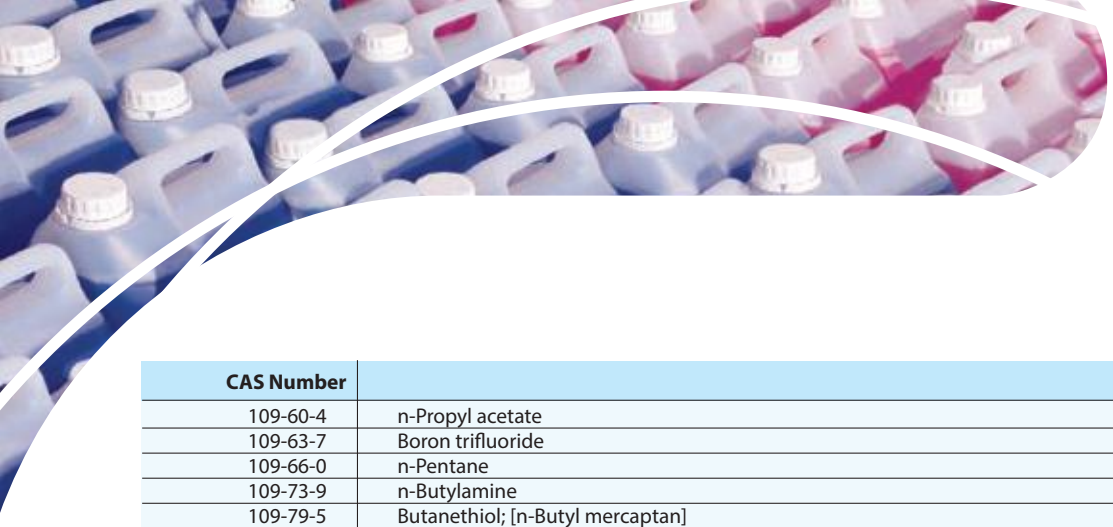
CAS Number	
74-93-1	Methanethiol; [Methyl mercaptan]
74-96-4	Ethyl bromide; [Bromoethane]
74-97-5	Bromochloromethane; [Chlorobromomethane]
74-98-6	Propane
74-99-7	Methyl acetylene
75-00-3	Ethyl chloride; [Chloroethane]
75-01-4	Vinyl chloride(VCM); [Chloroethylene]
75-02-5	Vinyl fluoride
75-04-7	Ethylamine
75-05-8	Acetonitrile
75-07-0	Acetaldehyde
75-08-1	Ethanethiol; [Ethyl mercaptan]
75-09-2	Dichloromethane; [Methylene chloride]
75-12-7	Formamide
75-15-0	Carbon disulphide
75-18-3	Dimethyl sulphide
75-21-8	Ethylene oxide
75-25-2	Tribromomethane; [Bromoform]
75-28-5	Isobutane
75-31-0	Isopropylamine
75-34-3	1,1-Dichloroethane; [Ethylidene dichloride]
75-35-4	1,1-Dichloroethylene; [Vinylidene chloride]
75-38-7	Vinylidene fluoride
75-43-4	Dichlorofluoromethane; [Fluorodichloromethane]
75-44-5	Phosgene; [Carbonyl chloride]
75-45-6	Difluorochloromethane; [Chlorodifluoromethane]
75-47-8	Iodoform
75-50-3	Trimethylamine
75-52-5	Nitromethane
75-55-8	Propyleneimine
75-56-9	Propylene oxide
75-61-6	Difluorodibromomethane; [Dibromodifluoromethane]
75-63-8	Trifluorobromomethane; [Bromotrifluoromethane]
75-65-0	2-Methylpropan-2-ol; [tert-Butyl alcohol]
75-69-4	Trichlorofluoromethane; [Fluorotrichloromethane]
75-71-8	Dichlorodifluoromethane; [Difluorodichloromethane]
75-74-1	Tetramethyl lead
75-83-2	2,2 Dimethyl butane
75-86-5	Acetone cyanohydrin
75-91-2	Tert-Butyl hydroperoxide
75-99-0	Dichloropropionic acid
76-03-9	Trichloroacetic acid
76-06-2	Chloropicrin; [Trichloronitromethane]
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2- difluoroethane
76-13-1	1,1,2-Trichlorotrifluoroethane
76-14-2	1,2-Dichlorotetrafluoroethane; [Tetra-fluoro-dichloro-ethane]; [Cryofluorane]; [INN]
76-15-3	Chloropentafluoroethane
76-22-2	Bornan-2-one; [Camphor]
76-44-8	Heptachlor (ISO)
77-47-4	Hexachlorocyclopentadiene
77-73-6	Dicyclopentadiene
77-78-1	Dimethyl sulphate
78-00-2	Tetraethyl lead
78-10-4	Ethyl silicate; [Tetra-ethyl-orthosilicate]
78-30-8	Tri-o-tolyl phosphate; [Triortho-cresyl phosphate]
78-32-0	Triparacresyl phosphate
78-34-2	Dioxathion (ISO)
78-59-1	3,5,5-Trimethylcyclohex-2-enone; [Isophorone]
78-78-4	iso-Pentane
78-83-1	Isobutyl alcohol; [2-methyl propan-1-ol]
78-87-5	Propylene dichloride
78-89-7	2-Chloro-1-propanol

CAS Number	
78-92-2	Butan-2-ol; [sec-Butyl alcohol]
78-93-3	Methyl ethyl ketone (MEK); [But-2-one]
78-94-4	Methyl vinyl ketone; [Butenone]
78-95-5	Chloroacetone
79-00-5	1,1,2-Trichloroethane
79-01-6	Trichloroethylene
79-04-9	Chloroacetyl chloride
79-06-1	Acrylamide
79-09-4	Propionic acid
79-10-7	Acrylic acid
79-11-8	Monochloracetic acid
79-20-9	Methyl acetate
79-21-0	Peracetic acid
79-24-3	Nitroethane
79-27-6	1,1,2,2-Tetrabromoethane; [Acetylene tetrabromide]
79-29-8	2,3-Dimethyl butane
79-34-5	1,1,2,2, Tetrachloroethane
79-41-4	Methacrylic acid
79-43-6	Dichloroacetic acid
79-44-7	Dimethyl carbamoyl chloride
79-46-9	2-Nitropropane
80-05-7	Bisphenol A (4,4' isopropylidenediphenol)
80-51-3	p.p' –Oxybis(benzenesulfonyl hydrazide)
80-56-8	a -Pinene
80-62-6	Methyl methacrylate
81-81-2	Warfarin (ISO)
82-68-8	Pentachloronitrobenzene
82-26-1	Pindone
83-79-4	Rotenone (ISO); [Derris, commercial]
84-61-7	Dicyclohexyl phthalate
84-66-2	Diethyl phthalate
84-69-5	Diisobutyl phthalate
84-74-2	Dibutyl phthalate
84-76-4	Dinonyl phthalate
85-00-7	Diquat dibromide(ISO)
85-42-7	Cyclohexane-1,2-dicarboxylic anhydride
85-44-9	Phthalic anhydride
86-50-0	Azinphos-methyl
86-88-4	ANTU (a-Naphthylthiourea)
85-68-7	Butyl benzyl phthalate; [Benzyl butyl phthalate]
86-50-0	Guthion; [Azinphos-methyl]
87-68-3	Hexachlorobutadiene
87-86-5	Pentachlorophenol
88-12-0	N-Vinyl-2-pyrrolidone
88-72-2	2-Nitrotoluene
88-89-1	Picric acid; [2,4,6-Trinitrophenol]
89-72-5	2-sec- Butylphenol
90-04-0	o-Anisidine
90-12-0	1-Methyl naphthalene
91-08-7	Toulene-2,6-diisocyanate
91-15-6	o-Phthalodinitrile
91-20-3	Naphthalene
91-57-6	2-Methyl naphthalene
91-59-8	β-Napthylamine
91-94-1	3,3-Dichlorobenzidine
92-52-4	Biphenyl; [Diphenyl]
92-67-1	4-Aminodiphenyl
92-84-2	Phenothiazine
92-87-5	Benzidene
92-93-3	4-Nitrodiphenyl
93-76-5	2,4,5-Trichloro-phenoxyacetic acid; [2,4,5-T (ISO)]
94-36-0	Dibenzoyl peroxide; [Benzoyl peroxide]
94-75-7	2,4-Dichlorophenoxyacetic acid; [2,4-D (ISO)]

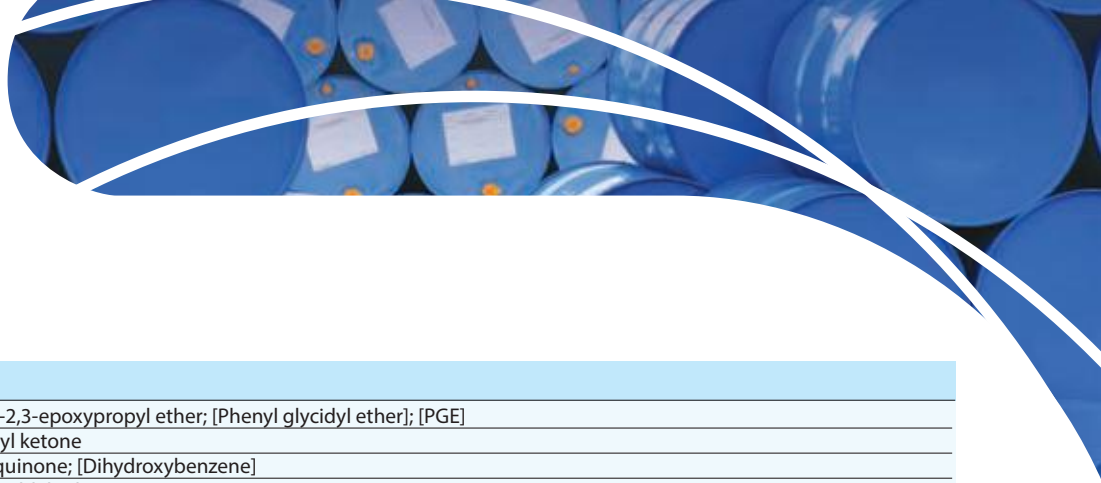


CAS Number	
95-13-6	Indene
95-47-6	Xylene, o-isomer
95-48-7	o-Cresol
95-49-8	2-Chlorotoluene
95-50-1	1,2 Dichlorobenzene
95-53-4	o-Toluidine
95-54-5	o-Phenylenediamine
95-65-8	3,4 Dimethylphenol
95-87-4	2,5 Dimethylphenol
96-05-9	Allyl methacrylate
96-09-3	Styrene oxide
96-14-0	3-Methyl pentane
96-18-4	1,2,3-Trichloropropane
96-22-0	Pentan-3-one; [Diethyl ketone]
96-29-7	Methyl ethyl ketoxime
96-33-3	Methyl acrylate
96-69-5	6,6'-di-tert-butyl-4,4'-thio-di-m-cresol; [4,4'-Thiobis (6-tert-butyl-m-cresol)]
97-77-8	Disulfiram
98-00-0	Furfuryl alcohol
98-01-1	2-Furaldehyde (Furfural)
98-07-7	Benzotrichloride
98-51-1	p-tert Butyltoluene
98-59-9	p-Toluenesulphonyl chloride
98-73-7	4-tert-Butylbenzoic acid
98-82-8	Isopropyl benzene; [Cumene]
98-83-9	2-Phenylpropene; [-Methyl styrene]
98-86-2	Acetophenone
98-88-4	Benzoyl chloride
98-95-3	Nitrobenzene
99-08-1	3-Nitrotoluene
99-99-0	4-Nitrotoluene
99-55-8	5-Nitro-o-toluimide
99-65-0	m-Dintrobenzene
100-00-5	1-Chloro-4-nitrobenzene
100-01-6	4-Nitroaniline
100-21-0	Terephthalic acid
100-25-4	p-Dinitrobenzene
100-37-8	2-Diethylaminoethanol
100-40-3	4-Vinylcyclohexene
100-41-4	Ethylbenzene
100-42-5	Styrene; [Phenyl ethylene]; [Vinyl benzene]
100-44-7	Benzyl chloride; [Chlorotoluene]
100-61-8	N-Methylaniline
100-63-0	Phenylhydrazine
100-74-3	4-Ethylmorpholine
100-97-0	Hexamethylenetetramine
101-14-4	MbOCA; [4,4'Methylene bis-(2-chloroaniline)]; [2,2'-Dichloro-4,4'methylene-dianiline]
101-68-8	4,4'-Methylene-diphenyl diisocyanate; [MDI]
101-77-9	4,4-Diaminodiphenylmethane (DADPM); [4,4'-methylenedianiline, (MDA)]; [DDM]
101-84-8	Diphenyl ether
102-54-5	Ferrocene; [Dicyclopentadienyliron]
102-71-6	Triethanolamine
102-81-8	2-N-Dibutylaminoethanol
103-71-9	Phenyl isocyanate
103-90-2	Paracetamol
104-94-9	p-Anisidine
105-46-4	sec-Butyl acetate
105-60-2	α-Caprolactam; [1,6-Hexanolactam]
105-67-9	2,4 Dimethylphenol
106-35-4	Heptan-3-one; [Ethyl butyl ketone]
106-42-3	Xylene p-isomer
106-44-5	p-Cresol
106-46-7	1,4-Dichlorobenzene

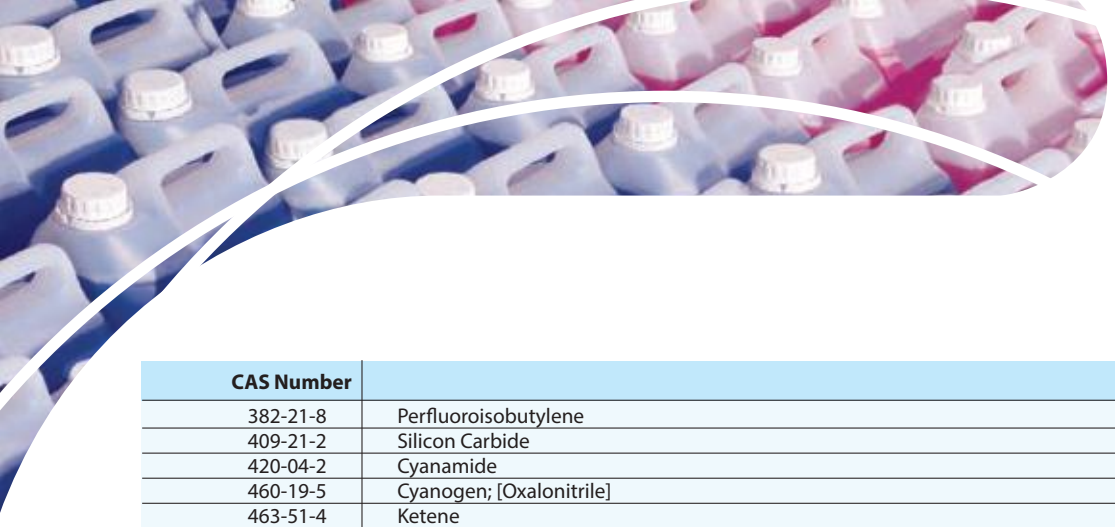
CAS Number	
106-49-0	p-Toluidine
106-50-3	p-Phenylenediamine
106-51-4	Quinone; [p-Benzoquinone]
106-87-6	4-Vinylcyclohexene dioxide; [1,2-epoxy-4-epoxyethylcyclohexane]
106-89-8	Epichlorohydrin; [1-Chloro-2,3-epoxy propane ether]
106-92-3	Allyl 2,3-epoxypropyl ether; [Allyl glycidyl ether}; [AGE]
106-93-4	Ethylene dibromide; [1,2-Dibromoethane]
106-94-5	1-Bromopropane
106-95-6	Allyl bromide
106-97-8	Butane
106-98-9	n-Butene
106-99-0	Buta-1,3-diene
107-01-7	2-Butene(mixture of trans- and cis- isomers)
107-02-8	Acrolein; [Acryaldehyde]
107-05-1	Allyl chloride
107-06-2	1,2-Dichloroethane; [Ethylenedichloride]
107-07-3	Ethylene chlorohydrin; [2-Chloroethanol]
107-13-1	Acrylonitrile
107-15-3	Ethylenediamine; [1,2-Diamionethane]
107-18-6	Allyl alcohol
107-19-7	Prop-2-yn-1-ol; [Propargyl alcohol]
107-20-0	Chloroacetaldehyde
107-21-1	Ethylene glycol ; [1,2-dihydroxybenzene]; [Ethane-1,2-diol]
107-22-2	Glyoxal
107-30-2	Chloromethyl methyl ether
107-31-3	Methyl formate
107-41-5	Hexylene glycol; [2-methylpentane-2,4-diol]
107-49-3	O,O,O'O'-Tetraethyl pyrophosphate(ISO); [TEPP]
107-66-4	Dibutyl hydrogen phosphate; [Di-n-butyl phosphate]
107-83-5	2-Methyl pentane
107-87-9	Pentan-2-one; [Methyl propyl ketone]
107-98-2	Propylene glycol monomethyl ether; [1-Methoxy propan-2-ol]
108-03-2	1-Nitropropane
108-05-4	Vinyl acetate
108-08-7	2,4 - Dimethylpentane
108-10-1	Methyl isobutyl ketone (MIBK); [Hexone]; Isobutyl methyl ketone]; [4-methyl pentan-2-one]
108-11-2	Methyl isobutyl carbinol; [4-Methyl pentane-2-ol]
108-18-9	Diisopropylamine
108-20-3	Isopropyl ether; [Diisopropyl ether]
108-21-4	Isopropyl acetate
108-23-6	Isopropyl chloroformate
108-24-7	Acetic anhydride
108-31-6	Maleic anhydride
108-38-3	Xylene m-iosmer
108-39-4	m-Cresol
108-44-1	m-Toluidine
108-45-2	m-Phenylenediamine
108-46-3	Resorcinol; [m-Dihydroxy benzene]
108-57-6	Divinylbenzene
108-65-6	2-Methoxy-1-methylethylacetate
108-67-8	Mesitylene; [1,3,5-trimethyl benzene]
108-68-9	3,5-Dimethylphenol
108-83-8	Diisobutyl ketone; [2,6-Dimethyl heptan-4-one]
108-84-9	1,3-Dimethylbutyl acetate
108-87-2	Methylcyclohexane
108-88-3	Toluene
108-90-7	Chlorobenzene
108-91-8	Cyclohexylamine
108-93-0	Cyclohexanol
108-94-1	Cyclohexanone
108-95-2	Phenol
108-98-5	Benzenethiol; Phenyl mercaptan]
109-59-1	Isopropoxyethanol



CAS Number	
109-60-4	n-Propyl acetate
109-63-7	Boron trifluoride
109-66-0	n-Pentane
109-73-9	n-Butylamine
109-79-5	Butanethiol; [n-Butyl mercaptan]
109-86-4	2-Methoxyethanol; [Ethylene glycol monoethyl ether]
109-87-5	Methylal; Dimethoxy methane]
109-89-7	Diethylamine
109-90-0	Ethyl isocyanate
109-94-4	Ethyl formate
109-99-9	Tetrahydrofuran
110-12-3	Isoamyl methyl ketone; [Methyl isoamyl ketone]; [5-Methylhexan-2-one]
110-19-0	Isobutyl acetate
110-43-0	Heptan-2-one; [Methyl-n-amyl-ketone]
110-49-6	2-Methoxyethyl acetate; [Ethylene glycol monomethyl ether acetate]
110-54-3	n-Hexane
110-62-3	n-Valeraldehyde
110-80-5	2-Ethoxyethanol; [Ethylene glycol monoethyl ether]; [Glycol monoethyl ether]
110-82-7	Cyclohexane
110-83-8	Cyclohexene
110-85-0	Piperazine
110-86-1	Pyridine
110-89-4	Piperidine
110-91-8	Morpholine
111-15-9	2-Ethoxyethyl acetate; [Ethylene glycol monoethyl ether acetate]
111-30-8	Glutaraldehyde
111-40-0	Diethylene triamine; [2,2'-Iminodi(ethylamine)]; [2,2-Diaminodiethylamine]; [1,4,7-Tri-(aza)-heptane]
111-42-2	Diethanolamine; [2,2'-Iminodiethanol]
111-44-4	Dichloroethyl ether
111-46-6	Diethylene glycol; [2,2'-Oxydiethanol]
111-65-9	n-Octane
111-69-3	Adiponitrile
111-76-2	2-Butoxyethanol; [Ethylene glycol monobutyl ether]
111-77-3	2-(2-Methoxyethoxy)ethanol
111-84-2	Nonane
112-07-2	2-Butoxyethyl acetate
112-34-5	2-(2-Butoxyethoxy)ethanol
112-55-0	Dodecyl mercaptan
114-26-1	Propoxur (ISO)
115-07-1	Propylene
115-11-7	Isobutene
115-10-6	Dimethyl ether
115-29-7	Endosulfan (ISO)
115-77-5	Pentaerythritol
115-86-6	Triphenyl phosphate
115-90-2	Fensulfothion
116-06-3	Aldicarb
116-14-3	Tetrafluoroethylene
116-15-4	Hexafluoropropylene
117-81-7	Di-sec-octyl phthalate; [Di(2-ethyl hexyl) phthalate]; [Bis(2-ethyl hexyl) phthalate]
118-52-5	1,3-Dichloro-5,5-dimethyl-hydantoin
118-74-1	Hexachlorobenzene
118-96-7	2,4,6-Trinitrotoluene; [TNT]
119-93-7	o-Tolidine
120-80-9	Catechol; [Pyrocatechol]
120-82-1	1,2,4-Trichlorobenzene
121-44-8	Triethylamine
121-45-9	Trimethyl phosphite
121-69-7	N,N-Dimethylaniline
121-75-5	Malathion (ISO)
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine; [Cyclonite]; [RDX]
122-34-9	Simazine
122-39-4	Diphenylamine

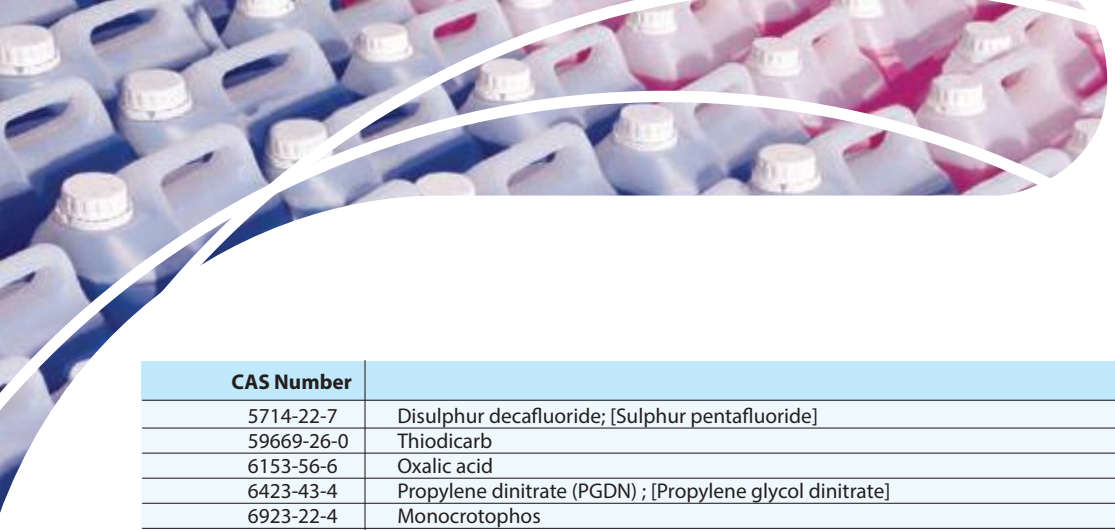


CAS Number	
122-60-1	Phenyl-2,3-epoxypropyl ether; [Phenyl glycidyl ether]; [PGE]
123-19-3	Dipropyl ketone
123-31-9	Hydroquinone; [Dihydroxybenzene]
123-38-6	Propionaldehyde
123-39-7	Monomethylformamide
123-42-2	Diacetone alcohol; [4-hydroxy-4-methyl-2-pentanone]
123-51-3	Isoamyl alcohol; [3-Methylbutan-1-ol]
123-54-6	2,4-Pentanedione
123-73-9	trans But-2-enal; [Crotonaldehyde]
123-77-3	C, C'-azodi(formamide); [Azodicarbonamide]
123-86-4	Butyl acetate
123-91-1	1,4-Dioxane, tech. Grade
123-92-2	Isopentyl acetate; [Isoamyl acetate]
124-04-9	Adipic acid
124-09-4	1,6 Hexanediamine
124-38-9	Carbon dioxide
124-40-3	Dimethylamine
126-73-8	Tributyl phosphate
126-98-7	Methacrylonitrile; [Methylacrylonitrile]
126-99-8	ß-Chloroprene; [2-Chloro-1,3-butadiene]
127-18-4	Tetrachloroethylene; [Perchloroethylene]
127-19-5	N,N'-Dimethylacetamide
128-37-0	2,6-Ditertiary-butyl-para- cresol
131-11-3	Dimethyl phthalate
131-17-9	Diallyl phthalate
133-06-2	Captan (ISO)
136-78-7	Sodium 2-(2,4-dichlorphenoxy) ethyl sulphate; [Sesone]
137-05-3	Methyl 2-cyanoacrylate
137-26-8	Thiram (ISO)
138-22-7	Butyl lactate
140-11-4	Benzyl acetate
140-88-5	Ethyl acrylate
141-32-2	Butyl acrylate
141-43-5	2-Aminoethanol; [Ethanolamine]
141-66-2	Dicrotophos
141-78-6	Ethyl acetate
141-79-7	Mesityl oxide; [4-Methyl pent-3-en-2-one]
142-64-3	Piperazine dihydrochloride
142-82-5	n-Heptane
144-62-7	Oxalic acid
143-33-9	Sodium Cyanide
148-01-6	Dinitolmide
149-26-8	2-(2,4-dichlorophenoxy)ethyl hydrogensulphate); [2,4-DES]
149-57-5	Ethyl hexanoic acid
150-76-5	4-Methoxyphenol; [Mequinol]
151-56-4	Ethyleneimine; [Aziridine]
151-67-7	Halothane
156-62-7	Calcium cyanamide
205-99-2	Benzo[ß]fluroanthene
287-92-3	Cyclopentane
298-00-0	Parathion-methyl (ISO); [Methyl parathion]
298-02-2	Phorate (ISO)
298-04-4	Disulfoton (ISO)
299-84-3	Ronnel; [Fenchlorphos(ISO)]
299-86-5	Crufomate
300-76-5	1,2 -dibromo-2,2-dichloro ethyl dimethyl phosphate; [Naled]; [Dibrom]
302-01-2	Hydrazine
309-00-2	Aldrin (ISO)
314-40-9	Bromacil (ISO)
330-54-1	Diuron (ISO)
333-41-5	Diazinon (ISO)
334-88-3	Diazomethane
353-50-4	Carbonyl fluoride



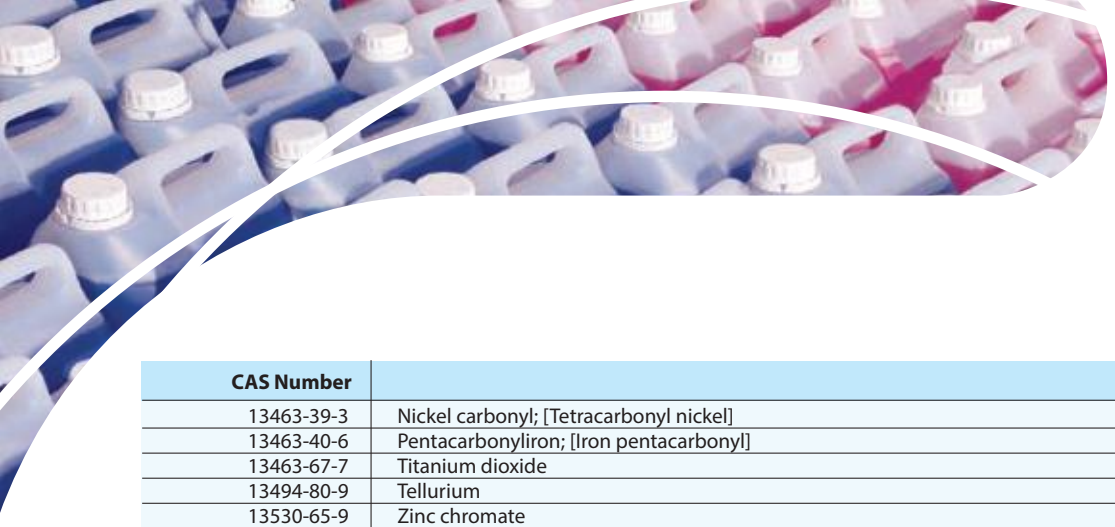
CAS Number	
382-21-8	Perfluoroisobutylene
409-21-2	Silicon Carbide
420-04-2	Cyanamide
460-19-5	Cyanogen; [Oxalonitrile]
463-51-4	Ketene
463-82-1	neo-Pentane
479-45-8	Tetryl; [N-Methyl-N 2,4,6-tetranitrol-aniline]
504-29-0	2-Aminopyridine; [2-Pyridylamine]
506-68-3	Cyanogen Bromide
506-77-4	Cyanogen chloride
509-14-8	Tetranitromethane
526-73-8	1,2,3 - Trimethylbenzene
532-27-4	2-Chloroacetophenone; [Phenacyl chloride]
534-52-1	Dinitro-o-cresol; [2-Methyl-4,6-dinitrophenol]
540-59-0	Acetylene Dichloride; [1,2-dichloroethylene, cis:trans isomers 60:40]
540-88-5	tert-Butyl acetate
541-41-3	Ethyl chloroformate
541-85-5	5-Methylheptan-3-one; [ethylamyl ketone]
542-75-6	1,3-Dichloropropene, cis and trans isomers
542-88-1	Bis(chloromethyl)ether (BCME)
542-92-7	Cyclopentadiene
546-93-0	Magnesite
552-30-7	Trimellitic anhydride; [Benzene-1,2,4-tricarboxylic acid 1,2-anhydride]
556-52-5	Glycidol
557-04-0	Magnesium stearates
557-05-1	Zinc distearate
558-13-4	Carbon tetrabromide; [Tetrabromomethane]
563-80-4	Methyl isopropyl ketone
583-60-8	2-Methylcyclohexanone
584-84-9	Toluene diisocyanate; [TDI]
591-78-6	Hexan-2-one
592-34-7	n-Butyl chloroformate
593-60-2	Vinyl bromide; [Bromoethylene]
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
598-56-1	N,N-Dimethylethylamine
600-25-9	1-Chloro-1-nitropropane
603-34-9	Triphenylamine
608-73-1	γ-Hexachlorocyclohexane; [Lindane]; [BHC]; [HCH(ISO)]
620-11-1	3-Pentylacetate
624-41-9	2-Methylbutyl acetate
624-83-9	Methyl isocyanate
624-92-0	Dimethyl disulphide
625-16-1	Tert-Amyl acetate
626-38-0	1-Methylbutyl acetate; [sec-Amyl acetate]
627-13-4	n-Propyl nitrate
628-63-7	Pentyl acetate; [n-Amyl acetate]
628-96-6	Ethylene glycol dinitrate; [Ethylene dinitrate]
630-08-0	Carbon monoxide
646-06-0	1,3-Dioxolane
681-84-5	Methyl silicate; [Tetra-methyl ortho silicate]
684-16-2	Hexafluoroacetone
764-41-0	1,4-Dichloro-2-butene
768-52-5	n-Isopropylaniline
822-06-0	Hexamethylene diisocyanate
872-50-4	1-Methyl-2-pyrrolidone
999-61-1	2-Hydroxypropyl acrylate
1024-57-3	Heptachlor epoxide
1120-71-4	1,3-Propane sultone
1189-85-1	tert-Butyl chromate
1300-73-8	Xylidine (mixed isomers), [Amino dimethyl benzene]
1302-74-5	Emery
1303-86-2	Boron oxide; [Diboron trioxide]

CAS Number	
1303-96-4	See Borates, tetra, sodium, decahydrous
1304-82-1	Bismuth telluride; [Dibismuth tritelluride]
1305-62-0	Calcium hydroxide
1305-78-8	Calcium oxide
1306-19-0	Cadmium oxide fume
1306-23-6	Cadmium sulphide and cadmium sulphide pigments
1309-37-1	Iron oxide; [Rouge]
1309-37-1	Iron oxide (Fe2O3)
1309-48-4	Magnesium oxide
1310-58-3	Potassium hydroxide
1310-65-2	Lithium hydroxide
1310-73-2	Sodium hydroxide
1314-13-2	Zinc oxide, fume
1314-56-3	Diphosphorus pentoxide
1314-62-1	Vanadium pentaoxide; [Divanadium pentaoxide]
1314-80-3	Phosphorus pentasulphide; [Diphosphorus pentasulphide]
1317-35-7	Trimanganese tetraoxide; [Manganese tetraoxide]
1317-65-3	Calcium carbonate; [Marble]; [Limestone]
1317-95-9	Tripoli, Crystalline silica
1319-77-3	Cresols, all isomers
1321-64-8	Pentachloronapthalene
1321-65-9	Trichloronaphthalene
1321-74-0	Divinylbenzene
1330-20-7	Xylene, mixed isomers
1330-43-4	Borates, tetra, sodium, anhydrous; [Disodium tetraborate, anhydrous]
1332-21-4	Asbestos
1332-58-7	Kaolin
1333-74-0	Hydrogen
1333-86-4	Carbon black
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalenes, all isomers
1338-23-4	Methyl ethyl ketone peroxides (MEKP)
1344-28-1	Aluminium oxides
1344-95-2	Calcium silicate
1563-66-2	Carbofuran (ISO)
1634-04-4	tert Butyl methyl ether
1910-42-5	Paraquat dichloride
1912-24-9	Atrazine
1918-02-1	Picloram (ISO)
1929-82-4	Nitrapyrin; [2-chloro-6-trichloromethyl pyridine]
2001-28-4	Crocidolite
2039-87-4	o-Chlorostyrene
2179-59-1	Allyl propyl disulphide
2234-13-1	Octachloronaphthalene
2238-07-5	Diglycidyl ether; [DGE]; [bis (2,3-epoxypropyl) ether]
2425-06-1	Captafol (ISO)
2426-08-6	n-Butyl glycidyl ether; [BGE]; [Butyl-2,3-epoxypropyl) ether]
2451-62-9	Triglycidyl isocyanurate, [TGIC]; [Araldite PT810]
2528-36-1	Dibutyl phenyl phosphate
2551-62-4	Sulphur hexafluoride
2687-91-4	N-Ethyl-2-pyrrolidone
2698-41-1	o-Chlorobenzylidene malonitrile
2699-79-8	Sulphurly difluoride
2764-72-9	Diquat
2921-88-2	Chlorpyrifos (ISO)
3173-72-6	1,5-Naphthylene diisocyanate
3333-52-6	Tetramethyl succinonitrile
3383-96-8	Temephos
3689-24-5	O,O,O',O'- Tetraethyl dithio- pyrophosphate(ISO); [sulphotep]; [TEDP]
3825-26-1	Ammonia perflurooctanoate
4016-14-2	Isopropyl glycidyl ether (IGE); [2,3-Epoxypropyl isopropyl
4098-71-9	Isophorone diisocyanate (IPDI)
51235-04-2	Hexazinone



CAS Number	
5714-22-7	Disulphur decafluoride; [Sulphur pentafluoride]
59669-26-0	Thiodicarb
6153-56-6	Oxalic acid
6423-43-4	Propylene dinitrate (PGDN) ; [Propylene glycol dinitrate]
6923-22-4	Monocrotophos
7085-85-0	Ethyl cyanoacrylate
7429-90-5	Aluminium metal
7439-92-1	Lead
7439-96-5	Manganese
7439-97-6	Mercury
7439-98-7	Molybdenum
7440-01-9	Neon
7440-02-0	Nickel
7440-06-4	Platinum
7440-16-6	Rhodium
7440-21-3	Silicon
7440-22-4	Silver
7440-25-7	Tantalum
7440-28-0	Thallium,
7440-31-5	Tin
7440-33-7	Tungsten
7440-36-0	Antimony
7440-37-1	Argon
7440-38-2	Arsenic
7440-39-3	Barium
7440-41-7	Beryllium
7440-43-9	Cadmium
7440-44-0	Graphite
7440-47-3	Chromium
7440-48-4	Cobalt
7440-50-8	Copper
7440-58-6	Hafnium
7440-59-7	Helium
7440-61-1	Uranium compounds, natural
7440-65-5	Yttrium
7440-67-7	Zirconium
7440-74-6	Indium
7446-09-5	Sulphur dioxide
7550-45-0	Titanium tetrachloride
7553-56-2	Iodine
7572-29-4	Dichloroacetylene
7580-67-8	Lithium hydride
7616-94-6	Perchloryl fluoride
7631-90-5	Sodium bisulfite; [Sodium hydrogen sulphite]
7637-07-2	Boron trifluoride
7646-85-7	Zinc chloride
7647-01-0	Hydrogen chloride
7664-38-2	Orthophosphoric acid; [Phosphoric acid]
7664-39-3	Hydrogen fluoride
7664-41-7	Ammonia
7664-93-9	Sulphuric acid
7681-57-4	Disodium disulphite; [Sodium Metabisulphite]
7697-37-2	Nitric acid
7719-09-7	Thionyl chloride
7719-12-2	Phosphorus trichloride
7719-09-7	Thionyl chloride
7722-84-1	Hydrogen peroxide
7722-88-5	Tetrasodium pyrophosphate
7723-14-0	Phosphorus, yellow
7726-95-6	Bromine
7727-21-1	Dipotassium peroxodisulphate; [Potassium persulphate]
7727-37-9	Nitrogen
7727-43-7	Barium sulphate
7727-54-0	Diammonium peroxodisulphate; [Ammonium persulphate]

CAS Number	
7727-73-3	Sodium Sulfate (the decahydrate)
7757-82-6	Sodium Sulfate (the anhydrite)
7773-06-0	Ammonium sulphamidate
7775-27-1	Disodium peroxodisulphate; [Sodium persulphate]
7778-18-9	Calcium sulphate
7782-41-4	Fluorine
7782-42-5	Graphite (natural)
7782-49-2	Selenium
7782-50-5	Chlorine
7782-65-2	Germane; [Germanium tetrahydride]
7782-79-8	Hydrazoic acid
7783-06-4	Hydrogen sulphide
7783-07-5	Dihydrogen selenide; [Hydrogen selenide]
7783-41-7	Oxygen difluoride
7783-54-2	Nitrogen trifluoride
7783-60-0	Sulphur tetrafluoride
7783-79-1	Selenium hexafluoride
7784-42-1	Arsine
7786-34-7	Mevinphos (ISO); [Phosdrin]
7789-06-2	Strontium chromate
7789-30-2	Bromide pentafluoride
7790-91-2	Chlorine trifluoride
7790-94-5	Chlorosulphonic acid
7803-51-2	Phosphine
7803-52-3	Stibine
7803-62-5	Silane; [Silicon tetrahydride]
8001-35-2	Chlorinated camphene (Toxaphene)
8002-74-2	Paraffin wax
8003-34-7	Pyrethrins (ISO); [Pyrethrum]
8006-64-2	Turpentine
8030-30-6	Rubber solvent; [Naphta]
8032-32-4	VM and P Naphta
8050-09-7	Colophony
8052-41-3	Stoddard solvent; [White spirit]
8052-42-4	Asphalt, petroleum fumes
8065-48-3	Demeton
9002-86-2	Polyvinyl chloride (PVC)
9004-34-6	Cellulose
9005-25-8	Starch
9014-01-1	Subtilisins (proteolytic enzymes as 100% pure)
10024-97-2	Nitrous oxide
10025-67-9	Sulphur monochloride; [Disulphur dichloride]
10025-87-3	Phosphoryl trichloride
10026-13-8	Phosphorus, pentachloride
10028-15-6	Ozone
10035-10-6	Hydrogen bromide
10043-35-3	Boric Acid
10049-04-4	Chlorine dioxide
10101-41-4	Gypsum
10102-43-9	Nitric oxide; [Nitrogen monoxide]
10102-44-0	Nitrogen dioxide
10294-33-4	Boron tribromide
11097-69-1	Chlorinated biphenyls (54%); [Polychlorinated biphenyls]
12001-29-5	Chrysotile, asbestos
12035-72-2	Nickel subsulfide
12070-12-1	Tungsten carbide
12079-65-1	Manganese cyclopentadienyl tricarbonyl; [Tricarbonyl (etacyclopentadienyl) manganese]
12108-13-3	Tricarbonyl (methyl cyclopentadienyl) manganese; [Methyl cyclopentadienyl) manganese tricarbonyl]
12125-02-9	Ammonium chloride
12172-73-5	Amosite, asbestos
12179-04-3	Tetra sodium borate pentahydrate (See Borates)
12604-58-9	Ferrovanadium
13121-70-5	Tricyclohexyltin hydroxide; [Cyhexatin(ISO)]
13149-00-3	cis-Cyclohexane-1,2-dicarboxylic anhydride



CAS Number	
13463-39-3	Nickel carbonyl; [Tetracarbonyl nickel]
13463-40-6	Pentacarbonyliron; [Iron pentacarbonyl]
13463-67-7	Titanium dioxide
13494-80-9	Tellurium
13530-65-9	Zinc chromate
13765-19-0	Calcium chromate
13838-16-9	Enflurane
14166-21-3	Trans-cyclohexane-1,2-dicarboxylic anhydride
14464-46-1	Cristobalite, crystalline silica
14484-64-1	Ferbam (ISO)
14807-96-6	Talc
14808-60-7	Quartz, crystalline silica
14857-34-2	Dimethylethoxysilane
14977-61-8	Chromyl Chloride
15972-60-8	Alachlor
15468-32-3	Tridymite, respirable dust(Silica)
16752-77-5	Methomyl (ISO)
16984-48-8	Fluoride (as F)
17702-41-9	Decaborane
17804-35-2	Benomyl (ISO)
19287-45-7	Diborane
19624-22-7	Pentaborane
20816-12-0	Osmium tetraoxide (as Os)
21087-64-9	Metribuzin
21351-79-1	Caesium hydroxide
21651-19-4	Tin oxide
21725-46-2	Cyanazine
22224-92-6	Fenamiphos
22781-23-3	Bendiocarb
24468-13-1	2-Ethylhexyl chloroformate
25013-15-4	Methylstyrene; [Vinyl toluene
25154-54-5	Dinitrobenzene, all isomers
25167-67-3	Butene, mixture of isomers
25321-14-6	2,4-Dinitrotoluene
25551-13-7	Trimethylbenzenes, all isomers or mixtures
25639-42-3	Methylcyclohexanol
26140-60-3	Terphenyls, all isomers
26499-65-0	Plaster of Paris
26628-22-8	Sodium azide
26675-46-7	Isoflurane
26761-40-0	Diisodecyl phthalate
26952-21-6	Isoctyl alcohol (mixed isomers)
27554-26-3	Diisooctyl phthalate
28553-12-0	Diisononyl phthalate
31242-93-0	Chlorinated diphenyl oxide
34590-94-8	(2-Methoxymethylethoxy)-l-propanol; [Dipropylene glycol methyl ether]
35400-43-2	Sulprofus
37300-23-5	Zinc yellow
42498-58-8	Methyletetrahydrophthalic anhydride isomer
50926-11-9	Indium tin oxide
53469-21-9	Chlorinated biphenyls (42%); [Polychlorinated biphenyls]
60676-86-0	Silica, fused
61788-32-7	Hydrogenated terphenyls
65996-93-2	Coal tar pitch volatiles
68334-30-2	Diesel Oil
65997-15-1	Portland cement
68476-85-7	Liquefied petroleum gas (LPG)
74222-97-2	Sulfometuron methyl
68855-54-9	Diatomaceous earth, natural
77536-66-4	Actinolite asbestos
77536-67-5	Anthophyllite, asbestos
77536-68-6	Tremolite asbestos
132207-32-0	Chrysotile, asbestos

Notes

Notes

Further Information and Guidance:

Visit our website at **www.hsa.ie**, telephone our contact centre on **1890 289 389** or email **wcu@hsa.ie**

Use BeSMART, our free online risk assessment tool at **www.besmart.ie**

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