

2024 Code of Practice

for the Safety, Health and Welfare at Work
(Chemical Agents) Regulations (2001-2021) &
the Safety, Health and Welfare at Work
(Carcinogens, Mutagens and Reprotoxic
Substances) Regulations (2024)



Our Vision:
Healthy, safe and
productive lives
and enterprises

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Foreword

The Health and Safety Authority, with the consent of Neale Richmond, Minister of State at the Department of Enterprise, Trade and Employment, publishes this Code of Practice entitled “2024 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2021) & Safety, Health and Welfare at Work (Carcinogens) Regulations 2024” 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 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) and the Safety, Health and Welfare at Work (Chemical Agents) (Amendment) Regulations 2021 (S.I. No. 231 of 2021) and the Safety, Health and Welfare at Work (Carcinogens, Mutagens and Reprotoxic Substances) Regulations 2024, S.I. No. 122 of 2024 (hereinafter referred to as the ‘CMRS 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 comes into operation on **5th of April 2024** and from that date it replaces the “2021 Code of Practice for the Chemical Agents Regulations and the Carcinogens Regulations” which was issued in accordance with the Safety, Health and Welfare at Work Act 2005.

Notice of the publication of this Code of Practice, and the withdrawal of the 2021 Code of Practice, was published in the *Iris Oifigiúil* on 5th of April 2024.

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 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 or 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 and BLV's listed in **Schedule 1, Schedule 2** and **Schedule 3**, to reflect current knowledge concerning the health hazards of the listed chemical agents, will be undertaken by the Health and Safety Authority 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 Health and Safety Authority, Programme Manager, Occupational Health Division, Metropolitan Building, James Joyce Street, Dublin 1, **Lo call: 0818 289 389** or e-mail contactus@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 inhalational 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, reprotoxic or as chemicals causing dermal or 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 substances causing sensitisation (occupational asthma or allergic contact dermatitis). For carcinogens, mutagens and reprotoxic substances (CMRs) exposure levels should be maintained well below the OELV and should be as low as technically possible.

The occupational exposure limit values (OELVs) are based on:

- an 8 hour reference period, a time-weighted average (**TWA**) concentration of airborne substances; and
- a 15-minute reference period or Short Term Exposure Limits (**STEL**).

These terms are 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 Workplace Exposure Limit (**WEL**). While Safety Data Sheets (**SDSs**) must refer to Irish OELVs, these other terms may appear in Safety Data Sheets or other information on chemicals.

Schedule 1 to this Code of Practice stipulates the OELVs which are currently legally binding under the Chemical Agents Regulations and CMRS Regulations. The Schedule contains the substances which have been assigned a binding occupational exposure limit value (BOELV), an indicative occupational exposure limit value (IOELV), and/or a biological limit value (BLV) under EU legislation.

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 socioeconomic and technical feasibility factors. Employers should take all reasonably practicable measures to comply with the advisory OELVs set out in Schedule 2.

Within **Schedules 1 and 2** additional notations are provided to help identify substances having the potential to cause particular and significant reactions following exposure. These are non-exhaustive, and notations can change. These notations include:

- Chemicals classified as carcinogenic (**Carc.1A/1B**), mutagenic (**Muta.1A/1B**) and/or toxic for reproduction (**Repr.1A/1B**).
- Chemicals classified as sensitisers (Sens.) can cause respiratory and/or dermal sensitisation. **Dermal or Respiratory sensitisation** is noted for some.
- Substances which have the capacity to penetrate intact skin, when they come in contact with it, and be absorbed into the body are likely to have the Skin (**Skin**) notation.

Schedule 3 to this Code of Practice provides a non-exhaustive list of OELVs under review by the Health and Safety Authority and the European Commission. This Schedule therefore serves to highlight the possibility of a change occurring to these substances, including, for example the introduction of an OELV or BLV 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.

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

Schedule 5 to this Code of Practice provides Health Surveillance Measures and Biological Limit Values.

It should be noted that exposure to **radioactive 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/EC¹ establishing a first list of IOELVs in implementation of Council Directive 98/24/EC²;
- Commission Directive 2006/15/EC³ establishing a second list of IOELVs in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC⁴ and 2000/39/EC;
- Commission Directive 2009/161/EU⁵ of 17 December 2009 establishing a third list of IOELVs;
- Commission Directive (EU) 2017/164⁶ of 31st January 2017 establishing a fourth list of IOELVs.

- Commission Directive (EU) 2019/1831⁷ of 24th October 2019 establishing a fifth list of IOELVs.

This Code of Practice, in conjunction with the CMRS Regulations, transposes provisions 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 work⁸;
- 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 work⁹;
- 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 from the risks related to exposure to carcinogens or mutagens at work¹⁰;
- 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 work¹¹; and
- Directive (EU) 2022/431 of the European Parliament and of the Council of 9 March 2022 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work¹²

REACH and CLP

While this Code of Practice is based on the requirements of the Chemical Agents Regulations and Carcinogens Regulations, it is also worth noting

¹ OJ No. L 142, 16.06.2000, p. 47
² OJ No. L 131, 05.05.1998, p. 11
³ OJ No. L 38, 09.02.2006, p. 36
⁴ OJ No. L 177, 05.07.1991, p. 22

⁵ OJ No. L 338, 19.12.2009, p. 87
⁶ OJ No. L 27, 01.02.2017, p. 115
⁷ OJ No. L 279, 31.10.2019, p. 31
⁸ OJ No. L 158, 30.04.2004, p. 50

⁹ OJ No. L 345, 27.12.2017, p. 87
¹⁰ OJ No. L 30, 31.01.2019, p. 112
¹¹ OJ No. L 164, 20.06.2019, p. 23
¹² OJ No. L 88, 16.03.2022, p. 1



other relevant chemicals legislation. The EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) Regulation (EC) No. 1907/2006¹³ and the EU Classification, Labelling and Packaging (CLP) Regulation (EC) No. 1272/2008¹⁴ and their related amendments are relevant. See <https://www.echa.europa.eu/legislation>

The European Chemicals Agency (ECHA) is the central agency to implement the EU's chemicals legislation to protect people and the environment from the hazards of chemicals. It also contributes to a well-functioning internal market and the innovation and competitiveness of the European chemicals industry. ECHA develops independent scientific and technical opinions and takes binding decisions to ensure that chemicals companies comply with European law. Its committees provide scientific advice to the European Commission, relating to hazards and risks of chemicals, their impact on society and ways to mitigate their risks.

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 put adequate controls in place.

Where the quantity of the material manufactured or imported is greater than 10 tonnes per annum, the manufacturers and importers are required to calculate Derived No Effect Levels (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.

Classification, labelling and packaging (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.

There is no direct link between the health hazard categories identified in the CLP legislation and the OELVs in this Code of Practice. In general, however, chemicals classified as carcinogenic, mutagenic, reprotoxic or as skin/respiratory sensitisers 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.

Activities under REACH include:

- evaluation of non-human and human information,
- classification and labelling,
- the calculation of derived no-effect levels (DNELs) and derived minimum effect levels (DMELs),
- Development of Exposure Risk Relationships (ERR) which are used as a basis for setting limit values for non-threshold substances, and
- Providing scientific opinions on OELs since 2019.

¹³ OJ No. L 396, 30.12.2006, p. 1

¹⁴ OJ No. L 353, 31.12.2008, p. 1

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, 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. 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.

Carcinogen - Substances with the potential to cause cancer in an organism. They include Carc.1A, Carc.1B and Schedule 4 of this Code of Practice.

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.

Carc.1B - Substances presumed to have carcinogenic potential for humans; classification is largely based on animal evidence to which the EU Classification, Labelling and Packaging Regulation (EC) No. 1272/2008 applies.

Chemical Abstracts Service (CAS) Number – This 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. Individual CAS numbers and associated nomenclature can be checked on the ECHA Website – Information on Chemicals (C&L Inventory). See <https://www.echa.europa.eu/information-on-chemicals>

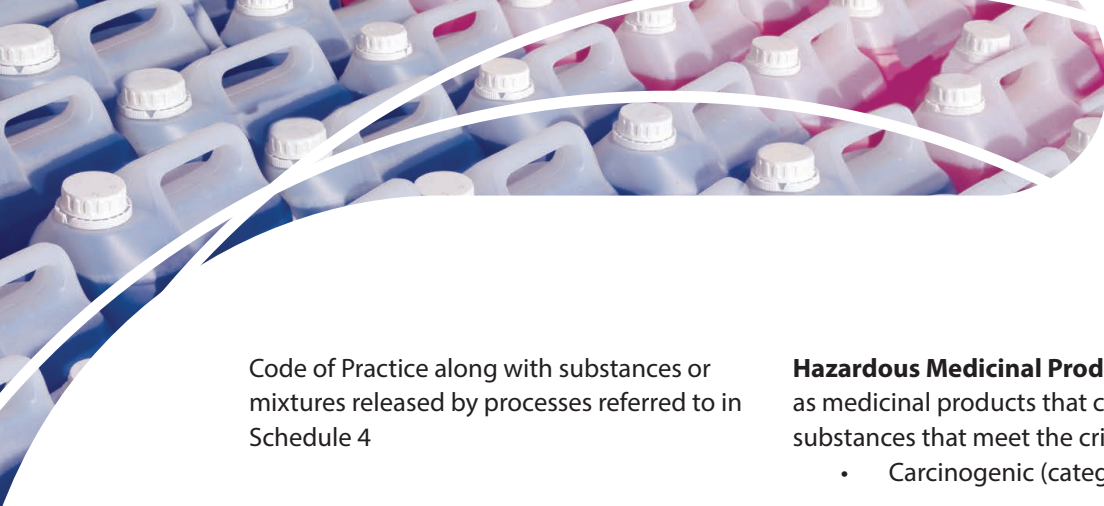
Chemical Agent - as defined in the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001-2021, means any chemical element or compound, on its own or admixed, as it occurs in the natural state or as produced, used or released, including release as waste, by any work activity, whether or not produced intentionally and whether or not placed on the market.

Chemical Agents Regulations 2001-2021- 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) and the Safety, Health and Welfare at Work (Chemical Agents) (Amendment) Regulations 2021 (S.I. No. 231 of 2021).

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

CMRS Regulations - means the Safety, Health and Welfare at Work (Carcinogens, Mutagens and Reprotoxic Substances) Regulations 2024, S.I. No. 122 of 2024.

- The Regulation applies to a substance or mixture which meets the criteria for classification as a category 1A or 1B carcinogen, (Carc.1A, Carc.1B) a category 1A or 1B germ cell mutagen (Mut.1A, Mut.1B) or a category 1A or 1B reproductive toxicant (Rep.1A, Rep.1B).
- The Regulation applies to a substance, mixture or process referred to in Schedule 4 of this



Code of Practice along with substances or mixtures released by processes referred to in Schedule 4

CMRD - 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, 2019/983 and 2022/431.

CMRs - Carcinogens, Mutagens and Reprotoxic substances.

Dermal sensitisation - The substance can cause sensitisation of the skin (See “Sens”).

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).

EC No. - The European Community number, or EC number, also known as 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 Website – Information on Chemicals (C&L Inventory). See <https://www.echa.europa.eu/information-on-chemicals>

Exposure Risk Relationship (ERR) - For non-threshold carcinogens, no health based OEL can be identified. An exposure-risk relationship (ERR) expresses the excess (life-time) cancer risk (cases per 100 000 exposed) as a function of the concentration in the air. Each substance has a different ERR. It can be used as a basis for setting limit values for non-threshold substances.

f/ml - fibres per millilitre of air

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

Hazardous Medicinal Products (HMP) - are defined as medicinal products that contain one or more substances that meet the criteria for classification as:

- Carcinogenic (category 1A or 1B),
- Mutagenic (category 1A or 1B), or
- Toxic for reproduction (category 1A or 1B)

in accordance with Regulation (EC) No 1272/2008 (the CLP Regulation). This includes medicinal products for both human and veterinary use.

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

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 limits set under the Chemical Agents Directive 98/24/EC as amended. The European Commission is advised on limits by ECHA’s Risk Assessment Committee (RAC) which evaluates the scientific information available on hazardous substances and makes recommendations for the establishment of an IOELV. Member States are obliged to implement by introducing national limits for the substances.

Health Surveillance means the assessment of an individual employee to determine the state of health of that individual, as related to exposure to specific chemical agents (including carcinogens, mutagens or reprotoxic substances) at work and includes biological monitoring; so that any adverse variations in their health which may be related to working conditions are identified as early as possible.

Mg/m³ - milligrams per cubic metre of air at 20°C and 101.3 kPa (760 mm mercury pressure)

Mutagen - Substances that change the genetic material of an organism.

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 apply.

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 apply.

Occupational Exposure Limit Value (OELV) is the term used in this Code of Practice to describe an exposure standard for a chemical in workplace air. It is 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/m³), fibre(s) per millilitre (fibre(s)/ml) or fibre(s) per cubic centimetre (fibre(s)/cm³) as appropriate.

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

Occupational Hygiene - is the science of identification, evaluation and control of exposure to workplace health hazards including chemicals, dust, fumes and fibres.

Ppm -parts per million by volume in air (ml/m³)

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

Reprotoxic Substance - means a substance or mixture which meets the criteria for classification as a category 1A or 1B reproductive toxicant set out in

Regulation (EC) No. 1272/2008, and may be grouped as follows:

- (a) “non-threshold reprotoxic substances” for which there is no safe level of exposure for employees’ health, or
- (b) “threshold reprotoxic substances” for which a safe level of exposure exists below which there is no risk to employees’ health, or

Repr.1A – Substances which are known human reproductive toxicants, largely based on evidence from human studies to which the Regulation (EC) No. 1272/2008 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 apply.

Respiratory sensitisation – The substance can cause sensitisation of the respiratory tract. (See “Sens”)

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. Sensitisers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The “sens” notation alone does not distinguish between respiratory or dermal sensitisation.

Chemical agents that are sensitisers 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.

Skin – Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible.

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 8 hours (the 8 hour time-weighted average (TWA) exposure). The TWA may be expressed mathematically by:

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

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

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).

STEL - Short Term Exposure Limit, defined as the concentration to which workers can be exposed for short periods of time, usually 15 minutes, 4 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)).

Thoracic Fraction (T) - The Thoracic Fraction note is used for those materials that are hazardous when deposited in the thoracic region of the respiratory tract.

Threshold Limit Value (TLV) - 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)).

TWA - Time-Weighted Average, defined as the time-weighted average concentration for a conventional 8 hour day/40 hour week.

3. OELV Compliance

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) 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.

This calculation does not take into account the effect of temperature and pressure which changes the formula. A competent Occupational Hygienist will be able to advise on your circumstances.

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, must be taken into account.

Additive effects,

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,

$$C_1 / \text{OELV}_1 + C_2 / \text{OELV}_2 + C_3 / \text{OELV}_3 + \dots \dots \dots C_n / \text{OELV}_n$$

exceeds 1.0, then the OELV of the mixture should be considered as being exceeded. C₁ indicates the observed atmospheric concentration of substance 1 over 8 hours, and OELV₁, its corresponding OELV; C₂ indicates the observed atmospheric concentration of substance 2 over 8 hours, and OELV₂, 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).

$$\begin{aligned} & C_1/\text{OELV}_1 + C_2/\text{OELV}_2 + C_3/\text{OELV}_3 \\ & = 400/500 + 25/50 + 100/200 \\ & = 0.8 + 0.5 + 0.5 \\ & = 1.8 \end{aligned}$$

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

Independent effects,

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.

3.3 INTERMITTENT EXPOSURES

The term '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 8 hours (the 8 hour time-weighted average (TWA) exposure).

The 8 hour TWA may be represented mathematically by:

$$C_1 T_1 + C_2 T_2 + \dots + C_n T_n / 8$$

where C_1 is the occupational exposure and T_1 is the associated exposure time in hours in any 24-hour period.

Example 1

The operator works for 7 hours 20 minutes on a process in which they are exposed to a substance hazardous to health. The average exposure during that period is measured as 0.12 mg/m^3 .

The 8-hour TWA =
7 h 20 min (7.33 h) at 0.12 mg/m^3
40 min (0.67 h) at 0 mg/m^3

That is $(0.12 \times 7.33) + (0 \times 0.67) / 8 = 0.11 \text{ mg/m}^3$

Exposure 0.11 mg/m^3

3.4 CALCULATIONS FOR DETERMINING COMPLIANCE WITH OELS

To assess the exposure of workers to chemicals and to state with certainty that it does not exceed the occupational exposure limit values (OELVs) (short term or long term) would require measurement of the exposure of every worker for every working day. This approach is not possible, feasible or practical for many chemical agents.

Statistical tools can be used to determine compliance. "EN689 Workplace exposure - Measurement of exposure by inhalation to chemical agents - Strategy for testing compliance with occupational exposure limit value" provides information on measurement strategies, a preliminary test and the frequency of routine monitoring.

A detailed description of the methods is beyond the scope of this code of practice. A competent Occupational Hygienist will be able to advise on the best method to apply in your set of circumstances. Regardless of the method used, a conclusion of compliance cannot be based on 1 sample.

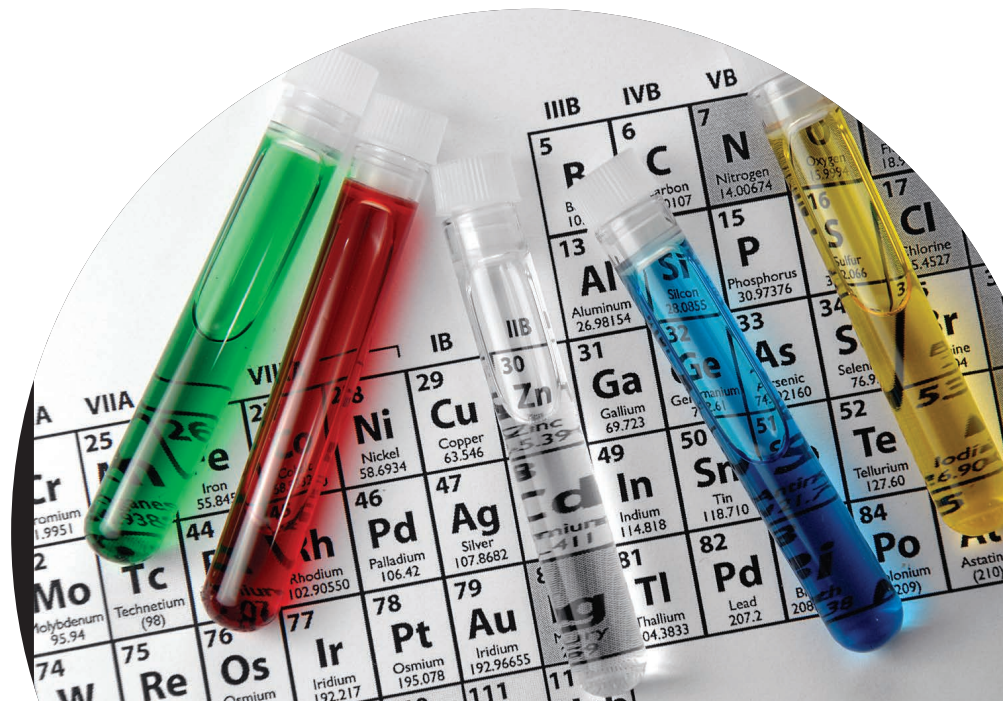
3.5 OTHER FACTORS

Compliance with an OELV is not a guarantee of control. OELV compliance does not take other routes of exposure into account. Other route of exposure must be taken into account e.g. dermal exposure, ingestion, injection. Biological Monitoring may be the most appropriate. Risk assessment must take all routes of exposure into account, be site and activity specific. OELVs are just one type of measure. Other factors to be taken into account include:

- Units used,
- Different forms at different temperature and pressure,
- Combined and Sequential Exposure,
- Non standard shift lengths and shift patterns, and
- Other routes of exposure e.g. dermal.

4. Further Information

1. Health and Safety Authority: Chemical Agents, Carcinogens, Mutagens and Reprotoxic Substances web pages (www.hsa.ie)
2. ECHA - Risk Assessment Committee (RAC): <https://echa.europa.eu/oe/> The table <https://echa.europa.eu/oels-activity-list> provides up-to-date information on the activities planned, ongoing or completed by ECHA in relation to its work on occupational exposure limits.
3. American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices", <https://www.acgih.org/>



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 3 of the 2021 Code of Practice or updated by legislation

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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	1.8	4	IOELV, Skin
Acrolein	203-453-4	107-02-8	0.02	0.05	0.05	0.12	IOELV
Acrylaldehyde, See Acrolein							
Acrylonitrile	203-466-5	107-13-1	0.45	1	1.8	4	BOELV, Skin, Dermal Sensitisation
The limit values shall apply from 5th April 2026. See Schedule 2 for current advisory OELV							
Acrylamide	201-173-7	79-06-1		0.1	-	-	BOELV, Skin
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	IOELV, Skin
2-Aminoethanol	205-483-3	141-43-5	1	2.5	3	7.6	IOELV, Skin
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							
Aniline	200-539-3	62-53-3	2	7.74	5	19.35	IOELV, Skin, Sens
Arsenic acid and its salts				0.01 (l)			BOELV, Carc 1A
Asbestos							BOELV, Carc 1A
Crocidolite		2001-28-4	0.1 fibres/cm ³ of air				
Amosite		12172-73-5	0.1 fibres/cm ³ of air				
Chrysotile		12001-29-5	0.1 fibres/cm ³ of air				
Actinolite		77536-66-4	0.1 fibres/cm ³ of air				
Anthophyllite		77536-67-5	0.1 fibres/cm ³ of air				
Tremolite		77536-68-6	0.1 fibres/cm ³ of air				
Barium compounds (soluble compounds as Ba)	231-149-1	7440-39-3	-	0.5	-	-	IOELV
Benzene	200-753-7	71-43-2	0.2	0.66	-	-	BOELV, Skin, Carc 1A, Muta 1B
Limit value 1 ppm (3,25 mg/m ³) until 5 April 2024.							
Limit value 0.5 ppm (1,65 mg/m ³) from 5th April 2024 until 5th April 2026.							
Beryllium and its inorganic compounds	231-150-7	7440-41-7		0.0002mg/m ³ (l)			BOELV, Sens
Limit value 0.0006mg/m ³ until 11 July 2026							
Bisphenol A (4,4'-isopropylidenediphenol) (Inhalable dust)	201-245-8	80-05-7	-	2 (l)	-	-	BOELV, Sens, Repr 1B
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
1,3-Butadiene	203-450-8	106-99-0	1	2.2	-	-	BOELV, Muta.1B Carc..1A

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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	IOELV, Skin
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	IOELV, Skin
n-Butyl acetate	204-658-1	123-86-4	50	241	150	723	IOELV
Sec-Butyl acetate	203-300-1	105-46-4	50	241	150	723	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				0.001mg/m ³ (l)			BOELV, Carc 1B
	Limit value 0.004mg/m ³ until 11 July 2027.						
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 (dust and vapour)	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	-	-	IOELV, Skin
Carbon monoxide	211-128-3	630-08-0	20	23	100	117	BOELV, Repr 1A
Carbon tetrachloride	200-262-8	56-23-5	1	6.4	5	32	IOELV, Skin
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	-	-	IOELV, Skin
Chloromethane	200-817-4	74-87-3	20	42			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)	-	-	-	0.005			BOELV
	Limit value 0.01mg/m ³ until 17 Jan 2025						
	Limit value: 0.025mg/m ³ for welding or plasma cutting processes or similar work processes that generate fume until 17 Jan 2025						
Cresols, all isomers	215-293-2	1319-77-3	5	22	-	-	IOELV, Skin
Cristobalite, respirable dust, see silica, crystalline							
Cumene, see Isopropylbenzene							
Cyanamide	206-992-3	420-04-2	0.58	1	-	-	IOELV, Skin, Sens
Cyclohexane	203-806-2	110-82-7	200	700	-	-	IOELV
Cyclohexanone	203-631-1	108-94-1	10	40.8	20	81.6	IOELV, Skin
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	IOELV, Skin
1,4-Dichlorobenzene	203-400-5	106-46-7	2	12	10	60	IOELV, Skin
1,1-Dichloroethane	200-863-5	75-34-3	100	412	-	-	IOELV, Skin
1,2-Dichloroethane, see Ethylene dichloride							
1,1-Dichloroethylene	200-864-0	75-35-4	2	8	5	20	IOELV
Dichloromethane (DCM) Methylene Chloride	200-838-9	75-09-2	100	353	200	706	IOELV, Skin
2,2'-Dichloro-4,4'-methylene-dianiline (MbOCA), see 4,4'-Methylene bis-(2-chloroaniline)							
Diesel Engine Exhaust Emissions (as elemental carbon)				0.05 (R)			Schedule 3, BOELV
	For underground mining and tunnel construction the limit value shall apply from 21 Feb 2026.						
Diethylamine	203-716-3	109-89-7	5	15	10	30	IOELV
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							



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
N,N'-Dimethylacetamide	204-826-4	127-19-5	10	36	20	72	BOELV, Skin, Repr 1B
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
N, N Dimethylformamide	200-679-5	68-12-2	5	15	10	30	BOELV, Skin, Repr 1B
1,4-Dioxane, tech grade	204-661-8	123-91-1	20	73	-	-	IOELV, Skin, Carc 1B
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	-	-	Skin, 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	40	104	IOELV, Skin
Ethanalamine, 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	-	-	BOELV, Skin, Repr 1B
2-Ethoxyethyl acetate	203-839-2	111-15-9	2	11	-	-	BOELV, Skin, Repr 1B
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, Skin, 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	IOELV, Skin
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, Skin, Carc.1B
Ethylene dichloride	203-458-1	107-06-2	2	8.2	-	-	BOELV, Skin, Carc.1B
Ethylene glycol, 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, Skin Carc.1B, Muta.1B, Repr 1B
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	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							
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	IOELV Skin
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	IOELV, Skin
Heptan-3-one	203-388-1	106-35-4	20	95	-	-	IOELV
n-Hexane	203-777-6	110-54-3	20	72	-	-	IOELV, Skin
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, Skin, 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, Skin

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Hydrogen fluoride (as F)	231-634-8	7664-39-3	1.8	1.5	3	2.5	IOELV, Skin
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 alcohol	204-633-5	123-51-3	5	18	10	37	IOELV
Isoamyl methyl ketone	203-737-8	110-12-3	20	95	-	-	IOELV
Isobutyl acetate	203-745-1	110-19-0	50	241	150	723	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	10	50	50	250	IOELV, Skin, Carc 1B
Inorganic Lead and its compounds		7439-92-1	-	0.15	-	-	BOELV, Repr.1A
Lithium hydride	231-484-3	7580-67-8	-	-	-	0.02 (l)	IOELV
Manganese and inorganic manganese compounds (as Mn)			-	0.2 (l) 0.05 (R)	-	-	IOELV
MDA, see 4-4'-methylenedianiline							
Mercury and divalent inorganic mercury compounds including mercuric oxide and mercuric chloride (measured as mercury)	-	7439-97-6	-	0.02	-	-	BOELV, Repr.1B
	During exposure monitoring for mercury and its divalent inorganic compounds, account should be taken of relevant biological monitoring techniques that complement the IOELV.						
Mesitylene (Trimethylbenzenes)	203-604-4	108-67-8	20	100	-	-	IOELV
Methanol	200-659-6	67-56-1	200	260	-	-	IOELV, Skin
2-Methoxyethanol	203-713-7	109-86-4	1	-	-	-	BOELV, Skin, Repr 1B,
2-(2-Methoxyethoxy) ethanol	203-906-6	111-77-3	10	50.1	-	-	IOELV, Skin
2-Methoxyethyl acetate	203-772-9	110-49-6	1	-	-	-	BOELV, Skin, Repr 1B,
2-Methoxy-1-methylethylacetate	203-603-9	108-65-6	50	275	100	550	IOELV, Skin
(2-Methoxymethylethoxy)-1-propanol	252-104-2	34590-94-8	50	308	-	-	IOELV, Skin
1-Methoxypropan-2-ol, see Propylene glycol monomethyl ether							
Methylacrylate	202-500-6	96-33-3	5	18	10	36	IOELV, Skin, 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, Carc 1B, Skin
Methylene chloride, see Dichloromethane							
4,4'-Methylenedianiline	202-974-4	101-77-9	-	0.08	-	-	BOELV, Skin, Carc.1B, Sens.
Methyl ethyl ketone (MEK)	201-159-0	78-93-3	200	600	300	900	IOELV, Skin
Methyl formate	203-481-7	107-31-3	50	125	100	250	IOELV, Skin
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	IOELV, Skin
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 (1-methyl-2-pyrrolidone)	212-828-1	872-50-4	10	40	20	80	BOELV, Skin
α-Methylstyrene, see 2-Phenylpropene							
Mineral oils that have been used before in internal combustion engines to lubricate and cool the moving parts within the engine	-	-	-	-	-	-	Schedule 5 Skin
Monochlorobenzene, see chlorobenzene							
Morpholine	203-815-1	110-91-8	10	36	20	72	IOELV, Skin



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Naphthalene	202-049-5	91-20-3	10	50	-	-	IOELV
Nickel compounds	-	-		0.01 (R) 0.05 (I)			Dermal and respiratory sensitisation
A limit value of 0.1 mg/m ³ (I) shall apply until 18th January 2025							
Nicotine	200-193-3	54-11-5	-	0.5	-	-	IOELV, Skin
Nitric Acid	231-714-2	7697-37-2	-	-	1	2.6	IOELV
Nitric oxide	233-271-0	10102-43-9	2	2.5	-	-	IOELV
Nitrobenzene	202-716-0	98-95-3	0.2	1	-	-	BOELV, Skin
Nitroethane	201-188-9	79-24-3	20	62	100	312	IOELV, Skin
Nitrogen dioxide	233-272-6	10102-44-0	0.5	0.96	1	1.91	IOELV
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	-	-	
neo-Pentane	207-343-7	463-82-1	1000	3000	-	-	
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	IOELV, Skin
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
Phosphoryl trichloride	233-046-7	10025-87-3	0.01	0.064	0.02	0.13	IOELV
Corrigendum to Commission Directive (EU) 2019/1831							
Picric acid	201-865-9	88-89-1	-	0.1	-	0.3	IOELV, Skin
Piperazine	203-808-3	110-85-0	-	0.1	-	0.3	IOELV, Sens
Platinum metal	231-116-1	7440-06-4	-	1	-	-	IOELV
Polycyclic aromatic hydrocarbon mixtures, particularly those containing benzo[a] pyrene							Skin
Potassium cyanide	205-792-3	151-50-8		1		5	IOELV, Skin
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	-	-	IOELV, Skin
Silica, crystalline, respirable dust, (Cristobalite, Quartz, Tridymite, Tripoli)	-	-		0.1			Schedule 3 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 NaN ₃)	247-852-1	26628-22-8	-	0.1	-	0.3	IOELV, Skin
Sodium cyanide (as cyanide)	205-599-4	143-33-9	-	1	-	5	IOELV, Skin
Sulphur dioxide	231-195-2	7446-09-5	0.5	1.3	1	2.7	IOELV
Sulphuric acid mist (thoracic fraction for sampling purposes)	231-639-5	7664-93-9	-	0.05 (T)	-	-	IOELV
When selecting an appropriate exposure monitoring method, account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds							
Sulphotep (TEDP) (ISO), see O,O,O',O'-Tetraethyl dithiopyrophosphate (ISO)							

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
TEDP(ISO), see O,O,O,O'-Tetraethyl dithio-pyrophosphate (ISO)							
Tetrachloroethylene	204-825-9	127-18-4	20	138	40	275	IOELV, Skin
Tetrachloromethane, see carbon tetrachloride							
O,O,O,O'-Tetraethyl dithio-pyrophosphate (ISO)	222-995-2	3689-24-5	-	0.1	-	-	IOELV, Skin
Tetraethyl orthosilicate, see Ethyl silicate							
Tetrahydrofuran	203-726-8	109-99-9	50	150	100	300	IOELV, Skin
Tin, as Sn	231-141-8	7440-31-5	-				IOELV
Metal			2				
Oxide & inorganic compounds, except tin hydride			2				
Organic compounds			0.1			0.2	
Toluene	203-625-9	108-88-3	50	192	100	384	IOELV, Skin
o-Toluidine	202-429-0	95-53-4	0.1	0.5	-	-	BOELV, Skin, Carc.1B
p-Toluidine (4-aminotoluene)	203-403-1	106-49-0	1	4.46	2	8.92	IOELV, Skin, Sens
1,2,4-Trichlorobenzene	204-428-0	120-82-1	2	15.1	5	37.8	IOELV, Skin
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, Skin, Carc.1B
Trichloromethane, see Chloroform							
Triethylamine	204-469-4	121-44-8	2	8.4	3	12.6	IOELV, Skin
Trimethylamine	200-875-0	75-50-3	2	4.9	5	12.5	IOELV
1,2,3-Trimethylbenzene	208-394-8	526-73-8	20	100	-	-	IOELV, Skin
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)	-	-		2			Schedule 3 BOELV, Sens
Xylene, mixed isomers	215-535-7	1330-20-7	50	221	100	442	IOELV, Skin,
Xylene, o-isomer	202-422-2	95-47-6	50	221	100	442	IOELV, Skin,
Xylene, m-isomer	203-576-3	108-38-3	50	221	100	442	IOELV, Skin,
Xylene, p-isomer	203-396-5	106-2-3	50	221	100	442	IOELV, Skin

SCHEDULE 2

List of Advisory Occupational Exposure Limit Values

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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	-	-	-
Acrylonitrile	203-466-5	107-13-1	2	4.5	-	-	Skin, Carc. 1B Sens
A new limit values shall apply from 5th April 2026. See Schedule 1							
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, (<i>Aspirin</i>)	200-064-1	50-78-2	-	5	-	-	-
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)	-	-	Skin,
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	-	Skin,
Allyl chloride	203-457-6	107-05-1	1	3	2	6	Skin,
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	-	-	-	-	Skin, 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 Perfluorooctanoate	223-320-4	3825-26-1	-	0.01	-	-	Skin,
Ammonium sulphamidate	231-871-7	7773-06-0	-	10	-	-	-
Sec-Amyl acetate, see 1-Methyl butyl acetate							
o-Anisidine	201-963-1	90-04-0	0.1	0.5	-	-	Skin, Carc.1B
p-Anisidine	203-254-2	104-94-9	0.1	0.5	-	-	Skin,
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							
Aziridine, see Ethylenimine							

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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[<i>a</i>]anthracene	200-280-6	56-55-3	-	-	-	-	Carc.1B
Benzenethiol	203-635-3	108-98-5	-	-	-	-	Skin
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride, see Trimellitic anhydride							
Benzidene	202-199-1	92-87-5	-	-	-	-	Skin, Carc.1A
Benzo[<i>β</i>]fluroanthene	205-911-9	205-99-2	-	-	-	-	Carc.1B
Benzo[<i>a</i>]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 (diboron trioxide)	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	Skin
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	-



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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	Skin
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., Skin
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	-	-	Skin
p-tert Butyltoluene	202-675-9	98-51-1	1	6.1	-	-	-
Caesium hydroxide	244-344-1	21351-79-1	-	2	-	-	-
Calcium carbonate total inhalable dust	215-279-6	1317-65-3	-	10	-	-	-
respirable dust			-	4	-	-	-
Calcium cyanamide	205-861-8	156-62-7	-	0.5	-	1	-
Calcium silicate Non fibrous particles	215-710-8	1344-95-2	-	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	-	-	Skin, 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	-	-	Skin, Carc. 1B
Cellulose			-	10	-	-	-
Cement (Portland) (See Portland cement)							
Chlordane (ISO)	200-349-0	57-74-9	-	0.5	-	-	Skin
Chlorinated biphenyls (42% chlorine)	215-648-1	53469-21-9	-	1	-	-	Skin
(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	-	Skin
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		Skin
Chlorobromomethane, see Bromochloromethane							
2-Chlorobuta-1,3-diene, see β-Chloroprene							
2-Chloroethanol, see Ethylene chlorohydrin							
Chloroethylene, see Vinyl chloride							
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	Skin

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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, Skin
3-Chloropropene, see Allyl chloride							
1-Chloro-2-propanol	204-819-6	127-00-4	1	-	-	-	-
2-Chloro-1-propanol		78-89-7					
2-Chloropropionic acid	209-952-3	598-78-7	0.1	-	-	-	Skin
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)	-	-	Skin
Citral	226-394-6	5392-40-5	5 (IFV)	-	-	-	-
Clopidol	221-008-2	2971-90-6	-	3	-	-	-
Coal dust, respirable dust	-	-	-	-	-	-	-
Anthracite				0.4 (R)			
Bituminous				0.9 (R)			
Coal tar pitch volatiles, (as cyclohexane solubles)	266-028-2	65996-93-2	-	0.2	-	-	Carc.1A, Muta.1B Repro.1B
Cobalt & cobalt compounds (as Co)	231-158-0	7440-48-4	-	0.02	-	-	Sens. Carc. 1B, Repr. 1B
Cobalt carbonyl as Co	233-514-0	10210-68-1	-	0.1	-	-	-
Copper (as Cu)	231-159-6	7440-50-8	-	0.2	-	-	-
Fume			-	1	-	-	-
Dusts and mists (as Cu)			-	2.5	-	-	-
Cotton dust (raw or waste cotton)	-	-	-	0.05 (IFV)	-	-	-
Coumaphos	-	56-72-4	-	0.05 (IFV)	-	-	-
Crotonaldehyde	224-030-0	4170-30-0	-	-	0.3	-	Skin
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	-	-	Skin
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	Skin
Demeton		8065-48-3	0.01	0.05 (IFV)	-	-	Skin
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							



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Diacetone alcohol	204-626-7	123-42-2	50	240	-	-	-
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[S2O3]) 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)	-	-	Skin
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	-	-	Skin
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	-	-	Skin
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	-	-	Skin, 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	Skin
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	-	-	Skin, 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	-	-	Skin, 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	Skin, Sens.
Dicrotophos	205-494-3	141-66-2	-	0.05 (IFV)	-	-	Skin
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	-	-	Skin
Diesel fuel/kerosene			-	100	-	-	Skin
Diethanolamine	203-868-0	111-42-2	0.2	1(IFV)	-	-	-
2-Diethylaminoethanol	202-845-2	100-37-8	2	-	-	-	Skin
Diethylene glycol	203-872-2	111-46-6	23	100	-	-	-
Diethylene triamine	203-865-4	111-40-0	1	4	-	-	Skin
Di-(2-ethylhexyl) phthalate, see Di-sec-octyl-phthalate							
N, N-Diethylhydroxylamine	223-055-4	3710-84-7	2	-	-	-	-

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Diethyl ketone, see Pentan-3-one							
Diethyl phthalate	201-550-6		-	5	-	10	-
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	-	-	Skin
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	Skin
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	Skin, 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	Skin
Dinitro-o-cresol	208-601-1	534-52-1	-	0.2	-	-	Skin, Sens.
Dinitrotoluene	246-836-1	25321-14-6	-	0.2	-	-	Carc.1B, Skin
Dinonyl phthalate	201-560-0	84-76-4	-	5	-	-	-
Dioxathion (ISO)	201-107-7	78-34-2	-	0.1 (IFV)	-	-	Skin
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 [S ₂ O ₈]); 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	0.3	5	0.6	10	Repr. 1B, Skin
Disodium disulphite	231-673-0	7681-57-4	-	5	-	-	-
Disodium peroxodisulphate (measured as S ₂ O ₈); see Persulphate salts, sodium							
Disodium tetraborate, anhydrous, decahydrate & pentahydrate, see Borates (tetra) sodium							
Disulfram	202-607-8	97-77-8	-	2	-	-	-
Disulfoton (ISO)	206-054-3	298-04-4	-	0.05 (IFV)	-	-	Skin
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	-	-	Carc. 1B
Divanadium pentaoxide (as V), total inhalable fraction	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.



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Dusts non-specific total inhalable respirable	-	-	-	10	-	-	-
			-	4	-	-	-
Emery total inhalable dust respirable dust	-	1302-74-5	-	10	-	-	-
			-	4	-	-	-
Endosulfan (ISO)	204-079-4	115-29-7	-	0.1	-	0.3	Skin
Endrin (ISO)	200-775-7	72-20-8	-	0.1	-	-	Skin
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	-	-	Skin
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	Skin
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	-	-	Skin
Ethylenimine	205-793-9	151-56-4	0.05	0.1	-	-	Skin, 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	Skin
Fenamiphos (ISO)Ethyl-4-methylthio-m-tolyl isopropyl phosphoramidate))	244-848-1	22224-92-6	-	0.05	-	-	-
Fenchlorphos (ISO), see Ronnel							
Fensulfothion (ISO) (O,O-Diethyl O-4-methylsulfanylphenyl 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	-	-	-
Ferrovandium 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, Skin

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
2-Furaldehyde (Furfural)	202-627-7	98-01-1	2	8	5	20	Skin
Furfuryl alcohol	202-626-1	98-00-0	10	40	15	60	Skin
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
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	-	-	Skin, Sens.
Gypsum		10101-41-4					
total inhalable dust			-	10	-	-	-
respirable dust			-	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	-	-	Skin
Heptachlor epoxide	213-831-0	1024-57-3	-	0.05	-	-	-
Hexachlorobutadiene	201-765-5	87-68-3	0.02	0.21	-	-	Skin
γ-Hexachlorocyclohexane	210-168-9	608-73-1	-	0.5	-	1.5	Skin
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	-	-	Skin
Hexafluoroacetone	211-676-3	684-16-2	0.1	0.68	-	-	Skin
Hexafluoropropene	204-127-4	116-15-4	0.1	-	-	-	-
(Hexafluoropropylene)							
Hexahydrophthalic anhydride	201-604-9	85-42-7	-	-	-	0.005	Sens.
All isomers (Inhalable)	236-086-3	13149-00-3					
	238-009-9	14166-21-3					
Hexahydro-1,3,5-trinitro-1,3,5-triazine	204-500-1	121-82-4	0.5	-	-	-	Skin
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	-	-	Skin
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	-	-	Skin, 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)		0.1		-
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	-
Isobutyl alcohol (2-methylpropan-1-ol)	201-148-0	78-83-1	150	700	-	-	-
Isobutyl nitrite	208-819-7	542-56-3	-	-	1	-	-



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Isocyanates, All, (as -NCO) except Methyl isocyanate (CAS No. 624-83-9) and Toluene (2,4 or 2,6 diisocyanate (CAS No. 584-84-9, 91-08-7)	-	-	-	0.02	-	0.07	Sens.
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	-	-	Skin
Isopropyl alcohol	200-661-7	67-63-0	200	-	400	-	Skin
Isopropylamine	200-860-9	75-31-0	5	12	10	24	-
n-Isopropylaniline	212-196-7	768-52-5	2	11	-	-	Skin
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 respirable dust	215-171-9	1309-48-4	-	4	-	-	-
fume			-	5	-	10	-
total inhalable dust			-	10	-	-	-
Malathion (ISO)	204-497-7	121-75-5	-	1 (IFV)	-	-	Skin, 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) 0.02 (R)	-	3	-
Manganese cyclopentadienyl tricarbonyl	235-142-4	12079-65-1	-	0.1	-	0.3	Skin
Manganese tetraoxide, see Trimanganese tetraoxide							
Machine made mineral fibre (excluding refractory ceramic fibres) (MMMF)	-	-	1 fibres / ml of air	5	-	-	-
Marble, see Calcium carbonate							
Mequinol, see 4-methoxyphenol							
Mercaptoacetic acid	200-677-4	68-11-1	1	5	-	-	-
Mercury alkyls (as Hg)	-	-	-	0.01	-	0.03	Skin
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	-	-	Skin
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	-	-	Skin
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	-	-	Skin
Methyl bromide, See Bromomethane							

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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	Skin
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	-	-	Skin, Carc.1B
Methyl iodide	200-819-5	74-88-4	2	11	-	-	Skin
Methyl isobutyl carbinol	203-551-7	108-11-2	25	100	40	160	Skin
Methyl isopropyl ketone	209-264-3	563-80-4	20	70.5	-	-	-
Methyl mercaptan, see Methanethiol							
1-Methylnaphthalene	201-966-8	90-12-0	0.5	-	-	-	-
2-Methylnaphthalene	202-078-3	91-57-6					
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	-	Skin, Sens.
Metribuzin	244-209-7	21087-64-9	-	5	-	-	-
Mevinphos (ISO)	232-095-1	7786-34-7	0.01	0.1	-	-	Skin
Mica	-	12001-26-2	-	3 (R)	-	-	-
Mineral oil Pure, Highly & Severely Refined (Inhalable)	-	-	-	5	-	-	-
Mineral wool	-	-	2 fibres /ml of air	5	-	-	-
Molybdenum compounds (as Mo), soluble compounds	231-107-2	7439-98-7	-	0.5 (R)	-	-	-
insoluble compounds	231-107-2	7439-98-7	-	10 (I) 3 (R)	-	-	-
Monochloroacetic acid	201-178-4	79-11-8	0.5(IFV)	2	-	-	Skin
Monocrotophos	230-042-7	6923-22-4	-	0.05	-	-	Skin
Naled (ISO), see 1,2 dibromo-2, 2 dichloro ethyl dimethyl phosphate							
Naphtha (rubber solvent)	232-443-2	8030-30-6	-	-	-	-	Carc.1B Muta.1B
β-Naphthylamine	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.
Nitrapyrin	217-682-2	1929-82-4	-	10	-	20	-
4-Nitroaniline	202-810-1	100-01-6	-	3	-	-	Skin
4-Nitrodiphenyl	202-204-7	92-93-3	-	-	-	-	Skin, Carc.1B



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Nitrogen	231-783-9	7727-37-9	-	-	-	-	Asphx.
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	Skin
n-Octane	203-892-1	111-65-9	300	1450	-	-	-
Osmium tetroxide (as Os)	244-058-7	20816-12-0	0.0002	0.002	0.0006	0.006	-
Oxaloniitrile, 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)	-	-	Skin
Parathion-methyl (ISO)	206-050-1	298-00-0	-	0.02 (IFV)	-	-	Skin
Pentaborane	243-194-4	19624-22-7	0.005	0.01	0.015	0.039	-
Pentachloronaphthalene	215-320-8	1321-64-8	-	0.5	-	-	Skin
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	-	-	Skin
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	-	-	Skin
Phenyl-2,3-epoxypropyl ether	204-557-2	122-60-1	0.1	0.6	-	-	Carc.1B

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Phenylethylene, see Styrene							
Phenyl glycidyl ether, see Phenyl-2,3-epoxypropyl ether							
Phenylhydrazine	202-873-5	100-63-0	0.1	0.44	-	-	Carc.1B, Skin
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	Skin
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	-
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	-	-	Skin
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	-	-	-	Skin
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]	203-686-1 108-21-4	109-60-4 100	-	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	-	-	Skin
Propylene dichloride	201-152-2	78-87-5	10	46	-	-	Carc. 1B
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	Skin
Pulverised fuel ash	-	-	-	-	-	-	-
total inhalable dust			-	10	-	-	-
respirable			-	4	-	-	-
2-Pyridylamine, see 2-Amino pyridine							
Pyrocatechol, see Catechol							



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Quinone	203-405-2	106-51-4	0.1	0.4	-	-	-
RDX, see hexahydro-1,3,5- trinitro-1,3,5-triazine							
Rhodium (as Rh), metal fume and dust soluble salts	231-125-0	7440-16-6	-	0.1 0.001	-	0.3 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	-	10 4	-	-	- -
Rubber fume process dust	-	-	-	0.6 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 respirable dust	-	-	-	6 2.4	-	-	- -
Silica, fused respirable dust	-	60676-86-0	-	0.08	-	-	-
Silicon Si	231-130-8	7440-21-3	-	10 4	-	-	- -
Silicon carbide total inhalable dust respirable dust fibrous	206-991-8	409-21-2	-	10 3 0.1 fibre/cm ³	-	-	Carc. 1B - -
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	-	-	Skin
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	-	10 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 crystalline 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)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
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	-
TEPP (ISO), see O,O,O',O'- Tetraethyl pyrophosphate							
TNT, see 2,4,6- trinitrotoluene							
Talc	238-877-9	14807-96-6	-	-	-	-	-
total inhalable dust			-	10	-	-	-
respirable dust			-	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)	-	-	-	Skin
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	-	-	Skin
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	-	-	Skin
Tetraethyl lead	201-075-4	78-00-2	-	0.10	-	-	Skin
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	-	-	Skin, Repr.1A
Tetramethyl orthosilicate, see Methyl silicate							
Tetramethyl succinonitrile	-	3333-52-6	0.5	3	-	-	Skin
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	Skin
Thallium and compounds (as Tl)	231-138-1	7440-28-0	-	0.02	-	-	Skin
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	236-675-5	13463-67-7	-	-	-	-	-
total inhalable dust			-	10	-	-	-
respirable dust			-	4	-	-	-
o-Tolidine	204-358-0	119-93-7	-	-	-	-	Skin, Carc.1B
Toluene-2,4- or 2,6- diisocyanate (as -NCO)	209-544-5 91-08-7	584-84-9	0.001 (IFV)	-	0.003 (IFV)	-	Sens.
p-Toluenesulphonyl chloride	202-684-8	98-59-9	-	-	-	5	-
m-Toluidine	203-583-1	108-44-1	0.2	0.9	-	-	Skin
1,4,7-Tri-(aza)-heptane, see Diethylene triamine							



Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Tribromomethane	200-854-6	75-25-2	0.5	5	-	-	Skin
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	-	-	Skin
Trichloroacetic acid	200-927-2	76-03-9	0.5	-	-	-	-
1,1,1-Trichloroethyl (chlorophenyl) ethane	200-024-3	50-29-3	-	1	-	-	-
1,1,2-Trichloroethane	201-166-9	79-00-5	10	45	-	-	Skin
Trichlorofluoromethane	200-892-3	75-69-4	-	-	1000	5619	-
Trichloronaphthalene	215-321-3	1321-65-9	-	5	-	-	Skin
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)	-	-	-
Triorthocresyl phosphate	201-103-5	78-30-8	-	0.02 (IFV)	-	-	-
Tripacresyl 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	-	-	Skin
Triorthocresyl phosphate, see Tri-o-tolyl phosphate,							
Triphenyl phosphate	204-112-2	115-86-6	-	3	-	-	-
		1317-95-9	-	0.1	-	-	-
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	-	10	-
			-	1	-	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 pentoxide							
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							
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	-	-	Skin
Yttrium	231-174-8	7440-65-5	-	1	-	3	-
Zinc chloride, fume	231-592-0	7646-85-7	-	1	-	2	-

Substance	EC No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
			ppm	mg/m ³	ppm	mg/m ³	
Zinc chromates	236-878-9	13530-65-9	-	-	-	-	Carc.1A
Zinc distearate	209-151-9	557-05-1	-	10	-	20	-
total inhalable dust			-	4	-	-	-
respirable dust			-		-		-
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 or change an Occupational Exposure Limit Value (OELV) or Biological Limit Value (BLV).

Comments concerning any of the limit values proposed may be made in writing to the Health and Safety Authority, Programme Manager, Occupational Health Division, Metropolitan Building, James Joyce Street, Dublin 1,

Lo call: **0818 289 389** or e-mail **contactus@hsa.ie**

OELVs

Substance	EC No.	CAS No.	2024 OELV (8-hour)	Proposed/New OELV (8 hour)	Notes
1,4 Dioxane	204-661-8	123-91-1	OEL 20ppm, 73mg/m ³	OEL 7.3mg/m ³ , (2ppm) STEL 73mg/m ³ , (20ppm)	BLV proposed Skin
Acetonitrile	200-835-2	75-05-8	40ppm, 70mg/m ³		Under review
Asbestos	Various	Various	0.1fibres/cm ³	(a) 0.002 fibres/cm ³ Or (b) 0.01 fibres/cm ³	See Directive 2023/2668
4-tert-Butylbenzoic acid	202-696-3	98-73-7	None	0.1mg/m ³ (I)	Skin, Repr. 1B
Cobalt and inorganic cobalt compounds	231-158-0	7440-48-4	0.02mg/m ³ , Sens	0.0005 mg Co/m ³ R 0.001 mg Co/m ³ (I)	BGV proposed Skin, Sensitisation Respiratory Sensitisation Carc.1B, Repr.1B
Cyclopentadiene	208-835-4	542-92-7	75ppm, 203mg/m ³	Withdraw OELV	Include with Dicyclopentadiene
Dicyclopentadiene including Cyclopentadiene	201-052-9 208-835-4	77-73-6 542-92-7	5ppm 30mg/m ³	0.05ppm 1ppm(STEL)	Include with Cyclopentadiene
Cyclohexene	203-807-8	110-83-8	300ppm, 1015mg/m ³	20ppm	
Diisocyanates (measured as NCO)	Various	Various	Various	10 µg/m ³ 20 µg/m ³ (STEL)	See Legislative Observatory 2023/0033(COD) BOELV, Skin, Sensitisation
A limit value of 6 µg NCO/m ³ in relation to a reference period of eight hours and a short-term exposure limit value of 12 µg NCO/m ³ shall apply from 1 January 2029					
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	Skin, Repr. 1B
Formamide	200-842-0	75-12-7	10ppm, 18mg/m ³	1ppm	Skin, Repr. 1B
Hexamethylenetetramine	202-905-8	100-97-0	None	1mg/m ³ (I)	Sens
Hexazinone	257-074-4	51235-04-2	None	3mg/m ³ (I)	
Isoflurane	247-897-7	26675-46-7	50ppm, 380mg/m ³	5ppm	
Isoprene	201-143-3	78-79-5	-	8.5mg/m ³ , 3ppm	Carc.1B
Lead and its inorganic compounds	Various	Various	0.15mg/m ³	0.03mg/m ³ (I)	BOELV Non threshold reprotoxic substance. See Legislative Observatory 2023/0033(COD)
Methyl isobutyl carbinol	203-551-7	108-11-2	25ppm, 100mg/m ³ STEL 40ppm, 160mg/m ³	20ppm STEL same	Skin
Polycyclic Aromatic Hydrocarbons	Various	Various			Skin, BLV and BGV
Styrene	202-851-5	100-42-5	20ppm, 85mg/m ³ STEL 40ppm, 170mg/m ³	10ppm STEL 20ppm	
Styrene oxide	202-476-7	96-09-3	None	1ppm	Skin, Sens
Sulphur pentafluoride (Disulphur decafluoride)	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	
Welding fumes	-	-	Limit values for constituents of fume		Addition to Schedule 4 as a carcinogen

BLVs

Lead and its ionic compounds		
	blood-lead level (PbB)	
Current	70 µg Pb/100 ml	Current
Proposed	30 µg Pb/100 ml	Until 31 December 2028
Proposed	15 µg Pb/100 ml	From 1 January 2029
Note 1	Transitional arrangements to be put in place in relation to current employees	

Note

As part of the process for establishing occupational exposure limits (OELs), ECHA prepares a scientific report for consideration by the Committee for Risk Assessment (RAC). With the information provided during the consultations, ECHA's report forms the annex of the RAC opinion discussed in the RAC plenary meetings. Consultations are held to allow parties to comment on the report and to support RAC in adopting an opinion on occupational exposure limits.

Consultations on OEL recommendations are available on the ECHA Website - <https://www.echa.europa.eu/oels-pc-on-oel-recommendation>

The table <https://echa.europa.eu/oels-activity-list> provides up-to-date information on the activities planned, ongoing or completed by ECHA in relation to its work on occupational exposure limits.



SCHEDULE 4

List of Carcinogenic Substances, Mixtures and Processes

1. Manufacture of auramine.
2. Work involving exposure to polycyclic aromatic hydrocarbons present in coal soot, coal tar or coal pitch.
3. Work involving exposure to dusts, fumes and sprays produced during the roasting and electro-refining of cupro-nickel mattes.
4. Strong acid process in the manufacture of isopropyl alcohol.
5. Work involving exposure to hardwood dusts.
6. Work involving exposure to respirable crystalline silica dust 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.

SCHEDULE 5

Health Surveillance and Biological Limit Values

A Practical Recommendations for the Health Surveillance of Employees

1. The health surveillance of employees must include at least the following measures:
 - a. keeping records of an employee's medical and occupational history,
 - b. a personal interview,
 - c. where appropriate, biological monitoring, as well as detection of early and reversible effects.

Further tests may be decided upon for each employee when they are the subject of health surveillance, in the light of the most recent knowledge available to occupational medicine.

2. The health surveillance of employees, where carried out by a responsible medical practitioner, must be carried out in accordance with the principles and practices of occupational medicine.
3. The responsible medical practitioner must be familiar with the exposure conditions or circumstances of each employee.

B Binding Biological Limit Values

Health surveillance shall be mandatory for employees when a biological limit value for a hazardous chemical agent is listed here and it shall be the duty of the employer to ensure that employees are informed of this requirement before being assigned to a task involving risk of exposure to a hazardous chemical agent for which a biological limit value is listed.

Lead and its ionic compounds

Biological monitoring must include measuring the blood-lead level (PbB) using absorption spectrometry or a method giving equivalent results.

The binding biological limit value is: 70 µg Pb/100 ml blood.

Health surveillance is carried out if:

- a. exposure to a concentration of lead in air is greater than 0.075 mg/m³, calculated as a time-weighted average over 40 hours per week,
or
- b. a blood-lead level greater than 40µg Pb/100 ml blood is measured in individual employees.

Further Information and Guidance:

Visit our website at www.hsa.ie, telephone our contact centre on **0818 289 389**
or email contactus@hsa.ie

Use Farmsafely.com, our free online farm risk assessment tool, or use BeSMART, our free online
risk assessment tool at www.besmart.ie

Check out our range of free online courses at www.hslearning.ie

The logo for the Health and Safety Authority (HSA) features the letters 'HSA' in a bold, serif font. The 'H' and 'S' are dark blue, while the 'A' is orange. A thin orange horizontal line is positioned below the letters.

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*Our Vision:
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Tel. 0818 289 389

International
Callers

00353 1 6147000

www.hsa.ie

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