

Respirator Filter Selection Guide

3M

Introduction

The information in this Guide is correct as at April 2013, and should be used in conjunction with general occupational hygiene knowledge.

The actual workplace conditions will vary from one worksite to another. This information is intended only as a guide. Selection of the most appropriate RPE will depend on the particular situation and should be made only by a competent person familiar with the working conditions and limitations of RPE.

If you have any questions relating to the proper selection and use of 3M respirators, or the use of this Guide, contact your local 3M OH&ES representative or call the 3M Health and Safety Helpline on 0870 60 800 60 in the UK, or 1800 320 500 in Ireland.

Respiratory Protective Equipment Selection

This Respirator Filter Selection Guide provides information on the appropriate 3M™ Filters to be used when using 3M Negative Pressure and Powered Air respirators for nearly 700 chemicals. The guide also includes Workplace Exposure Limits (WELs) for these substances, a brief summary of their acute effects, and if the 3M™ Monitor badges may be used to determine personal exposures.

Selection of RPE: Risk Assessment

Before selecting RPE, a full risk assessment must be performed. If the risk assessment concludes that control of personal exposure is inadequate, employers must introduce preventative or control measures. If control of exposure is still deemed inadequate after the measures have been introduced, RPE may be used as the last resort.

If the risk assessment recommends RPE to be worn, and once the workplace contaminants and their concentrations have been identified, this guide can be used to help select appropriate 3M Filters for use with 3M Negative Pressure and Powered Air respirators.

RESPIRATORY PROTECTIVE EQUIPMENT PROGRAMME

Four Step Guide

Before selecting Respiratory Protective Equipment (RPE), a full risk assessment must be carried out in accordance with the relevant health and safety legislation. Where respirators are used in the workplace, a formal RPE programme should be implemented. It should include:

- Identification of the hazard and risk assessment.
- Education and training must be properly emphasised and conducted.
- Maintenance, cleaning and storage programmes must be established and routinely followed for reusable respirators.
- The whole programme must also be reviewed at regular intervals.

To correctly select RPE four basic steps should be followed:

1. Identify the potential hazard.

Before any selection of respiratory protective equipment can be made, it is important to identify the hazard against which you wish to protect. These hazards can be divided into dusts, mists, fumes, gases and vapours. Consideration may need to be given to oxygen deficiency and even extremes of temperature. No respirator is ideal for all these types of hazard. For example, respirators fitted with dust filters will not protect against gases or vapours and gas/vapour filters will not protect against dusts.

2. Understand and assess the contaminant's potential health effects.

Once the material against which you wish to provide protection has been identified, it is important to understand how that contaminant may affect your body. This information forms a vital part of the training the users receive and allows them to understand why they should wear the equipment provided. Also assess the level of contaminant in the workplace versus its Workplace Exposure Limit (WEL).

3. Select the appropriate Respiratory Protective Equipment (RPE).

The RPE comes in a wide variety of types, each suitable for a particular range of applications. Although the type of application of certain RPE may overlap, no respirator is ideal for all applications and care should be taken to understand the limitations of any respirator before selection. The respirator selected must be correct for the work, the environment and the wearer, and not interfere with other PPE.

4. Train the employees in the use and care of the respirator.

Once the respirator has been correctly selected for a hazard, the application and the individual wearer, it is essential to train the wearer in the correct fitting, use, maintenance and care of the respirator. It is also important to demonstrate the fitting of the respirator and how to conduct a face fit check. A Face Fit test should be performed on wearers of respirators with tight fitting facepieces i.e. disposable respirators and reusable half or full face masks.

SELECTION OF THE APPROPRIATE TYPE OF RPE

The nature of the hazard will determine the type of RPE chosen. RPE is designed specifically to deal with particular hazards, or a combination of hazards. Dust respirators provide no protection from the effects of solvent vapour just as a vapour respirator provides no respiratory protection against dusts. It is therefore essential that the RPE is correctly selected as a result of an accurate assessment.

Summary of the types of RPE

There are many types of RPE, but these can be broadly categorised into two types, 1) Air-filtering and 2) Air-supplying equipment.

1. Air-filtering Equipment

Equipment which takes in air from the work area and filters or cleans it before it is inhaled. These devices are referred to as air-filtering devices and rely on lung power (negative pressure respirator) or an external power source to draw contaminated air through a filter providing clean air to the breathing zone (powered air respirators).

2. Air-Supplying Equipment

Equipment which delivers uncontaminated air from an independent source to the wearer.

Gas and Vapour Negative Pressure Respirator Filters

Type A: For use against certain organic gases and vapours with a boiling point higher than 65°C as specified by the manufacturer.

A filters, whatever the class, are required to be marked with at least the filter type, the colour code Brown together with the filter class, e.g., A2.

Type B: For use against certain inorganic gases and vapours as specified by the manufacturer (excluding CO).

B filters, whatever the class, are required to be marked with at least the filter type, the colour code Grey together with the filter class, e.g., B1

Type E: For use against sulphur dioxide and other acidic gases and vapours as specified by the manufacturer.

E filters, whatever the class, are required to be marked with at least the filter type, the colour code Yellow together with the filter class, e.g., E1

Type K: For use against ammonia and organic ammonia derivatives as specified by the manufacturer.

K filters, whatever the class, are required to be marked with at least the filter type, the colour code Green, together with the filter class, e.g., K2.

Type Hg-P3: For use against mercury. The filter incorporates a particulate filter. The filter must be marked with at least the filter type, the colour code Red-White, together with the filter class, e.g., Hg-P3.

AX filters are for use against certain low boiling organic compounds. They are classified as in only one type and class, AX.

Combined filters for use against certain low boiling organic compounds, as specified by the manufacturer, and particles are classified according to their particle efficiency: Types AXP1, AXP2 and AXP3.

AX filters should only be fitted to the 3M full face masks.

There is no AX filter available for 3M Powered Respirators.

AX filters must be marked with at least the filter type, the colour code Brown together with the filter class. AXP3 filters are colour coded Brown-White.

Filter Combinations

If a filter is a combination of types, it shall meet the requirements of each type separately. The filter must also be marked with at least the filter type, and with each colour code. For example an ABEK2P3 filter will be marked, Brown, Grey, Yellow, Green and White.

RESPIRATOR CHARACTERISTICS, CAPABILITIES & LIMITATIONS

Limitations of RPE

A respirator may not be able to protect against all of the contaminants present in a particular work environment. Specific limitations are stated on the packaging and are included with use instructions and limitations. These must be carefully reviewed for each respirator before use. General precautionary information is given below. Refer to respirator packaging or operating manuals for specific information.

No respirator is capable of preventing all airborne contaminants from entering the wearer's breathing zone. RPE helps protect against airborne contaminants by reducing airborne contaminant concentrations in the breathing zone to below the WEL or other recommended exposure level. Misuse of respirators may result in over exposure to the contaminant and cause sickness or disability. For this reason, proper respirator selection, training, use and maintenance is required for the wearer to be properly protected.

General Use Instructions for RPE

- Failure to follow all instructions and limitations on the use of these respirators and/or failure to wear them during all times of exposure can reduce respirator effectiveness and may result in sickness or disability.
- Many of the contaminants which can be hazardous to a person's health include the ones that are so small they cannot be seen or smelled at dangerous levels.
- Before use of any respirator, the wearer must first be trained by the employer in proper respirator use in accordance with applicable safety and health regulations.
- Leave the contaminated area immediately if dizziness or other distress occurs, if the respirator becomes damaged or breathing becomes difficult, if contaminants can be smelled or tasted, or if irritation occurs.

Always be sure that the respirator is:

- Suitable for the job
- Fitted properly on the face
- Worn for entire work period
- Replaced when necessary

General Use Limitations:

- Air-filtering or purifying respirators do not supply oxygen, they simply filter out contaminants.
- Do not use when concentrations of contaminants are immediately dangerous to life or health, when concentrations are unknown, when concentrations exceed maximum use concentrations established by regulatory agencies or in atmospheres containing less than 19.5% oxygen (3M definition. Individual countries may apply their own limits on oxygen deficiency. Please seek advice if in doubt).
- Do not abuse or misuse any respirator.
- Do not use tight fitting RPE with beards, facial hair, or conditions that prevent direct contact between the face and the edge of the respirator.
- Mixtures of chemicals need to be treated with care as the effects of mixtures of chemicals can be additive or even synergistic. In all cases the HSE publication EH40 should be consulted for the treatment and calculation of combining WELs.
- Approvals and WELs may vary from country to country and from time to time. UK, Eire and European legislation should be consulted before using this guide. The USA and Canada use different criteria for selection and this guide is therefore not valid in the USA or Canada.
- Specialist protective equipment not described in this guide may be required for use against chemicals with poor warning properties, areas potentially deficient in oxygen (less than 19.5%) and concentrations of contaminant Immediately Dangerous to Life or Health (IDLH). In these cases your local 3M OH&ES representative or the 3M Health and Safety Helpline (0870 60 800 60 UK or 1800 320 500 Ireland) should be consulted for further advice.
- All information contained in the table and these notes has been compiled using reasonable skill and diligence and is offered in good faith, but 3M can accept no responsibility for any errors or omissions contained in this guide.

Caution: as with any respirator, incorrect use or failure to follow the instructions given could result in severe illness or permanent disability due to exposure to hazardous atmosphere. If in doubt about how to use the respirator, check with your supervisor or contact 3M.

Effects From Skin or Eye contact

If a chemical can be absorbed through the skin or eyes additional protection may be required.

LIMITATION OF FILTERS

Chemical Filters

Chemical filters are used on respirators to help remove and lower worker exposures to harmful gases and vapours in the workplace. There are several types of chemical filters:

- Organic vapour.
- Inorganic vapour.
- Acid gases.
- Ammonia.
- Formaldehyde.
- Mercury vapour.

It is important to understand how the different filter types work. All chemical filters consist of a container filled with a *sorbent*. A chemical filter *sorbent* is a granular porous material that interacts with the gas or vapour molecule to remove it from the air. Typically this sorbent is *activated carbon* or activated charcoal. *Activated carbon* is an amorphous form of carbon characterised by high adsorptivity for many gases and vapours.

The carbon for respirators usually comes from coconut shells or coal. The carbon is 'activated' by heating it to 800-900^{o}C with heat or steam, which results in a porous internal structure (honeycomb-like). The internal surface area of activated carbon averages over 900 metres square per gramme.

Adsorption of Chemicals

This large surface area makes activated carbon ideal for the removal of organic vapours by adsorption. Adsorption is the adherence of gas or vapour molecules to the surface of the activated carbon. The attractive force between the activated carbon and the chemical molecule is a relatively small, weak physical force. The strength of the attraction depends in part on the chemical. Since only weak physical forces are involved, the process can be reversed. This is called desorption.

Desorption & Migration of Chemicals

Desorption is the process of an adsorbed material "letting go" from the activated carbon. Desorption can occur naturally during periods of non-use or by the presence of another more strongly adsorbed substance displacing a less strongly adsorbed chemical (i.e., a more volatile chemical). Generally, the more volatile the chemical the less strongly adsorbed, or the more likely it will undergo desorption. Desorption during storage or non-use times can result in chemical migration. Migration is the movement of a previously adsorbed chemical through the chemical filter, even without air movement.

Variables that appear to impact migration include:

- Volatility – the more volatile the chemicals, the greater the concern for migration.
- Water vapour co-adsorption – co-adsorption [from use in atmospheres with high relative humidity (>50%)] can increase the migration effect.
- Amount of material adsorbed onto the filter in the first use.
- Storage time.
- Vapour type.

The potentials for desorption and migration makes reuse of organic vapour filters a concern. Not only are the more volatile chemicals more likely to desorb but the capacity of the carbon is generally lower for these chemicals. This includes many inorganic gases and organic vapours. Inorganic gas desorption is prevented by the use of special filters. For organic vapours Europe uses a boiling point of less than 65^{o}C as a guideline for identifying the more volatile chemicals. These chemicals are often classified as low boiling chemicals. Typical organic vapour filters would be expected to have lower capacity for these materials and desorption could be a major concern.

Chemisorption

To make the filters more selective for certain chemicals, sorbents can be impregnated with chemical reagents. Impregnated activated carbon removes specific gas and vapour molecules by chemisorption. Chemisorption is the formation of bonds between molecules of the impregnate and the chemical contaminant. These bonds are much stronger than the attractive forces of physical adsorption. The binding is usually irreversible. Reuse of chemical filters that work on the principle of chemisorption typically should not be a problem. In combination chemical filters, such as organic vapours and acid gases, the organic vapours are predominantly removed by adsorption.

HOW TO USE THE RESPIRATOR FILTER SELECTION GUIDE

The Respirator Filter Selection Guide lists appropriate 3M filters for 3M Negative Pressure and Powered Air Respirators for nearly 700 substances.

As many of the substances have synonyms commonly in use, **APPENDIX 1** presents a list of substances which are listed in this guide under another name. For example Isopropyl alcohol is listed as Propan-2-ol.

APPENDIX 2 presents the CAS numbers for the substances listed in the guide.

Terminology used in the Guide

Workplace Exposure Limits (WEL)

The WELs listed in this guide are from the HSE publication: EH40/2002 Occupational Exposure Limits 2005, unless otherwise stated.

If a chemical was not listed in EH40/2005, the Threshold Limit Values (TLV) published in the 2006 American Conference of Governmental Industrial Hygienists (ACGIH) were used. If there was no published ACGIH TLV available, the 2006 Workplace Environmental Exposure Levels (WEEL) from the American Industrial Hygiene Association (AIHA) were used.

Substances not assigned WEL

EH40/2005 states that: the absence of a substance from the lists of WELs does not indicate that it is safe. In these cases exposure should be controlled to a level to which nearly all the working population could be exposed, day after day at work, without adverse effects on health. In some cases there may be sufficient information to set a self-imposed working standard.

If no WEL were listed in either of the sources, for a dust a WEL of 10 milligrams per cubic metre (mg/m^3) 8 hour TWA has been assigned (Total Inhalable Dust). These substances are listed in the guide as WEL 10 mg/m^3.

Worker's exposure must be kept below the WEL. Additionally, exposure to substance identified as causing cancer, sensitisation or heritable genetic damage must be reduced to as low a level as is reasonably practicable.

Threshold Limit Values

The TLVs from the ACGIH refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects.

Units of Measurement

The concentrations are expressed in:

- ppm (parts per million)
- mg/m^3 (milligrams per cubic metre)
- f/ ml (fibres per millilitre).

Concentrations measured in mg/m^3 in this guide refer to the Total Inhalable Dust (TID) fraction unless otherwise stated. The WELs are approved for use where the atmospheric pressure is between 900 and 1100 millibars.

HOW TO USE THE RESPIRATOR FILTER SELECTION GUIDE (cont.)

WEL Reference Periods

There are two reference periods for which the WELs may be set; 8 hour Time Weighted Average (TWA) and 15 minute Short Term Exposure Limit (STEL). A substance may be assigned WELs set at either one or both reference periods.

- **8 hour TWA** - Some adverse health effects require prolonged or accumulated exposure. The 8 hour TWA is to set to control these effects by restricting the total intake by inhalation over one or more shifts.
- **15 minute STEL** - Some adverse health effects may be seen after short exposures. 15 minute STEL may be applied to control these effects. For a substance assigned a 15 minute STEL MEL, this level of exposure should never be exceeded.

In addition to the 2 reference periods above other reference periods apply.

Immediately Dangerous to Life or Health (IDLH)

This is the concentration considered Immediately Dangerous to Life or Health (IDLH) as defined by the National Institute for Occupational Safety and Health (NIOSH) in their 1994 publication (PB-94-195047). NIOSH defines IDLH concentration as "that poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment."

Odour Threshold

The method of defining and determining odour thresholds varies widely, thereby giving rise to a significant range of reported odour thresholds for many substances. Individuals may also respond differently to the same odour. At a given concentration, one person may smell and recognise the odour, while another person may barely notice it. The odour thresholds reported in the literature are typically determined for a single constituent, with no other chemicals present in the air. The single constituent situation rarely occurs in the workplace. Therefore, caution must be exercised in using these numbers. They may not be representative of odour detection capabilities of individual workers in your workplace. On the other hand, experience may indicate better warning properties than those indicated by the reported value. For these reasons, it is recommended that a gas/vapour filter change-out schedule be implemented rather than using odour properties as the primary indicator for filter change-out. Ranges of reported odour thresholds are listed. These have been obtained from a variety of publications. The primary reference was the AIHA publication. This publication was produced to develop better odour threshold reference information for chemicals with TLV. When an odour threshold value was not published by AIHA, the other references were used.

AP Filter Combinations

These compounds have been identified as possibly existing in both particulate and vapour phase by Perez and Soderholm. For these compounds 3M recommends that a gas vapour filter be used in addition to the traditionally accepted particulate filter.

GLOSSARY

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
APF	Assigned Protection Factor
AX	AX filters for use with low boiling organic vapours
BSi	British Standards Institute
COSHH	Control of Substances Hazardous to Health Regulations
EN	European Standard
HASAWA	Health and Safety at Work Act 1974
HSE	Health and Safety Executive
IDLH	Immediately Dangerous to Life and Health
MSDS	Material Safety Data-Sheet
NIOSH	National Institute of Occupational Safety and Health
NPF	Nominal Protection Factor
OSHA	Occupational Safety and Health Administration
Oxygen Deficiency	<19.5% Oxygen (3M definition)
PPE	Personal Protective Equipment
QLFT	Qualitative Fit Testing
QNFT	Quantitative Fit Test
RA	Risk Assessment
RPE	Respiratory Protective Equipment
SA	Supplied Air
SCBA	Self Contained Breathing Apparatus
SEN	Respiratory Sensitiser
Sk	Substance may pass through intact skin
STEL	Short Term Exposure Limit
TID	Total Inhalable Dust
TIL	Total Inward Leakage
TLV	Threshold Limit Value
TWA	Time Weighted Average
WEL	Workplace Exposure Limit
WEEL	Workplace Environmental Exposure Limit
WPF	Workplace Protection Factor

References

EH40/2005 Workplace Exposure Limits 2005

Regulation 6 Control of Substances Hazardous to Health Regulations 2002

Regulation 7 Control of Substances Hazardous to Health Regulations 2002

HS(G)53. The Selection, Use and Maintenance of Respiratory Protective Equipment

NIOSH NTIS Publication No. PB-94-195047 1994

Perez, C., SC Solderholm: Some Chemicals Requiring Special Consideration When Deciding Whether to Sample the Particle, Vapour, or Both Phases of an Atmosphere. Appl. Occup. Hyg. 6(10): 859-864 (1991)).

Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Acetaldehyde	Ethanal; Acetic aldehyde	75-07-0	WEL 20 ppm	WEL 50 ppm	0.186	10000	20.6	**AX**	Single Use Filter - Not available for Powered Air; Short OV service life; Eye, skin & respiratory irritant	No
Acetic acid	Glacial acetic acid; Methane carboxylic acid	64-19-7	ACGIH TLV 10 ppm	ACGIH TLV 15 ppm	0.016	1000	117.8	**ABE**	Eye, skin & respiratory irritant	No
Acetic anhydride	Ethanoic anhydride; Acetic acid anhydride; Acetyl oxide	108-24-7	WEL 0.5 ppm	WEL 2 ppm	0.029	1000	138.9	**A**	Eye irritant	No
Acetone	2-Propanone; Dimenthyl ketone; Ketone propane	67-64-1	WEL 500 ppm	WEL 1500 ppm	4.58	20000	56.1	**AX**	Single Use Filter - Not available for Powered Air	Yes
Acetone cyanohydrin	a-Hydroxy isobutyronitrile; 2-Propane cyanohydrin; 2-Cyano-2-propanol; 2-Methyllactonitrile; 2-Hydroxy-2-methyl propanenitrile	75-86-5	AIHAWEEL 2 ppm	AIHAWEEL 5 ppm	3	-	95	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
Acetonitrile	Methylcyanide	75-05-8	WEL 40 ppm	WEL 60 ppm	97.7	4000	81.7	**SA**	Poor warning properties; asphyxiant	Yes
Acetophenone	Methyl phenyl ketone; Acetyl benzene; Benzoyl methide hypnone; 1-Phenylethanone	98-86-2	ACGIH TLV 10 ppm	-	0.363	-	140	**A**	Eye & respiratory irritant	Yes
Acetylsalicylic acid	Aspirin	50-78-2	WEL 5 mg/m3	-	-	-	140	**P**	Eye & respiratory irritant	No
Acrylaldehyde	Acrolein; Acrylic aldehyde; Propenal; Allylaldehyde	107-02-08	WEL 0.1 ppm	WEL 0.3 ppm	0.174	5	52.8	**AX**	Single Use Filter - Not available for Powered Air; Eye & respiratory corrosive	No
Acrylamide	Propenamide; Acrylamide monomer; Acrylic amide	79-06-1	WEL 0.3 mg/m3	-	-	-	175-300	**A/P**	A/P - See definitions section	No
Acrylic acid	Acroleic acid; Propenoic acid	79-10-7	ACGIH TLV 2 ppm	-	0.4	-	141.1	**A**	Eye corrosive	Yes
Acrylonitrile	Propenenitrile; AN; Vinyl cyanide	107-13-1	WEL 2 ppm	-	16.6	500	77.2	**SA**	Poor warning properties.	Yes
Adipic Acid	Hexanedioic acid; 1,6-Hexanedioic acid; 1,4-butanedicarboxylic acid; Adipinic acid	124-04-9	ACGIH TLV 5 mg/m3	-	-	-	-	**P**	Eye irritant	No
Adiponitrile	Adipic acid dinitrile; Hexanedinitrile; 1,4-dicyanobutane; Tetramethylene cyanide	111-69-3	ACGIH TLV 2 ppm	-	-	-	295	**SA**	Warning properties unknown. Eye irritant	Yes
Allyl alcohol	2-Propenol; 2-Propen-l-ol; Vinyl carbinol	107-18-6	WEL 2 ppm	WEL 4 ppm	0.47	150	96.1	**A**	Eye irritant	Yes
Allyl 2,3-epoxy propyl ether	Allyl glycidyl ether; AGE; 1-Allyloxy-2, 3-epoxy-propane	106-92-3	ACGIH TLV 1 ppm	-	-	270	153.9	**SA**	Warning properties unknown.	Yes
Allyl isothiocyanate **Allyl isothiocyanate (used with acids)**	Oil of mustard; AITC; Allyl thiocarbanimide; 3-Isothiocyanate-1-propene; Allyl isosulfocyanate; Oil of mustard (Used with acids); AITC,Allyl thiocarbanimide (Used with acids); 3-Isothiocyanate-1-propene (Used with acids); Allyl isosulfocyanate (used with acids)	57-06-7	AIHAWEEL 1 ppm	-	0.035	-	151	**A**	SA if used with acids	No
Allyl propyl disulphide	Onion oil; Propyl allyl disulfide; 2-Propenyl proply disulphide	2179-59-1	ACGIH TLV 0.5 ppm	-	-	-	-	**SA**	Warning properties unknown.	No
Aluminium Chloride (as Al Salts)		744-67-00	-	-	-	-	-	**E/P**	-	No
Aluminium (as Al) **- Metal dusts inhalable** **- Metal dusts respirable**		7429-90-5	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	2327.2	**P**	-	No
Aluminium (as Al) - Soluble salts			WEL 2 mg/m3	-	-	-	2327.2	**P**	-	No
Aluminium oxides **- inhalable** **- respirable**	a-Alumina	1344-28-1	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	2977	**P**	-	No
p-Aminobenzoic acid	Aminobenzoic acid; 4-Aminobenzoic acid; PABA	150-13-0	AIHAWEEL 5 mg/m3	-	-	-	-	**P**	Eye irritant	No
2-Aminoethanol	Ethanolamine; Ethylolamine; Monoethanolamine; B-Aminoethyl alcohol; 2-Hydroxethylamine	141-43-5	WEL 1 ppm	WEL 3 ppm	2.59	1000	170.6	**A**	-	No
Ammonia	Anhydrous ammonia	7664-41-7	WEL 25 ppm	WEL 35 ppm	5.75	500	-33.3	**K**	Eye & respiratory irritant	No
Ammonium chloride (fume)	Ammonium muriate (fume)	12125-02-9	WEL 10 mg/m3	WEL 20 mg/m3	-	-	337.8	**K/P**	Eye & respiratory irritant	No
Ammonium perfluorooctanoate		3825-26-1	ACGIH TLV 0.01 mg/m3	-	-	-	-	**A/P**	A/P - See definition section. Skin irritant	No
Ammonium sulphamidate		7773-06-0	WEL 10 mg/m3	WEL 20 mg/m3	-	-	-	**P**	-	No
Aniline	Aminobenzene; Phenylamine; Aniline oil	62-53-3	WEL 1 ppm	-	0.676	100	184.4	**A**	-	No
o-Methoxyaniline (oil)		90-04-0	ACGIH TLV 0.5 mg/m3	-	-	10	225-246	**A/P**	A/P - See definitions section	No
Anisidine (mixed isomers)		29191-52-4	ACGIH TLV 0.5 mg/m3							
p-Methoxyaniline (solid)		104-94-9	ACGIH TLV 0.5 mg/m3	-	-	10	225-246	**A/P**	A/P - See definitions section	No
Antimony and compounds except stibine (as Sb)		7440-36-0	WEL 0.5 mg/m3	-	-	80 mg/m3 of Sb	-	**P**	Eye, skin & respiratory irritant	No
p-aramid respirable fibres		26125-61-1	WEL 0.5 fibres/ml	-	-	-	-	**P**	-	
Arsenic and arsenic compounds except arsine (as As)		-	WEL 0.1 mg/m3	-	-	100 mg/m3 of As	-	**P**	Respiratory corrosive	No
Arsine	Hydrogen arsenide; Arsenic trihydride	7784-42-1	WEL 0.05 ppm	-	<1.0	6	-55	**SA**	Poor warning properties. Unknown sorbent effectiveness. Eye irritant	Yes
Asbestos (Serpentine)	Chrysotile; Asbestos (Amphibole); Armosite; Crocidolite; Tremolite; Anthophyllite	1332-21-4	0.1 f/ml (4 hr)	0.6 f/ml (10 min)	-	-	-	**P**	-	No
Asphalt (petroleum), fumes		8052-42-4	WEL 5 mg/m3	WEL 10 mg/m3	-	-	<470	**A/P**	A/P - See definitions section. P alone may be suitable for some applications.	No
Azodicarbonamide		123-77-3	WEL 1 mg/m3	WEL 3 mg/m3	-	-	-	**P**	-	No
Barium (soluble compounds as Ba)		7440-39-3	WEL 0.5 mg/m3	-	-	1100 mg/m3 of Ba	1640	**P**	-	No
Barium sulphate **- Total Inhalable Dust** **- Respirable Dust**		7727-43-7	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	-	No
Benzaldehyde	Benzoic aldehyde; Oil of bitter almond; Benzenecarbonal	100-52-7	AIHAWEEL 2 ppm	AIHAWEEL 4 ppm	0.042	-	179	**A**	Eye irritant	Yes
Benzene	Benzol; Coal tar naphtha	71-43-2	WEL 1 ppm	-	8.65	3000	80	**SA**	Poor warning properties.	Yes
Benzenethiol	Phenyl mercaptan; Thiophenol	108-98-5	ACGIH TLV 0.1 ppm	-	0.00094	-	168.3	**A**	Eye irritant	No
Benzoic acid	Phenylformic acid	65-85-0	-	-	-	-	249	**P**	-	No
Benzophenone	Benzol benzene; Diphenyl ketone; Dizphenyl methanone; Phenyl ketone	119-61-9	AIHAWEEL 0.5 mg/m3	-	-	-	305.4	**A/P**	A/P - See definitions section	No
p-Benzoquinone	Quinone	106-51-4	ACGIH TLV 0.1 ppm	-	0.012	66	-	**A/P**	A/P - See definitions section. Eye irritant	Yes
Benzoyl chloride	a-Chlorobenzaldehyde; Benzene carbonyl chloride; Benzoic acid chloride	98-88-4	-	-	0.007	-	197	**SA**	Eye irritant	No
Benzoyl peroxide	Dibenzoyl peroxide	94-36-0	WEL 5 mg/m3	-	-	7000 mg/m3	-	**A/P**	A/P - See definitions section	No
Benzyl alcohol	a-hydroxytoluene; Phenyl methanol; Phenyl carbinol	100-51-6	AIHAWEEL 10 ppm	-	5.55	-	205.7	**A**		Yes
Benzyl chloride		100-44-7	WEL 0.5 ppm	WEL 1.5 ppm	-	-	-	**E**	-	
Beryllium and compounds (as Be)		7440-41-7	WEL 0.002 mg/m3	-	-	10 mg/m3 of Be	-	**P**	-	No

A-Organic Vapour; B-Inorganic Vapour; E-Acid Gas; K–Ammonia; AX-Organic Vapour, boiling point <65℃; P –Particulate; SA-Supplied Air; AP-Organic Vapour + Particulate; HgP3-Mercury Particulate; *** no WEL established. Assumed to be 8 hr TWA

Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Biphenyl	Diphenyl; Phenylbenzene	92-52-4	ACGIH TLV 0.2 ppm	-	-	47.57	255	**A/P**	A/P - See definitions section	Yes
bis-(2-Chloroisopropyl) ether	DCIPE; Dichloroisopropyl ether	39628-23-9	AIHAWEEL 3 ppm	-	-	-	187.8	**SA**	Warning properties unknown. Eye irritant	
bis-(chloromethyl) ether	Dichloromethylether; BCME; Chloro (chloromethoxy) methane; Chloromethyl ether	542-88-1	WEL 0.001 ppm	-	-	-	105	**SA**	Warning properties unknown. Eye, skin & respiratoryirritant	No
Di-sec-octyl phthalate	bis-(2-Ethylhexyl) phthalate; DOP; Di-2-ethylhexyl phthalate; DEHP	117-81-7	WEL 5 mg/m3	WEL 10 mg/m3	-	-	-	**P**	Eye irritant	Yes
Bismuth telluride	Bismuth sesquitelluride; Dibismuth tritelluride	1304-82-1	WEL 10 mg/m3	-	-	-	-	**P**	Eye irritant	No
Bisphenol A inhalable dust	4,4-Isopropylidenediphenol; 4,4-(propane-2,2-diyl)diphenol; Bisphenol A4	80-05-7	WEL 10 mg/m3	-	-	-	-	**P**		No
Bismuth telluride (Se-doped)		-	ACGIH TLV 5 mg/m3	-	-	-	-	**P**	Eye irritant	No
Borates, tetra sodium salts - anhydrous	Disodium tetraborate - anhydrous	1330-43-4	WEL 1 mg/m3	-	-	-		**P**	Eye, skin & respiratoryirritant	No
Borates, tetra sodium salts - Pentahydrate	Disodium tetraborate - Pentahydrate	12179-04-3	WEL 1 mg/m3	-	-	-	-	**P**	Eye, skin & respiratoryirritant	No
Borates, tetra sodium salts - Decahydrate	Disodium tetraborate - Decahydrate	1303-96-4	WEL 5 mg.m3	-	-	-	-	**P**	Eye, skin & respiratoryirritant	No
Bornan-2-one	Camphor; 2-Camphonone; Synthetic camphor; Gum camphor; Laurel camphor	76-22-2	WEL 2 ppm	WEL 3 ppm	0.051	33	204	**A/P**	A/P - See definitions section. Eye irritant	No
Boron oxide	Anhydrous boric acid; Boric anhydride; Boric oxide; Diboron trioxide	1303-86-2	WEL 10 mg/m3	-	-	-	1860	**P**	Eye, skin & respiratory irritant	No
Boron tribromide	Boron bromide	10294-33-4	-	WEL 1 ppm	-	-	91.7	**SA**	Warning properties unknown. Eye irritant	No
Boron trifluoride		7637-07-2	-	-	1.5	100	12.5	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
Bromine		7726-95-6	WEL 0.1 ppm	WEL 0.2 ppm	0.066	10	58.7	**B**	Eye irritant	No
Bromine pentafluoride		7789-30-2	ACGIH TLV 0.1 ppm	-	-	-	40.5	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Bromochloromethane	Chlorobromomethane; Methylene chlorobromide; CBM; Halon™ 1011	74-97-5	ACGIH TLV 200 ppm	-	399	5000	89-91	**SA**	Poor warning properties.	Yes
Bromoform	Tribromomethane	75-25-2	ACGIH TLV 0.5 ppm	-	0.447	-	149.4	**A**	Eye, skin & respiratory irritant	Yes
Bromoethane	Ethyl bromide	74-96-4	ACGIH TLV 5 ppm	-	3.09	3500	38.4	**AX**	Single Use Filter - Not available for Powered Air; Eye, skin & respiratory irritant	Yes
Bromomethane	Methyl bromide	74-83-9	WEL 5 ppm	WEL 15 ppm	-	2000	3.5	**AX**	Single Use Filter - Not available for Powered Air; Eye, skin & respiratory irritant	Yes
1-Bromopropane	n-Propylbromide; Propylbromide	106-94-5	ACGIH TLV 0.1 ppm	-	-	-	-	**SA**	-	No
Buta-1,3,diene	1,3-Butadiene; Divinyl; Biethylene; Erythrene	106-99-0	WEL 10 ppm	-	0.455	20000	-4.5	**AX**	Single Use Filter - Not available for Powered Air; Eye, skin & respiratory irritant	Yes
Butane		106-97-8	WEL 600 ppm	WEL 750 ppm	204	-	-0.6	**AX**	Single Use Filter - Not available for Powered Air; Eye, skin & respiratory irritant	Yes - 3M3520
Butan-1-ol	1-Butanol; Propylcarbinol; n-Butanol; n-Butyl alcohol	71-36-3	-	WEL 50 ppm	0.03	8000	117.5	**A**	Eye, skin & respiratory irritant	Yes
Butan-2-ol	2-Butanol; sec-Butyl alcohol; Methyl ethyl carbinol	78-92-2	WEL 100 ppm	WEL 150 ppm	1	10000	99.5	**A**	Eye, skin & respiratory irritant	Yes
Butan-2-one	Methyl ethyl ketone; MEK; Ethyl methyl ketone; 2-Butanone	78-93-3	WEL 200 ppm	WEL 300 ppm	0.27	3000	79.6	**A**	Eye, skin & respiratory irritant	Yes
2-Butoxyethanol	Butyl Cellosolve®; Ethyleneglycol monobutylether	111-76-2	WEL 25 ppm	WEL 50 ppm	0.001	700	171	**A**	Eye, skin & respiratory irritant	Yes
2-Butoxyethyl acetate		112-07-2	WEL 20 ppm	WEL 50 ppm	-	-	-	**SA**		Yes
n-Butyl chloroformate		592-34-7	WEL 1 ppm	-	-	-	-	**SA**		
Butyl acetate	n-Butyl acetate; Butyl ethanoate; Acetic acid butyl ester	123-86-4	WEL 150 ppm	WEL 200 ppm	0.007	10000	126	**A**	Eye, skin & respiratory irritant	Yes
sec-Butyl acetate	1-Methylpropylacetate	105-46-4	WEL 200 ppm	WEL 250 ppm	3 to 7	10000	112	**A**	Eye irritant	Yes
tert-Butyl acetate	Acetic acid tert-butyl ester	540-88-5	WEL 200 ppm	WEL 250 ppm	4 to 47	10000	97.8	**A**	Eye irritant	Yes
Butyl acrylate	2-Propenoic acid butyl ester; Butyl-2-propenoate	141-32-2	WEL 1 ppm	WEL 5 ppm	0.003	-	145	**A**	Eye, skin & respiratory irritant	Yes
n-Butylamine	Butylamine; 1-Aminobutane	109-73-9	-	-	0.053	2000	77	**K**	Eye irritant	No
4-tert-Butylcatechol	p-tert-Butylcatechol; 4-(1,1-Dimethylethyl)-1,2-benzenediol; 4-tert-Butyl pyrocatechol; tert-Butyl pyrocatechol; 4-tert-Butyl 1-1,2-dihydroxybenzene	98-29-3	-	-	-	-	285	**P**	A/P - See definitions section. Eye irritant	No
tert-Butyl chromate (as Cr03)	Chromic acid; di-tert-Butyl ester	1189-85-1	OSHA PEL 0.005 mg/m3	-	-	30 mg/m3	-	**P**	Eye, skin & respiratory irritant	No
n-Butyl glycidyl ether	BGE; 1,2-Epoxy-3-butoxy-propane	2426-08-6	ACGIH TLV 3 ppm	-	-	3500	163.9	**SA**	Warning properties unknown.	Yes
Butyl lactate	n-Butyl lactate; Lactic acid butylester	138-22-7	WEL 5 ppm	-	7.06	-	188	**A**	Eye, skin & respiratory irritant	Yes
Butyl mercaptan	n-Butanethiol; 1-Mercaptobutane; Butanethiol	109-79-5	ACGIH TLV 0.5 ppm	-	0.001	2500	98.3	**A**	Eye, skin & respiratory irritant	No
2-sec-Butylphenol	o-sec-Butylphenol	89-72-5	WEL 5 ppm	-	-	-	238	**A/P**	A/P - See definitions section	No
p-tert-Butyltoluene	1-Methyl-4-tert-butylbenzene	98-51-1	ACGIH TLV 1 ppm	-	5.02	1000	192.8	**SA**	Poor warning properties.	Yes
Cadmium & cadmium compounds except cadmium oxide fume, cadmium sulphide & and cadmium sulphide pigments (as Cd)		-	WEL 0.025 mg/m3	-	-	50 mg/m3 as Cd	767	**P**	-	No
Cadmium oxide fume		1306-19-0	WEL 0.025 mg/m3	WEL 0.05 mg/m3	-	9 mg/m3 as Cd	-	**P**	-	No
Cadmium sulphide and cadmium sulphide pigments - respirable dust (as Cd)		-	WEL 0.03 mg/m3	-	-	-	-	**P**	-	No
Calcium arsenate (as As)	Tricalcium arsenate; Tricalcium o-arsenate; Cucumber dust	7778-44-1	ACGIH TLV 0.01 mg/m3	-	-	100 mg/m3	-	**P**	-	No
Calcium Carbonate **- Inhalable dust** **- respirable dust**	Marble; Limestone	1317-65-3	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No
Calcium chromate	Calcium chrome yellow	1376-51-90	ACGIH TLV 0.001 mg/m3	-	-	-	-	**P**	-	No
Calcium cyanamide	Lime nitrogen; Calcium carbimide	156-62-7	WEL 0.5 mg/m3	WEL 1 mg/m3	-	-	-	**P**	Eye, skin & respiratory irritant	No
Calcium fluoride (as F)	Fluorite; Fluorspar	7789-75-5	ACGIH TLV 2.5 mg/m3	-	-	-	-	**P**	-	No
Calcium hydroxide	Calcium hydrate; Hydrated lime; Caustic lime	1305-62-0	WEL 2 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No
Calcium oxide	Quicklime; Pebble lime	1305-78-8	WEL 2 mg/m3	-	-	-	2850	**P**	Eye, skin & respiratory irritant	No
Calcium silicate **- inhalable dust** **- respirable dust**		1344-95-2	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No
Calcium sulphate		7778-18-9	ACGIH TLV 10 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No

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Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Carbon black	Channel black; Lamp black; Furnace black; Thermal black; Acetylene black	1333-86-4	WEL 3.5 mg/m3	WEL 7 mg/m3	-	-	-	**P**	Eye irritant	No
Carbon dioxide	Carbonic acid gas; Dry ice	124-38-9	WEL 5000 ppm	WEL 15000 ppm	74000	50000	-78.2	**SA**	Poor warning properties. Ineffective sorbents. Eye, skin & respiratory irritant	No
Carbon disulphide	Carbon bisulphide	75-15-0	WEL 5 ppm	-	0.096	500	46.5	**SA**	-	Yes
Carbon monoxide	Monoxide	630-08-0	WEL 30 ppm	WEL 200 ppm	100000	1500	-191.3	**SA**	Very poor warning properties. Ineffective sorbents	No
Carbon tetrabromide	Tetrabromomethane	558-13-4	ACGIH TLV 0.1 ppm	-	-	-	189.5	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Carbon tetrachloride	Tetrachloromethane	56-23-5	WEL 2 ppm	-	40.7	300	76.8	**SA**	Poor warning properties.	Yes
Carbonyl fluoride	Fluoroformyl fluoride; Carbon oxyfluoride	353-50-4	ACGIH TLV 2 ppm	ACGIH TLV 5 ppm	-	-	-83.3	**SA**	Warning properties unknown. Eye irritant	No
Carbonyl sulphide	Carbon monoxide monosulphide; Carbon oxide sulphide; Carbon oxysulphide; Oxycarbon sulphide	463-58-1	ACGIH TLV 5 ppm	-	-	-	-	**SA**	-	No
Cellulose (pure) **- Total inhalable dust** **- Respirable dust**	Paper fiber	9004-34-6	WEL 10 mg/m3 WEL 4 mg/m3	WEL 20 mg/m3 -	-	-	-	**P**	Eye irritant	No
Cesium fluoride (as F)		13400-13-0	ACGIH TLV 2.5 mg/m3	-	-	-	1251	**P**	-	No
Cesium hydroxide	Cesium hydrate; Caesium hydroxide	21351-79-1	WEL 2 mg/m3	-	-	-	-	**P**	-	No
Chlorinated diphenyl oxide	Hexachlorodiphenyl oxide	31242-93-0	ACGIH TLV 0.5 mg/m3	-	-		-	**SA**	Warning properties unknown. A/P may be acceptable if no heat involved.	No
Chlorine		7782-50-5	-	WEL 0.5 ppm	0.05	30	-33.9	**B/E**	Eye, skin & respiratory irritant	No
Chlorine dioxide	Chlorine oxide; Chlorine peroxide	10049-04-4	WEL 0.1 ppm	WEL 0.3 ppm	9.24	10	9.9	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
Chlorine trifluoride	Chlorine fluoride	7790-91-2	-	-	-	20	11.6	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Chloroacetaldehyde	Chloroacetaldehyde (40% aqueous); 2-Chloroethanal	107-20-0	-	WEL 1 ppm	0.917	100	90-100	**SA**	Poor warning properties. Eye irritant	No
Chloroacetone	Monochloroacetone; 1-Chloro-2-propanone	78-95-5	-	-	-	-	119	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	Yes
Chloroacetyl chloride		79-04-9	ACGIH TLV 0.05 ppm	ACGIH TLV 0.15 ppm	-	-	105-106	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Chlorobenzene	Monochlorobenzene; Chlorobenzol; Phenyl chloride; MCB	108-90-7	WEL 1 ppm	WEL 3 ppm	0.741	2400	131.7	**A**	Eye, skin & respiratory irritant	Yes
2-Chloro-1,3-Butadiene	B-Chloroprene; Chlorobutadiene; beta-Chloroprene; 2-chlorobuta-1,3-diene	126-99-8	ACGIH TLV 10 ppm	-	14.9	400	59.4	**SA**	Eye, skin & respiratory irritant	Yes
Chlorodifluoromethane	Freon™ 22	75-45-6	WEL 1000 ppm	-	-	-	-40.8	**SA**	Warning properties unknown. Ineffective sorbents. Respiratory irritant	No
Chloroethane	Ethyl chloride; Monocloroethane; Hydrochloric ether	75-00-3	WEL 50 ppm	-	-	-	-	**AX**	Single Use Filter - Not available for Powered Air	Yes
Chloromethane	Methyl chloride	74-87-3	WEL 50 ppm	WEL 100 ppm	10.2	10000	-23.7	**SA**	-	Yes - 3M3520
1-Chloro-4-nitrobenzene	PNCB; PCNB; 4-Chloronitrobenzene; p-Chloronitrobenzene; p-Nitrochlorobenzene	100-00-5	WEL 1 mg/m3	WEL 2 mg/m3	-	344	242.2	**A/P**	A/P - See definitions section	No
1-Chloro,2,3-epoxy-propane	Epichlorohydrin; 2-Chloropropylene oxide; g-Chloropropylene oxide	106-89-8	WEL 0.5 ppm	WEL 1.5 ppm	0.934	250	117.9	**SA**	Poor warning properties. Eye irritant	Yes
Ethylene chlorohydrin	2-Chloroethanol; 2-Chloroethyl alcohol	107-07-3	-	WEL 1 ppm	0.402	10	128.8	**A**	-	Yes
Chloroform	Trichloromethane	67-66-3	WEL 2 ppm	-	11.7	1000	61.3	**SA**	Poor warning properties. Eye irritant	No
Chloropentafluoroethane	FC-115; Monochloropentafluoroethane	76-15-3	ACGIH TLV 1000 ppm	-	-	-	-39.3	**SA**	Warning properties unknown.	Yes - 3M3520
3-Chloropropene	Allyl chloride; 1-Chloro-2-propene	107-05-01	-	-	0.489	300	44.6	**SA**	Eye, skin & respiratory irritant	Yes
2-Chloropropionic acid	a-Chloropropionic acid	598-78-7	ACGIH TLV 0.1 ppm	-	-	-	183-187	**SA**	Warning properties unknown.	No
2-Chlorostyrene	o-Chlorostyrene; 1-Chloro-2-ethenylbenzene	2039-87-4	ACGIH TLV 50 ppm	ACGIH TLV 75 ppm	-	-	188.9	**SA**	Warning properties unknown. Eye irritant	Yes
Chlorosulphonic acid	CSA; ChloroSulphuric acid; Sulphonic acid	7790-94-5	WEL 1 mg/m3	-	-	-	15.1	**E/P**	Eye irritant	No
2-Chloro-1,1,1,2-tetra fluoroethane	Chlorotetrafluoroethane; HCFC124; HFA124; Fluorocarbon 124	63938-10-3	AIHAWEEL 1000 ppm	-	-	-	-	**SA**	Warning properties unknown.	No
o-Chlorotoluene	2-Chloro-1-methylbenzene	95-49-8	ACGIH TLV 50 ppm	-	0.219	-	179	**A**	Eye irritant	Yes
Chlorotrifluoroethylene	CFE; CTFE; Trifluorovinylchloride; Trifluorochloroethylene	9002-83-9	AIHAWEEL 5 ppm	-	-	-	-	**SA**	Warning properties unknown.	No
Chromates of lead (as Cr)		7758-97-6	ACGIH TLV 0.012 mg/m3	-	-	-	-	**P**	-	No
Chromates of zinc (as Cr)		-	ACGIH TLV 0.01 mg/m3	-	-	-	-	**P**	-	No
Chromium	Chromium (II) compounds (as Cr); Chromium (III) compounds (as Cr)	7440-47-3	WEL 0.5 mg/m3	-	-		2642.2	**P**	Eye irritant	No
Chromium (VI) compounds (as Cr)			WEL 0.05 mg/m3					**P**	Eye irritant	No
Chromyl chloride	Chromium oxychloride; Chloro-chromic anhydride	14977-61-8	ACGIH TLV 0.025 ppm	-	-	-	115.7	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Citric acid	2-Hydroxy-1,2,3-propanetricarboxylic acid, monohydrate	77-92-9	-	-	-	-	-	**P**	-	No
Coal dust - Bituminous or lignite (Respirable dust)		-	ACGIH TLV 0.9 mg/m3	-	-	-	-	**P**		No
Coal tar pitch volatiles	Particulate polycyclic aromatic hydrocarbons	65996-93-2	ACGIH TLV 0.2 mg/m3	-	-	700 mg/m3	-	**A/P**	-	No
Cobalt and Cobalt compounds (as Co)		-	WEL 0.1 mg/m3	-	-	20 mg/m3	2900	**P**	-	No
Cobalt carbonyl		10210-68-1	ACGIH TLV 0.1 mg/m3	-	-	-	-	**SA**	Warning properties unknown. Ineffective sorbents. Eye, skin & respiratory irritant	No
Cobalt hydrocarbonyl		16842-03-8	ACGIH TLV 0.1 mg/m3	-	-	-	-	**SA**	Warning properties unknown. Ineffective sorbents. Respiratory irritant	No
Copper, **- dust and mist (as Cu)** **- fume (as Cu)**	Copper,fume (as Cu)	7440-50-8	WEL 1 mg/m3 WEL 0.2 mg/m3	WEL 2 mg/m3	-		2324	**P**	Eye, skin & respiratory irritant	No
Copper (II) acetate (as Cu)		142-71-2	-	-	-	-	-	**P**	-	
Cotton dust (raw)		-	WEL 2.5 mg/m3	-	-		-	**P**	-	No
Cresol (all isomers)	Cresylic acid	1319-77-3	ACGIH TLV 5 ppm	-	0.00005-0.0079	250	191-203	**A/P**	A/P - See definitions section. Eye irritant	Yes
Creosote		8001-58-9	-	-	-	-	200-250	**A/P**	-	No
Crotonaldehyde	B-Methylacrolein; Propylene aldehyde; Crotonic aldehyde	4170-30-3	OSHA PEL 2 ppm	-	0.135	400	104	**A**	Eye, skin & respiratory irritant	No
Cryofluorane	Freon™ 114; Refrigerant 114; Halon ™ 242; FC-114; Dichlorotetra-fluoroethane	76-14-2	WEL 1000 ppm	WEL 1250 ppm	-	50000	3.5	**SA**	Poor warning properties.	Yes - 3M3520

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Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Cryolite (as F)	Greenland spar; Iceton	15096-52-3	ACGIH TLV 2.5 mg/m3	-	-		-	**P**	-	No
Cumene	Isopropyl benzene; 2-Phenyl propane; Cumol	98-82-8	WEL 25 ppm	WEL 50 ppm	0.024	8000	152	**A**	Eye irritant	Yes
Cumene hydroperoxide	Isopropylbenzene hydroperoxide; CHP; a-a'-Dimethylbenzyl hydro peroxide; Cumyl hydroperoxide	80-15-9	AIHAWEEL 1 ppm	-	0.005	-	153	**SA**	Eye irritant	No
Cyanamide	Cyanogenamide; Carbodiimide	420-04-2	WEL 1 mg/m3	-	-	-	260	**P**	Eye, skin & respiratory irritant	No
Cyanides; (as CN) (except HCN, Cyanogen & Cyanogenchloride)		57-12-5	WEL 5 mg/m3	-	-	50 mg/m3	-	**SA**	Warning properties unknown.	No
Cyanogen	Dicyan; Oxalonitrile	460-19-5	ACGIH TLV 10 ppm	-	231	-	-21	**SA**	Poor warning properties. Unknown sorbent effectiveness. Eye, skin & respiratory irritant	No
Cyanogen chloride	CNCl	506-77-4	-	WEL 0.3 ppm	0.976	-	13.1	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
Cyclohexane	Hexahydrobenzene; Hexamethylene	110-82-7	WEL 100 ppm	WEL 300 ppm	83.8	10000	83	**A**	Eye, skin & respiratory irritant	Yes
Cyclohexanol	Hexalin; Hydralin; Hexahydrophenol; Hydroxycyclohexane; Anol; Cyclohexyl alcohol	108-93-0	WEL 50 ppm	-	0.068	3500	161.1	**A**	Eye, skin & respiratory irritant	Yes
Cyclohexanone	Pimelic ketone; Cyclohexyl ketone	108-94-1	WEL 10 ppm	WEL 20 ppm	0.019	5000	155.6	**A**	Eye & skin irritant	Yes
Cyclohexene	Benzene tetrahydride	110-83-8	ACGIH TLV 300 ppm	-	0.363	10000	82.8	**A**	Eye, skin & respiratory irritant	Yes
Cyclohexylamine	Hexahydroaniline; Aminocyclohexane	108-91-8	WEL 10 ppm	-	2.66	-	134.4	**A**	Eye, skin & respiratory irritant	No
Cyclopentadiene	1,3-Cyclopentadiene	542-92-7	ACGIH TLV 75 ppm	-	3.8	2000	42.5	**AX**	Single Use Filter - Not available for Powered Air; Eye & respiratory irritant	Yes
Cyclopentane	Pentamethylene	287-92-3	ACGIH TLV 600 ppm	-	-	-	49.3	**SA**	Warning properties unknown. Eye & respiratory irritant	Yes
Decaborane	Decaborane tetradecahydride	17702-41-9	ACGIH TLV 0.05 ppm	ACGIH TLV 0.15 ppm	0.06	20	213	**SA**	Poor warning properties. Unknown sorbent effectiveness.	No
Decabromodiphenyl oxide	DEDPO; Decabromodiphenyl ether; bis-(pentabromophenyl) ether	1163-19-5	AIHAWEEL 5 mg/m3	-	-	-	-	**SA**	Warning properties unknown. A/P may be acceptable if no heat involved	No
Dialkyl 79 phthalate		83968-18-7	WEL 5 mg/m3	-	-	-	-	**SA**	-	No
Diallyl phthalate		131-17-9	WEL 5 mg/m3	-	-	-	-	**SA**	-	No
1,2-Diaminoethane	Ethylenediamine; 1,2-Ethanediamine; EDA	107-15-3	ACGIH TLV 10 ppm	-	4.27	2000	117.2	**A**	Eye & respiratory irritant	No
Diatomaceous earth (uncalcined) (Respirable Dust)	Diatomite	61790-53-29	WEL 1.2 mg/m3	-	-	-	-	**P**	-	No
Diazomethane	Azimethylene; Diazirine	334-88-3	ACGIH TLV 0.2 ppm	-	-	2	-23	**SA**	Warning properties unknown. Unknown sorbent effectiveness. Eye & respiratory irritant	No
Diborane	Boroethane	19287-45-7	ACGIH TLV 0.1 ppm	-	1.8-3.5	40	-92.5	**SA**	Poor warning properties. Unknown sorbent effectiveness. Rrespiratory irritant	No
1,2-Dibromoethane	Ethylene dibromide	106-93-4	WEL 0.5 ppm	-	9.84	400	131	**SA**	Eye, skin & respiratory irritant	Yes
Dibromodifluoromethane	Difluorodibromo-methane; Freon™ 12 B2; DFBM	75-61-6	ACGIH TLV 100 ppm		-	2500	23.2	**SA**	Warning properties unknown. Eye & respiratory irritant	No
Dibromochloropropane	1-Chloro-2,3-dibromopropane; 1,2-Dibromo-3-chloropropane; DBCP	96-12-8	OSHA PEL 1 ppb	-	-	-	195.6	**SA**	Warning properties unknown.	Yes
Dibutylamine	1-Butanamine; n-Butyl; di-n-butylamine; DNBA	111-92-2	-	-	0.1	-	159	**A/P**	A/P - See definitions section. Eye irritant	No
2-N-Dibutylaminoethanol	Dibutylaminoethanol; N,N-dibutyl-N-(2-hydroxyethyl) amine	102-81-8	ACGIH TLV 0.5 ppm	-	-	-	222	**SA**	Warning properties unknown. Eye irritant	No
Dibutyl phenyl phosphate	DBPP	2528-36-1	ACGIH TLV 0.3 ppm	-	-	-	-	**P**	A/P may be preferable if heat involved.	No
Dibutyl hydrogen phosphate	Dibutyl phosphate; Dibutyl acid-o-phosphate; Di-n-butyl hydrogen phosphate; Dibutyl phosphoric acid	107-66-4	WEL 1 ppm	WEL 2 ppm	-	125	-	**A/P**	A/P - See definitions section. Eye, skin & respiratory irritant	No
Dibutyl phthalate	DBP; Dibutyl; 1,2-Benzene-dicarboxylate	84-74-2	WEL 5 mg/m3	WEL 10 mg/m3	-	9300 mg/m3	-	**A/P**		No
Dichloroacetylene	Dichloroethylene	7572-29-4	-	WEL 0.1 ppm	-	-	32.2	**SA**	Warning properties unknown. Eye irritant	No
1,2-Dichlorobenzene	o-Dichlorobenzene; o-Dichloro-Benzol	95-50-1	WEL 25 ppm	WEL 50 ppm	0.072	1000	180-183	**A/P**	A/P - See definitions section. Eye irritant	No
1,4-Dichlorobenzene	p-Dichlorobenzene; Dichloricide; PDCB	106-46-7	WEL 25 ppm	WEL 50 ppm	0.048	1000	173.4	**A/P**	A/P - See definitions section. Eye irritant	Yes
1,4-Dichloro-2-butene	2-butylenedichloride; DCB; 1,4-DCB; dichlorobutene	764-41-0	ACGIH TLV 0.005 ppm	-	-	-	-	**SA**	Warning properties unknown. Eye irritant	Yes
Dichlorodifluoromethane	Refrigerant 12; Freon™ 12	75-71-8	ACGIH TLV 1000 ppm	-	-	50000	-29	**SA**	Warning properties unknown. Asphyxiant	Yes
1,3-Dichloro-5,5-dimethylhydantoin	Halane; Dactin	118-52-5	WEL 0.2 mg/m3	WEL 0.4 mg/m3	0.01		-	**A/P**	A/P - See definitions section. Eye irritant	No
1,1-Dichloroethane	Ethylidene chloride	75-34-3	WEL 100 ppm		255	4000	57.3	**SA**	Poor warning properties. Eye & skin irritant	Yes
1,2-Dichloroethane	Ethylene Dichloride; Ethylene chloride	107-06-2	WEL 5 ppm	-	11.2	1000	83.5	**SA**	Poor warning properties.	Yes
1,2-Dichloroethylene	Acetylene dichloride; Dioform	540-59-0	WEL 200 ppm	WEL 250 ppm	19.1	4000	48-59	**AX**	Single Use Filter - Not available for Powered Air; Short OV service life. Eye, skin & respiratory irritant	Yes
Dichloroethyl ether	bis-(2-Chloroethyl) ether; 2,2'-Dichlorodiethyl ether	111-44-4	ACGIH TLV 5 ppm	ACGIH TLV 10 ppm	0.049	250	178.5	**A**	Respiratory irritant	Yes
1,1-Dichloro-1-fluoroethane	HCFC141b; HFA141b; Fluorocarbon 141b	1717-00-6	AIHAWEEL 500 ppm	AIHAWEEL 3000 ppm	-	-	-	**SA**	Warning properties unknown.	No
Dichloromethane	Methylene chloride	75-09-2	WEL 100 ppm	WEL 300 ppm	0.912	5000	39.8	**SA**	Eye & skin irritant	Yes
Dichloromono-fluoromethane	Dichlorofluoromethane; Refrigerant 21; Freon™ 21	75-43-4	WEL 10 ppm	-	-	50000	8.9	**SA**	Warning properties unknown. Asphyxiant	Yes
2,2'-Dichloro-4,4'-methylene-dianiline	4,4'-Methylene-bis-(2-chlorobenzamine); 4,4'-Methylene-bis-(2-chloraniline); MbOCA; DACPM; MOCA	101-14-4	WEL 0.005 mg/m3	-	-	-	-	**SA**	Warning properties unknown.	No
1,1-Dichloro-1-nitroethane		594-72-9	ACGIH TLV 2 ppm	-	-	150	124	**SA**	Warning properties unknown. Eye irritant	Yes
1,3-Dichloropropene		542-75-6	ACGIH TLV 1 ppm	-	-	-	103-110	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
2,2-Dichloropropionic acid	DalaponTM	75-99-0	ACGIH TLV 5 mg/m3	-	-	-	98	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Dicyclopentadiene		77-73-6	WEL 5 ppm	-	0.03	-	166.6	**A/P**	A/P - See definitions section. Eye & skin irritant	No
Diesel exhaust fume		-	-	-	-	-	-	**P**	Eye irritant.	No
Diesel exhaust fume (High CO/CO2)		-	-	-	-	-	-	**SA**	Eye irritant.	No

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Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Diethylamine		109-89-7	WEL 5 ppm	WEL 10 ppm	-	-	-	**AX**	Single Use Filter - Not available for Powered Air	No
Diethylaminoethanol	2-Diethylaminoethyl alcohol; N,N-Diethylethanolamine	100-37-8	ACGIH TLV 2 ppm	-	0.034	500	162	**A**	Eye, skin & respiratory irritant	No
Diethylene glycol monoethyl ether	2-(2-Ethoxyethoxy) ethanol; DIGGE; Diethylene glycol ethyl ether; Glycol ether DE; Carbitol; Dioxitol	111-90-0	AIHAWEEL 25 ppm	-	0.708	-	200-202	**SA**	-	Yes
Diethyl ether	Ethyl ether; Ethyl oxide; Ether	60-29-7	WEL 100 ppm	WEL 200 ppm	2.29	19000	34.4	**AX**	Single Use Filter - Not available for Powered Air; Short OV service life. Eye, skin & respiratory irritant	Yes
Diethyl phthalate	Ethylphthalate; DEP	84-66-2	WEL 5 mg/m3	WEL 10 mg/m3	-	-	296	**P**	Eye & skin irritant	No
Diglycidyl ether	DGE; di-(Epoxypropyl) ether; bis-(2,3-Epoxypropyl)-ether; 2-Epoxypropyl ether; Diallyl ether dioxide	2238-07-5	ACGIH TLV 0.01 ppm	-	4.61	25	260	**SA**	Poor warning properties. Eye, skin & respiratory irritant	Yes
Diisobutylene	2,4,4-Trimethylpentene; Diisobutene	25167-70-8	AIHAWEEL 75 ppm	-	-	-	102	**SA**	Warning properties unknown.	
Diisopropyl ether	Isopropyl ether	108-20-3	WEL 250 ppm	WEL 310 ppm	0.055	10000	68.5	**A**	Eye & skin irritant	Yes
2,6-Dimethylheptan-4-one	Diisobutyl ketone; 2,6-Dimenthyl-4-heptanone; sym-Diisopropylacetone; Isovalerone; Valerone	108-83-8	WEL 25 ppm	-	0.339	2000	166	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes
Diisopropylamine	DIPA	108-18-9	WEL 5 ppm	-	0.398	1000	83.9	**A**	Eye, skin & respiratory irritant	No
Dimethyloxymethane	Methylal; Methyl formal; Formal; Dimethylacetal formaldehyde	109-87-5	WEL 1000 ppm	WEL 1250 ppm	-	15000	42.3	**AX**	Single Use Filter - Not available for Powered Air; Warning properties unknown. Eye, skin & respiratory irritant	Yes
N,N-Dimethyl acetamide	Dimethyl acetamide; DMAC	127-19-5	WEL 10 ppm	WEL 20 ppm	47.9	400	165	**SA**	Poor warning properties. Eye, skin & respiratory irritant	Yes
Dimethylamine	Anhydrous dimethylamine	124-40-3	WEL 2 ppm	WEL 6 ppm	0.081	2000	6.9	**K**	Eye & respiratory irritant	No
2-Dimethylaminoethanol		108-01-0	WEL 2 ppm	WEL 6 ppm	-	-	-	**SA**	-	
N,N-Dimethylaniline	Dimethylaniline	121-69-7	WEL 5 ppm	WEL 10 ppm	0.219	100	193	**A**	-	No
Dimethyl adipate	Dimethyl ester	627-93-0	-	-	-	-	-	**P**	-	
1,3-Dimethylbutyl acetate	sec-Hexyl acetate; Methylamyl acetate; Methylisoamyl acetate; Methylisobutyl carbinol	108-84-9	ACGIH TLV 50 ppm		0.219	4000	147.2	**A/P**	A/P - See definitions section. Eye & skin irritant	No
Dimethyl ether	Methyl ether; Wood ether	115-10-6	WEL 400 ppm	WEL 500 ppm	0.3-9.0	-	-23.7	**AX**	Single Use Filter - Not available for Powered Air; Short OV service life	Yes - 3M3520
Dimethylformamide	N,N-Dimethylformamide; DMF	68-12-2	WEL 5 ppm	WEL 10 ppm	100	3500	152.8	**SA**	Poor warning properties. Eye, skin & respiratory irritant	Yes
1,1-Dimethylhydrazine	unsym-Dimethylhydrazine; N,N-Dimethylhydrazine; UDMH	57-14-7	ACGIH TLV 0.01 ppm	-	8.79	50	63.9	**SA**	Poor warning properties. Unknown sorbent effectiveness. Eye irritant	No
Dimethylphthalate	DMP	131-11-3	WEL 5 mg/m3	WEL 10 mg/m3	-	9300 mg/m3	283.7	**A/P**	A/P - See definitions section. Eye & respiratory irritant	No
Dimethyl sulphate	Methyl sulphate	77-78-1	WEL 0.05 ppm	-	-	10	188	**SA**	Warning properties unknown. Eye irritant	No
Dimethyl terephthalate	DMT	120-61-6	AIHAWEEL 5 mg/m3 (total dust)	-	-	-	-	**A/P**	-	
Dinitrobenzene (all isomers)		25154-54-5	WEL 0.15 ppm	WEL 0.5 ppm	-	29	299-319	**A/P**	A/P - See definitions section.	No
o-Dinitrobenzene	1,2-Dinitrobenzene	528-29-0	WEL 0.15 ppm	WEL 0.5 ppm	-	29	299-319	**A/P**	A/P - See definitions section.	No
p-Dinitrobenzene	1,4-Dinitrobenzene	100-25-4	WEL 0.15 ppm	WEL 0.5 ppm	-	29	299-319	**A/P**	A/P - See definitions section.	No
m-Dinitrobenzene	1,3-Dinitrobenzene	99-65-0	WEL 0.15 ppm	WEL 0.5 ppm	-	29	299-319	**A/P**	A/P - See definitions section.	No
3,5-Dinitro-o-toluamide	Dinitolmide	148-01-6	ACGIH TLV 1 mg/m3	-	-	-	-	**P**	Irritant	No
Dinitrotoluene (mixed isomers)	DNT	25321-14-6	ACGIH 0.2 ppm	-	-	200 mg/m3	300	**A/P**	A/P - See definitions section.	No
1,4-Dioxane	Dioxane; Diethylene dioxide; p-Dioxane; Diethylene ether	123-91-1	WEL 20 ppm	-	7.78	2000	101.1	**SA**	Eye & skin irritant	Yes
Diphenylamine	DPA; N-phenylaniline	122-39-4	WEL 10 mg/m3	WEL 20 mg/m3	0.022	-	302	**P**	A/P may be preferable when odour is a problem. Eye & skin irritant	No
Diphenyl ether, vapour	Phenyl ether; Diphenyl oxide	101-84-8	WEL 1 ppm	-	0.03	-	259	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes
(2-methyoxyethylethoxy) propanol	Dipropylene glycol methyl ether; Dipropylene glycol monomethyl ether; DowanolTM50B	34590-94-8	WEL 50 ppm	-	1000	-	189	**SA**	Poor warning properties. Eye, skin & respiratory irritant	Yes
Dipropyl ketone	Butyrane; 4-Heptanone	123-19-3	ACGIH TLV 50 ppm	-	-	-	144	**SA**	Warning properties unknown. Eye & skin irritant	Yes
Disodium Disulphite	Sodium pyrosulphite; Sodium metabisulphite	7681-57-4	WEL 5 mg/m3	-	-	-	-	**E/P**	P alone suitable if irritation eliminated. Eye & skin irritant	No
Disulphur decafluoride	Sulphur pentafluoride	5714-22-7	-	-	-	1	29	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Disulphur dichloride	Sulphur monochloride; Sulphur chloride; Sulphur subchloride	10025-67-9	-	WEL 1 ppm	0.001	10	138	**SA**	Eye & skin irritant	No
2,6-Di-tert-butyl-p-cresol	Butylated hydroxytoluene; BHT; 2,6-Ditertiary-butyl-para-cresol	128-37-0	WEL 10 mg/m3	-	-	-	265	**P**	Eye & skin irritant	Yes
6,6'-Di-tert-butyl-4,4'-thiodi-m-cresol	4,4'-Thiobis(6-tert-butyl-m-cresol); 4,4'-Thiobis(3-methyl-6-tert-butyl phenol)	96-69-5	WEL 10 mg/m3	WEL 20 mg/m3	-	-	-	**P**	Eye, skin & respiratory irritant	No
Divinylbenzene	DVB; Vinylstyrene	1321-74-0	ACGIH TLV 10 ppm	-	-	-	199.5	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	Yes
Emery **- Total inhalable dust** **- Respirable dust**	Corundum	1302-74-5	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No
Enflurane	2-Chloro-1,1,2-trifluoroethyl difluoromethyl ether; Ethrane	13838-16-9	WEL 50 ppm	-	-	-	56.7	**SA**	Warning properties unknown.	Yes
2,3-Epoxypropyl isopropyl ether	Isopropyl glycidyl ether; IGE; Isopropoxymethyl-oxiran; 1,2-Epoxy-3-isopropoxy-propane; Isopropyl epoxypropyl ether	4016-14-2	ACGIH TLV 50 ppm	ACGIH TLV 75 ppm	297	1000	137	**SA**	Poor warning properties. Eye, skin & respiratory irritant	Yes
Erythromycin	Dotycin; Erycin; Ericynum; E-Mycin™; Pentadecanoic acid	114-07-8	AIHAWEEL 3 mg/m3	-	-	-	-	**P**	-	No

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Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Ethanethiol	Ethyl mercaptan; Ethyl sulfhydrate	75-08-1	WEL 0.5 ppm	WEL 2 ppm	0.001	2500	36.2	**AX**	Single Use Filter - Not available for Powered Air; Skin irritant	No
Ethanol	Ethyl alcohol	64-17-5	WEL 1000 ppm	-	0.136	15000	78.3	**SA**	Short OV filter service life. Eye & skin irritant	Yes
2-Ethoxyethanol	Ethylene glycol monoethyl ether; Glycol monoethyl ether; Cellosolve® solvent;	110-80-5	WEL 2 ppm	-	1.22	6000	135.1	**A**	Eye irritant	Yes
2-Ethoxyethyl acetate	Cellosolve® acetate; Ethylene glycol monoethyl ether acetate	111-15-9	WEL 2 ppm	-	0.182	6000	156.4	**A**	Eye irritant	Yes
Ethyl acetate	Acetic ester; Acetic ether; Ethyl enthanoate	141-78-6	WEL 200 ppm	WEL 400 ppm	0.61	10000	77.1	**A**	Eye & skin irritant	Yes
Ethyl acrylate	Acrylic acide ethyl ester	140-88-5	WEL 5 ppm	WEL 10 ppm	0.0009	2000	99.8	**A**	Eye, skin & respiratory irritant	Yes
Ethylamine	Anhydrous ethylamine; Aminoethane; Monoethylamine	75-04-7	WEL 2 ppm	WEL 6 ppm	0.324	4000	16.6	**K**	Eye, skin & respiratory irritant	No
Ethylbenzene	Phenylethane; Ethylbenzol	100-41-4	WEL 100 ppm	WEL 125 ppm	2.3	2000	136.2	**A**	Eye & skin irritant	Yes
Ethane-1-2-diol **- particulate** **- vapour**	Ethylene glycol; Ethylene alcohol; Glycol; 1,2-Ethanediol	107-21-1	 WEL 10 mg/m3 WEL 20 ppm	 - WEL 40 ppm	60.3 mg/m3	-	197.5	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes
Ethylene dinitrate	Ethylene glycol dinitrate; Glycol dinitrate; Nitroglycol	628-96-6	ACGIH TLV 0.05 ppm		-	82	197.2	**SA**	Warning properties unknown.	No
2-Ethylhexanol	2-Ethyl-1-hexanol; 2-Ethylhexyl alcohol	104-76-7	-	-	-	-	179-185.5	**A/P**	-	No
EDTA	Ethylenediaminetetraacetic acid; N,N'-1,2-Ethanediylbis(N-carboxymethyl)-glycine	60-00-4	-	-	-	-	<150	**P**	Eye, skin & respiratory irritant	No
Ethyleneimine	Ethylimine; Dimethylenimine; Dihydroazirine; Azirane; Aziridine; Aminoethylene	151-56-4	ACGIH TLV 0.05 ppm	ACGIH TLV 0.1 ppm	1.5	100	56.1	**SA**	Poor warning properties. Eye irritant	No
Ethylene oxide	Dimethylene oxide; Oxirane; 1,2-Epoxy ethane	75-21-8	WEL 5 ppm	-	851	800	10.7	**SA**	Poor warning properties. Eye irritant	Yes - 3M3551
Ethyl formate	Ethyl methanoate; Formic acid ethyl ester	109-94-4	WEL 100 ppm	WEL 150 ppm	18.6	8000	54.7	**AX**	Single Use Filter - Not available for Powered Air; Short OV service life. Eye & respiratory irritant	Yes
Ethylidene norbornene	ENB	16219-75-3	-	-	0.074	-	147.8	**A**	Eye & skin irritant	Yes
n-Ethylmorpholine	4-Ethylmorpholine	100-74-3	WEL 5 ppm	WEL 20 ppm	0.275	2000	138	**A**	Eye & skin irritant	No
Ferrocene	Dicyclopentadienyl iron; bis-Cyclopentadienyl iron	102-54-5	OSHA PEL 5 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No
Ferrous foundry particulate **- inhalable dust** **- respirable dust**		-	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	-	No
Ferrovanadium, dust		12604-58-9	ACGIH TLV 1 mg/m3	ACGIH TLV 3 mg/m3	-	-	-	**P**	Eye & respiratory irritant	No
Fluorides (as F)		16984-48-8	WEL 2.5 mg/m3	-	-	500 mg/m3 as F	-	**P**	-	No
Flour dust		-	WEL 10 mg/m3	WEL 30 mg/m3	-	-	-	**P**	-	No
Fluorine		7782-41-4	WEL 1 ppm	WEL 1 ppm	0.126	25	-187	**SA**	Poor warning properties. Eye & respiratory irritant	No
Formaldehyde	Methylene oxide	50-00-0	WEL 2 ppm	WEL 2 ppm	0.871	30	-21	**Formaldehyde**	For Powered Air use B Eye, skin & respiratory irritant	Yes - 3M3721
Formamide	Carbamaldehyde; Methanamide	75-12-7	WEL 20 ppm	WEL 30 ppm	80	-	-	**SA**	Poor warning properties. Eye & skin irritant	No
Formic acid	Hydrogencarboxylic acid; Methanoic acid	64-18-6	WEL 5 ppm	-	-	-	-	**BE Formaldehyde**	Poor warning properties. Eye irritant	No
Furfural	2-Furaldehyde; Furfuraldehyde; Fural; 2-Furancarboxaldehyde	98-01-1	ACGIH TLV 2 ppm	-	0.058	250	161.7	**A**	-	Yes
Furfuryl alchohol	2-Hydroxymethylfuran; 2-Furyl-methanol	98-00-0	ACGIH TLV 10 ppm	ACGIH TLV 15 ppm	7.83	250	72-122	**A/P**	-	Yes
Gasoline	Petrol	8006-61-9	ACGIH TLV 300 ppm	-	0.3	-	38.9	**A**	SA - If benzene present. Eye & Skin irritant	No
Germane	Germanium tetrahydride; Germanium hydride	7782-65-2	WEL 0.2 ppm	WEL 0.6 ppm	-	-	-88.5	**SA**	Warning properties unknown.	No
Glutaraldehyde	1,5-Pentanedial	111-30-8	WEL 0.05 ppm	WEL 0.05 ppm	0.038	-	100	**A/P**	-	No
Glycerol, mist	Glycerin	56-81-5	WEL 10 mg/m3	-	-	-	-	**P**	-	No
Glyceryl trinitrate	Nitroglycerin (NG); trinitroglycerin	55-63-0	ACGIH TLV 0.05 ppm	-	-	53 ppm	-	**SA**	Warning properties unknown. Very short 'A' filter service life	No
Glycidol	2-Hydroxymethyloxiran; Hydroxymethyl ethylene oxide; Epoxypropyl alcohol; 3-Hydroxy-propylene oxide; 2,3-Epoxy-1-propanol	556-52-5	ACGIH TLV 2 ppm	-	-	500	-	**SA**	Warning properties unknown. Eye & skin irritant	Yes
Grain dust (oats,wheat,barley)		-	WEL 10 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No
Graphite (natural) **- inhalable** **- respirable**	Plumbago; Potelot; Corbo minerals; Black lead; Silver lead	7782-42-5	 WEL10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	-	No
Gypsum **- Total inhalable dust** **- Respirable dust**		10101-41-4	 WEL10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	Eye & skin irritant	No
Hafnium and compounds, dusts and mists (as Hf)		7440-58-6	ACGIH TLV 0.5 mg/m3	-	-	-	4602	**P**	Eye irritant	No
Halothane	2-Bromo-2-chloro-1,1,1-trifluoroethane	151-67-7	WEL 10 ppm	-	33	-	50	**SA**	Eye, skin & respiratory irritant	No
Hardwood dust		-	WEL 5 mg/m3	-	-	-	-	**P**	-	
Heptane	Normal heptane; n-Heptane	142-82-5	WEL 500 ppm	-	9.77	5000	68.5	**A**	-	Yes
Heptan-2-one	Methyl n-amyl ketone; n-Amyl methyl ketone; 2-Heptanone	110-43-0	WEL 50 ppm	WEL 100 ppm	0.141	4000	150.6	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes
Heptan-3-one	3-Heptanone; Ethyl butyl ketone	106-35-4	WEL 35 ppm	WEL 100 ppm	0.1-10	3000	148	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes
Hexachlorobenzene	Perchlorobenzene	118-74-1	ACGIH 0.002 mg/m3	-	0.463 mg/m3	-	326	**P**	-	Yes
Hexachlorobutadiene	Hexachloro-1,3-butadiene; perchlorobutadiene	87-68-3	ACGIH 0.02 ppm	-	-	-	215	**SA**	Warning properties unknown. Eye irritant	Yes
Hexachlorocyclopentadiene	1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	77-47-4	ACGIH TLV 0.01 ppm	-	0.03	-	239	**SA**	Poor warning properties. Eye, skin & respiratory irritant	Yes
Hexachloroethane	Perchloroethane	67-72-1	ACGIH TLV 1	-	0.15	300	-	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes

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Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Hexachloronaphthalene	Halowax™ 1014	1335-87-1	ACGIH TLV 0.2 mg/m3	-	-	2 mg/m3	343-387	**A/P**	A/P - See definitions section.	No
Hexadiene	1,2-Hexadiene	-	-	-	-	-	-	**SA**	Warning properties unknown.	
Hexafluoroacetone	1,1,1,3,3,3-Hexafluoro-2-propanone	684-16-2	ACGIH TLV 0.1 ppm	-	-	-	-28	**SA**	Warning properties unknown. Eye & skin irritant	No
Hexahydro-1,3,5-trinitro-sym-triazine	Cyclonite; RDX; sym-Trimethylene trinitramine	121-82-4	ACGIH TLV 0.5 mg/m3	-	-	-	-	**P**	Eye & skin irritant	No
Hexamethylenediamine	1,6-Hexanediamine; 1,6-Diaminohexane; HMDA; HMD	124-09-4	AIHAWEEL 0.5 ppm	-	-	-	-	**A/P**	A/P - See definitions section.	No
Hexamethylene diisocyanate	HDI	822-06-0	ACGIH TLV 0.005 ppm	-	0.01	-	213	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
n-Hexane	Hexane; Hexyl hydride; Normal hexane	110-54-3	WEL 20 ppm	-	21.9	5000	68.7	**SA**	Eye & skin irritant	Yes
Hexane (other isomers)		-	ACGIH TLV 500 ppm	ACGIH TLV 1000 ppm	65-248	-	50-62.8	**A**	Eye & skin irritant	
Hexanediol diacrylate	HDODA; Propenoic Acid 1,6-hexanediol ester	13048-33-4	AIHAWEEL 1 mg/m3	-	-	-	-	**A/P**	A/P - See definitions section.	
Hexan-2-one	2-Hexanone; MBK	591-78-6	WEL 5 ppm	-	0.166	5000	127.2	**A**	Eye irritant	Yes
1,6-Hexanolactam **- Dust and vapour** **- Dust only**	Caprolactam; Aminocaproic lactam; 2-Oxohexamethyleneimine	105-60-2	 WEL10 mg/m3 WEL 1 mg/m3	 WEL 20 mg/m3 WEL 3 mg/m3	0.064	-	268.3	**A/P**	A/P - See definitions section. Eye, skin & respiratory irritant	Yes
Hydrazine	Anhydrous hydrazine	302-01-2	WEL 0.02 ppm	WEL 0.1 ppm	3.6	80	113.5	**SA**	Poor warning properties. Eye & skin irritant	No
Hydrogenated terphenyls	Hydrogenated terphenyls	61788-32-7	ACGIH TLV 0.5 ppm	-	-	-	340	**P**	Eye & skin irritant	No
Hydrogen bromide	Hydrobromic acid; HBr	10035-10-6	-	WEL 3 ppm	2	-	-66.5	**E**	Eye & skin irritant	No
Hydrogen chloride	Hydrochloric acid; HCl; Muriatic Acid	7647-01-0	WEL 1 ppm	WEL 5 ppm	0.77	100	-84.8	**E**	Respiratory irritant	No
Hydrogen cyanide	Hydrocyanic acid; Prussic acid	74-90-8	-	WEL 10 ppm	0.603	50	25.7	**SA**	Eye irritant, Asphyxiant	No
Hydrogen Fluoride	Anhydrofluoric acid; HF	7664-39-3	WEL 1.8 ppm	WEL 3 ppm	0.042	30	19.4	**HF**	Eye & skin irritant	No
Hydrogen peroxide	Peroxide; Hydrogen dioxide	7722-84-1	WEL 1 ppm	WEL 2 ppm	-	75	158	**SA**	Warning properties unknown. Eye irritant	No
Hydrogen selenide	Selenium hydride; Hydrogen selenide (as Se)	7783-07-5	WEL 0.02 ppm	WEL 0.05 ppm	0.3	2	-41.4	**SA**	Poor warning properties. Eye & skin irritant	No
Hydrogen Sulphide	Sulphuretted hydrogen; H2S; Hydrosulphuric Acid; Hepatic gas	7783-06-4	WEL 5 ppm	WEL 10 ppm	0.0005	300	-60.4	**SA**	Warning properties (Olfactory fatigue). Eye & respiratory irritant	No
Hydroquinone	Quinol; Dihydroxybenzene; 1,4-Benzenediol	123-31-9	WEL 0.5 mg/m3	-	-	50 mg/m3	286.2	**A/P**	A/P - See definitions section. Eye irritant	No
4-Hydroxy-4-methyl-2-pentanone	Diacetone; Diacetone alcohol; 2-Methyl-2-pentanol-4-one	123-42-2	WEL 50 ppm	WEL 75 ppm	0.891	2100	167.9	**A**	Eye, Skin & respiratory irritant	Yes
2-Hydroxypropyl acrylate	HPA	999-61-1	WEL 0.5 ppm	-	-	-	188.2	**SA**	Warning properties unknown. Eye, Skin & respiratory irritant	No
2,2'-Immunodiethanol	Diethanolamine; DEA; di-(2-Hydroxyethyl) amine	111-42-2	ACGIH TLV 1 ppm	-	0.025	-	269 Decomposes	**A/P**	A/P - See definitions section. Eye & skin irritant	No
Indene	Indonaphthene	95-13-6	WEL 10 ppm	WEL 15 ppm	0.009	-	182	**A**	Eye irritant	Yes
Indium and compounds (as In)		-	WEL 0.1 mg/m3	WEL 0.3 mg/m3	-	-	2080	**P**	Eye, Skin & respiratory irritant	No
Iodine		7553-56-2	-	WEL 1.1 mg/m3	-	10	184	**SA**	Warning properties unknown. Eye & skin irritant	No
Iodoform	Triiodomethane	75-47-8	WEL 0.6 ppm	WEL 1 ppm	0.000019-1.1	-	-	**SA**	Poor warning properties. Eye & skin irritant	No
Iodomethane	Methyl iodide	74-88-4	WEL 2 ppm	-	-	800	42.5	**AX**	Single Use Filter - Not available for Powered Air; Warning properties unknown. Eye ,Skin & respiratory irritant	Yes
2-2 Iminodi (ethylamine)	Diethylene triamine	111-40-0	WEL 1 ppm	-	9.3	-	207	**SA**	Poor warning properties. Eye irritant	No
Iron oxide fume	Ferric oxide fume	1309-37-1	WEL 5 mg/m3	WEL 10 mg/m3	-		-	**P**	-	No
Iron salts,soluble (as Fe)	Iron salts,soluble (as Fe)	-	WEL 1 mg/m3	WEL 2 mg/m3	-	-	-	**P**	Eye irritant	No
Ferric/Ferrous salts, soluble	Ferrous sulfate and chloride; Ferric chloride, nitrate & sulphate	-	WEL 1 mg/m3	WEL 2 mg/m3	-	-	-	**P**	-	No
Isopentyl acetate	Isoamyl acetate; 3-Methyl-1-butanol acetate; Banana oil; 2-Methylbutyl ethanoate	123-92-2	WEL 50 ppm	WEL 100 ppm		3000-9000	142	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes
Isobutyl acetate	2-Methylpropyl acetate	110-19-0	WEL150 ppm	WEL 187 ppm	0.479	7500	118	**A**	Eye, Skin & respiratory irritant	Yes
Isocyanates, all (as -NCO)		-	WEL 0.02 mg/m3	WEL 0.07 mg/m3	-	-	-	**SA**	-	
Isocyanuric acid **- Total** **- Respirable**	s-triazinetriol; Cyanuric acid; s-Triazine-2,4,6(1H,3H,5H)-trione	108-80-5	 AIHAWEEL 10 mg/m3 AIHAWEEL 5 mg/m3	-	-	-	23.3	**P**	K/P combination is preferable,if wet	No
Isoflurane		26675-46-7	WEL 50 ppm	-	-	-	-	**SA**	-	
Isooctyl alcohol (mixed isomers)	Isooctanol	26952-21-6	WEL 50 ppm	-	-	-	186.1	**SA**	Warning properties unknown. Eye & skin irritant	No
Isophorone	3,5,5-Trimethyl-cyclohexenone; 3,5,5-Trimethylcyclohex-2-enone	78-59-1	-	-	0.631	800	215.2	**A/P**	A/P - See definitions section. Eye & skin irritant	Yes
Isophorone diisocyanate	IPDI	4098-71-9	ACGIH TLV 0.005 ppm	-	-	-	-	**SA**	Warning properties unknown. Eye, Skin & respiratory irritant	No
Isophthalic acid - respirable	1,3-Dicarboxylic acid; IA; IPA (Isophthalic acid); m-Phthalic acid	121-91-5	AIHAWEEL 5 mg/m3	-	-	-	-	**P**	-	No
Isoprene	2-Methyl-1,3-butadiene	78-79-5	AIHAWEEL 2 ppm	-	-	-	-	**SA**	Warning properties unknown.	Yes - 3M3520
Isopropoxyethanol	IPE; Isopropyl Cellosolve®; Ethylene glycol monoisopropyl ether; Isopropyl glycol	109-59-1	ACGIH TLV 25 ppm	-	0.738	-	139	**SA**	Eye irritant	Yes
Isopropyl acetate	Isopropyl ester of acetic acid; sec-Propyl acetate	108-21-4	-	WEL 200 ppm	0.05-4.1	16000	88.4	**A**	Eye & skin irritant	Yes
Isopropylamine	Monosisopropylamine; 2-Aminopropane	75-31-0	ACGIH TLV 5 ppm	ACGIH TLV 10 ppm	0.6	4000	31.7	**K**	Eye irritant	No
n-Isopropylaniline	o-Isopropylaniline; o-Amino-isopropylbenzene	768-52-5	ACGIH TLV 2 ppm	-	-	-	203	**SA**	Warning properties unknown. Eye irritant	No
Kaolin (Respirable dust)	China clay; Aluminium silicate	1332-58-7	WEL 2 mg/m3	-	-	-	-	**P**	-	No
Kerosene	Kerosine	8008-20-6	ACGIH TLV 200 mg/m3	-	-	-	175-325	**A/P**	Eye & skin irritant	No
Ketene	Carbomethene; Ethenone	463-51-4	WEL 0.5 ppm	WEL 1.5 ppm	-	-	-56	**SA**	Warning properties unknown. Eye & skin irritant	No
Laboratory animal allergens		-	-	-	-	-	-	**P**	Eye, Skin & respiratory irritant	No
Lacquer thinner (See specific ingredients)		-	-	-	-	-	-	**-**	See Specific Ingredients	No

A-Organic Vapour; B-Inorganic Vapour; E-Acid Gas; K–Ammonia; AX-Organic Vapour, boiling point <65℃; P –Particulate; SA-Supplied Air; AP-Organic Vapour + Particulate; HgP3-Mercury Particulate; *** no WEL established. Assumed to be 8 hr TWA

Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Lead,metal and inorganic dusts and fumes (as Pb)		7439-92-1	ACGIH TLV 0.05 mg/m3	-	-	700 mg/m3	-	P	-	No
Lead arsenate (as As)		3687-31-8	OSHA PEL 0.01 mg/m3	-	-	-	-	P	-	No
Lead chromate (as Cr)	Chrome orange; Red lead chromate	7758-97-6	ACGIH TLV 0.012 mg/m3	-	-	-	-	P	-	No
Limestone - Total inhalable dust - Respirable dust	Calcium Carbonate; Marble	1317-65-3	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	P	Eye & skin irritant	No
d-Limonene	1-methyl-4(1-methylethenyl) cyclohexene; 4-isopropyl-1-methylcyclohexene; p-mentha-1, 8-diene; Cinene; Cajeputene	5989-27-5	AIHAWEEL 30 ppm	-	0.437	-	178	A	-	Yes
Liquefied petroleum gas	LPG; Bottled gas	68476-85-7	WEL 1000 ppm	WEL 1250 ppm	-	19000	-42.2	SA	Warning properties unknown. Asphyxiant	No
Lithium fluoride (as F)		7789-24-4	ACGIH TLV 2.5 mg/m3	-	-	-	1671	P	-	No
Lithium hydride		7580-67-8	WEL 0.025 mg/m3	-	-	55 mg/m3	-	P	Eye & skin irritant	No
Lithium hydroxide		1310-65-2	-	WEL 1 mg/m3	-	-	-	P	-	No
Lithium hydroxide monohydrate		1310-66-3	-	WEL 1 mg/m3	-	-	-	P	-	No
Lithium oxide	Dilithium oxide; Lithium monoxide	12057-24-8	-	-	-	-	-	P	-	No
Magnesite - Total inhalable dust	Magnesium carbonate - total inhalable dust	546-93-0	WEL 10 mg/m3	-	-	-	-	P	Eye, Skin & respiratory irritant	No
Magnesite - Respirable dust	Magnesium carbonate - Respirable dust	546-93-0	WEL 4 mg/m3	-	-	-	-	P	Eye, Skin & respiratory irritant	No
Magnesium oxide - Total inhalable dust - total respirable dust	Magnesia fume	1309-48-4	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	750 mg/m3	-	P	Eye irritant	No
Maleic anhydride	2,5-Furanedione; cis-Butenedioic anhydride	108-31-6	WEL 1 mg/m3	WEL 3 mg/m3	0.318	-	202	A/P	A/P - See definitions section. Skin & respiratory irritant	No
Man-made mineral fibres	MMMF	-	WEL 5 mg/m3	-	-	-	-	P	Eye, Skin & respiratory irritant	No
Manganese,dust and compounds (as Mn)	Manganese,metal fume	7439-96-5	WEL 0.5 mg/m3	-	-	-	1900	P	-	No
Manganese cyclopentadienyl tricarbonyl (as Mn)	MCT	12079-65-1	ACGIH TLV 0.1 mg/m3	-	-		-	A/P	A/P - See definitions section. Eye & skin irritant	No
Manganese oxide fume (as Mn)	Manganese oxide; trimanganese tetroxide	1317-35-7	-	-	-	-	-	P	-	No
Mercaptoacetic acid	Thioglycolic acid; Thioranic acid	68-11-1	WEL 1 ppm	-	-	-	-	SA	Poor warning properties. Eye & skin irritant	No
Mercaptoethanol	2-Mercaptoethanol; 2ME; Thioglycol; 1-Hydroxy-2-mercaptoethane; 2-Hydroxy-1-ethanethiol; 2-Hydroxyethylmercaptan; 2 Thioethanol; Thioethyleneglycol	60-24-2	AIHAWEEL 0.2 ppm	-	0.12-0.64	-	-	SA	Poor warning properties.	No
Mercury, vapour	Quicksilver, Hg	7439-97-6	WEL 0.02 mg/m3	-	-	28 mg/m3	356.9	Hg/P3	Eye & skin irritant	No
Mercury,inorganic compounds (as Hg)		-	WEL 0.02 mg/m3	-	-	28 mg/m3	-	P	P - Dust with essentially no vapour pressure only. Hg/P3 for volatile liquids. Eye & skin irritant	No
Mercury,alkyl compounds		-	ACGIH TLV 0.01 mg/m3	-	-	10 mg/m3	-	SA	Warning properties unknown.	No
4-Methylpent-3-en-2-one	Mesityl oxide	141-79-7	ACHIG TLV 15 ppm	ACHIG TLV 25 ppm	0.056	5000	130	A	Eye & skin irritant	Yes
Methanol	Methyl alcohol; Wood alcohol; Carbinol	67-56-1	WEL 200 ppm	WEL 250 ppm	141	25000	64.8	AX	Single Use Filter - Not available for Powered Air; Eye, skin & respiratory irritant	No
Methanethiol	Methyl mercaptan; Mercaptomethane	74-93-1	WEL 0.5 ppm	-	0.001		7.6	SA	Eye, Skin & respiratory irritant	No
2-Methoxyethanol	Ethylene glycol monomethyl ether; Methyl Cellosolve®	109-86-4	WEL 1 ppm	-	0.11	200	124.4	A	Eye & skin irritant	Yes
2-Methoxyethyl acetate	Ethylene glycol methyl ether acetate; Ethylene glycol monomethyl ether acetate; Methyl Cellosolve® acetate	110-49-6	WEL 1 ppm	-	1.07	4000	145	A	Eye, Skin & respiratory irritant	Yes
Mequinol (INN)	4-Methoxyphenol; p-Methoxyphenol; Hydroquinone monomethyl ether	150-76-5	ACGIH TLV 5 mg/m3	-	-	-	242.8	A/P	A/P - See definitions section P - if aerosol only. Eye & skin irritant	No
1-Methoxypropan-2-ol	1-Methoxy-2-propanol; Dowtherm® 209; Propylene glycol ether; Propylene glycol monomethyl ether;	107-98-2	WEL 100 ppm	WEL 150 ppm	0.003	-	-	A	Eye & skin irritant	Yes
3-Methoxypropyl amine	1-Propanamine 3-Methoxy	5332-73-0	AIHAWEEL 5 ppm	AIHAWEEL 15 ppm	2.7	-	-	K	Eye irritant	No
1-Methoxypropyl acetate	1-Methoxy-2-propanol acetate; Glycol ether PM acetate; PGMEA; Propylene glycol monomethyl ether acetate;	108-65-6	WEL 50 ppm	WEL 100 ppm	-	-	145	A		
Methyl acetate	Methyl acetic ester; Acetic acid methyl ester; Methyl ethanoate	79-20-9	WEL 200 ppm	WEL 250 ppm	6.17	10,000	57.8	AX	Single Use Filter - Not available for Powered Air; Short OV service life Eye & skin irritant	Yes
Methyl acetylene	Propyne; Allylene	74-99-7	ACGIH TLV 1000 ppm	-	-	15000	-23.3	SA	Warning properties unknown. Respiratory irritant	No
Methyl acetylene propadiene mixture	MAPP gas; Propyne-allene mixture; Methyl acetylene-allene mixture	59355-75-8	ACGIH TLV 1000 ppm	ACGIH TLV 1250 ppm	100	15,000	-38 to -20	SA	Respiratory irritant	No
Methyl acrylate	Methyl propenoate	96-33-3	WEL 5 ppm	WEL 10 ppm	0.263	1000	80	A	Eye, Skin & respiratory irritant	Yes
Methacrylic acid	2-methacrylic acid; 2-Methyl propenoic acid; a-Methacrylic acid	79-41-4	WEL 20 ppm	WEL 40 ppm	-	-	161	SA	Warning properties unknown. Eye & skin irritant	Yes
Methylacrylonitrile	2-Methyl-2-propenenitrile; Isoprene cyanide	126-98-7	ACGIH TLV 1 ppm	-	6.8	-	80	SA	Poor warning properties. Eye & skin irritant	Yes
Methylamine	Monomethylamine	74-89-5	ACGIH TLV 5 ppm	ACGIH TLV 15 ppm	0.019	100	-6.8	K	Eye, Skin & respiratory irritant	No
Methyl aniline	Monomethyl aniline; N-Methyl aniline; MA	100-61-8	ACGIH TLV 0.5 ppm	-	1.74	100	195.7	SA	Poor warning properties.	No
1-Methylbutyl acetate	sec-Amyl acetate; 2-Pentanol acetate	626-38-0	WEL 50 ppm	WEL 100 ppm	-	3000-9000	120	A/P	A/P - See definitions section. Eye & skin irritant	Yes
3-Methyl-1-butanol	Isoamyl alcohol; Isobutyl carbinol; Isopentyl alcohol; Fusel oil; 3-Methylbutan-1-ol	123-51-3	WEL 100 ppm	WEL 125 ppm	0.045	10000	132	A/P	A/P - See definitions section. Eye & skin irritant	Yes
Methyl 2-cyanoacrylate	Mecrylate	137-05-3	-	WEL 0.3 ppm	2.16	-	48	A	Eye & skin irritant	No
Methylcyclohexane	Cyclohexylmethane; Hexhydrotoluene	108-87-2	ACGIH TLV 400 ppm	-	500-630	10000	100.3	A	Eye & skin irritant	Yes
Methylcyclohexanol	Hexahydrocresols	25639-42-3	WEL 50 ppm	WEL 75 ppm	490	10000	155-180	SA	Poor warning properties. Eye, skin & respiratory irritant	No
2-Methylcyclohexanone	o-Methylcyclohexanone	583-60-8	WEL 50 ppm	WEL 75 ppm	-	2500	160-170	A	Eye irritant	Yes

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Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Methylene bisphenyl isocyanate	MDI; 4,4'-Diphenylmethane diisocyanate; Methylene-bis-(4-phenyl isocyanate)	101-68-8	ACGIH TLV 0.005 ppm	-	0.384	9.7	314	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
Methylene-bis-(4-cyclohexylisocyanate)	Dicyclohexylmethane 4,4'-diisocyanate; DMDI; HMDI; bis(4-Isocyanatocyclohexyl)-methane	5124-30-1	ACGIH TLV 0.005 ppm	-	-	-	-	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
4,4'-Methylene dianiline	4,4'-Diaminodiphenylmethane; MDA	101-77-9	WEL 0.01 ppm	-	-	-	398	**P**	Warning properties unknown. Eye irritant	No
4,4'-Methylene dianiline (heat involved)	4,4'-Diaminodiphenylmethane; MDA (heat involved)	101-77-9	WEL 0.01 ppm	-	-	-	398	**SA**	Warning properties unknown. Eye irritant	No
Methyl ethyl ketone peroxides	MEKP	1338-23-4	-	WEL 0.2 ppm	-	-	-	**SA**	Warning properties unknown. Eye & skin irritant	No
Methyl ethyl ketoxime	2-Butanone oxime; MEKO	96-29-7	AIHAWEEL 10 ppm	-	-	-	-	**SA**	Warning properties unknown.	No
Methyl formate	Methyl methanoate; Formic acid methyl ester	107-31-3	ACGIH TLV 50 ppm	ACGIH TLV 100 ppm	93.3	5000	32	**SA**	Eye & skin irritant	Yes
5-Methylheptan-3-one	Ethyl amyl ketone; EAK; 5-Methyl-3-heptanone	541-85-5	WEL 10 ppm	WEL 20 ppm	6	3000	157-162	**A**	Eye & skin irritant	Yes
5-Methylhexan-2-one	5-Methyl-2-hexanone; Methyl isoamyl ketone; MIAK	110-12-3	WEL 20 ppm	WEL 100 ppm	0.042	-	133	**A**	Eye & skin irritant	Yes
Methyl hydrazine	Monomethyl hydrazine	60-34-4	ACGIH TLV 0.01	-	1.71	50	87.8	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
Methyl isocyanate	Isocyanic acid methyl ester; MIC	624-83-9	-	WEL 0.02 ppm	2.1	20	39.1	**SA**	Poor warning properties. Eye & skin irritant	No
Methyl isopropyl ketone	MIPK; 3-Methyl-2-butanone	563-80-4	ACGIH TLV 200 ppm	-	4.47	-	92.8	**SA**	Poor warning properties. Irritant	Yes
n-Methyl-2-pyrrolidone	NMP; 1-methyl-2-pyrrolidone; m-Pyrol; n-Methyl pyrrolidone	872-50-4	WEL 10 ppm	WEL 20 ppm				**SA**	Warning properties unknown	No
2-Methylpentane-2,4 diol	4-Methyl-2,4-pentanediol; Hexylene glycol	107-41-5	WEL 25 ppm	WEL 25 ppm	49.9	-	197.1	**A**	Eye, Skin & respiratory irritant	Yes
4-Methylpentan-2-one	Methyl isobutyl ketone; MIBK; Hexone	108-10-1	WEL 50 ppm	WEL100 ppm	0.121	3000	118	**A**	Eye & skin irritant	Yes
4-methylpentan-2-ol	Methyl isobutyl carbinol; Methyl amyl alcohol	108-11-2	WEL 25 ppm	WEL 40 ppm	1.1	2000	132.8	**A**	Eye & skin irritant	Yes
2-Methylpropan-1-ol	Isobutyl alcohol; Isobutanol; IBA; 2-Methyl-1-propanol; Isopropylcarbinol	78-83-1	WEL 50 ppm	WEL 75 ppm	0.832	8000	107.9	**A**	-	Yes
2-Methylpropan-2-ol	tert-Butyl alcohol; 2-Methyl-2-propanol; TBA; Trimethyl-carbinol	75-65-0	WEL 100 ppm	WEL 150 ppm	21.5	8000	82.8	**A**	Eye irritant	Yes
Methyl tert-butyl ether	2-Methoxy-2-methyl-propane; tert-Butyl methyl ether; MTBE; 2,2-MMOP	1634-04-4	WEL 50 ppm	WEL 100 ppm	0.053	-	-	**A**	-	Yes
N-Methyl-N-2,4-6-tetranitroaniline	2,4,6-Trinitrophenyl-methylnitramine; Tetryl; Nitramine; Tetralite	479-45-8	ACGIH TLV 1.5 mg/m3	-	-	-	-	**P**	-	No
Methylstyrene	Vinyl toluene; Tolyethylene	25013-15-4	ACGIH TLV 50 ppm	ACGIH TLV 100 ppm	10	5000	170-171	**A/P**	A/P - See definitions section Eye, skin & respiratory irritant	Yes
Methyltrichlorosilane	Trichloromethylsilane	75-79-6	-	-	-	-	-	**E/P**	-	No
Mica (less than 1% quartz) - Total inhalable dust - Respirable dust		12001-26-2	 WEL10 mg/m3 WEL 0.8 mg/m3	-	-	1500 mg/m3	-	**P**	Eye irritant	No
Molybdenum,soluble compounds (as Mo)		7439-98-7	WEL 5 mg/m3	WEL 10 mg/m3	-	-	-	**P**	Eye irritant	No
Molybdenum,insoluble compounds (as Mo)		7439-98-7	WEL 10 mg/m3	WEL 20 mg/m3	-	-	-	**P**	Eye irritant	No
Molybdenum,metal fume (as Mo)		7439-98-7	WEL 5 mg/m3	WEL 10 mg/m3	-	-	5560	**P**	Eye irritant	No
Monochloroacetic acid	MCA; MCAA; Chloroethanoic acid	79-11-8	WEL 0.3 ppm	-	0.045	-	189	**A/P**	A/P - See definitions section. Eye irritant	No
Morpholine	Tetrahydro-1,4-oxazine; Diethylenimide oxide	110-91-8	WEL 10 ppm	WEL 20 ppm	0.036	8000	128.9	**A**	Eye & skin irritant	No
Naphtha (coal tar)	Crude solvent coal tar naphtha; High solvent naphtha	8030-30-6	OSHA PEL 100 ppm	-	-	10000	149-216	**A/P**	A/P - See definitions section Eye & skin irritant	Yes
Naphthalene	White tar; Naphthalin	91-20-3	ACGIH TLV 10 ppm	-	0.015	500	217.9	**A/P**	A/P - See definitions section. Eye irritant	Yes
Nickel,metal dust (as Ni)		7440-02-0	WEL 0.5 mg/m3	-	-	-	2732	**P**	-	No
Nickel,metal fume (as Ni)		7440-02-0	WEL 0.1 mg/m3	-	-	-	-	**P**	-	No
Nickel,soluble compounds (as Ni)		7440-02-0	WEL 0.1 mg/m3	-	-	-	-	**P**	-	No
Nickel,sulphide roasting, fume and dust (as Ni)		-	WEL 0.1 mg/m3	-	-	-	-	**SA**	Warning properties unknown. Eye irritant	No
Nickel carbonyl (as Ni)	Nickel tetracarbonyl; Tetracarbonylnickel (as Ni)	13463-39-3	-	WEL 0.1 ppm	0.5-3.0	7	43	**SA**	Poor warning properties. Eye irritant	No
Nicotine	3-(1-Methyl-2-pyrrolidyl) pyridine	54-11-5	WEL 0.5 mg/m3	WEL 1.5 mg/m3	-	35 mg/m3	247.3	**A/P**	A/P - See definitions section	No
Nitric acid	Aqua fortis; Hydrogen nitrate; White fuming nitric acid (WFNA); Red fuming nitric acid (RFNA);	7697-37-2	-	WEL 1 ppm	0.267	100	82.8	**SA**	Eye & skin irritant	No
Nitrogen monoxide	Nitric oxide; NO	10102-43-9	ACGIH TLV 25 ppm	-	-	100	-151.8	**SA**	Ineffective sorbents. Eye irritant	No
4-Nitroaniline	p-Nitroaniline; Azoic diazo component 37; p-Aminonitro-benzene; Fast red GG base; PNA	100-01-6	ACGIH TLV 3 mg/m3	-	-	300 mg/m3	332.2	**A/P**	A/P - See definitions section. Eye irritant	No
Nitrobenzene	Nitrobenzol; Oil of mirbane	98-95-3	WEL 0.2 ppm	-	0.044	200	210.9	**A**	Eye & skin irritant	Yes
Nitroethane		79-24-3	ACGIH TLV 100 ppm	-	2.11	1000	114	**SA**	Poor warning properties. Very short 'A' filter service life. Skin irritant	Yes
Nitrogen dioxide	Nitrogen tetroxide; NTO; Dinitrogen tetroxide; Nitrogen peroxide	10102-44-0	ACGIH TLV 0.2 ppm	-	0.186	50	21	**SA**	Ineffective sorbents. Eye & skin irritant	No
Nitrogen trifluoride	Nitrogen fluoride	7783-54-2	ACGIH TLV 10 ppm	-	-	2000	-129	**SA**	Warning properties unknown.	No
Nitromethane	Nitrocarbol	75-52-5	WEL 100 ppm	WEL 150 ppm	3.5	1000	101	**SA**	Short 'A' filter service life. Skin irritant	No
1-Nitropropane		108-03-2	ACGIH TLV 25 ppm	-	7.09	2300	132	**SA**	Eye irritant	Yes
2-Nitropropane	sec-Nitropropane; Isonitropropane; Dimethylnitromethane	79-46-9	WEL 5 ppm	-	4.85	2300	120	**SA**	Eye & skin irritant	Yes
Nitrotoluene (all isomers)	Nitrotoluol	88-72-2	ACGIH TLV 2 ppm	-	0.017	200	222-238	**A/P**	A/P - See definitions section	
Nitrous oxide		10024-97-2	WEL 100 ppm	-	-	-	-88.5	**SA**	Warning properties unknown. Asphyxiant	No
Nonane	n-Nonane; Nonyl hydride	111-84-2	ACGIH TLV 200 ppm	-	1.26	-	150.7	**A**	Eye & skin irritant	Yes
Nuisance particulates - Total inhalable dust - Respirable dust		-	 ACGIH TLV 10 mg/m3 ACGIH TLV 3 mg/m3	-	-	-	-	**P**	-	No
Nylon - Inhalable - Respirable	Nylon 6; Perlon; Polycaprolactam; Poly[imino(1-oxo-1,6-hexanediyl)	25038-54-4	 COSHH 10 mg/m3 COSHH 4 mg/m	-	-	-	-	**P**	-	No
Octachloronaphthalene	Halowax™ 1051	2234-13-1	ACGIH TLV 0.1 mg/m3	ACGIH TLV 0.3 mg/m3	-	-	410	**A/P**	A/P - See definitions section	No

A-Organic Vapour; B-Inorganic Vapour; E-Acid Gas; K–Ammonia; AX-Organic Vapour, boiling point <65℃; P –Particulate; SA-Supplied Air; AP-Organic Vapour + Particulate; HgP3-Mercury Particulate; *** no WEL established. Assumed to be 8 hr TWA

Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Octane	Normal octane	111-65-9	ACGIH TLV 300 ppm	-	5.75	5000	125.8	**A**	Eye irritant	Yes
1-Octanol	Alcohol C-8; Capryl alcohol; Heptyl carbinol; n-Octanol; 1-Hydroxyoctane; N-Octyl alcohol	111-87-5	AIHAWEEL 50 ppm	-	0.006	-	-	**A**	-	Yes
Oil mist (mineral)	White mineral oil; Cutting oil; Heattreating oil; Hydraulic oil; Cable oil; Lubricating oil	-	ACGIH TLV 5 mg/m3	ACGIH TLV 10 mg/m3	-	-	360	**P**	Eye, Skin & respiratory irritant	
Osmium tetroxide	Osmic acid	20816-12-0	WEL 0.0002 ppm	WEL 0.0006 ppm	0.002	0.1 ppm	130	**SA**	Unknown sorbent effectiveness. Eye & respiratory irritant	No
Orthophosphoric acid	Phosphoric acid; White phosphoric acid; o-phosphoric acid; m-phosphoric acid	7664-38-2	WEL 1 mg/m3	WEL 2 mg/m3	-	10000 mg/m3	213	**P**	Eye & respiratory irritant	No
Oxalic acid	Ethanedioic acid	144-62-7	WEL 1 mg/m3	WEL 2 mg/m3	-	500 mg/m3	-	**A/P**	A/P - See definitions section Eye & skin irritant	No
Oxalic acid dihydrate		6153-56-6	WEL 1 mg/m3	WEL 2 mg/m3	-	500 mg/m3	-	**A/P**	A/P - See definitions section Eye & skin irritant	No
2-2-Oxydiethanol	Diethylene glycol; DEG; Diglycol; 2,2'-Dihydroxydiethyl ether; 2,2-Oxydiethanol	111-46-6	WEL 23 ppm	-	-	-	-	**A/P**	A/P - See definitions section	Yes
Oxygen difluoride	Difluorine monoxide; Fluorine monoxide	7783-41-7	-	-	0.098	0.5	-144.8	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
Ozone	Triatomic oxygen	10028-15-6	-	WEL 0.2 ppm	0.051	10	111.9	**A**	Eye irritant	No
Paint spray		-	-	-	-	-	-	**-**	See ingredients of paint. Consult 3M	
Paracetamol - Total inhalable dust		103-90-2	WEL 10 mg/m3	-	-	-	-	**P**	-	No
Paraffin wax fume		8002-74-2	WEL 2 mg/m3	WEL 6 mg/m3	-	-	-	**P**	Eye, skin and respiratory irritant	No
Pentaborane	Stable pentaborane; Pentaboran nonahydride	19624-22-7	ACGIH TLV 0.005 ppm	ACGIH TLV 0.015 ppm	0.97	3	60	**SA**	Poor warning properties. Eye & skin irritant	No
Pentacarbonyliron (as Fe)	Iron pentacarbonyl (as Fe); Iron carbonyl	13463-40-6	WEL 0.01 ppm	-	-	-	103	**SA**	Warning properties unknown. Eye irritant	No
Pentachloronaphthalene	Halowax™ 1013	1321-64-8	ACGIH TLV 0.5 mg/m3	-	-	-	335.6	**A/P**	A/P - See definitions section	No
Pentaerythritol **- Total inhalable dust** **- Respirable dust**	Tetramethylolmethane; 2,2-bis(Hydroxymethyl)-1,3-propanediol - respirable dust	115-77-5	 WEL 10 mg/m3 WEL 4 mg/m3	 WEL 20 mg/m3 -	-	-	-	**P**	Eye & respiratory irritant	No
Pentaerythritol triacrylate	PETA; 2-(hydroxymethyl)-2-[[(1-oxo-2-propenyl) oxy] methyl]-1,3-propanediylester	3524-68-3	AIHAWEEL 1 mg/m3	-	-	-	-	**A/P**	A/P - See definitions section	No
Pentane	Normal pentane; n-Pentane	109-66-0	WEL 600 ppm	-	31.6	15000	36.1	**AX**	Single Use Filter - Not available for Powered Air; Eye & skin irritant	Yes
Pentan-3-one	Diethyl ketone; Metacetone; Propione; 3-Pentanone; Ethyl propionyl	96-22-0	WEL 200 ppm	WEL 250 ppm	0.316	-	101.7	**A**	Eye & skin irritant	Yes
Pentan-2-one	Methyl propyl ketone; MPK; 2-Pentanone; Ethyl acetone	107-87-9	WEL 200 ppm	WEL 250 ppm	1.55	5000	102.2	**A**	Eye & skin irritant	Yes
Pentyl acetate	n-Amyl acetate; 1-Pentanol acetate	628-63-7	WEL 50 ppm	WEL 100 ppm	-	3000-9000	148	**A/P**	A/P - See definitions section. Eye irritant	Yes
Perchloric acid	Perchloric acid solution; Dioxonium Perchlorate solution; Hydronium Perchlorate	7601-90-3	-	-	-	-	200	**B/P**	-	No
Perchloromethyl mercaptan	Trichloromethyl Sulphur chloride; PMM	594-42-3	ACGIH TLV 0.1 ppm	-	0.097	10 ppm	-	**A**	Eye & skin irritant	No
Perchloryl fluoride	Chlorine oxyfluoride	7619-94-6	ACGIH TLV 3 ppm	-	11	385	-46.8	**SA**	Poor warning properties. Respiratory irritant	No
Perfluoroisobutylene	Octafluoroisobutylene; Octafluoro-sec-butene; PFIB	382-21-8	-	-	-	-	-	**SA**	Warning properties unknown. Rritant	No
Petroleum distillate (naphtha)	Petroleum naphtha; Aliphatic petroleum naphtha; Petroleum ether (95'to 115')	8002-05-9	OSHA PEL 500 ppm	-	-	10000	30-238	**A**	Odour variable 'A' filter acceptable if substance has good warning properties. Eye & skin irritant	
Phenol	Carbolic acid; Monohydroxy benzene	108-95-2	WEL 2 ppm	-	0.011	250	181.9	**A/P**	A/P - See definitions section Eye & skin irritant	Yes
m-Phenylenediamine	1,3-Benzenediamine; m-Diaminobenzene	108-45-2	ACGIH TLV 0.1 mg/m3	-	-	-	286	**A/P**	A/P - See definitions section	No
m-Phenylenediamine (heat involved)	1,3-Benzenediamine; m-Diaminobenzene (heat involved)	108-45-2	ACGIH TLV 0.1 mg/m3	-	-	-	286	**SA**	-	
o-Phenylenediamine	1,2-Benzenediamine; o-Diaminobenzene; Orthamine	615-28-1	ACGIH TLV 0.1 mg/m3	-	-	-	257	**A/P**	A/P - See definitions section	No
o-Phenylenediamine (heat involved)	1,2-Benzenediamine; o-Diaminobenzene; Orthamine (heat involved)	615-28-1	ACGIH TLV 0.1 mg/m3	-	-	-	257	**SA**	-	
p-Phenylenediamine	p-Diaminobenzene; 1,4-Diaminobenzene	106-50-3	WEL 0.1 mg/m3	-	-	25 mg/m3	267.2	**A/P**	A/P - See definitions section	No
p-Phenylenediamine (heat involved)	p-Diaminobenzene; 1,4-Diaminobenzene (heat involved)	106-50-3	WEL 0.1 mg/m3	-	-	25 mg/m3	267.2	**SA**	-	
Phenyl ether-biphenyl mixture, vapour	Dowtherm™ A; Diphenyl oxide diphenyl mixture	8004-13-5	OSHA PEL 1 ppm	-	0.001-0.01	-	257.2	**A/P**	A/P - See definitions section Eye & skin irritant	No
Phenyl-2,3-epoxypropyl ether	Phenyl glycidyl ether; PGE (Phenyl-2,3-epoxypropyl ether); Glycidyl phenyl ether; 1,2-Epoxy-3-phenoxy propane; Phenyl epoxypropyl ether	122-60-1	ACGIH TLV 1 ppm	-	-	100	245	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	Yes
Phenylhydrarzine	Hydrazinobenzene	100-63-0	ACGIH TLV 0.1 ppm	-	-	295	-	**SA**	Warning properties unknown. Eye irritant	No
Phenylphosphine	Fenylfosfin; PF; Phosphaniline	638-21-1	-	-	-	-	160	**SA**	Warning properties unknown.	No
2-Phenylpropene	a-Methyl styrene; AMS; 1-Methyl-1-phenyl-ethylene	98-83-9	WEL 50 ppm	WEL 100 ppm	0.003	5000	165.4	**A/P**	A/P - See definitions section Eye & skin irritant	Yes
Phosgene	Carbonyl chloride; Carbon oxychloride; Chloroformyl chloride	75-44-5	WEL 0.02 ppm	WEL 0.06 ppm	0.55	2	8.3	**SA**	Poor warning properties. Eye irritant	No
Phosphine	Hydrogen phosphide; Phosphorus hydride; Phosphorated hydrogen	7803-51-2	WEL 0.1 ppm	WEL 0.2 ppm	0.14	200	-87.5	**SA**	Ineffective sorbents, fumigant	No
Phosphorus (yellow)	White phosphorus; WP	7723-14-0	WEL 0.1 mg/m3	WEL 0.3 mg/m3	-	-	280	**SA**	Warning properties unknown. Filter 'P'acceptable if no phosphorus vapour or phosphine gas present. Eye & respiratory irritant	No
Phosphorus pentachloride	Phosphoric chloride	10026-13-8	WEL 0.1 ppm	WEL 0.2 ppm	-	200 mg/m3	-	**E/P**	Warning properties unknown. Eye, skin & respiratory irritant	No
Diphosphorus pentasulphide	Phosphorus pentasulphide; Phosphoric sulphide	1314-80-3	WEL 1 mg/m3	WEL 2 mg/m3	-	750 mg/m3	514	**P**	Eye, skin & respiratory irritant	No
Phosphorus trichloride	Phosphorus chloride	7719-12-2	WEL 0.2 ppm	WEL 0.5 ppm	-	50	76.1	**SA**	Warning properties unknown. Eye & skin irritant	No
Phosphoryl trichloride	Phosphoryl chloride; Phosphorus oxychloride	10025-87-3	WEL 0.2 ppm	WEL 0.6 ppm	-	-	105.6	**SA**	Warning properties unknown.	No
Phthalic anhydride	PAN; 1,3-Isobenzofurandione	85-44-9	WEL 4 mg/m3	WEL 12 mg/m3	0.052	1650	-	**A/P**	A/P - See definitions section Eye, skin & respiratoy irritant	No
m-Phthalodinitrile	1,3-Benzenedicarbonitrile; m-PDN; m-Dicyanobenzene; Isophthalodinitrile; 1,3-Dicyanobenzene	626-17-5	ACGIH TLV 5 mg/m3	-	-	-	-	**P**	-	No

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Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
o-Phthalodinitrile	1,2-Benzenedicarbonitrile; 1,2-dicyanobenzene; 1,2-Benzodinitrile; o-Benzenedinitrile; Phtalic acid dinitrile	91-15-6	ACGIH TLV 1 mg/m3	-	-	-	-	P	-	No
2-Picoline	a-Picoline; 2-Methyl-pyridine	109-06-8	AIHAWEEL 2 ppm	-	0.003	-	-	A	-	No
3-Picoline	b-Picoline; 3-Methyl-pyridine	108-99-6	AIHAWEEL 2 ppm	-	-	-	-	SA	Warning properties unknown.	No
4-Picoline	g-Picoline; 4-Methyl-pyridine	108-89-4	AIHAWEEL 2 ppm	-	-	-	-	SA	Warning properties unknown.	No
Picric acid	2,4,6-Trinitrophenol; Lyddite; Pertite; Shimose; Melinite	88-89-1	WEL 0.1 mg/m3	WEL 0.3 mg/m3	0.0005 mg/m3	-	-	P	Eye & skin irritant	No
Piperazine dihydrochloride	Dihydrochloride salt of diethylene-diamine	142-64-3	WEL 0.1 mg/m3	WEL 0.3 mg/m3	-	-	-	P	Eye, Skin & respiratory irritant	No
Piperaxine and salts	1,4-Piperazine; 1,4-Diazacyclohexane; Diethylenediamine; Hexahydropyrazine; Piperazidine	110-85-0	ACGIH TLV 0.03 ppm	-	-	-	-	P	-	
Piperidine	Hexahydropyridine	110-89-4	WEL 1 ppm	-	0.372	-	106	SA	Eye, Skin & respiratory irritant	Yes
Plaster of Paris - Total inhalable dust - Respirable dust		26499-65-0	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	P	Eye & skin irritant	No
Platinum - Metal,dusts and mists - Metal fume		7440-06-4	WEL 5 mg/m3	-	-	-	3827	P	Eye, skin & respiratory irritant	No
Platinum compounds, soluble (except certain halogeno Pt compounds)(asPt) as particulate		-	WEL 0.002 mg/m3	-	-	-	-	P	Eye irritant	No
Polychlorinated biphenyl	PCB	1336-36-3	WEL 0.1 ppm	-	-			A/P	A/P - See definitions section. Eye irritant	No
Polyethylene glycols	PEG; Polyoxyethylene; PGE (Polyethylene glycols)	25322-68-3	AIHAWEEL 10 mg/m3	-	-	-	-	P	-	No
Polypropylene glycols	PPG	57-55-6	AIHAWEEL 10 mg/m3	-	-	-	-	P		No
Polyvinyl chloride - inhalable dust - respirable dust		9002-86-2	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	P	-	
Portland Cement - Total inhalable dust - Respirable dust		65997-15-1	 WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	P	Eye & skin irritant	No
Potassium Bicarbonate	Potassium acid carbonate; Carbonic acid; Monopotassium salt; Potassium hydrogen carbonate	298-14-6	COSHH 10 mg/m3	-	-	-	-	P	-	No
Potassium bromate	Bromic acid potassium salt	7758-01-2	AIHAWEEL 0.1 mg/m3	-	-	-	-	P	-	No
Potassium hydroxide	Caustic potash; Lye (Potassium hydroxide); Potassium hydrate	1310-58-3	-	WEL 2 mg/m3	-	-	1320	P	Eye, skin & respiratory irritant	No
Propane	Dimethyl methane; n-Propane; Propyl hydride	74-98-6	ACGIH TLV 1000 ppm	-	2690	-	-42.1	SA	Poor warning properties. Ineffective sorbents.	No
Propargyl alcohol	2-Propyn-1-ol; Prop-2-yn-1-ol	107-19-7	WEL 1 ppm	WEL 3 ppm	0.015	-	115	SA	Skin irritant	Yes
B-Propiolactone	Hydroacrylic acid; beta-lactone; 3-Hydroxypropionic acid; Propiolactone; beta-Propiolactone; 3-Hydroxy-betalactone; BPL	57-57-8	ACGIH TLV 0.5 ppm	-	-	-	-	SA	Warning properties unknown. Eye & skin irritant	No
Propionic acid	Methylacetic acid; Ethylformic acid	79-09-4	WEL 10 ppm	WEL 15 ppm	0.037	-	141	A	Eye & skin irritant	Yes
n-Propyl acetate	Propylacetate; Acetic acid n-propyl ester	109-60-4	WEL 200 ppm	WEL 250 ppm	0.575	8000	101.6	A	Eye irritant	Yes
n-Propyl nitrate	Nitric acid n-propyl ester	627-13-4	ACGIH TLV 25 ppm	ACGIH TLV 40 ppm	50	2000	110.5	SA	Poor warning properties. Eye irritant	Yes
Propan-1-ol	1-Propanol; n-Propyl alcohol; Ethylcarbinol	71-23-8	WEL 200 ppm	WEL 250 ppm	2.6	4000	97.2	A/P	A/P - See definitions section. Eye irritant	Yes
Propan-2-ol	Isopropyl alcohol; Isopropanol; IPA (Propan-2-ol); 2-Propanol; sec-Propyl alcohol	67-63-0	WEL 400 ppm	WEL 500 ppm	22	12000	80.3	A	Eye & skin irritant	Yes
Propylene dichloride	1,2-Dichloropropane	78-87-5	ACGIH TLV 10 ppm	-	0.851	2000	96.8	A	Eye, skin & respiratory irritant	Yes
Propylene glycol - Total (vapour and particulates)	Propylene glycol; 1,2-Propanediol; 1,2-Dihydroxy-propane; Methyl glycol; Propane-1,2-diol	57-55-6	WEL 150 ppm	-	-	-	-	A/P	A/P - See definitions section	No
Propylene glycol - Particulates	Propylene glycol; 1,2-Propanediol; 1,2-Dihydroxy-propane; Methyl glycol; Propane-1,2-diol	57-55-6	WEL 10 mg/m3	-	-	-	-	P		No
Propylene dinitrate	Propylene glycol dinitrate; 1,2-Propylene glycol dinitrate; 1,2-Propanediol dinitrate	6423-43-4	ACGIH TLV 0.05 ppm	-	0.231	-	-	SA	Poor warning properties. Eye irritant	No
Propyleneimine	Propylene imine; 2-Methylaziridine; 2-Methylethyleneimine	75-55-8	ACGIH TLV 0.2 ppm	ACGIH TLV 0.4 ppm	-	500	66.7	AX	Single Use Filter - Not available for Powered Air; Warning properties unknown. Eye & skin irritant	No
Propylene oxide	1,2-Epoxypropane; Propene oxide; Methyloxirane	75-56-9	WEL 5 ppm	-	33.1	2000	33.9	SA	Poor warning properties. Eye, skin & respiratory irritant	Yes
Pulverised fuel ash - inhalable dust - respirable dust		-	 WEL 10 mg/m3 WEL 4 mg/m3		-	-	-	P	-	
Pyridine	Azabenzene; Azine	110-86-1	WEL 5 ppm	WEL 10 ppm	0.17	-	115.3	A	Eye irritant	Yes
2-Pyridylamine	a-Aminopyridine; 2-Aminopyridine	504-29-0	WEL 0.5 ppm	WEL 2 ppm	-	5	210.6	SA	Warning properties unknown. Eye irritant	No
Pyrocatechol	Catechol; 1,2-Benzenediol; o-Benzenediol; 2-Hydroxyphenol; 1,2-Dihydroxybenzene; o-Dihydroxybenzene	120-80-9	WEL 5 ppm	-	-	-	246	A/P	Poor warning properties. Eye, skin & respiratory irritant	No
Quinoline	Chinoline; Leukoline; 1-Benzazine; 1-Azana-phthalene; Lencol	91-22-5	AIHAWEEL 0.001 ppm	-	0.015	-	237.7	SA	Eye irritant	No
Refractory ceramic fibres and special purpose fibres		-	WEL 5 mg/m3 - 1 f/ml	-	-	-	-	P		
Resorcinol	m-Dihydroxybenzene; 1,3-Benzenediol;	108-46-3	WEL 10 ppm	WEL 20 ppm	-	-	276.5	P	Eye & skin irritant	Yes
Resorcinol (heat involved)	m-Dihydroxybenzene (heat involved); 1,3-Benzenediol (heat involved);	108-46-3	WEL 10 ppm	WEL 20 ppm	-	-	276.5	A/P	A/P - See definitions section Eye & skin irritant	Yes
Rhodium,metal fume and dusts		7440-16-6	WEL 0.1 mg/m3	WEL 0.3 mg/m3	-	-	3727	P	-	No
Rhodium, - insoluble compounds, dusts and mists (as Rh) - soluble salts (as Rh)		-	 WEL 0.1 mg/m3 WEL 0.001 mg/m3	 WEL 0.3 mg/m3 WEL 0.003 mg/m3	-	-	-	P	Eye irritant	No
Rosin based solder flux fume	Colophony	8050-09-7	WEL 0.05 mg/m3	WEL 0.15 mg/m3	-	-	-	P	Eye, skin & respiratory irritant	

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			WEL	STEL						Contact 3M
Rouge **- Total inhalable dust** **- Respirable dust**	Red iron oxide; Red oxide; Blended red oxides	1309-37-1	WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	Eye, skin & respiratory irritant	No
Rubber fume		9006-04-6	WEL 0.6 mg/m3	-	-	-	-	**P**	-	
Rubber process dust		9006-04-6	WEL 6 mg/m3	-	-	-	-	**P**	-	
Rubber solvent		8030-30-6	OSHA PEL 100 ppm	-	-	10000	38-138	**A**	Eye & skin irritant	Yes
Selenium and compounds (except Hydrogen Selenide) - Dusts,mists & fumes (as Se)		-	WEL 0.1 mg/m3	-	-	-	-	**P**	Eye, Skin & respiratory irritant	No
Selenium hexafluoride (as Se)		7783-79-1	ACGIH TLV 0.05 ppm	-	-	5	-34.5	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Silane	Silicon tetrahydride	7803-62-5	WEL 0.5 ppm	WEL 1 ppm	-	-	-112	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Silica,amorphous **- Total inhalable dust** **- Respirable dust**		-	WEL 6 mg/m3 WEL 2.4 mg/m3	-	-	-	-	**P**	Eye irritant	No
Silica, fused - Respirable dust		60676-86-0	WEL 0.08 mg/m3	-	-	-	-	**P**	-	No
Silica, crystalline - Respirable dust	Quartz; Cristobalite	-	ACGIH TLV 0.025 mg/m3	-	-	-	-	**P**	-	No
Silica, crystalline - Respirable dust	Tripoli	-	ACGIH TLV 0.1 mg/m3	-	-	-	-	**P**	-	No
Silicon **- Total inhalable dust** **- Respirable dust**		7440-21-3	WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	2600	**P**	Eye, Skin & respiratory irritant	No
Silicon carbide (not whiskers) **- Total inhalable dust** **- Respirable dust**	Carbon silicide; Carborundum	409-21-2	WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	Eye, Skin & respiratory irritant	No
Silver (metal)		7440-22-4	WEL 0.1 mg/m3	-	-	-	2000	**P**	-	No
Silver,compounds (as Ag)		-	WEL 0.01 mg/m3	-	-	-	-	**P**	-	No
Soapstone **- Total inhalable dust** **- Respirable dust**	Massive talc; Steatite ; Soapstone silicate	-	COSHH 10 mg/m3 COSHH 4 mg/m	-	-	-	-	**P**	-	No
Sodium azide (as NaN3)	Hydrazoic acid	26628-22-8	WEL 0.1 mg/m3	WEL 0.3 mg/m3	-	-	-	**SA**	Warning properties unknown. Eye & skin irritant	No
Sodium carbonate **- Total inhalable dust** **- Respirable dust**		144-55-8	COSHH 10 mg/m3 COSHH 4 mg/m	-	-	-	-	**P**	-	No
Sodium fluoroacetate	1080; Sodium monofluoroacetate; SFA	62-74-8	ACGIH TLV 0.05 mg/m3	-	-	5 mg/m3	-	**P**	-	No
Sodium hydroxide	Caustic soda; Soda lye; Lye (Sodium hydroxide)	1310-73-2	-	WEL 2 mg/m3	-	250 mg/m3	1390	**P**	Eye & skin irritant	No
Sodium hydrogen sulphite	Sodium bisulphite	7631-90-5	WEL 5 mg/m3	-	-	-	-	**E/P**	P alone suitable if irritation eliminated. Eye & skin irritant	No
Sodium hypochlorite **- Total inhalable dust** **- respirable dust**	Hypochlorous acid, sodium salt; Sodium oxychloride; Bleach	7681-52-9	COSHH 10 mg/m3 COSHH 4 mg/m	-	-	-	-	**E/P**	-	No
Sodium silicate **- Total inhalable dust** **- Respirable dust**		6834-92-0	COSHH 10 mg/m3 COSHH 4 mg/m	-	-	-	-	**P**	Eye & skin irritant	No
Softwood dust		-	WEL 5 mg/m3	-	-	-	-	**P**	-	
Starch **- Total inhalable dust** **- Respirable dust**	Corn starch	9005-25-8	WEL 10 mg/m3 WEL 4 mg/m	-	-	-	-	**P**	Eye & skin irritant	No
Stearates **- Inhalable dust** **- Respirable dust**	Aluminium Stearate, Calcium Stearate, Glyceral Stearate, Lithium Stearate, Potassium Stearate	646-29-7	COSHH 10 mg/m3 COSHH 4 mg/m	-	-	-	-	**P**	Irritant	No
Stibine	Hydrogen antimonide; Antimony trihydride	7803-52-3	ACGIH TLV 0.1 ppm	-	-	40	-17	**SA**	Warning properties unknown.	No
Stoddard solvent	Dry cleaning safety solvent; Mineral spirits	8052-41-3	ACGIH TLV 100 ppm	-	1-30	5150 ppm	220-300	**A**	Eye, skin & respiratory irritant	Yes
Strontium chromate (as Cr)	Strontium yellow; C.I.pigment yellow 32	7789-06-2	ACGIH TLV 0.0005 mg/m3	-	-	-	-	**P**	-	No
Strychnine		57-24-9	ACGIH TLV 0.15 mg/m3	-	-	3 mg/m3	-	**P**	-	No
Styrene	Phenylethylene; Vinyl benzene; Cinnamene; Styrene monomer	100-42-5	WEL 100 ppm	WEL 250 ppm	3.44	5000	146	**A**	Eye, skin & respiratory irritant	Yes
Subtilisins	Proteolytic enzymes as 100% crystalline enzyme	1395-21-7	WEL 0.00004 mg/m3	-	-	-	-	**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Subtilisins - Bacillus Subtilis (BPN)		1395-21-7	WEL 0.00004 mg/m3					**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Subtilisins - Bacillus Subtilis (Carlsberg)		9014-01-1	WEL 0.00004 mg/m3					**SA**	Warning properties unknown. Eye, skin & respiratory irritant	No
Sucrose	Table sugar; Saccharose	57-50-1	WEL 10 mg/m3	WEL 20 mg/m3	-	-	-	**P**	Eye, skin & respiratory irritant	No
Sulphur dioxide	SO2	7446-09-5	-	ACGIH TLV 0.25 ppm	0.708	100	-10	**E**	Eye & respiratory irritant	No
Sulphur hexafluoride		2551-62-4	WEL 1000 ppm	WEL 1250 ppm	-	-	-	**SA**	Warning properties unknown. Ineffective sorbents. Asphyxiant	No
Sulphuric acid	Battery acid; Hydrogen sulfate; Oil of vitriol	7664-93-9	WEL 0.05 mg/m3	-	-	-	330	**E/P**	Eye & skin irritant	No
Sulphur tetrafluoride		7783-60-0	-	-	-	-	-40	**SA**	Warning properties unknown. Eye & skin irritant	No

A-Organic Vapour; B-Inorganic Vapour; E-Acid Gas; K–Ammonia; AX-Organic Vapour, boiling point <65℃; P –Particulate; SA-Supplied Air; AP-Organic Vapour + Particulate; HgP3-Mercury Particulate; *** no WEL established. Assumed to be 8 hr TWA

Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Sulphuryl fluoride		2699-79-8	WEL 5 ppm	WEL 10 ppm	-	1000	-55	**SA**	Warning properties unknown. Eye irritant	No
Talc - Respirable dust	Hydrous magnesium silicate; Steatite talc; Non-fibrous talc	14807-96-6	WEL 1 mg/m3	-	-		-	**P**	Eye irritant	No
Tantalum	Tantalum,metal and oxide dusts; Tantalum,metal fume	7440-25-7	WEL 5 mg/m3	WEL 10 mg/m3	-		5425	**P**	Eye & skin irritant	No
Tellurium compounds,dusts and mists (except hydrogen telluride), (as Te)		13494-80-9	WEL 0.1 mg/m3	-	-		-	**P**	-	No
Tellurium hexafluoride (as Te)		-	ACGIH TLV 0.02 mg/m3	-	-	1	-	**SA**	Warning properties unknown.	No
Terphenyls (all isomers)	o-Terphenyl; m-Terphenyl; p-Terphenyl; Mixed terphenyls; Diphenyl benzenes	26140-60-3	-	WEL 0.5 ppm	-	-	332-405	**P**	Eye & skin irritant	No
Terphenyls (all isomers) (heat involved)	o-Terphenyl (heat involved); m-Terphenyl (heat involved); p-Terphenyl (heat involved); Mixed terphenyls (heat involved); Diphenyl benzenes (heat involved);	26140-60-3	-	WEL 0.5 ppm	-	-	332-405	**A/P**	A/P - See definitions section Eye & skin irritant	No
Terephthalic acid	p-Phthalic acid; TPA; Tephthol; Benzene-p-dicarboxylic acid; 1,4-benzenedicarboxylic acid	100-21-0	ACGIH TLV 10mg/m3	-	-	-	-	**P**	-	No
1,1,2,2-Tetrabromoethane	Tetrabromoethane; Acetylene tetrabromide	79-27-6	WEL 0.5 ppm	-	1	8	151	**SA**	Warning properties unknown.	Yes
1,1,1,2-Tetrachloro-2,2-difluoroethane	Refrigerant 112a; Halocarbon 112a; 2,2-Difluoro-1,1,1,2-tetrachloroethane; Freon™ 112a	76-11-9	ACGIH TLV 500 ppm	-	-	15000	92	**SA**	Warning properties unknown. Eye & skin irritant	Yes
1,1,2,2-Tetrachloro-1,2-difluoroethane	Refrigerant 112; Halocarbon 112; Freon™ 112	76-12-0	ACGIH TLV 500 ppm	-	-	15000	92.8	**SA**	Warning properties unknown. Eye irritant	
1,1,2,2-Tetrachloroethane	Acetylene tetrachloride	79-34-5	ACGIH TLV 1 ppm	-	0.21	150	146.3	**A/P**	A/P - See definitions section	Yes
Tetrachloroethylene	Perchloroethylene; Perk	127-18-4	WEL 50 ppm	WEL 100 ppm	6.17	500	121.2	**SA**	Eye, Skin & respiratory irritant	Yes
Tetrachloronaphthalene	Seekay Wax; Nibren Wax; Halowax™	1335-88-2	ACGIH TLV 2 mg/m3	-	-	-	315-360	**SA**	Warning properties unknown.	No
Tetraethylene glycol diacrylate	TTEGDA; 2-Propionic acid, oxy-bis-(2,1-ethane-diyloxy-2,1-ethanediol) ester	17831-71-9	AIHAWEEL 1 mg/m3	-	-	-	146.7	**A/P**	A/P - See definitions section	Yes
Tetraethyl lead (as Pb)	TEL; Lead tetraethyl	78-00-2	OSHA PEL 0.075 mg/m3	-	-	40 mg/m3	198-202	**SA**	Warning properties unknown.	Yes
Tetraethyl orthosilicate	Ethyl silicate; Tetraethyl silicate; Ethyl orthosilicate; Tetraethoxysilane	78-10-4	ACGIH TLV 10 ppm	-	3.6	1000	168.9	**SA**	Eye irritant	No
1,1,1,2-Tetrafluoroethane	Tetrafluoroethane; HFC134a; HFA134a; Fluorocarbon 134a	811-97-2	WEL 1000 ppm	-	-	-	-	**SA**	Warning properties unknown.	Yes
Tetrahydrofuran	Diethylene oxide; 1-Butene oxide; Tetramethylene oxide; THF; 1,2-Epoxybutane; 1,2-Butene oxide; 1,2-Butylene oxide Epoxy-butane; BO	109-99-9	WEL 50 ppm	WEL 100 ppm	3.8	-	65.4	**A**	Eye & respiratory irritant	Yes
Tetrahydrofurfuryl alcohol	Tetrahydro-2-furanmethanol; Tetrahydro-2-furancarbinol; Tetrahydro-2-furylmethanol	97-99-4	AIHAWEEL 0.5 ppm	-	-	-	178	**SA**	Warning properties unknown. Irritant	No
Tetramethyl lead (as Pb)	TML; Lead tetramethyl; Motor fuel anti-knock compound	75-74-1	OSHA PEL 0.075 mg/m3	-	-	40 mg/m3	110	**SA**	Warning properties unknown.	No
Tetramethyl orthosilicate	Methyl silicate; Tetramethoxy silane	681-84-5	ACGIH TLV 1 ppm	-	-	-	121.1	**SA**	Warning properties unknown. Eye irritant	No
Tetramethyl succinonitrile, vapour	TMSN	3333-52-6	ACGIH TLV 0.5 ppm	-	-	5	-	**SA**	Warning properties unknown.	No
Tetranitromethane	Tetan	509-14-8	ACGIH TLV 0.0005 ppm	-	-	4	125.7	**SA**	Warning properties unknown.	No
Tetrasodium pyrophosphate	Sodium pyrophosphate	7722-88-5	WEL 5 mg/m3	-	-	-	-	**P**	Eye & skin irritant	No
Thallium,soluble compounds	Thallium hydroxide; Thallium acetate; Thallium carbonate	7440-28-0	WEL 0.1 mg/m3	-	-	20 mg/m3	1457	**P**	-	No
Thionyl chloride	Sulphurous oxychloride; Sulphur oxychloride	7719-09-7	-	WEL 1 ppm	-	-	78.8	**E/P**	Warning properties unknown. Eye & skin irritant	No
Tin,metal fume		7440-31-5	WEL 2 mg/m3	WEL 4 mg/m3	-	400 mg/m3	2260	**P**	Eye, skin & respiratory irritant	No
Tin,inorganic compounds (except SnH4) and metal oxides (as Sn)		-	WEL 2 mg/m3	WEL 4 mg/m3	-	400 mg/m3	-	**P**	Eye, skin & respiratory irritant	No
Tin, organic compounds (except SnH4) (as Sn)		-	WEL 0.1 mg/m3	WEL 0.2 mg/m3	-	-	-	**A/P**	A/P - See definitions section Eye, skin & respiratory irritant	No
Titanium dioxide **- Total inhalable dust** **- Respirable dust**	Rutile; Anatase; Brookite	13463-67-7	WEL 10 mg/m3 WEL 4 mg/m3	-	-	-	-	**P**	-	No
Toluene	Toluol; Phenyl methane; Methyl benzene	108-88-3	WEL 50 ppm	WEL100 ppm	0.16	2000	110.4	**A**	Eye irritant	Yes
Toluene-2,4-diisocyanate	TDI; 2,4-Toluene diisocyanate	584-84-9	ACGIH TLV 0.005 ppm	ACGIH TLV 0.02 ppm	0.17	-	251.4	**SA**	Poor warning properties. Eye & skin irritant	No
p-Toluenesulfonyl chloride	4-Methyl-benzenesulfonyl chloride; Tosyl chloride	98-59-9	-	WEL 5 mg/m3	-	-	152	**E/P**	-	No
m-Toluidine	m-Aminotoluene	108-44-1	ACGIH TLV 2 ppm	-	0.46-5.9	-	203.3	**SA**	Poor warning properties. Eye & skin irritant	No
o-Toluidine	o-Aminotoluene; o-Methylaniline; 1-Methyl-1,2-amino-benzene; 2-Methylaniline	95-53-4	WEL 0.2 ppm	-	0.025-6.6	100	199.7	**SA**	Poor warning properties. Eye irritant	No
p-Toluidine	p-Aminotoluene	106-49-0	ACGIH TLV 2 ppm	-	0.027-3.2	-	200.4	**SA**	Poor warning properties. Eye & skin irritant	No
Tributyl phosphate (all isomers)	Tri-n-butyl phosphate; TBP	126-73-8	WEL 5 mg/m3	WEL 5 mg/m3	-	125	289	**A/P**	A/P - See definitions section Eye, skin & respiratory irritant	No
Trichloroacetic acid	TCA	76-03-9	ACGIH TLV 0.5 ppm	-	0.295	-	197.5	**E**	Irritant	No
1,2,4-Trichlorobenzene		120-82-1	WEL 1 ppm	WEL 5 ppm	2.91	-	221	**A**	Eye & skin irritant	Yes
1,1,1-Trichloroethane	Methyl chloroform	71-55-6	WEL 100 ppm	WEL 200 ppm	22.4	1000	74.1	**SA**	-	Yes
1,1,2-Trichloroethane	Vinyl trichloride; b-Trichloroethane	79-00-5	ACGIH TLV 10 ppm	-	-	500	114	**SA**	Poor warning properties. Eye irritant	Yes
Trichloroethylene	Ethylene trichloride; Triclene™	79-01-6	WEL 100 ppm	WEL 150 ppm	1.36	1000	87.1	**A**	Eye & skin irritant	Yes
Trichlorofluoromethane	Refrigerant 11; Freon™ 11; Fluorotrichloromethane; Trichloromonofluoromethane	75-69-4	-	-	16.3	10000	24.1	**SA**	Ineffective sorbents.	Yes
1,2,3-Trichloropropane	Allyl trichloride; Trichlorohydrin; Glycerol trichlorohydrin; Glycerin trichlorohydrin	96-18-4	ACGIH TLV 0.005 ppm	-	100	1000	142	**SA**	Poor warning properties. Eye & skin irritant	Yes
Trichloronitromethane	Nitrotrichloromethane; Chloropicrin; Nitrochloroform	76-06-2	WEL 0.1 ppm	WEL 0.3 ppm	1.08	4	112	**SA**	Poor warning properties. Eye, skin & respiratory irritant	No
1,1,2-Trichloro-1,2,2-trifluoroethane	Halocarbon 113; Refrigerant 113; TTE; Freon™ 113; FC-113	76-13-1	ACGIH TLV 1000 ppm	ACGIH TLV 1250 ppm	487	4500	45.8	**SA**	-	Yes
Triethanolamine	Daltogen; 2,2,2-Nitrilotriethanol; Sterolamide; TEA; Trihydroxytriethylamine	102-71-6	ACGIH TLV 5 mg/m3	-	-	-	360	**SA**	Warning properties unknown. Irritant	No
Triethylene glycol diacrylate	TREGDA; 2-ethanediyl-bis-(oxy-2,1-ethanediyl) ester	1680-21-3	AIHAWEEL 1 mg/m3	-	-	-	-	**A/P**	A/P - See definitions section	No

A-Organic Vapour; B-Inorganic Vapour; E-Acid Gas; K–Ammonia; AX-Organic Vapour, boiling point <65℃; P –Particulate; SA-Supplied Air; AP-Organic Vapour + Particulate; HgP3-Mercury Particulate; *** no WEL established. Assumed to be 8 hr TWA

Substance	Synonym	CAS	Workplace Exposure Limits		Odour Threshold	Value IDLH	Boiling Point	Filter Type	Comments	3M Monitor Badges
			WEL	STEL						Contact 3M
Trifluorobromomethane	Halon™ 1301; Halocarbon13B1; Refrigerant13B1; Freon™ 13B1; Bromotrifluoromethane	75-63-8	ACGIH TLV 1000 ppm	-	16.3	50000	-57.8	**SA**	Short 'A' filter service life.	No
Triethylamine		121-44-8	WEL 2 ppm	WEL 4 ppm	-	-	-	**K**	Eye, skin & respiratory irritant	No
Triglycidyl isocyanurate	TGIC	2451-62-9	WEL 0.1 mg/m3	-	-	-	-	**P**	-	
Trimellitic anhydrite	TMA (Trimellitic anhydrite)	552-30-7	WEL 0.04 mg/m3	WEL 0.12 mg/m3	-	-	-	**A/P**	A/P - See definitions section Eye, skin & respiratory irritant	No
Trimethylamine	N,N-Dimethyl methanamine; TMA (Trimethylamine)	75-50-3	AIHAWEEL 1 ppm	ACGIH TLV 15 ppm	0.001	-	2.9	**K**	Eye & skin irritant	No
Trimethylbenzene	Mesitylene; Pseudocumene; Hemimellitene	25551-13-7	WEL 25 ppm	-	2.4	-	169-174	**A**	Eye & skin irritant	No
Trimethyl phosphite	Phosphorous acid trimethylester; Methyl phosphite	121-45-9	WEL 2 ppm	-	0.001	-	232-234	**A**	Eye, skin & respiratory irritant	No
Trimethylolpropane triacrylate	2-ethyl-2(((1-oxo-2-propenyl) oxy) methyl)-1,3-propanediyl ester	15625-89-5	AIHAWEEL 1 mg/m3	-	-	-	-	**A/P**	A/P - See definitions section	No
Trimethylolpropane trimethacrylate	Acrylic acid 1,3-propanediol triester w/2-ethyl 2 (hydroxymethyl)	3290-92-4	AIHAWEEL 1 mg/m3	-	-	-	-	**A/P**	A/P - See definitions section	No
2,4,6-Trinitrotoluene (TNT)	TNT; Trinitrotoluol; Trinitrotoluene; sym-Trinitrotoluene	118-96-7	WEL 0.5 mg/m3	-	-	1000 mg/m3	-	**A/P**	A/P - See definitions section. Skin irritant	No
Tri-o-tolyl phosphate	Triorthocresyl phosphate; TCP; o-Tritolyl phosphate ; TOCP ; tricresylphosphate	78-30-8	WEL 0.1 mg/m3	WEL 0.3 mg/m3	-	40 mg/m3	410	**P**	-	No
Triphenyl amine		603-34-9	-	-	-	-	365	**P**	Skin irritant	No
Triphenyl phosphate	Phenyl phosphate; TPP	115-86-6	WEL 3 mg/m3	WEL 6 mg/m3	-	1000 mg/m3	245	**P**	-	No
Triphenyl phosphate (heat involved)	Phenyl phosphate (heat involved); TPP (heat involved)	115-86-6	WEL 3 mg/m3	WEL 6 mg/m3	-	1000 mg/m3	245	**A/P**	A/P - See definitions section	No
Trisodium phosphate	TSP; Sodium o-phosphate	7601-54-9	-	AIHAWEEL 5 mg/m3	-	-	-	**P**	-	No
Tungsten and compounds - (as W) **- Soluble** **- Insoluble**		7440-33-7	WEL 1 mg/m3 WEL 5 mg/m3	WEL 3 mg/m3 WEL 10 mg/m3	-	-	-	**P**	Eye, skin & respiratory irritant	No
Turpentine	Gum spirits; Turps; Wood turpentine; Gum turpentine	8006-64-2	WEL 100 ppm	WEL 150 ppm	100-200	1500	154-170	**A/P**	A/P - See definitions section Eye & skin irritant	No
Uranium (natural), insoluble compounds (as U)		-	ACGIH TLV 0.2 mg/m3	ACGIH TLV 0.2 mg/m3	-	30 mg/m3	-	**P**	-	No
Uranium,soluble compounds (as U)		-	OSHA PEL 0.05mg/m3	-	-	20 mg/m3	-	**E/P**	-	No
Urea	Carbamide; Carbonyldiamide; isourea; Carbonyldiamine	57-13-6	AIHAWEEL 100 mg/m3	-	-	-	-	**P**	-	No
Urea (heat involved)	Carbamide (heat involved); Carbonyldiamide (heat involved); isourea (heat involved); Carbonyldiamine (heat involved)	57-13-6	AIHAWEEL 100 mg/m3	-	-	-	-	**K/P**	-	No
n-Valeraldehyde	Pentanal; Valeric aldehyde	110-62-3	ACGIH TLV 50 ppm	-	0.006	-	102-103	**A**	Eye & skin irritant	No
Vanadium pentoxide	Divanadium pentoxide; Vanadic anhydride; Vanadium oxide	1314-62-1	WEL 0.05 mg/m3	-	-	70 mg/m3	-	**P**	Eye, skin & respiratory irritant	No
Vinyl acetate	1-Acetoxyethylene; Ethenyl acetate	108-05-4	WEL 5 ppm	WEL 10 ppm	0.603	-	73	**A**	Eye, skin & respiratory irritant	Yes
Vinyl bromide	Bromoethylene	593-60-2	ACGIH TLV 10 ppm	-	-	-	15.6	**SA**	Warning properties unknown. Eye & skin irritant	Yes
Vinyl chloride	Chloroethylene; Chloroethene; Monochloroethylene; VC; VCM	75-01-4	WEL 3 ppm	-	-	-	-	**AX**	Single Use Filter - Not available for Powered Air	Yes
4-Vinylcyclohexene	4-Vinyl-1-cyclohexene; VCH; 4-Ethenyl-1-1-cyclohexene; 4-Vinylcyclohexene-1-butadiene dimer ; 1-Vinylcyclohexene-3; 4-vinyl-cyclohex-1-ene	100-40-3	ACGIH TLV 0.1 ppm	-	-	-	128	**SA**	Warning properties unknown. Irritant	yes
Vinyl cyclohexene dioxide	Vinylcyclohexane dioxide; Vinylhexane dioxide	106-87-6	ACGIH TLV 0.1 ppm	-	-	-	227	**SA**	Warning properties unknown. Eye irritant	No
Vinylidene chloride	1,1-Dichloroethylene; VDC; 1,1-Dichloroethene	75-35-4	WEL 10 ppm	-	35.5	-	31.6	**AX**	Single Use Filter - Not available for Powered Air. Poor warning properties. Eye, skin & respiratory irritant	Yes
VM&P Naphtha	Varnish Makers' & Painters' Naphtha; Ligroin	8032-32-4	-	-	1-40	-	95-160	**A**	Eye & respiratory irritant	Yes
Welding fumes (not otherwise classified)		-	-	-	-	-	-	**P**	Eye & respiratory irritant	No
Wood dust (all varieties except Western Red Cedar)		-	ACGIH TLV 1 mg/m3	-	-	-	-	**P**	Eye & respiratory irritant	No
Wood dust (Western Red Cedar)		-	ACGIH TLV 0.5 mg/m3	-	-	-	-	**P**	Eye & respiratory irritant	No
Wool process dust		-	WEL 10 mg/m3	-	-	-	-	**P**	-	
Xylene (o-isomer)	Xylene (m-isomer); Xylene (p-isomer)	1330-20-7	WEL 50 ppm	WEL 100 ppm	0.851	1000	138-144	**A**	Eye, skin & respiratory irritant	Yes
m-Xylene a,a'-diamine	MXDA; 1,3-Benzenedimethanamine; 1,3-bis(Aminomethyl)benzene	1477-55-0	-	-	-	-	247.2	**A/P**	A/P - See definitions section. Eye irritant	No
Xylidine	Aminodiymethyl benzene; Dimethylaminobenzene	1300-73-8	ACGIH TLV 0.5 ppm	-	0.005-0.06	150	213-226	**A**	-	Yes
Yttrium		7440-65-5	WEL 1 mg/m3	WEL 3 mg/m3	-	-	3200	**P**	Eye irritant	No
Zinc chloride,fume		7646-85-7	WEL 1 mg/m3	WEL 2 mg/m3	-	4800 mg/m3	732	**P**	Eye, skin & respiratory irritant	No
Zinc Chromate	Basic zinc chromate; Zinc potassium chromate; Zinc yellow	13530-65-9	ACGIH TLV 0.01 mg/m3	-	-	-	-	**P**	-	No
Zinc oxide - respirable dust	Zinc white - respirable dust	1314-13-2	ACGIH TLV 2 mg/m3	ACGIH TLV 10 mg/m3	-	-	-	**P**	Eye, skin & respiratory irritant	No
Zinc stearate, **- inhalable** **- respirable**	Synpro stearate; Zinc distearate	557-05-1	WEL 10 mg/m3 WEL 4 mg/m3	WEL 20 mg/m3	-	-	-	**P**	Eye, skin & respiratory irritant	No
Zirconium compounds (as Zr)		7440-67-7	WEL 5 mg/m3	WEL 10 mg/m3	-	500 mg/m3	-	**P**	-	No

A-Organic Vapour; B-Inorganic Vapour; E-Acid Gas; K–Ammonia; AX-Organic Vapour, boiling point <65℃; P –Particulate; SA-Supplied Air; AP-Organic Vapour + Particulate; HgP3-Mercury Particulate; *** no WEL established. Assumed to be 8 hr TWA

APPENDIX 1
INDEX OF SUBSTANCES LISTED UNDER A DIFFERENT NAME

Substance	Listed As
1,1-Dichloroethylene	Vinylidene chloride
1,2-Benzene-dicarboxylate	Dibutyl phthalate
1,2-Dichloropropane	Propylene dichloride
1,2-Dihydroxy-propane	Propylene glycol
1,2-Epoxy ethane	Ethylene oxide
1,2-Epoxypropane	Propylene oxide
1,2-Ethanediol	Ethane-1-2-diol
1,3-Butadiene	Buta-1,3, diene
1,3-Isobenzofurandione	Phthalic anhydride
1,4-Benzenediol	Hydroquinone
1,4-butanedicarboxylic acid	Adipic Acid
1,4-dicyanobutane	Adiponitrile
1,5-Pentanedial	Glutaraldehyde
1,6-Hexanedioic acid	Adipic Acid
1-Acetoxyethylene	Vinyl acetate
1-Butanamine	Dibutylamine
1-Chloro-2-propanone	Chloroacetone
1-Methoxy-2-propanol acetate	Propylene glycol monomethyl ether
1-Propanol	Propan-1-ol
2,2',2-Nitrilotriethanol	Triethanolamine
2,3-Epoxy-1-propanol	Glycidol
2,4,4-Trimethylpentene	Diisobutylene
2,4,6-Trinitrophenol	Picric acid
2,5-Furanedione	Maleic anhydride
2-Aminopropane	Isopropylamine
2-Bromo-2-chloro-1,1,1-trifluoroethane	Halothane
2-Butanone	Butan-2-one
2-Butanone oxime	Methyl ethyl ketoxime
2-Diethylaminoethyl alcohol	Diethylaminoethanol
2-Epoxypropyl ether	Diglycidyl ether
2-Heptanone	Heptan-2-one
2-Hexenone	Hexan-2-one
2-Methycyclopentadiphenyl manganese tricarbonyl	Manganese cyclopentadienyl tricarbonyl
2-Methyl-1,3-butadiene	Isoprene
2-Methyl-2-propenenitrile	Methylacrylonitrile
2-Methylpropyl acetate	Isobutyl acetate
2-Pentanol acetate	1-Methylbutyl acetate
2-Pentanone	Pentan-2-one
2-Phenyl propane	Cumene
2-Propanol	Propan-2-ol
2-Propanone	Acetone
3-Heptanone	Heptan-3-one
Ethyl methanoate	Ethyl formate
Ethyl methyl ketone	Butan-2-one
Ethyl silicate	Tetraethyl orthosilicate
Ethylamyl ketone	5-methyl-3-heptanone
Ethylene chloride	1,2-Dichloroethane
Ethylene chlorohydrin	2-Chloroethanol
Ethylene diamine	1,2-Diaminoethane
Ethylene dibromide	1,2-Dibromoethane
Ethylene Dichloride	1,2-Dichloroethane
Ethylene glycol	Ethane-1-2-diol
3-Methyl-2-butanone	Methyl isopropyl ketone
4,4'-Diaminodiphenylmethane	4,4'-Methylene dianiline
4,4-Thiobis (6-tert-butyl-m-cresol)	6,6'-Di-tert-butyl-4,4'-thiodi-m-cresol
4-4'-Methylene-bis-(2-chloraniline)	2,2' Dichloro-4,4' methylene-dianiline
4-Methoxyphenol	Mequinol (INN)
a-Alumina	Aluminium Oxide
a-Aminopyridine	2-Pyridylamine
Acetic acid butyl ester	Butyl acetate
Acetic acid methyl ester	Methyl acetate
Acetic ester	Ethyl acetate
Acetyl oxide	Acetic anhydride
Acetylene dichloride	1,2 - Dichloroethylene
Acetylene tetrabromide	1,1,2,2 Tetrabromoethene
Acroleic acid	Acrylic acid
Adipic acid dinitrile	Adiponitrile
Adipinic acid	Adipic Acid
Allyl chloride	3 - chloroproprene
a-Methylstyrene	2-Phenylpropene
Aminoethane	Ethylamine
Ammonium muriate	Ammonium chloride
Anatase	Titanium dioxide
Anhydrofluoric acid	Hydrogen fluoride
Antimony trihydride	Stibine
Azine	Pyridine
B-Aminoethyl alcohol	2-Aminoethanol
b-Chloroprene	2-Chloro-1,3-Butadiene
Benzene carbonyl chloride	Benzoyl chloride
Benzyl chloride	a-Chlorotoluene
Buthanethiol	Butyl mercaptan
Butyl ethanoate	Butyl acetate
Butylamine	n-Butylamine
Calcium Carbonate	Limestone
Camphor	Bornan-2-one
Caprolactam	1,6 Hexanolactam
Carbon oxysulphide	Carbonyl sulphide
Carbon oxychloride	Phosgene
Carbonyl chloride	Phosgene
Catechol	Pyrocatechol
Caustic soda	Sodium hydroxide
Chlorobromomethane	Bromochloromethane
Chlorodiphenyls	Polychlorinated biphenyl
Chloroethylene	Vinyl chloride
Chloroformyl chloride	Phosgene
Chloropicrin	Trichloronitromethane
Chromuim Oxychloride	Chromyl chloride
Colophony	Rosin based solder flux fume
Cristobalite	Silica, crystalline
Cyclohexyl alcohol	Cyclohexanol
Cyclohexylmethane	Methylcyclohexane
Cyclonite	Hexahydeo-1,3,5 -trinitro-sym-triazine
DCIPE	bis- (2-Chloroisopropyl) ether
DGE	Diglycidyl ether
Di isobutyl Ketone	2,6-Dimethibutyl acetate
di-(Epoxypropyl) ether	Diglycidyl ether
Di-2-ethylhexyl phthalate	Bis(z-ethylhexy1) phthalate
Diacetone alcohol	4-Hydroxy-4-methyl1-2-pentanone
Dibutyl	Dibutyl phthalate
Dichlorotetrafluorethane	Cryofluorane
Dicyclopentadienyl	Ferrocene
Diethanolamine	2-2' Immunodiethanol
Diethyl ketone	Pentan-3-one
Diethylene diamine	Piperazine
Diethylene glycol	2-2-Oxydiehanol
Diethylene triamne	2-2' Imminodi (ethylamine)
Difluorodibromomethane	Dibromodifluoromethane
Dihydroxybenzene	Hydroquinone
Diisobutyl ketone	2,6-Dimenthylheptane-4-one
Dimethyl acetamide	N,N-Dimethyl acetamide
Dimethylaminobenzone	Xylidine
Dimethylanilie	N,N-Dimethyl aniline
Dimethylbenzene	Xylene
Dimethylene oxide	Ethylene oxide
Dinitolmide	3,5-Dinitro-o-toluamide

INDEX OF SUBSTANCES LISTED UNDER A DIFFERENT NAME (cont.)

Dioxane	1,4-Dioxane
Diphenyl	Biphenyl
Diphenylmethane	Methylene bisphenyl Isocyanate
Di-sec-octyl phthalate	Bis (2-chloroisopropyl ether)
Dry ice	Carbon dioxide
Epichlorohydrin	1-Chloro,2,3-epoxy-propane
Ethanediocic acid	Oxalic acid
Ethanolamine	2-Aminoethanol
Ethyl alcohol	Ethanol
Ethyl bromide	Bromoethane
Ethyl bromide	Bromoethane
Ethyl butyl ketone	Heptan-3-one
Ethyl chloride	Chloroethane
Ethyl chloride	Chloroethane
Ethyl ether	Diethyl ether
Ethyl mercaptan	Ethanethiol
Ethylene glycol dinitrate	Ethylene dinitrate
Ethylene glycol methyl ether acetate	2-Methoxyethyl acetate
Ethylenediamine	1,2-Diaminoethane
Ethylidene chloride	1,1 Dichloroethane
Ethylolamine	2-Aminoethanol
Fluorotrichloromethane	Trichlorofluoromethane
Freon 113	1,1,2-Trichloro-1,2,2-Trifluoroethene
Germanuim tetrahydride	Germane
Glycol	Ethane-1-2-diol
Glycol ether DE	Diethylene glycol monoethyl ether
Glycol monoethyl ether	2-Ethoxyethanol
Gylcidol	2,3-Epoxy-1-Propanol
Hexylene glycol	2-methyl pentan-2,4 diol
Hydrobromic acid	Hydrogen bromide
Hydrochloric acid	Hydrogen chloride
Hydrochloric ether	Chloroethane
Hydrogencarboxylic acid	Formic acid
Iron pentacarbonyl	Pentacarbonyl iron
Isoamyl acetate	Isopentyl acetate
Isoamyl alcohol	3-Methyl-1-butanol
Isobutanol	2-Methylpropan-1-ol
Isobutyl alcohol	2-Methylpropan-1-ol
Isobutyl carbinol	3-Methyl-1-butanol
Isopentyl alcohol	3-Methyl-1-butanol
Isopropanol	Propan-2-ol
Isopropyl alcohol	Propan-2-ol
Isopropyl glycidyl ether	2,3-Epoxypropyl isopropyl ether
MEK	Butan-2-one
MEKO	Methyl ethyl ketoxime
MEKP	Methyl ethyl ketone peroxides
Mesityl oxide	4-Methylpent-3-en-2-one
Methanoic acid	Formic acid
Methyl alcohol	Methanol
Methyl amyl alcohol	4-Methylpentan-2-ol
Methyl bromide	Bromomethane
Methyl cellulose	2-Methoxyethanol
Methyl cellulose® acetate	2-Methoxyethyl acetate
Methyl chloride	Chloromethane
Methyl chloroform	1,1,1-Trichloroethane
Methyl ethanoate	Methyl acetate
Methyl ethyl ketone	Butan-2-one
Methyl glycol	Propylene glycol
Methyl iodide	Iodomethane
Methyl isoamyl ketone	5-Methylhexan-2-one
Methyl isobutyl carbinol	4-methylpentan-2-ol
Methyl isobutyl ketone	4-Methylpentan-2-one
Methyl n-amyl ketone	Heptan-2-one
Methyl n-Butyl ketone	Hexan-2-one
Methyl propyl ketone	Pentan-2-one

Methyl silicate	Tetramethyl orthosilicate
Methylal	Dimethyoxymethane
Methylene chloride	Dichloromethane
Methylene oxide	Formaldehyde
Methylmercaptan	Methanethiol
MIBK	4-Methy pentane-2-one
Mineral spirits	Stoddard solvent
MOCA	2,2' Dichloro-4,4' methylene-dianiline
Monochlorobenzene	Chlorobenzene
n-Amyl Acetate	Pentyl Acetate
Nitric oxide	Nitrogen monoxide
Nitroglycerin	Glyceryl trinitrate
o-Dichlorobenzene	1,2-Dichlorobenzne
o-Methylcyclohexanone	2-Methylcyclohexanone
o-sec Butylphenol	2-sec-Butyl phenol
PCB	Polychlorinated biphenyls
p-Dichorobenzene	1,4-Dichlorobenzne
Perchloroethylene	Tetrachloroethylene
Phenacyl chloride	a-Chloroacetophene
Phenyl chloride	Chlorobenzene
Phenyl ether	Diphenyl ether
Phenyl glycidyl ether	Phenyl-2,3-epoxypropyl ether
Phenyl Mercaptan	Benzenethiol
Phenyl methanol	Benzyl alcohol
Phenylethane	Ethylbenzene
Phenylethylene	Styrene
Phosphoric acid	Othrophosphoric acid
Phosphourus oxychloride	Phosphyl trichloride
p-Nitrochlorobenzene	1-chloro-4-nitrobenzene
Propane-1,2-diol	Propylene glycol
Propenenitrile	Acrylonitril
Propenoic acid	Acrylic acid
Propyl alcohol	Propan-1-ol
Propylbromide	1-Bromopropane
Propylcarbinol	Butan-1-ol
Propylene glycol	Propane-1,2 diol
Propylene glycol monomethyl ether	1-Methoxy propan-2-ol
Propylene glycol monomethyl ether acetate	1, Methylpentane-2,4-diol
Propyne	Methyl acetate
Quartz	Silica, crystalline
Quinone	p-Benzoquinone
RDX	Hexahydro-1,3,5-trinitro-sym-trianzine
sec-Amyl Acetate	1-Methoylbutyl acetate
sec-Butyl alcohol	Butan-2-ol
sec-Hexyl acetate	1,3-Dimethylbutyl acetate
Silicon tetrahydride	Silane
Sodium bisulfate	Sodium hydrogen sulphite
Sodium metabisulfate	Disodium disulphite
Sulphur monochloride	Disulphur dichloride
Sulphur pentafluoride	Disulphur decafluoride
tert-Butyl alcohol	2-Methylpropan-2-ol
Tetramethylene cyanide	Adiponitrile
Thioglycolic acid	Mercaptoacetic acid
Tribromomethane	Bromoform
Trichlorohydrin	1,2,3-Trichloropropane
Trichloromethane	Chloroform
Triiodomethane	Iodoform
Trimethyl-carbinol	2-Methylpropan-2-ol
Tri-o-toly' phosphate	Triorthogresyl phosphate
Tripoli	Silica, crystalline
Vinyl benzene	Styrene
Vinyl cyanide	Acrylonitrile
Vinyl toluene	Methylstryene
Vinyl trichloride	1,1,2-Trichloroethane

APPENDIX 2

CAS NUMBERS OF CHEMICALS LISTED IN THIS GUIDE

CAS	Substance
50-00-0	Formaldehyde
50-78-2	Acetylsalicylic acid
54-11-5	Nicotine
55-63-0	Glyceryl trinitrate
56-23-5	Carbon tetrachloride
56-81-5	Glycerol, mist
57-06-7	Allyl isothiocyanate
57-12-5	Cyanides
57-13-6	Urea
57-14-7	1,1-Dimethylhydrazine
57-24-9	Strychnine
57-50-1	Sucrose
57-55-6	Propylene glycol
57-57-8	B-Propiolactone
60-00-4	EDTA
60-24-2	Mercaptoethanol
60-29-7	Diethyl ether
60-34-4	Methyl hydrazine
62-74-8	Sodium fluoroacetate
64-17-5	Ethanol
64-18-6	Formic acid
64-19-7	Acetic acid
65-85-0	Benzoic acid
67-56-1	Methanol
67-63-0	Propan-2-ol
67-64-1	Acetone
67-66-3	Chloroform
67-72-1	Hexachloroethane
68-11-1	Mercaptoacetic acid
68-12-2	Dimethyl formamide
68-12-2	N,N-Dimethyl formamide
71-23-8	Propan-1-ol
71-36-3	Butan-1-ol
71-43-2	Benzene
71-55-6	1,1,1-Trichloroethane
74-83-9	Bromomethane
74-87-3	Chloromethane
74-88-4	Iodomethane
74-89-5	Methylamine
74-90-8	Hydrogen cyanide
74-93-1	Methanethiol
74-96-4	Bromoethane
74-97-5	Bromochloromethane
74-98-6	Propane
74-99-7	Methyl acetylene
75-00-3	Chloroethane
75-01-4	Vinyl chloride
75-04-7	Ethylamine
75-05-8	Acetonitrile
75-07-0	Acetaldehyde
75-08-1	Ethanethiol
75-09-2	Dichloromethane
75-12-7	Formamide
75-15-0	Carbon disulphide
75-21-8	Ethylene oxide
75-25-2	Bromoform
75-31-0	Isopropylamine
75-34-3	1,1-Dichloroethane
75-35-4	Vinylidene chloride
75-43-4	Dichloromono-fluoromethane
75-44-5	Phosgene
75-45-6	Chlorodifluoromethane
75-47-8	Iodoform
75-50-3	Trimethylamine
75-52-5	Nitromethane
75-55-8	Propyleneimine
75-56-9	Propylene oxide
75-61-6	Dibromodifluoromethane
75-63-8	Trifluorobromomethane
75-65-0	2-Methylpropan-2-ol
75-69-4	Trichlorofluoromethane
75-71-8	Dichlorodifluoromethane
75-74-1	Tetramethyl lead
75-79-6	Methyltrichlorosilane
75-86-5	Acetone cyanohydrin
75-99-0	2,2-Dichloropropionic acid
76-03-9	Trichloroacetic acid
76-06-2	Trichloronitromethane
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane
76-14-2	Cryofluorane
76-15-3	Chloropentafluoroethane
76-22-2	Bornan-2-one
77-47-4	Hexachlorocyclopentadiene
77-73-6	Dicyclopentadiene
77-78-1	Dimethyl sulphate
77-92-9	Citric acid
78-00-2	Tetraethyl lead (as Pb)
78-10-4	Tetraethyl orthosilicate
78-30-8	Tri-o-tolyl phosphate
78-59-1	Isophorone
78-79-5	Isoprene
78-83-1	2-Methylpropan-1-ol
78-87-5	Propylene dichloride
78-92-2	Butan-2-ol
78-93-3	Butan-2-one
78-95-5	Chloroacetone
79-00-5	1,1,2-Trichloroethane
79-01-6	Trichloroethylene
79-04-9	Chloroacetyl chloride
79-06-1	Acrylamide
79-09-4	Propionic acid
79-10-7	Acrylic acid
79-11-8	Monochloroacetic acid
79-20-9	Methyl acetate
79-24-3	Nitroethane
79-27-6	1,1,2,2-Tetrabromoethane
79-34-5	1,1,2,2-Tetrachloroethane
79-41-4	Methacrylic acid
79-46-9	2-Nitropropane
80-05-7	Bisphenol A
80-15-9	Cumene hydroperoxide
84-66-2	Diethyl phthalate
84-74-2	Dibutyl phthalate
85-44-9	Phthalic anhydride
87-68-3	Hexachlorobutadiene
88-72-2	Nitrotoluene
88-89-1	Picric acid
89-72-5	2-sec-Butylphenol
90-04-0	o-Methoxyaniline (oil)
91-15-6	o-Phthalodinitrile
91-20-3	Naphthalene
91-22-5	Quinoline
92-52-4	Biphenyl
94-36-0	Benzoyl peroxide
95-13-6	Indene
95-49-8	o-Chlorotoluene
95-50-1	1,2-Dichlorobenzene
95-53-4	o-Toluidine
96-12-8	Dibromochloropropane
96-18-4	1,2,3-Trichloropropane
96-22-0	Pentan-3-one
96-29-7	Methyl ethyl ketoxime
96-33-3	Methyl acrylate
96-69-5	6,6'-Di-tert-butyl-4,4'-thiodi-m-cresol
97-99-4	Tetrahydrofurfuryl alcohol
98-00-0	Furfuryl alchohol
98-01-1	Furfural
98-29-3	4-tert-Butylcatechol
98-51-1	p-tert-Butyltoluene
98-59-9	p-Toluenesulfonyl chloride
98-82-8	Cumene
98-83-9	2-Phenylpropene
98-86-2	Acetophenone
98-88-4	Benzoyl chloride
98-95-3	Nitrobenzene
99-65-0	m-Dinitrobenzene
100-00-5	1-Chloro-4-nitrobenzene
100-01-6	4-Nitroaniline
100-21-0	Terephthalic acid
100-25-4	p-Dinitrobenzene
100-37-8	Diethylaminoethanol
100-40-3	4-Vinylcyclohexene
100-41-4	Ethylbenzene
100-42-5	Styrene
100-44-7	Benzyl chloride
100-51-6	Benzyl alcohol
100-52-7	Benzaldehyde Benzenecarbonal
100-61-8	Methyl aniline
100-63-0	Phenylhydrazine
100-74-3	n-Ethylmorpholine
101-14-4	2,2'-Dichloro-4,4'-methylene-dianiline
101-68-8	Methylene bisphenyl isocyanate
101-77-9	4,4'-Methylene dianiline
101-84-8	Diphenyl ether, vapour
102-54-5	Ferrocene
102-71-6	Triethanolamine
102-81-8	2-N-Dibutylaminoethanol
103-90-2	Paracetamol
104-76-7	2-Ethylhexanol
104-94-9	p-Methoxyaniline (solid)
105-46-4	Butan-2-ol
105-46-4	sec-Butyl acetate
105-60-2	1,6-Hexanolactam
106-35-4	Heptan-3-one
106-46-7	1,4-Dichlorobenzene
106-49-0	p-Toluidine
106-50-3	p-Phenylenediamine
106-51-4	p-Benzoquinone
106-87-6	Vinyl cyclohexene dioxide
106-89-8	1-Chloro,2,3-epoxy-propane
106-92-3	Allyl 2,3-epoxy propyl ether
106-93-4	1,2-Dibromoethane
106-94-5	1-Bromopropane
106-97-8	Butane
106-99-0	Buta-1,3,diene
107-02-08	Acrylaldehyde
107-05-01	3-Chloropropene
107-06-2	1,2-Dichloroethane
107-07-3	Ethylene chlorohydrin
107-13-1	Acrylonitrile
107-15-3	1,2-Diaminoethane
107-18-6	Allyl alcohol

CAS NUMBERS OF CHEMICALS LISTED IN THIS GUIDE (cont.)

107-19-7	Propargyl alcohol
107-20-0	Chloroacetaldehyde
107-21-1	Ethane-1-2-diol
107-31-3	Methyl formate
107-41-5	2-Methylpentane-2,4 diol
107-66-4	Dibutyl hydrogen phosphate
107-87-9	Pentan-2-one
107-98-2	Propylene glycol monomethyl ether
108-01-0	2-Dimethylaminoethanol
108-03-2	1-Nitropropane
108-05-4	Vinyl acetate
108-10-1	4-Methylpentan-2-one
108-11-2	4-methylpentan-2-ol
108-18-9	Diisopropylamine
108-20-3	Diisopropyl ether
108-21-4	Isopropyl acetate
108-24-7	Acetic anhydride
108-31-6	Maleic anhydride
108-44-1	m-Toluidine
108-45-2	m-Phenylenediamine
108-46-3	Resorcinol
108-65-6	1-Methoxypropyl acetate
108-80-5	Isocyanuric acid
108-83-8	2,6-Dimethylheptan-4-one
108-84-9	1,3-Dimethylbutyl acetate
108-87-2	Methylcyclohexane
108-88-3	Toluene
108-89-4	4-Picoline
108-90-7	Chlorobenzene
108-91-8	Cyclohexylamine
108-93-0	Cyclohexanol
108-94-1	Cyclohexanone
108-95-2	Phenol
108-98-5	Benzenethiol
108-99-6	3-Picoline
109-06-8	2-Picoline
109-59-1	Isopropoxyethanol
109-60-4	n-Propyl acetate
109-66-0	Pentane
109-73-9	n-Butylamine
109-79-5	Butyl mercaptan
109-86-4	2-Methoxyethanol
109-87-5	Dimethyoxymethane
109-89-7	Diethylamine
109-94-4	Ethyl formate
109-99-9	Tetrahydrofuran
110-12-3	5-Methylhexan-2-one
110-19-0	Isobutyl acetate
110-43-0	Heptan-2-one
110-49-6	2-Methoxyethyl acetate
110-54-3	n-Hexane
110-62-3	n-Valeraldehyde
110-80-5	2-Ethoxyethanol
110-82-7	Cyclohexane
110-83-8	Cyclohexene
110-85-0	Piperazine and salts
110-86-1	Pyridine
110-89-4	Piperidine
110-91-8	Morpholine
111-15-9	2-Ethoxyethyl acetate
111-30-8	Glutaraldehyde
111-40-0	2-2 Iminodi (ethylamine)
111-42-2	2,2'-Immunodiethanol
111-44-4	Dichloroethyl ether
111-46-6	2-2-Oxydiethanol
111-65-9	Octane
111-69-3	Adiponitrile
111-76-2	2-Butoxyethanol
111-84-2	Nonane
111-87-5	1-Octanol
111-90-0	Diethylene glycol monoethyl ether
111-92-2	Dibutylamine
112-07-2	2-Butoxyethyl acetate
114-07-8	Erythromycin
115-10-6	Dimethyl ether
115-77-5	Pentaerythritol
115-86-6	Triphenyl phosphate
117-81-7	Di-sec-octyl phthalate
118-52-5	1,3-Dichloro-5,5-dimethylhydantoin
118-74-1	Hexachlorobenzene
118-96-7	2,4,6-Trinitrotoluene (TNT)
118-98-51	tert-Butyl chromate
119-61-9	Benzophenone
120-61-6	Dimethyl terephthalate
120-80-9	Pyrocatechol
120-82-1	1,2,4-Trichlorobenzene
121-44-8	Triethylamine
121-45-9	Trimethyl phosphite
121-69-7	N,N-Dimethylaniline
121-82-4	Hexahydro-1,3,5-trinitro-sym-triazine
121-91-5	Isophthalic acid - respirable
122-39-4	Diphenylamine
122-60-1	Phenyl-2,3-epoxypropyl ether
123-19-3	Dipropyl ketone
123-31-9	Hydroquinone
123-42-2	4-Hydroxy-4-methyl-2-pentanone
123-51-3	3-Methyl-1-butanol
123-77-3	Azodicarbonamide
123-86-4	Butyl acetate
123-91-1	1,4-Dioxane
123-92-2	Isopentyl acetate
124-04-9	Adipic Acid
124-09-4	Hexamethylenediamine
124-38-9	Carbon dioxide
124-40-3	Dimethylamine
126-73-8	Tributyl phosphate (all isomers)
126-98-7	Methylacrylonitrile
126-99-8	2-Chloro-1,3-Butadiene
127-18-4	Tetrachloroethylene
127-19-5	N,N-Dimethyl acetamide
128-37-0	2,6-Di-tert-butyl-p-cresol
131-11-3	Dimethylphthalate
131-17-9	Diallyl phthalate
137-05-3	Methyl 2-cyanoacrylate
138-22-7	Butyl lactate
140-88-5	Ethyl acrylate
141-32-2	Butyl acrylate
141-43-5	2-Aminoethanol
141-78-6	Ethyl acetate
141-79-7	4-Methylpent-3-en-2-one
142-64-3	Piperazine dihydrochloride
142-71-2	Copper (II) acetate
142-82-5	Heptane
144-55-8	Sodium carbonate
144-62-7	Oxalic acid
148-01-6	3,5-Dinitro-o-toluamide
150-13-0	p-Aminobenzoic acid
150-76-5	Mequinol (INN)
151-56-4	Ethyleneimine
151-67-7	Halothane
156-62-7	Calcium cyanamide
287-92-3	Cyclopentane
298-14-6	Potassium Bicarbonate
302-01-2	Hydrazine
334-88-3	Diazomethane
353-50-4	Carbonyl fluoride
382-21-8	Perfluoroisobutylene
409-21-2	Silicon carbide (not whiskers)
420-04-2	Cyanamide
460-19-5	Cyanogen
463-51-4	Ketene
463-58-1	Carbonyl sulphide
479-45-8	N-Methyl-N-2,4-6-tetranitroaniline
504-29-0	2-Pyridylamine
506-77-4	Cyanogen chloride
509-14-8	Tetranitromethane
528-29-0	o-Dinitrobenzene
540-59-0	1,2-Dichloroethylene
540-88-5	tert-Butyl acetate
541-85-5	5-Methylheptan-3-one
542-75-6	1,3-Dichloropropene
542-88-1	bis-(chloromethyl) ether
542-92-7	Cyclopentadiene
546-93-0	Magnesite - Total inhalable dust
546-93-1	Magnesite - Respirable dust
552-30-7	Trimellitic anhydrite
556-52-5	Glycidol
557-05-1	Zinc stearate,
558-13-4	Carbon tetrabromide
563-80-4	Methyl isopropyl ketone
583-60-8	2-Methylcyclohexanone
584-84-9	Toluene-2,4-diisocyanate
591-78-6	Hexan-2-one
592-34-7	n-Butyl chloroformate
593-60-2	Vinyl bromide
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
598-78-7	2-Chloropropionic acid
603-34-9	Triphenyl amine
615-28-1	o-Phenylenediamine
624-83-9	Methyl isocyanate
62-53-3	Aniline
626-17-5	m-Phthalodinitrile
626-38-0	1-Methylbutyl acetate
627-13-4	n-Propyl nitrate
627-93-0	Dimethyl adipate
628-63-7	Pentyl acetate
628-96-6	Ethylene dinitrate
630-08-0	Carbon monoxide
638-21-1	Phenylphosphine
646-29-7	Stearates
681-84-5	Tetramethyl orthosilicate
684-16-2	Hexafluoroacetone
744-67-00	Aluminium Chloride
764-41-0	1,4-Dichloro-2-butene
811-97-2	1,1,1,2-Tetrafluoroethane
822-06-0	Hexamethylene diisocyanate
872-50-4	n-Methyl-2-pyrrolidone
999-61-1	2-Hydroxypropyl acrylate
1163-19-5	Decabromodiphenyl oxide
1300-73-8	Xylidine
1302-74-5	Emery - Total inhalable dust
1302-74-6	Emery - Respirable dust
1303-86-2	Boron oxide
1303-96-4	Borates,tetra,sodium salts - Decahydrate
1304-82-1	Bismuth telluride
1305-62-0	Calcium hydroxide
1305-78-8	Calcium oxide
1306-19-0	Cadmium oxide fume
1309-37-1	Iron oxide fume
1309-37-1	Rouge
1309-48-4	Magnesium oxide
1310-58-3	Potassium hydroxide
1310-65-2	Lithium hydroxide
1310-66-3	Lithium hydroxide monohydrate
1310-73-2	Sodium hydroxide
1314-13-2	Zinc oxide - respirable dust
1314-62-1	Vanadium pentoxide
1314-80-3	Diphosphorus pentasulphide
1317-35-7	Trimanganese tetroxide
1317-65-3	Calcium Carbonate
1317-65-3	Limestone
1319-77-3	Cresol
1321-64-8	Pentachloronaphthalene

CAS NUMBERS OF CHEMICALS LISTED IN THIS GUIDE (cont.)

1321-74-0	Divinylbenzene
1330-20-7	Xylene (o-isomer)
1330-43-4	Borates,tetra,sodium salts - anhydrous
1332-21-4	Asbestos (Serpentine)
1332-58-7	Kaolin (Respirable dust)
1333-86-4	Carbon black
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
1336-36-3	Polychlorinated biphenyl
1338-23-4	Methyl ethyl ketone peroxides
1344-28-1	Aluminium oxides
1344-95-2	Calcium silicate
1376-51-90	Calcium chromate
1395-21-7	Subtilisins - Bacillus Subtilis (BPN)
1477-55-0	m-Xylene a,a'-diamine
1634-04-4	Methyl tert-butyl ether
1680-21-3	Triethylene glycol diacrylate
1717-00-6	1,1-Dichloro-1-fluoroethane
2039-87-4	2-Chlorostyrene
2179-59-1	Allyl propyl disulphide
2234-13-1	Octachloronaphthalene
2238-07-5	Diglycidyl ether
2426-08-6	n-Butyl glycidyl ether
2451-62-9	Triglycidyl isocyanurate
2528-36-1	Dibutyl phenyl phosphate
2551-62-4	Sulphur hexafluoride
2699-79-8	Sulphuryl fluoride
3290-92-3	Trimethylolpropane trimethacrylate
3333-56-6	Tetramethyl succinonitrile, vapour
3524-68-3	Pentaerythritol triacrylate
3687-31-8	Lead arsenate
3825-26-1	Ammonium perfluorooctanoate
4016-14-2	2,3-Epoxypropyl isopropyl ether
4098-71-9	Isophorone diisocyanate
4170-30-3	Crotonaldehyde
5124-30-1	Methylene-bis-(4-cyclohexylisocyanate)
5332-73-0	3-Methoxypropyl amine
5714-22-7	Disulphur decafluoride
5989-27-5	d-Limonene
6153-56-6	Oxalic acid dihydrate
6423-43-4	Propylene dinitrate
6834-92-0	Sodium silicate
7429-90-5	Aluminium
7439-92-1	Lead
7439-96-5	Manganese
7439-97-6	Mercury, vapour
7439-98-7	Molybdenum
7440-02-0	Nickel
7440-06-4	Platinum
7440-16-6	Rhodium
7440-21-3	Silicon
7440-22-4	Silver
7440-25-7	Tantalum
7440-28-0	Thallium
7440-31-5	Tin
7440-33-7	Tungsten
7440-36-0	Antimony and compounds except stibine
7440-39-3	Barium
7440-41-7	Beryllium
7440-47-3	Chromium
7440-50-8	Copper
7440-58-6	Hafnium
7440-65-5	Yttrium
7440-67-7	Zirconium compounds
7446-09-5	Sulphur dioxide
7553-56-2	Iodine
7572-29-4	Dichloroacetylene
7580-67-8	Lithium hydride
7601-54-9	Trisodium phosphate
7601-90-3	Perchloric acid
7619-94-6	Perchloryl fluoride
7631-90-5	Sodium hydrogen sulphite
7637-07-2	Boron trifluoride
7646-85-7	Zinc chloride,fume
7647-01-0	Hydrogen chloride
7664-38-2	Orthophosphoric acid
7664-39-3	Hydrogen fluoride
7664-41-7	Ammonia
7664-93-9	Sulphuric acid
7681-52-9	Sodium hypochlorite
7681-57-4	Disodium Disulphite
768-52-5	n-Isopropylaniline
7697-37-2	Nitric acid
7719-09-7	Thionyl chloride
7719-12-2	Phosphorus trichloride
7722-84-1	Hydrogen peroxide
7722-88-5	Tetrasodium pyrophosphate
7723-14-0	Phosphorus (yellow)
7726-95-6	Bromine
7727-43-7	Barium sulphate
7758-01-2	Potassium bromate
7758-97-6	Lead chromate
7773-06-0	Ammonium sulphamidate
7778-18-9	Calcium sulphate
7778-44-1	Calcium arsenate
7782-41-4	Fluorine
7782-42-5	Graphite (natural)
7782-50-5	Chlorine
7782-65-2	Germane
7783-06-4	Hydrogen Sulphide
7783-07-5	Hydrogen selenide
7783-41-7	Oxygen difluoride
7783-54-2	Nitrogen trifluoride
7783-60-0	Sulphur tetrafluoride
7783-79-1	Selenium hexafluoride
7784-42-1	Arsine
7789-06-2	Strontium chromate
7789-24-4	Lithium fluoride
7789-30-2	Bromine pentafluoride
7789-75-5	Calcium fluoride
7790-91-2	Chlorine trifluoride
7790-94-5	Chlorosulphonic acid
7803-51-2	Phosphine
7803-52-3	Stibine
7803-62-5	Silane
8001-58-9	Creosote
8002-05-9	Petroleum distillate (naphtha)
8002-74-2	Paraffin wax fume
8004-13-5	Phenyl ether-biphenyl mixture, vapour
8006-61-9	Gasoline
8006-64-2	Turpentine
8008-20-6	Kerosene
8030-30-6	Naphtha (coal tar)
8030-30-6	Rubber solvent
8032-32-4	VM&P Naphtha
8050-09-7	Rosin based solder flux fume
8052-41-3	Stoddard solvent
8052-42-4	Asphalt (petroleum), fume
9002-83-9	Chlorotrifluoroethylene
9002-86-2	Polyvinyl chloride
9004-34-6	Cellulose
9005-25-8	Starch
9006-04-6	Rubber fume
9006-04-6	Rubber process dust
9014-01-1	Subtilisins - Bacillus Subtilis (Carlsberg)
10024-97-2	Nitrous oxide
10025-67-9	Disulphur dichloride
10025-87-3	Phosphoryl trichloride
10026-13-8	Phosphorus penta-chloride
10028-15-6	Ozone
10035-10-6	Hydrogen bromide
10049-04-4	Chlorine dioxide
10101-41-4	Gypsum
10102-43-9	Nitrogen monoxide
10102-44-0	Nitrogen dioxide
10210-68-1	Cobalt carbonyl
10294-33-4	Boron tribromide
12001-26-2	Mica (less than 1% quartz)
12057-24-8	Lithium oxide
12079-65-1	Manganese cyclopentadienyl tricarbonyl
12125-02-9	Ammonium chloride
12179-04-3	Borates,tetra,sodium salts - Pentahydrate
12604-58-9	Ferrovanadium, dust
13400-13-0	Cesium fluoride
13463-39-3	Nickel carbonyl
13463-40-6	Pentacarbonyliron
13463-67-7	Titanium dioxide
13494-80-9	Tellurium
13530-65-9	Zinc chromate
13838-16-9	Enflurane
14807-96-6	Talc - Respirable dust
14977-61-8	Chromyl chloride
15096-52-3	Cryolite
15625-89-5	Trimethylolpropane triacrylate
16219-75-3	Ethylidene norbornene
16842-03-8	Cobalt hydrocarbonyl
16984-48-8	Fluorides
17702-41-9	Decaborane
17831-71-9	Tetraethylene glycol diacrylate
19287-45-7	Diborane
19624-22-7	Pentaborane
20816-12-0	Osmium tetroxide
21351-79-1	Cesium hydroxide
25013-15-4	Methylstyrene
25038-54-4	Nylon
25154-54-5	Dinitrobenzene (all isomers)
25167-70-8	Diisobutylene
25321-14-6	Dinitrotoluene (mixed isomers)
25322-68-3	Polyethylene glycols
25551-13-7	Trimethylbenzene
25639-42-3	Methylcyclohexanol
26125-61-1	p-aramid respirable fibres
26140-60-3	Terphenyls (all isomers)
26499-65-0	Plaster of Paris
26628-22-8	Sodium azide
26675-46-7	Isoflurane
26952-21-6	Isooctyl alcohol (mixed isomers)
29191-52-4	Anisidine
31242-93-0	Chlorinated diphenyl oxide
34590-94-8	(2-methyoxyethylethoxy) propanol
39628-23-9	bis-(2-Chloroisopropyl) ether
59355-75-8	Methyl acetylene propadiene mixture
60676-86-0	Silica, fused - Respirable dust
61788-32-7	Hydrogenated terphenyls
61790-53-29	Diatomaceous earth (uncalcined)
63938-10-3	2-Chloro-1,1,1,2-tetra fluoroethane
65997-15-1	Portland Cement
68476-85-7	Liquified petroleum gas
83968-18-7	Dialkyl 79 phthalate



3M Personal Safety Division

3M United Kingdom Plc
3M Centre
Cain Road, Bracknell
Berkshire, RG12 8HT
Tel: 0870 60 800 60
www.3M.co.uk/safety

3M Ireland Limited
The Iveagh Building
The Park
Carrickmines
Dublin 18, Ireland
Tel: 1800 320 500

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CHRESPSELECTOR Iss 8.