Chemical and Biological Substances Guide

2021

Saskatchewan

Table of Contents

Introduction

Part 21 of *The Occupational Health and Safety Regulations, 2020* places duties on the employer to protect their workers from the hazards of chemical and biological substances. Part 22 deals with the employer's duty regarding substances regulated by the Workplace Hazardous Materials Information System. Section 6-22, Part 6 of the Regulations lists additional requirements to protect workers from biological substances that are known or suspected of causing infection in humans. The employer must address all of these requirements, where they apply.

Chemicals have obvious uses and applications in chemical laboratories, in chemical production and in other chemical processes. They are also ingredients of trade name products such as paints, adhesives, photographic developers and cleaners. Workers in food processing, sewage work, laboratories, agriculture, and other occupations handle biological substances or products containing biological substances of animal, plant or microbial origin.

Sometimes workers do not use, produce or handle chemical and biological substances directly, but are exposed to them when the substances are released into the workplace (for example, from equipment or processes such as welding, oil-drilling and servicing, sawing or grinding).

Health care workers, emergency workers, animal handlers, sewage workers and others may also be exposed to infectious biological substances when they deal with infected persons, animals or infectious materials at work.

Hazardous substances may be released from structural materials such as insulation, new carpeting and furniture. Bacteria and fungi may grow on moist furnishings and structural materials in the workplace and even in water in ventilation systems. These microorganisms, and in some cases their spores, toxins, and other products, can be released into the workplace air.

Workers may also be exposed to chemicals being stored or chemicals that have spilled, leaked or accumulated.

Chemical and biological substances may pose one or more of the following hazards:

- **Fire** – Flammable or combustible chemicals can burn under certain circumstances. Also oxidizing[1] chemicals can promote burning.
- **Explosions** – Compressed gases and liquids, reactive substances, etc. can become explosive under certain conditions.
- **Toxic reactions** – Certain chemical and biological substances (e.g. bacterial toxins, mycotoxins[2]) can be fatal or cause illness or injury if they are inhaled or enter the body by other means. The effects may occur within a short time of the exposure (acute effect) or after repeated exposures over a relatively long period, such as weeks, months or years (this is referred to as a "chronic effect"). An effect may clear up within a short time, be permanent or persist for a long time (this is referred to as a "long-term effect").

1 A substance that causes or contributes to the combustion of another substance, usually because it releases oxygen.
2 Substances produced by moulds

- **Burns** – Certain substances can cause severe eye, skin and airway irritation or damage.
- **Sensitization** – Certain chemical and biological substances (e.g., spores and bacterial enzymes) can cause skin or respiratory allergies or other sensitivity reactions.
- **Infection** – Some bacteria, viruses, fungi and parasites can be transmitted to workers and cause infectious diseases.
- **Dangerous reactions** – Reactive chemicals are unstable under certain conditions or can react with other chemicals to produce fires, explosions or toxic products.

General requirements

The general duties of the employer for controlling the risks associated with chemical and biological substances are listed in Section 21-1 of *The Occupational Health and Safety Regulations, 2020*. The following is a guideline to help employers in addressing these duties.

- Find out what chemical and biological substances in the workplace have hazardous properties and examine their use and presence. Determine which of these substances may harm workers considering the properties of the chemicals and how workers are exposed to them.
- List all chemical and biological substances that may be hazardous to workers. This includes hazardous substances used, handled, stored, produced or disposed of during work processes and any other substances workers may be exposed to. Keep the list up to date. Consult with the occupational health committee, the worker health and safety representative (representative), or the workers (where there is no occupational health committee or representative) when preparing and updating the list. Identify substances on the list that are subject to WHMIS requirements.
- Assess the risk from exposure to these chemical and biological substances. Sources of information include Safety Data Sheets (SDSs) and other supplier information, industry experience, including any results of monitoring done in similar situations, workers' concerns, regulatory requirements and safety organizations' information.
- If, based on the risk assessment, you suspect that the extent of exposure may cause harm to workers, consider and take all practicable (possible) steps to prevent workers from being exposed to that extent.
- Check whether any of the more hazardous substances that are in use can be eliminated or if there are less hazardous substitutes. Use suppliers' information and industry experience when making your selections. As far as is reasonably practicable, substitute with the less hazardous substances.
- Examine the extent of contamination of the workplace with hazardous substances (including the work environment, work surfaces and workers' bodies). Investigate and implement reasonably practicable measures to reduce contamination.
- Develop and implement safe work procedures and processes for handling, using, transporting, storing, producing and disposing of chemical and biological substances. Integrate safety into all procedures and work processes and develop any necessary additional safe work procedures and processes.

- Inform workers of how individual chemical and biological substances can cause harm and the type and degree of harm that can result. Develop training in consultation with the occupational health committee or the representative. Training must include the risks associated with the substances, how to reduce exposure and protect workers, and what to do when there are mishaps with the substances.

WHMIS duties

Employers' duties under the Workplace Hazardous Materials Information System (WHMIS) are described in Part 22 of The Occupational Health and Safety Regulations, 2020. Products regulated under WHMIS (hazardous products) cannot be used, but may be kept in storage at the workplace until these duties have been met (such as providing correct labels and product identifiers, Safety Data Sheets (SDSs) and worker training).

Substances that meet the hazard criteria described in the federal Hazardous Products Regulations (Canada) are "hazardous products" and subject to WHMIS requirements. Guidance materials and resources are available to assist employers with understanding these requirements and can be found on www.saskatchewan.ca, or contact Occupational Health and Safety at 1-800-567-7233 for more information.

Products that readily burn or explode, or produce toxic reactions, allergies, infectious diseases or dangerous reactions are likely to be hazardous products. Check the labels and SDSs for hazard warnings.

The employer must develop and implement a system to obtain and update the required hazard information (SDSs and labels) and use it to establish safe work procedures and worker training. Particular workers, positions or departments should be assigned responsibilities in the system. A competent person(s) must keep track of the flow of information and its use. A centralized ordering or receiving process will help ensure that the appropriate information is received. The occupational health committee or the representative should be consulted in setting up and auditing the system.

The system ensures that:

- An acceptable, current (less than three years old) SDS is obtained at the time of purchase for each hazardous product. The content of an acceptable SDS is provided in Sections 22-11 to 22-15 of the Regulations.
- Where possible, out-of-date SDSs must be substituted with current supplier SDSs. When a supplier SDS is unobtainable and the product is still in use, the employer must update the information on the SDS with any significant new data. Alternatively, the use of the product can be discontinued and any remaining chemical must be disposed of appropriately.
- Relevant SDSs are readily available to workers who need them. The availability requirement is provided in Section 22-13 of the Regulations.
- A correct WHMIS label (whether a supplier label or a workplace label) is attached to each container of a controlled product in the workplace(s). Labeling requirements are provided in Sections 22-5 to 22-10 of the Regulations.

- A training program is developed and delivered to workers who may be exposed to controlled products. The program should include:
  - general training about the WHMIS system of classification labels and SDS
  - training specifically about hazards, safe handling and emergency procedures for controlled products and at the worksite
- The content of the training program is described in Section 22-4 of the Regulations.

Duties for WHMIS Education and Training

Employers

Employers must develop, implement, and maintain a worker WHMIS education and training program. Education and training is required for workers who may be exposed to hazardous products that are produced or used at the workplace.

The employer has the general responsibility to provide workers with all of the hazard information possible, either from the supplier or based on information the employer is, or ought to be, aware of.

Employers are expected to consult with the health and safety committee (or representative) when developing, implementing, or reviewing the education and training programs.

In addition, employers must review their overall WHMIS education and training programs at least annually, or more often if there is a change in the work conditions, hazard information, or similar factors. The review should be done in consultation with the health and safety committee or representative.

Refresher education and training is generally required:

- As needed to protect workers' health and safety
- If conditions of the workplace have changed
- If new products are introduced
- If the products have changed and now have different hazards
- When new hazard information becomes available
- If there is new information about safe use, handling, storage, or disposal

In addition, employers must periodically evaluate workers' knowledge using written tests, practical demonstrations, or other suitable means.

Workers

Workers must participate in the education and training sessions. They must also follow the safe work procedures established by their employer.

Workers who are successfully educated and trained in WHMIS must be able to answer these four key questions for every hazardous product that they work with:

- What are the hazards of the product?
- How do I protect myself from those hazards?

- What do I do in case of an emergency?
- Where can I get further information?

When the education and training program is reviewed, it is important for employers to find out if workers still understand the hazards of hazardous products and follow safe work procedures. These four key questions can also be used to evaluate whether workers need to be retrained because they have forgotten some information.

Hazardous products exempt from WHMIS

(section 21-3 of *The Occupational Health and Safety Regulations, 2020*)

Some hazardous products used in the workplace, such as consumer products, explosives, pesticides, drugs, cosmetics and radioactive substances, are exempt from requirements for WHMIS supplier labels and SDSs. Hazardous waste is also exempt from the SDS requirements.

Employers are still required to collect and record the hazards of the above products and determine how to safely handle them. Containers of these products must be clearly labeled. Workers must

1. be informed of the hazards,

2. be provided appropriate personal protective equipment; and

3. trained on the safe use of these products.

In addition they must be provided with information, necessary equipment and training on emergency procedures.

Employer duties for specific chemical and biological substances

Employers must check to see if chemical and biological substances in the workplace are listed in Tables 16, 17, and 18 of the Regulations. There are specific requirements for substances in these tables. Some substances are found in more than one table and subject to the requirements associated with each

Chemical and biological substances with assigned workplace contamination limits (section 21-6 of *The Occupational Health and Safety Regulations, 2020*).

Workplace Contamination Limits (CLs) have been established for many workplace chemicals and some biological substances. Both 15 minute CLs and eight hour CLs are listed in Table 18 of the Regulations.

The employer's duty is to ensure that workers are not exposed to average airborne concentrations of these substances that exceed the listed CLs. The employer must also use engineering controls to the extent that is reasonably practicable to ensure that these CL's are not exceeded in any area where a worker is usually present. Engineering controls that include enclosures or ventilation prevent or minimize the release of the chemical or biological substance into the work environment.

In certain cases, this may not be reasonably practicable. For example, the employer would not be expected to install a mechanical exhaust system to keep worker exposure below a CL if a substance is only used once a year in an annual maintenance procedure.

In these cases, the employer must provide alternative controls, such as:

- administrative controls (e.g. job rotation), or
- appropriate personal protective equipment. (This is described in Part 7 of the Regulations).

The employer must address contamination of the work environment and determine the need, conditions and process for workplace monitoring.

Monitoring (such as air sampling or personal assessment of exposure) measures exposure to contaminants in the workplace. Monitoring can help assess the risks and the adequacy of hazard controls.

Monitoring must be used when:

1. Determining the level of worker exposure;
2. the work environment may not be safe because of:
3. lack of information about workplace contamination;
4. fluctuations in concentrations of contaminants;
5. variations in how often workers are exposed to contaminants; or,
6. workers have significant health concerns, or have become ill because of exposure(s) to workplace contaminants, and existing monitoring test results are suspect or unsatisfactory.

Monitoring is not required where there is no standard method of obtaining reliable results, or the results obtained with a standard method do not provide meaningful measures of risk.

The eight-hour CL may not be appropriate to protect workers who work extended shifts (more than eight hours a day) or work weeks (more than 40 hours) because of the larger cumulative dose received over a shorter time span. In addition, the recovery period between doses is decreased. In these cases, the exposure should be limited to a proportion of the eight hour CL unless there is adequate evidence that the lower limit is not justified. The Brief and Scala model is recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) as a simpler model which reduces the CL by a factor that takes into account the hours worked daily and the periods of rest between them.

Adjusted CL = Reduction Factor x CL

$$\textbf{Reduction Factor} = \frac{8}{\text{daily hours worked}} \times \frac{24 \times \text{daily hours worked}}{16}$$

The number of days worked per week is not considered, except for a 7-day-work week (e.g. for a 56 workdays followed by 21 days off schedule). The formula to be applied for a 7-day work week is:

$$\textbf{Weekly Reduction Factor} = \frac{40}{\text{hours worked per week}} \times \frac{(24x7) \text{ hours worked per week}}{128}$$

For example, the modified CL for toluene (CL = 20 ppm) for a 12-hr/day 14-day pattern shift (five workdays one week and two workdays the next week) will be:

$$\textbf{Daily Reduction Factor} = \frac{8}{12} \times \frac{24\text{-}12}{16} = 0.5$$

adjusted CL = 20 * 0.5 = 10 ppm

(The reduction factor is calculated for the 12-hour workday regardless of how many days, 5 or 2, are worked during a week).

One of the shortcomings of the Brief and Scala method is that the reduction factor for a certain amount of worked hours is identical for all chemicals regardless of their individual biological half-lives. This assumption may lead to an overestimation of the degree to which the limit should be lowered.

The formula is not applicable for:

- Work schedules with less than seven to eight hours per day or less than 40 hours per week.
- Work schedules that involve 24-hour continuous exposure (e.g., in submarines and space shuttles).
- Certain irritants.

Similarly, CLs are based on exposure to one chemical. In some cases, a worker may be exposed to a combination or mixture of substances, each of which has a similar toxic effect when acting on the same body organ system (this is referred to as an “additive effect”). A worker exposed to such a mixture can be exposed to each substance at a concentration below its respective CL, but can still be exposed to a hazardous concentration of the mixture. In these cases, the exposure limit (concentration) for each substance must be limited to a fraction of its respective CL.

In this case, ACGIH recommends the following calculation:

If the sum of:

C1/T1 + C2/T2 + ….Cn/Tn

is higher than 1, the threshold limit of the mixture is exceeded.

(C is the concentration in the air of the substance and T is the contamination limit)

- This formula should not be used for:
- mixtures of substances with toxicological effects are not additive (individual toxicological effects and target organs are different),
- mixtures of substances which inhibit each other's effect,
- substances that may have a synergistic effect,
- carcinogens (exposure to mixtures of carcinogens should be eliminated or as low as possible), and
- complex mixtures (e.g., diesel exhaust).

In situations of an extended shift or possible additive effect, the employer is required to develop and implement, in consultation with the committee, an appropriate written work procedure that limits the risk to the workers. The procedure must identify:

- substances workers may be exposed to
- conditions under which workers will be required or permitted to work, including the frequency and duration of exposure to the substances
- steps the employer will take to ensure no worker's personal exposure exceeds the equivalent of the CL

Notifiable and designated substances

(sections 21-4, 21-5, 21-10 of *The Occupational Health and Safety Regulations, 2020*).

There are more stringent requirements for notifiable and designated substances.

A number of chemical and biological substances are listed in Table 16 of the Regulations as Notifiable Substances because of the serious nature of the hazards associated with them. Most of these are synthetic chemicals known to cause cancer in humans. The employer must notify the Director of Occupational Health and Safety to obtain written permission and a statement of the conditions of use before the substance is handled, used, produced, distributed or disposed of at the place of employment.

Chemicals that have been identified as possible or probable causes of cancer in humans have been identified in Table 17 of the Regulations as Designated Substances. Where workers are required to handle, use, store, produce or dispose of any of these chemicals, the employer must provide engineering controls, such as local ventilation or enclosures, to prevent the chemical and biological substances from being released into the workplace. The employer must also implement other measures, such as administrative measures and use of personal protective equipment, to prevent workers from being exposed to the substance to an extent that poses any significantly greater risk of disease than persons not so exposed.

Some substances in Table 17 also have CL listed in Table 18. As such they are also subject to the requirements of Section 21-6.

When there is an accumulation, spill, or leak of biological or chemical substances listed in tables 16 and 17 that results in an exposure of a worker to an extent that may affect their health and safety, he employer, in consultation with the committee, must investigate the incident and prepare a written report that includes the following:

- a description of the incident, including the date and all affected workers;
- the names of the substances released and the characteristics of the substances;
- for each substance released, the estimated duration and the extent of the worker's exposure;
- the name of each worker exposed and the manner in which the substance entered the body;
- the cause of the incident; and
- any corrective actions taken to prevent occurrence of a similar incident.

A copy of this report must be provided to any worker who was exposed to the chemical or biological substance during the accumulation, spill or leak event as outlined in Section 21-10.

Employer duties for certain workers

(section 21-7 of *The Occupational Health and Safety Regulations, 2020*).

Pregnant workers and workers who are hypersensitive or unusually responsive to a substance may require additional protection. If there is a substance present in a form and to an extent that may harm these workers, and the worker notifies the employer with medical evidence of their condition, the employer must take steps to minimize the exposure. The workers' physician may also provide recommendations or restrictions to assist the employer in accommodating the worker.

The worker may ask to be assigned to less hazardous, alternate work. If the worker's exposure cannot be minimized in their current position with reasonable measures, the employer must assign the worker to less hazardous, alternate work, if available.

In some cases, after taking the above steps, the employer may still not be able to completely protect the worker. In such cases, the employer is not usually expected to take further action.

Safe storage of flammable, unstable, highly reactive and corrosive substances

(section 21-13 of *The Occupational Health and Safety Regulations, 2020*).

Where storage of these substances may put workers at risk, the employer must ensure the substances are stored in contained and enclosed areas, isolated from work areas to the extent that minimizes the risk to workers. Storage areas must be adequately ventilated and identified as described in Section 21-13 of the Regulations.

Where two or more chemical substances, when combined, produce a toxic, corrosive or explosive reaction, the employer shall ensure that the substances are effectively separated and stored to prevent the substances from combining.

Emergency preparedness and response

(section 21-9 of *The Occupational Health and Safety Regulations, 2020*).2

When reviewing substances in a workplace, the employer must consider possibilities for accidental spills, leaks and accumulations of substances that could be hazardous. Employers must prepare in advance for such incidents. In consultation with the committee, the employer must develop written emergency procedures. Employers must train workers on the procedures and ensure that emergency supplies and equipment are available.

If a worker could be asphyxiated or poisoned at work, the employer must make arrangements to rescue workers and treat such conditions, and make sure any antidotes, first aid and medical treatments are available. Employers must also determine the need to provide emergency eyewashes and showers.

Infectious substances

(section 6-22 of *The Occupational Health and Safety Regulations, 2020*).

To protect workers who handle, use or produce and are likely to have harmful exposure to infectious materials or organisms, the employer is required to develop and implement a written exposure control plan. Examples of potentially harmful infectious microorganisms are provided in a list from the Public Health Agency of Canada.

The plan must be developed in consultation with the occupational health committee and:

- identify workers who may be at risk of exposure and the types of tasks and procedures that may put them at risk;
- describe how infections are transmitted and their signs, symptoms and health risks to health associated with exposure;
- describe infection control measures (such as vaccinations, disinfection, use of engineering controls and personal protective equipment) and their limitations;

- set out the procedures to be followed in cases of spills or leaks;
- set out immediate medical follow up and procedures to be implemented when a worker believes that he or she has been exposed;
- describe the training that will be provided to workers, including information about recommended vaccines;
- require the investigation and documentation of exposure incidents; and
- require the investigation of any associated infection or disease occurrence.

The employer must:

- provide training on the plan before workers are required to handle or use infectious materials or organisms
- review the plan with the Occupational Health Committee every two years
- provide a copy of the plan to any worker who may be exposed
- offer vaccinations recommended in the Canadian Immunization Guide or a Medical Health Officer or other physician with expertise in immunization. Where vaccinations cannot be arranged during normal working hours, the time must be credited as time at work. For more information see saskatchewan.ca and refer to the Canadian Immunization Guide.

Where a worker has been exposed to blood or infectious body fluids, the employer is required to take follow-up actions. These actions include evaluating and assessing the extent of the exposure. For harmful exposures, follow-up actions include prompt medical evaluation or medical intervention by a qualified person in a manner that is acceptable to the Ministry of Health and making arrangements for confidential post-exposure counseling. These follow-up actions are provided at the request of the worker and must be conducted during the worker's normal working hours or the worker's post-exposure follow-up time must be credited as time at work.

Accidents involving hazardous substances

Investigation requirements - section 3-18.

Accidents involving a hazardous chemical or biological substance that:

- result in death
- may have resulted in death or
- result in hospitalization for more than 24 hours

must be investigated (Section 3-18 of *The Occupational Health and Safety Regulations, 2020)*. The co-chairpersons of the occupational health committee do the investigation. If there is no occupational health committee, the representative and the employer investigate. Where there is neither a committee nor a representative, the employer investigates. A written report of the accident must be prepared that includes results of the investigation and items listed in Section 3-18(2) of the Regulations.

Notification requirements – section 2-2(1)(b)

Under section 2-2(1)(b) of the Regulations, Occupational Health and Safety must be notified of accidents caused by chemical or biological substances that result, or could have resulted, in worker death or hospitalization of the worker for more than 72 hours.

Dangerous occurrences involving hazardous substances

Investigation requirements - section 3-20

Dangerous occurrences also require investigation. A written report of the accident must be prepared that includes results of the investigation and items listed in Section 3-20(2) of the Regulations. The co-chairpersons of the occupational health committee do the investigation. If there is no occupational health committee, the representative and the employer investigate. Where there is neither a committee nor a representative, the employer investigates. Dangerous Occurrences include incidents that could have resulted in the death of a worker or hospitalization for more than 72 hours. They also include:

- The structural failure or collapse of:
  - A structure, scaffold, temporary falsework or concrete framework; or
  - All or part of an excavated shaft, tunnel, caisson, coffer dam, trench or excavation;
- The failure of a crane or hoist or the overturning of a crane or unit of powered mobile equipment;
- An accidental contact with an energized electrical conductor;
- The bursting of a grinding wheel;
- An uncontrolled spill or escape of a toxic, corrosive, or explosive substance;
- A premature detonation or accidental detonation of explosives;
- The failure of an elevated or suspended platform; and
- The failure of an atmosphere-supplying respirator.

If a worker is exposed to a substance (listed in Table 16 or 17 of the Regulations) that spilled, leaked or accumulated, the employer, in consultation with the committee, must investigate the exposure and provide a written report about the investigation to the worker and the committee. Section 21-10 of the Regulations lists the content of an investigation report.

Notification requirements – section 2-3(2)

Under section 2-3(2) of the Regulations, Occupational Health and Safety must be notified of any dangerous occurrence that takes place in the workplace.

Appendix: Workplace contamination limits

Table 18 of The Occupational Health and Safety Regulations, 2020 lists the Contamination Limits (CL) of substances that are subject to the requirements of Section 21-6 . In most cases a “Contamination Limit” is a time-weighted average air concentration that is not to be exceeded over a specified period of time (eight hours or 15 minutes). For some substances, the Contamination Limit is an air concentration that is not to be exceeded at any time. These are called “Ceiling Limits” and are recognized by a “C” notation listed before the CL value.

Some important substances such as asbestos or benzene do not have acceptable CL. These substances which are listed in Table 17 are subject to the more stringent controls and requirements outlined in Sections 21-5 and 21-10 .

To evaluate whether there is compliance with CL’s, the concentration in workplace may need to be measured. Several types of measurement units are used in the table depending on the substance:

- CL of gases and vapours are expressed as parts (volume) of the substance in a million parts (volumes) of air (ppm).
- CL of solid aerosols (dusts, mists and fumes) are expressed as the weight of a substance in a volume of air (milligram per cubic metre or mg/m3)
- CL of some fibres are expressed as the number of fibres in a volume of air (fibres per cubic centimeter or f/cc).

The tables include a number of notations that are explained in footnotes and additional tables that follow Table 18. These notations provide additional useful information. For example:

- “T20” – Means the substance is also in Table 17 and subject to Sections 21-5 and 21-10
- “Skin” – Means the substance is potentially harmful after absorption through the skin or mucous membranes; that air monitoring alone may not be sufficient to assess total exposure; and that effective measures must be taken to limit skin exposure to these substances.
- “SEN” – Means the substance has a well-demonstrated potential to produce sensitization. Table D that follows Table 18 lists wood species suspected of producing sensitization.

CL for some solid particles or droplets in Table 18, may specify the particular size fraction of concern. These include “inhalable fraction”, “thoracic fraction” and “respirable fraction”. Tables A, B and C that follow Table 18 , list the size distributions that characterize each of these fractions. Appropriate size-selective sampling equipment is needed for these substances.

These size fractions represent what parts of the respiratory tract are affected by the substance and provide guidance as to how the substance should be measured. For example:

- “inhalable fraction” is used for substances that can be hazardous when deposited anywhere in the respiratory tract.

- “thoracic fraction” is used for substances that can be hazardous when deposited anywhere within the lung airways and gas exchange region.
- “respirable fraction” is used for substances that can be hazardous when deposited anywhere within the gas exchange region.

Note: More information on sampling different size fractions (size-selective sampling) can be found in the annual publications of the American Conference of Governmental Industrial Hygienists that list Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) or by calling Occupational Health and Safety.

TABLE 18
[*Sections 21-6 and 21-8, definition of "silica process" in section 24-1*]

Contamination Limits

Also check Tables 16 and 17 for substances (such as asbestos and benzene) with additional requirements

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
75-07-0	Acetaldehyde	**C25 ppm		T20
64-19-7	Acetic acid	10 ppm	15 ppm	
108-24-7	Acetic anhydride	5 ppm	10 ppm	
67-64-1	Acetone	500 ppm	750 ppm	
75-86-5	Acetone cyanohydrin, as CN	**C5 mg/m^3		Skin
75-05-8	Acetonitrile	20 ppm	30 ppm	Skin
98-86-2	Acetophenone	10 ppm	15 ppm	
79-27-6	Acetylene tetrabromide	1 ppm	3 ppm	
50-78-2	Acetylsalicylic acid	5 mg/m^3	10 mg/m^3	
107-02-8	Acrolein	**C0.1 ppm		Skin
79-06-1	Acrylamide (inhalable fraction⁺⁺ and vapour)	0.03 mg/m^3	0.09 mg/m^3	T20, Skin
79-10-7	Acrylic acid	2 ppm	4 ppm	Skin
107-13-1	Acrylonitrile	2 ppm	4 ppm	Skin, T20
124-04-9	Adipic acid	5 mg/m^3	10 mg/m^3	
111-69-3	Adiponitrile	2 ppm	4 ppm	Skin
309-00-2	Aldrin	0.25 mg/m^3	0.75 mg/m^3	Skin
	Aliphatic hydrocarbon gases, Alkane [C1-C4]	1000 ppm	1250 ppm	
107-18-6	Allyl alcohol	0.5 ppm	1.5 ppm	Skin
107-05-1	Allyl chloride	1 ppm	2 ppm	
106-92-3	Allyl glycidyl ether (AGE)	1 ppm	3 ppm	
2179-59-1	Allyl propyl disulphide	0.5 ppm	1.5 ppm	SEN

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
7429-90-5	Aluminum and compounds (as Al):			
	Metal dust	10 mg/m³	20 mg/m³	
	Pyro powders	5 mg/m³	10 mg/m³	
	Soluble salts	2 mg/m³	4 mg/m³	
	Alkyls, not otherwise specified	2 mg/m³	4 mg/m³	
1344-28-1	Aluminum oxide	10 mg/m³	20 mg/m³	
504-29-0	2-Aminopyridine	0.5 ppm	1.0 ppm	
61-82-5	Amitrole	0.2 mg/m³	0.6 mg/m³	T20
7664-41-7	Ammonia	25 ppm	35 ppm	
12125-02-9	Ammonium chloride fume	10 mg/m³	20 mg/m³	
3825-26-1	Ammonium perfluorooctanoate	0.01 mg/m³	0.03 mg/m³	Skin
7773-06-0	Ammonium sulphamate (Ammate)	10 mg/m³	20 mg/m³	
994-05-8	tert-Amyl methyl ether (TAME)	20 ppm	30 ppm	
62-53-3	Aniline	2 ppm	4 ppm	Skin
90-04-0	o-Anisidine	0.5 mg/m³	1.5 mg/m³	Skin, T20
104-94-9	p-Anisidine	0.5 mg/m³	1.5 mg/m³	Skin
7440-36-0	Antimony and compounds, (as Sb)	0.5 mg/m³	1.5 mg/m³	
86-88-4	ANTU (alpha-Naphthyl thiourea)	0.3 mg/m³	0.9 mg/m³	
7440-38-2	Arsenic, and inorganic compounds, (as As)	0.01 mg/m³	0.03 mg/m³	T20
7784-42-1	Arsine	0.05 ppm	0.15 ppm	
8052-42-4	Asphalt (bitumen) fume, as benzene soluble aerosol (inhalable fraction⁺⁺)	0.5 mg/m³	1.5 mg/m³	
1912-24-9	Atrazine	5 mg/m³	10 mg/m³	T20
86-50-0	Azinphos-methyl (inhalable fraction⁺⁺ and vapour)	0.2 mg/m³	0.6 mg/m³	Skin; SEN
7440-39-3	Barium and soluble compounds, (as Ba)	0.5 mg/m³	1.5 mg/m³	
7727-43-7	Barium sulphate	10 mg/m³	20 mg/m³	
17804-35-2	Benomyl	10 mg/m³	20 mg/m³	
98-07-7	Benzotrichloride	**C0.1 ppm		Skin, T20
98-88-4	Benzoyl chloride	**C0.5 ppm		T20
94-36-0	Benzoyl peroxide	5 mg/m³	10 mg/m³	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
140-11-4	Benzyl acetate	10 ppm	20 ppm	
100-44-7	Benzyl chloride	1 ppm	2 ppm	T20
7440-41-7	Beryllium and compounds, (as Be)	0.002 mg/m³	0.01 mg/m³	T20
92-52-4	Biphenyl (diphenyl)	0.2 ppm	0.6 ppm	
3033-62-3	Bis (2-dimethylaminoethyl) ether (DMAEE)	0.05 ppm	0.15 ppm	Skin
1304-82-1	Bismuth telluride			
	Undoped	10 mg/m³	20 mg/m³	
	Se-doped, as Bi_2Te_3	5 mg/m³	10 mg/m³	
1330-43-4; 1303-96-4; 10043-35-3; 12179-04-3	Borate compounds, inorganic (inhalable fraction⁺⁺)	2 mg/m³	6 mg/m³	
1303-86-2	Boron oxide	10 mg/m³	20 mg/m³	
10294-33-4	Boron tribromide	**C1 ppm		
7637-07-2	Boron trifluoride	**C1 ppm		
314-40-9	Bromacil	10 mg/m³	20 mg/m³	
7726-95-6	Bromine	0.1 ppm	0.2 ppm	
7789-30-2	Bromine pentafluoride	0.1 ppm	0.3 ppm	
74-97-5	Bromochloromethane (Chlorobromomethane)	200 ppm	250 ppm	
75-25-2	Bromoform	0.5 ppm	1.5 ppm	Skin
106-94-5	1-Bromopropane	10 ppm	20 ppm	
106-99-0	1,3-Butadiene	2 ppm	4 ppm	T20
106-97-8; 75-28-5	Butane, All isomers	See Aliphatic hydrocarbon gases [C1-C4]		
111-76-2	2-Butoxyethanol (Butyl Cellosolve or EGBE)	20 ppm	30 ppm	
112-07-2	2-Butoxyethyl acetate (EGBEA)	20 ppm	30 ppm	
123-86-4	n-Butyl acetate	150 ppm	200 ppm	
105-46-4	sec-Butyl acetate	200 ppm	250 ppm	
540-88-5	tert-Butyl acetate	200 ppm	250 ppm	
141-32-2	n-Butyl acrylate	2 ppm	4 ppm	SEN
71-36-3	n-Butyl alcohol (n-butanol)	20 ppm	30 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
78-92-2	sec-Butyl alcohol (sec-butanol)	100 ppm	125 ppm	
75-65-0	tert-Butyl alcohol (tert-butanol)	100 ppm	125 ppm	
109-73-9	n-Butylamine	**C5 ppm		Skin
1189-85-1	tert-Butyl chromate, (as CrO_3)	**C0.1 mg/m³		Skin
2426-08-6	n-Butyl glycidyl ether (BGE)	3 ppm	6 ppm	Skin, SEN
138-22-7	n-Butyl lactate	5 ppm	10 ppm	
109-79-5	n-Butyl mercaptan	0.5 ppm	1.5 ppm	
89-72-5	o-sec-Butylphenol	5 ppm	7 ppm	Skin
98-51-1	p-tert-Butyltoluene	1 ppm	2 ppm	
7440-43-9	Cadmium, and compounds, (as Cd):			T20
	(total fraction)	0.01 mg/m³	0.03 mg/m³	
	(respirable fraction⁺⁺)	0.002 mg/m³	0.006 mg/m³	
1317-65-3	Calcium carbonate	10 mg/m³	20 mg/m³	
13765-19-0	Calcium chromate, (as Cr)	0.001 mg/m³	0.003 mg/m³	
156-62-7	Calcium cyanamide	0.5 mg/m³	1.5 mg/m³	
1305-62-0	Calcium hydroxide	5 mg/m³	10 mg/m³	
1305-78-8	Calcium oxide	2 mg/m³	4 mg/m³	
1344-95-2	Calcium silicate, synthetic nonfibrous	10 mg/m³	20 mg/m³	
76-22-2	Camphor, synthetic	2 ppm	3 ppm	
105-60-2	Caprolactam (inhalable fraction⁺⁺ and vapour)	5 mg/m³	10 mg/m³	
2425-06-1	Captafol	0.1 mg/m³	0.3 mg/m³	Skin, T20
133-06-2	Captan (inhalable fraction⁺⁺)	5 mg/m³	10 mg/m³	SEN
63-25-2	Carbaryl	5 mg/m³	10 mg/m³	
1563-66-2	Carbofuran (inhalable fraction⁺⁺ and vapour)	0.1 mg/m³	0.3 mg/m³	
1333-86-4	Carbon black	3.5 mg/m³	7 mg/m³	
124-38-9	Carbon dioxide	5000 ppm	30,000 ppm	
75-15-0	Carbon disulphide	10 ppm	15 ppm	Skin
630-08-0	Carbon monoxide	25 ppm	190 ppm	
558-13-4	Carbon tetrabromide	0.1 ppm	0.3 ppm	
75-44-5	Carbonyl chloride (Phosgene)	0.1 ppm	0.3 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation+
353-50-4	Carbonyl fluoride	2 ppm	5 ppm	
120-80-9	Catechol (Pyrocatechol)	5 ppm	7.8 ppm	Skin
9004-34-6	Cellulose (paper fibre)	10 mg/m³	20 mg/m³	
21351-79-1	Cesium hydroxide	2 mg/m³	4 mg/m³	
57-74-9	Chlordane	0.5 mg/m³	1.5 mg/m³	Skin
8001-35-2	Chlorinated camphene	0.5 mg/m³	1 mg/m³	Skin, T20
31242-93-0	o-Chlorinated diphenyl oxide	0.5 mg/m³	1.5 mg/m³	
7782-50-5	Chlorine	0.5 ppm	1 ppm	
10049-04-4	Chlorine dioxide	0.1 ppm	0.3 ppm	
7790-91-2	Chlorine trifluoride	**C 0.1 ppm		
107-20-0	Chloroacetaldehyde	**C1 ppm		
78-95-5	Chloroacetone	**C1 ppm		Skin
532-27-4	alpha-Chloroacetophenone (Phenacyl chloride)	0.05 ppm	0.15 ppm	
79-04-9	Chloroacetyl chloride	0.05 ppm	0.15 ppm	Skin
108-90-7	Chlorobenzene (Monochlorobenzene)	10 ppm	15 ppm	
2698-41-1	o-Chlorobenzylidene malononitrile	**C0.05 ppm		Skin
126-99-8	2-Chloro-1,3-butadiene (beta-Chloroprene)	10 ppm	15 ppm	Skin
75-45-6	Chlorodifluoromethane	1000 ppm	1250 ppm	
53469-21-9	Chlorodiphenyl (42% chlorine)	1 mg/m³	3 mg/m³	Skin
11097-69-1	Chlorodiphenyl (54% chlorine)	0.5 mg/m³	1.5 mg/m³	Skin
107-07-3	2-Chloroethanol (Ethylene chlorohydrin)	**C1.0 ppm		Skin
600-25-9	1-Chloro-1-nitropropane	2 ppm	4 ppm	
76-15-3	Chloropentafluoroethane	1000 ppm	1250 ppm	
76-06-2	Chloropicrin	0.1 ppm	0.3 ppm	
127-00-4; 78-89-7	1-Chloro-2-propanol and 2-Chloro-1-propanol	1 ppm	3 ppm	Skin
598-78-7	2-Chloropropionic acid	0.1 ppm	0.3 ppm	Skin
2039-87-4	o-Chlorostyrene	50 ppm	75 ppm	
95-49-8	o-Chlorotoluene	50 ppm	65 ppm	
2921-88-2	Chlorpyrifos, (inhalable fraction++ and vapour)	0.1 mg/m³	0.3 mg/m³	Skin

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7440-47-3	Chromium metal and inorganic compounds, (as Cr):			
	Metal and Cr (III) compounds	0.5 mg/m³	1.5 mg/m³	
	Water soluble Cr (VI) compounds	0.05 mg/m³	0.15 mg/m³	T20
	Insoluble Cr (VI) compounds	0.01 mg/m³	0.03 mg/m³	T20
14977-61-8	Chromyl chloride	0.025 ppm	0.07 ppm	
2971-90-6	Clopidol	10 mg/m³	20 mg/m³	
	Coal dust:			
	Anthracite (respirable fraction++)	0.4 mg/m³	1.2 mg/m³	
	Bituminous (respirable fraction++)	0.9 mg/m³	2.7 mg/m³	
65996-93-2	Coal tar pitch volatiles, as benzene soluble aerosol (See Particulate polycyclic aromatic hydrocarbons)	0.2 mg/m³	0.6 mg/m³	T20
7440-48-4	Cobalt and inorganic compounds, (as Co)	0.02 mg/m³	0.06 mg/m³	T20
10210-68-1	Cobalt carbonyl, (as Co)	0.1 mg/m³	0.3 mg/m³	
16842-03-8	Cobalt hydrocarbonyl, (as Co)	0.1 mg/m³	0.3 mg/m³	
7440-50-8	Copper, (as Cu):			
	fume	0.2 mg/m³	0.6 mg/m³	
	dusts and mists	1 mg/m³	3 mg/m³	
———	Cotton dust, raw	0.2 mg/m³	0.6 mg/m³	
1319-77-3	Cresol, all isomers	5 ppm	10 ppm	Skin
4170-30-3	Crotonaldehyde	**C 0.3 ppm		Skin
299-86-5	Crufomate	5 mg/m³	10 mg/m³	
98-82-8	Cumene	50 ppm	74 ppm	
420-04-2	Cyanamide	2 mg/m³	4 mg/m³	
460-19-5	Cyanogen	10 ppm	15 ppm	
506-77-4	Cyanogen chloride	**C0.3 ppm		
110-82-7	Cyclohexane	100 ppm	150 ppm	
108-93-0	Cyclohexanol	50 ppm	62 ppm	Skin
108-94-1	Cyclohexanone	20 ppm	50 ppm	Skin
110-83-8	Cyclohexene	300 ppm	375 ppm	
108-91-8	Cyclohexylamine	10 ppm	15 ppm	

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121-82-4	Cyclonite (RDX)	0.5 mg/m³	1.5 mg/m³	Skin
542-92-7	Cyclopentadiene	75 ppm	94 ppm	
287-92-3	Cyclopentane	600 ppm	900 ppm	
13121-70-5	Cyhexatin	5 mg/m³	10 mg/m³	
94-75-7	2,4-D (2,4-Dichlorophenoxy-acetic acid)	10 mg/m³	20 mg/m³	
50-29-3	DDT (Dichlorodiphenyltrichloro-ethane)	1 mg/m³	3 mg/m³	T20
17702-41-9	Decaborane	0.05 ppm	0.15 ppm	Skin
8065-48-3	Demeton (inhalable fraction++ and vapour)	0.05 mg/m³	0.15 mg/m³	Skin
919-86-8	Demeton-S-methyl, (inhalable fraction++ and vapour)	0.05 mg/m³	0.15 mg/m³	Skin, SEN
123-42-2	Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	50 ppm	60 ppm	
333-41-5	Diazinon, (inhalable fraction++ and vapour)	0.01 mg/m³	0.03 mg/m³	Skin
334-88-3	Diazomethane	0.2 ppm	0.6 ppm	T20
19287-45-7	Diborane	0.1 ppm	0.3 ppm	
102-81-8	2-N-Dibutylaminoethanol	0.5 ppm	1 ppm	Skin
2528-36-1	Dibutyl phenyl phosphate	0.3 ppm	0.6 ppm	Skin
107-66-4	Dibutyl phosphate	1 ppm	2 ppm	
84-74-2	Dibutyl phthalate	5 mg/m³	10 mg/m³	
79-43-6	Dichloroacetic acid	0.5 ppm	1.5 ppm	Skin, T20
7572-29-4	Dichloracetylene	**C0.1 ppm		
95-50-1	o-Dichlorobenzene	25 ppm	50 ppm	
106-46-7	p-Dichlorobenzene	10 ppm	15 ppm	T20
764-41-0	1,4-Dichloro-2-butene	0.005 ppm	0.015 ppm	Skin, T20
75-71-8	Dichlorodifluoromethane	1000 ppm	1250 ppm	
118-52-5	1,3-Dichloro-5, 5-dimethyl hydantoin	0.2 mg/m³	0.4 mg/m³	
75-34-3	1,1-Dichloroethane	100 ppm	125 ppm	
540-59-0; 156-59-2; 156-60-5	1,2-Dichloroethylene, all isomers	200 ppm	250 ppm	
111-44-4	Dichloroethyl ether	5 ppm	10 ppm	Skin
75-43-4	Dichlorofluoromethane	10 ppm	15 ppm	

CAS Number	Substance	average contamination limit mg/m³* or ppm*	average contamination limit mg/m³* or ppm*	Notation⁺
75-09-2	Dichloromethane	50 ppm	75 ppm	T20
594-72-9	1,1-Dichloro-1-nitroethane	2 ppm	4 ppm	
542-75-6	1,3-Dichloropropene	1 ppm	2 ppm	Skin, T20
75-99-0	2,2-Dichloropropionic acid, (inhalable fraction⁺⁺)	5 mg/m³	10 mg/m³	
76-14-2	Dichlorotetrafluoroethane	1000 ppm	1250 ppm	
62-73-7	Dichlorvos (DDVP), (inhalable fraction⁺⁺ and vapour)	0.1 mg/m³	0.3 mg/m³	Skin, SEN, T20
141-66-2	Dicrotophos, (inhalable fraction⁺⁺ and vapour)	0.05 mg/m³	0.15 mg/m³	Skin
77-73-6	Dicyclopentadiene	5 ppm	8 ppm	
102-54-5	Dicyclopentadienyl iron	10 mg/m³	20 mg/m³	
60-57-1	Dieldrin	0.25 mg/m³	0.75 mg/m³	Skin
683334-30-5; 68476-30-2; 68476-31-3; 68476-34-6; 77650-28-3	Diesel fuel as total hydrocarbons, (vapour)	100 mg/m³	150 mg/m³	Skin
111-42-2	Diethanolamine	2 mg/m³	4 mg/m³	Skin
109-89-7	Diethylamine	5 ppm	15 ppm	Skin
100-37-8	2-Diethylaminoethanol	2 ppm	4 ppm	Skin
111-40-0	Diethylene triamine	1 ppm	2 ppm	Skin
96-22-0	Diethyl ketone	200 ppm	300 ppm	
84-66-2	Diethyl phthalate	5 mg/m³	10 mg/m³	
75-61-6	Difluorodibromomethane	100 ppm	125 ppm	
2238-07-5	Diglycidyl ether (DGE)	0.1 ppm	0.3 ppm	
108-83-8	Diisobutyl ketone	25 ppm	30 ppm	
108-18-9	Diisopropylamine	5 ppm	7 ppm	Skin
127-19-5	N,N-Dimethylacetamide	10 ppm	15 ppm	Skin
124-40-3	Dimethylamine	5 ppm	15 ppm	
121-69-7	Dimethylaniline (N,N-Dimethylaniline)	5 ppm	10 ppm	Skin
14857-34-2	Dimethylethoxysilane	0.5 ppm	1.5 ppm	
68-12-2	Dimethylformamide	10 ppm	15 ppm	Skin, T20
57-14-7	1,1-Dimethylhydrazine	0.01 ppm	0.03 ppm	Skin, T20

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131-11-3	Dimethylphthalate	5 mg/m³	10 mg/m³	
77-78-1	Dimethyl sulphate	0.1 ppm	0.3 ppm	Skin, T20
75-18-3	Dimethyl sulphide	10 ppm	20 ppm	
148-01-6	Dinitolmide	5 mg/m³	10 mg/m³	
528-29-0; 99-65-0; 100-25-4; 25154-54-5	Dinitrobenzene (all isomers)	0.15 ppm	0.30 ppm	Skin
534-52-1	Dinitro-o-cresol	0.2 mg/m³	0.6 mg/m³	Skin
25321-14-6	Dinitrotoluene	0.2 mg/m³	0.6 mg/m³	Skin, T20
123-91-1	1,4-Dioxane	20 ppm	30 ppm	Skin, T20
78-34-2	Dioxathion (inhalable fraction++ and vapour)	0.1 mg/m³	0.3 mg/m³	Skin
646-06-0	1,3-Dioxolane	20 ppm	30 ppm	
122-39-4	Diphenylamine	10 mg/m³	20 mg/m³	
34590-94-8	Dipropylene glycol methyl ether (DPGME)	100 ppm	150 ppm	Skin
123-19-3	Dipropyl ketone	50 ppm	60 ppm	

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2764-72-9;	Diquat:			
85-00-7;	(inhalable fraction++)	0.5 mg/m³	1.5 mg/m³	Skin
6385-62-2	(respirable fraction⁺⁺)	0.1 mg/m³	0.3 mg/m³	Skin
117-81-7	Di-sec, octyl phthalate (Di-2-ethylhexyl phthalate or DEHP)	5 mg/m³	10 mg/m³	T20
97-77-8	Disulphiram	2 mg/m³	4 mg/m³	
298-04-4	Disulphoton, (inhalable fraction⁺⁺ and vapour)	0.05 mg/m³	0.15 mg/m³	Skin
128-37-0	2,6-Di-tert-butyl-p-cresol (butylated hydroxytoluene or BHT) (inhalable fraction⁺⁺ and vapour)	2 mg/m³	4 mg/m³	
330-54-1	Diuron	10 mg/m³	20 mg/m³	
1321-74-0	Divinyl benzene	10 ppm	15 ppm	
112-55-0	Dodecyl mercaptan	0.1 ppm	0.3 ppm	SEN
1302-74-5	Emery	10 mg/m³	20 mg/m³	
115-29-7	Endosulphan	0.1 mg/m³	0.3 mg/m³	Skin
72-20-8	Endrin	0.1 mg/m³	0.3 mg/m³	Skin
13838-16-9	Enflurane	75 ppm	100 ppm	
106-89-8	Epichlorohydrin	0.5 ppm	1.5 ppm	Skin, T20
2104-64-5	EPN (inhalable fraction⁺⁺)	0.1 mg/m³	0.3 mg/m³	Skin
74-84-0	Ethane	See Aliphatic hydrocarbon gases [C1-C4]		
64-17-5	Ethanol	1000 ppm	1250 ppm	
141-43-5	Ethanolamine	3 ppm	6 ppm	
563-12-2	Ethion, (inhalable fraction⁺⁺ and vapour)	0.05 mg/m³	0.15 mg/m³	Skin
110-80-5	2-Ethoxyethanol (Glycol monoethyl ether)	5 ppm	7 ppm	Skin
111-15-9	2-Ethyoxyethyl acetate (Cellosolve acetate)	5 ppm	8 ppm	Skin
141-78-6	Ethyl acetate	400 ppm	500 ppm	
140-88-5	Ethyl acrylate	5 ppm	15 ppm	T20
75-04-7	Ethylamine	5 ppm	15 ppm	Skin
541-85-5	Ethyl amyl ketone (5-Methyl-3-heptanone)	25 ppm	30 ppm	
100-41-4	Ethyl benzene	100 ppm	125 ppm	T20

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
74-96-4	Ethyl bromide	5 ppm	7 ppm	Skin
637-92-3	Ethyl tert-butyl ether	5 ppm	10 ppm	
106-35-4	Ethyl butyl ketone (3-Heptanone)	50 ppm	75 ppm	
75-00-3	Ethyl chloride	100 ppm	125 ppm	Skin
7085-85-0	Ethyl cyanoacrylate	0.2 ppm	0.6 ppm	
74-85-1	Ethylene	200 ppm	250 ppm	
107-15-3	Ethylenediamine	10 ppm	15 ppm	Skin
107-06-2	Ethylene dichloride	10 ppm	20 ppm	
107-21-1	Ethylene glycol, (as an aerosol)	**C 100 mg/m³		
628-96-6	Ethylene glycol dinitrate (EGDN)	0.05 ppm	0.15 ppm	Skin
75-21-8	Ethylene oxide	1 ppm	2 ppm	T20
151-56-4	Ethylenimine	0.5 ppm	1.5 ppm	Skin, T20
60-29-7	Ethyl ether	400 ppm	500 ppm	
109-94-4	Ethyl formate	100 ppm	150 ppm	
149-57-5	2-Ethylhexanoic acid, (inhalable fraction⁺⁺ and vapour)	5 mg/m³	10 mg/m³	
16219-75-3	Ethylidene norbornene	**C5 ppm		
75-08-1	Ethyl mercaptan	0.5 ppm	1.5 ppm	
100-74-3	N-Ethylmorpholine	5 ppm	8 ppm	Skin
78-10-4	Ethyl silicate	10 ppm	15 ppm	
22224-92-6	Fenamiphos	0.1 mg/m³	0.3 mg/m³	Skin
115-90-2	Fensulphothion (inhalable fraction⁺⁺ and vapour)	0.01 mg/m³	0.03 mg/m³	Skin
55-38-9	Fenthion	0.2 mg/m³	0.6 mg/m³	Skin
14484-64-1	Ferbam	10 mg/m³	20 mg/m³	
12604-58-9	Ferrovanadium dust	1 mg/m³	3 mg/m³	
	Flour dust	3 mg/m³	6 mg/m³	SEN
———	Fluoride, (as F)	2.5 mg/m³	5 mg/m³	
7782-41-4	Fluorine	1 ppm	2 ppm	
944-22-9	Fonofos	0.1 mg/m³	0.3 mg/m³	Skin
50-00-0	Formaldehyde	**C0.3 ppm		SEN, T20

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
75-12-7	Formamide	10 ppm	15 ppm	Skin
64-18-6	Formic acid	5 ppm	10 ppm	
98-01-1	Furfural	2 ppm	4 ppm	Skin
98-00-0	Furfuryl alcohol	10 ppm	15 ppm	Skin
1303-00-0	Gallium arsenide (respirable fraction⁺⁺)	0.0003 mg/m³	0.0009 mg/m³	
86290-81-5	Gasoline	300 ppm	500 ppm	
7782-65-2	Germanium tetrahydride	0.2 ppm	0.6 ppm	
111-30-8	Glutaraldehyde, activated and inactivated	**C0.05 ppm		SEN
56-81-5	Glycerin mist	10 mg/m³	20 mg/m³	
556-52-5	Glycidol	2 ppm	4 ppm	
107-22-2	Glyoxal, (inhalable fraction⁺⁺ and vapour)	0.1 mg/m³	0.3 mg/m³	SEN
———	Grain dust (oat, wheat, barley)	4 mg/m³	8 mg/m³	
7782-42-5	Graphite, natural-all forms except graphite fibres (respirable fraction⁺⁺)	2 mg/m³	4 mg/m³	
7778-18-9	Gypsum (Calcium sulphate)	10 mg/m³	20 mg/m³	
7440-58-6	Hafnium and compounds, (as Hf)	0.5 mg/m³	1.5 mg/m³	
151-67-7	Halothane	50 ppm	60 ppm	
76-44-8; 1024-57-3	Heptachlor and Heptchlor epoxide	0.05 mg/m³	0.15 mg/m³	Skin, T20
142-82-5	Heptane (n-Heptane)	400 ppm	500 ppm	
118-74-1	Hexachlorobenzene	0.002 mg/m³	0.006 mg/m³	Skin, T20
87-68-3	Hexachlorobutadiene	0.02 ppm	0.06 ppm	Skin, T20
77-47-4	Hexachlorocyclopentadiene	0.01 ppm	0.03 ppm	
67-72-1	Hexachloroethane	1 ppm	2 ppm	Skin, T20
1335-87-1	Hexachloronaphthalene	0.2 mg/m³	0.6 mg/m³	Skin
684-16-2	Hexafluoroacetone	0.1 ppm	0.3 ppm	Skin
85-42-7; 13149-00-3; 14166-21-3	Hexahydrophthalic anhydride, (inhalable fraction⁺⁺ and vapour), all isomers	**C0.005 mg/m³		SEN
822-06-0	Hexamethylene diisocyanate	0.005 ppm	0.015 ppm	
110-54-3	Hexane (n-Hexane)	50 ppm	62.5 ppm	Skin

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation†
———	Hexane (other isomers)	500 ppm	1000 ppm	
124-09-4	Hexanediamine	0.5 ppm	1.0 ppm	
592-41-6	1-Hexene	50 ppm	75 ppm	
108-84-9	sec-Hexyl acetate	50 ppm	60 ppm	
107-41-5	Hexylene glycol	**C25 ppm		
302-01-2	Hydrazine	0.01 ppm	0.03 ppm	Skin, T20
61788-32-7	Hydrogenated terphenyls (nonirradiated)	0.5 ppm	1.5 ppm	
10035-10-6	Hydrogen bromide	**C2 ppm		
7647-01-0	Hydrogen chloride	**C2 ppm		
	Hydrogen cyanide and cyanide salts, (as CN):			
74-90-8	Hydrogen cyanide	**C4.7 ppm		Skin
592-01-8; 151-50-8; 143-33-9	Cyanide salts	**C 5 mg/m³		Skin
7664-39-3	Hydrogen fluoride, (as F)	0.5 ppm	**C 2 ppm	
7722-84-1	Hydrogen peroxide	1 ppm	2 ppm	
7783-07-5	Hydrogen selenide, (as Se)	0.05 ppm	0.15 ppm	
7783-06-4	Hydrogen sulphide	10 ppm	15 ppm	
123-31-9	Hydroquinone	2 mg/m³	4 mg/m³	
999-61-1	2-Hydroxypropyl acrylate	0.5 ppm	1 ppm	Skin, SEN
95-13-6	Indene	10 ppm	15 ppm	
7440-74-6	Indium and Compounds, (as In)	0.1 mg/m³	0.3 mg/m³	T20 (Indium phosphide)
7553-56-2	Iodine	**C0.1 ppm		
75-47-8	Iodoform	0.6 ppm	1.2 ppm	
1309-37-1	Iron oxide fume, (dust and fume) (Fe_2O_3, as Fe)	5 mg/m³	10 mg/m³	
13463-40-6	Iron pentacarbonyl, (as Fe)	0.1 ppm	0.2 ppm	
———	Iron salts, soluble, (as Fe)	1 mg/m³	3 mg/m³	
123-51-3	Isoamyl alcohol	100 ppm	125 ppm	
110-19-0	Isobutyl acetate	150 ppm	188 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
78-83-1	Isobutyl alcohol	50 ppm	60 ppm	
542-56-3	Isobutyl nitrite, (inhalable fraction⁺⁺ and vapour)	**C1 ppm		
26952-21-6	Isooctyl alcohol	50 ppm	60 ppm	Skin
78-59-1	Isophorone	**C5 ppm		
4098-71-9	Isophorone diisocyanate	0.005 ppm	0.015 ppm	
109-59-1	2-Isopropoxyethanol	25 ppm	38 ppm	Skin
108-21-4	Isopropyl acetate	100 ppm	200 ppm	
67-63-0	Isopropyl alcohol	200 ppm	400 ppm	
75-31-0	Isopropylamine	5 ppm	10 ppm	
768-52-5	N-Isopropylaniline	2 ppm	4 ppm	Skin
108-20-3	Isopropyl ether	250 ppm	310 ppm	
4016-14-2	Isopropyl glycidyl ether (IGE)	50 ppm	75 ppm	
1332-58-7	Kaolin (respirable fraction⁺⁺)	2 mg/m³	4 mg/m³	
8008-20-6; 64742-81-0	Kerosene /Jet fuels, as total hydrocarbon vapour	200 mg/m³	250 mg/m³	Skin
463-51-4	Ketene	0.5 ppm	1.5 ppm	
7439-92-1	Lead and inorganic compounds, (as Pb)	0.05 mg/m³	0.15 mg/m³	T20
3687-31-8	Lead arsenate, (as $Pb_3(AsO_4)_2$)	0.15 mg/m³	0.45 mg/m³	
7758-97-6	Lead chromate, (as Pb)	0.05 mg/m³	0.15 mg/m³	T20
7758-97-6	Lead chromate, (as Cr)	0.012 mg/m³	0.036 mg/m³	T20
1317-65-3; 471-34-1	Limestone (calcium carbonate)	10 mg/m³	20 mg/m³	
58-89-9	Lindane	0.5 mg/m³	1.5 mg/m³	Skin
7580-67-8	Lithium hydride	0.025 mg/m³	0.075 mg/m³	
68476-85-7	L.P.G. (liquified petroleum gas)	See Aliphatic hydrocarbon gases [C1-C4]		
546-93-0	Magnesite	10 mg/m³	20 mg/m³	
1309-48-4	Magnesium oxide (inhalable fraction⁺⁺)	10 mg/m³	20 mg/m³	
121-75-5	Malathion, (inhalable fraction⁺⁺ and vapour)	1 mg/m³	3 mg/m³	Skin
108-31-6	Maleic anhydride	0.1 ppm	0.3 ppm	SEN
7439-96-5	Manganese and inorganic compounds, (as Mn)	0.2 mg/m³	0.6 mg/m³	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
78-83-1	Isobutyl alcohol	50 ppm	60 ppm	
542-56-3	Isobutyl nitrite, (inhalable fraction⁺⁺ and vapour)	**C1 ppm		
26952-21-6	Isooctyl alcohol	50 ppm	60 ppm	Skin
78-59-1	Isophorone	**C5 ppm		
4098-71-9	Isophorone diisocyanate	0.005 ppm	0.015 ppm	
109-59-1	2-Isopropoxyethanol	25 ppm	38 ppm	Skin
108-21-4	Isopropyl acetate	100 ppm	200 ppm	
67-63-0	Isopropyl alcohol	200 ppm	400 ppm	
75-31-0	Isopropylamine	5 ppm	10 ppm	
768-52-5	N-Isopropylaniline	2 ppm	4 ppm	Skin
108-20-3	Isopropyl ether	250 ppm	310 ppm	
4016-14-2	Isopropyl glycidyl ether (IGE)	50 ppm	75 ppm	
1332-58-7	Kaolin (respirable fraction⁺⁺)	2 mg/m³	4 mg/m³	
8008-20-6; 64742-81-0	Kerosene /Jet fuels, as total hydrocarbon vapour	200 mg/m³	250 mg/m³	Skin
463-51-4	Ketene	0.5 ppm	1.5 ppm	
7439-92-1	Lead and inorganic compounds, (as Pb)	0.05 mg/m³	0.15 mg/m³	T20
3687-31-8	Lead arsenate, (as $Pb_3(AsO_4)_2$)	0.15 mg/m³	0.45 mg/m³	
7758-97-6	Lead chromate, (as Pb)	0.05 mg/m³	0.15 mg/m³	T20
7758-97-6	Lead chromate, (as Cr)	0.012 mg/m³	0.036 mg/m³	T20
1317-65-3; 471-34-1	Limestone (calcium carbonate)	10 mg/m³	20 mg/m³	
58-89-9	Lindane	0.5 mg/m³	1.5 mg/m³	Skin
7580-67-8	Lithium hydride	0.025 mg/m³	0.075 mg/m³	
68476-85-7	L.P.G. (liquified petroleum gas)	See Aliphatic hydrocarbon gases [C1-C4]		
546-93-0	Magnesite	10 mg/m³	20 mg/m³	
1309-48-4	Magnesium oxide (inhalable fraction⁺⁺)	10 mg/m³	20 mg/m³	
121-75-5	Malathion, (inhalable fraction⁺⁺ and vapour)	1 mg/m³	3 mg/m³	Skin
108-31-6	Maleic anhydride	0.1 ppm	0.3 ppm	SEN
7439-96-5	Manganese and inorganic compounds, (as Mn)	0.2 mg/m³	0.6 mg/m³	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
12079-65-1	Manganese cyclopentadienyl tricarbonyl, (as Mn)	0.1 mg/m³	0.3 mg/m³	Skin
7439-97-6	Mercury, (as Hg):			
	Alkyl compounds	0.01 mg/m³	0.03 mg/m³	Skin
	Aryl compounds	0.1 mg/m³	0.3 mg/m³	Skin
	Inorganic forms, including metallic mercury	0.025 mg/m³	0.075 mg/m³	Skin
141-79-7	Mesityl oxide	15 ppm	25 ppm	
79-41-4	Methacrylic acid	20 ppm	30 ppm	
74-82-8	Methane	See Aliphatic hydrocarbon gases [C1-C4]		
16752-77-5	Methomyl	2.5 mg/m³	5 mg/m³	
72-43-5	Methoxychlor	10 mg/m³	20 mg/m³	
109-86-4	2-Methoxyethanol (Methylcellosolve-EGME)	5 ppm	8 ppm	Skin
110-49-6	2-Methoxyethyl acetate (Methyl cellosolve acetate-EGMEA)	5 ppm	8 ppm	Skin
150-76-5	4-Methoxyphenol	5 mg/m³	10 mg/m³	
79-20-9	Methyl acetate	200 ppm	250 ppm	
74-99-7	Methyl acetylene	1000 ppm	1250 ppm	
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)	1000 ppm	1250 ppm	
96-33-3	Methyl acrylate	2 ppm	4 ppm	Skin, SEN
126-98-7	Methylacrylonitrile	1 ppm	2 ppm	Skin
109-87-5	Methylal (dimethoxy methane)	1000 ppm	1250 ppm	
67-56-1	Methyl alcohol (methanol)	200 ppm	250 ppm	Skin
74-89-5	Methylamine	5 ppm	15 ppm	
110-43-0	Methyl n-amyl ketone (2-Heptanone)	50 ppm	60 ppm	
100-61-8	N-Methylaniline	0.5 ppm	1 ppm	Skin
74-83-9	Methyl bromide	1 ppm	3 ppm	Skin
1634-04-4	Methyl tert-butyl ether (MTBE)	50 ppm	75 ppm	
591-78-6	Methyl n-butyl ketone	5 ppm	10 ppm	Skin
74-87-3	Methyl chloride	50 ppm	100 ppm	Skin
137-05-3	Methyl 2-cyanoacrylate	0.2 ppm	0.6 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation+
7786-34-7	Mevinphos (inhalable fraction++ and vapour)	0.01mg/m³	0.03 mg/m3	Skin
12001-26-2	Mica (respirable fraction++)	3 mg/m³	6 mg/m³	
7439-98-7	Molybdenum, (as Mo):			
	Soluble compounds, (respirable fraction++)	0.5 mg/m³	1.5 mg/m³	
	Metal and insoluble compounds, (inhalable fraction++)	10 mg/m³	20 mg/m³	
	Metal and insoluble compounds, (respirable fraction++)	3 mg/m³	6 mg/m³	
6923-22-4	Monocrotophos (inhalable fraction++ and vapour)	0.05 mg/m³	0.15 mg/m³	Skin
110-91-8	Morpholine	20 ppm	30 ppm	Skin
300-76-5	Naled, (inhalable fraction++ and vapour)	0.1 mg/m³	0.3 mg/m³	Skin, SEN
91-20-3	Naphthalene	10 ppm	15 ppm	Skin
8006-14-2	Natural gas	See Aliphatic hydrocarbon gases: Alkane [C1-C4]		
9006-04-6	Natural rubber latex (as total proteins), (inhalable fraction++)	0.001 mg/m³	0.003 mg/m³	Skin, SEN

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
7440-02-0	Nickel, (as Ni):			
	Elemental (inhalable fraction⁺⁺)	1.5 mg/m³	3 mg/m³	T20
	Soluble inorganic compounds, (not otherwise specified) (inhalable fraction⁺⁺)	0.1 mg/m³	0.3 mg/m³	
	Insoluble inorganic, (as not otherwise specified) (inhalable fraction⁺⁺)	0.2 mg/m³	0.6 mg/m³	
12035-72-2	Nickel subsulphide, (as Ni), (inhalable fraction⁺⁺)	0.1 mg/m³	0.3 mg/m³	T20
13463-39-3	Nickel carbonyl, (as Ni)	0.05 ppm	0.15 ppm	
54-11-5	Nicotine	0.5 mg/m³	1.5 mg/m³	Skin
1929-82-4	Nitrapyrin	10 mg/m³	20 mg/m³	
7697-37-2	Nitric acid	2 ppm	4 ppm	
10102-43-9	Nitric oxide	25 ppm	38 ppm	
100-01-6	p-Nitroaniline	3 mg/m³	6 mg/m³	Skin
98-95-3	Nitrobenzene	1 ppm	2 ppm	Skin
100-00-5	p-Nitrochlorobenzene	0.1 ppm	0.3 ppm	Skin
79-24-3	Nitroethane	100 ppm	125 ppm	
10102-44-0	Nitrogen dioxide	3 ppm	5 ppm	
7783-54-2	Nitrogen trifluoride	10 ppm	20 ppm	
55-63-0	Nitroglycerin (NG)	0.05 ppm	0.15 ppm	Skin
75-52-5	Nitromethane	20 ppm	30 ppm	
108-03-2	1-Nitropropane	25 ppm	40 ppm	
79-46-9	2-Nitropropane	10 ppm	20 ppm	T20
88-72-2; 99-08-1; 99-99-0	Nitrotoluene isomers	2 ppm	3 ppm	Skin
10024-97-2	Nitrous oxide	50 ppm	75 ppm	
111-84-2	Nonane, all isomers	200 ppm	250 ppm	
2234-13-1	Octachloronaphthalene	0.1 mg/m³	0.3 mg/m³	Skin
111-65-9	Octane, all isomers	300 ppm	375 ppm	
8012-95-1	Oil mist, mineral	5 mg/m³	10 mg/m³	
20816-12-0	Osmium tetroxide, (as Os)	0.0002 ppm	0.0006 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
144-62-7	Oxalic acid	1 mg/m³	2 mg/m³	
80-51-3	p,p'-Oxybis (benzenesulphonyl hydrazide), (inhalable fraction⁺⁺)	0.1 mg/m³	0.3 mg/m³	
7783-41-7	Oxygen difluoride	**C0.05 ppm		
10028-15-6	Ozone	0.05 ppm	0.15 ppm	
8002-74-2	Paraffin wax fume	2 mg/m³	4 mg/m³	
4685-14-7	Paraquat, total dust	0.5 mg/m³	1.5 mg/m³	
	Paraquat, (respirable fraction⁺⁺)	0.1 mg/m³	0.3 mg/m³	
56-38-2	Parathion, (inhalable fraction⁺⁺ and vapour)	0.05 mg/m³	0.15 mg/m³	Skin
———	Particulate polycyclic aromatic hydrocarbons (PPAH), as benzene solubles, See Coal tar pitch volatiles	0.2 mg/m³	0.6 mg/m³	T20
———	Particles (Insoluble or Poorly Soluble) Not Otherwise Specified:			
	Inhalable fraction⁺⁺	10 mg/m³	20 mg/m³	
	Respirable fraction⁺⁺	3 mg/m³	6 mg/m³	
19624-22-7	Pentaborane	0.005 ppm	0.015 ppm	
1321-64-8	Pentachloronaphthalene	0.5 mg/m³	1.5 mg/m³	Skin
82-68-8	Pentachloronitrobenzene	0.5 mg/m³	1.5 mg/m³	
87-86-5	Pentachlorophenol	0.5 mg/m³	1.5 mg/m³	Skin
115-77-5	Pentaerythritol	10 mg/m³	20 mg/m³	
78-78-4; 109-66-0; 463-82-1	Pentane, all isomers	600 ppm	750 ppm	
628-63-7; 626-38-0; 123-92-2; 625-16-1; 624-41-9; 620-11-1	Pentyl acetate, all isomers	50 ppm	100 ppm	
594-42-3	Perchloromethyl mercaptan	0.1 ppm	0.3 ppm	
7616-94-6	Perchloryl fluoride	3 ppm	6 ppm	
19430-93-4	Perfluorobutyl ethylene	100 ppm	150 ppm	
382-21-8	Perfluoroisobutylene	**C0.01 ppm		
93763-70-3	Perlite	10 mg/m³	20 mg/m³	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation†
	Persulphates, as persulphate	0.1 mg/m³	0.3 mg/m³	
108-95-2	Phenol	5 ppm	7.5 ppm	Skin
92-84-2	Phenothiazine	5 mg/m³	10 mg/m³	Skin
95-54-5; 108-45-2; 106-50-3	Phenylene diamine isomers	0.1 mg/m³	0.3 mg/m³	
101-84-8	Phenyl ether (vapour)	1 ppm	2 ppm	
122-60-1	Phenyl glycidyl ether (PGE)	0.1 ppm	0.3 ppm	Skin, SEN, T20
100-63-0	Phenyl hydrazine	0.1 ppm	0.3 ppm	Skin, T20
108-98-5	Phenyl mercaptan	0.1 ppm	0.3 ppm	Skin
638-21-1	Phenylphosphine	**C0.05 ppm		
298-02-2	Phorate (inhalable fraction†† and vapour)	0.05 mg/m³	0.2 mg/m³	Skin
75-44-5	Phosgene (Carbonyl chloride)	0.1 ppm	0.3 ppm	
7803-51-2	Phosphine	0.3 ppm	1 ppm	
7664-38-2	Phosphoric acid	1 mg/m³	3 mg/m³	
12185-10-3	Phosphorus (yellow)	0.1 mg/m³	0.3 mg/m³	
10025-87-3	Phosphorous oxychloride	0.1 ppm	0.3 ppm	
10026-13-8	Phosphorous pentachloride	0.1 ppm	0.3 ppm	
1314-80-3	Phosphorous pentasulphide	1 mg/m³	3 mg/m³	
7719-12-2	Phosphorous trichloride	0.2 ppm	0.5 ppm	
85-44-9	Phthalic anhydride	1 ppm	2 ppm	SEN
626-17-5	m-Phthalodinitrile	5 mg/m³	10 mg/m³	
1918-02-1	Picloram	10 mg/m³	20 mg/m³	
88-89-1	Picric acid	0.1 mg/m³	0.3 mg/m³	
83-26-1	Pindone	0.1 mg/m³	0.3 mg/m³	
142-64-3	Piperazine dihydrochloride	5 mg/m³	10 mg/m³	
7778-18-9	Plaster of Paris (Calcium sulphate)	10 mg/m³	20 mg/m³	
7440-06-4	Platinum:			
	metal	1 mg/m³	3 mg/m³	
	soluble salt, (as Pt)	0.002 mg/m³	0.006 mg/m³	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation+
65997-15-1	Portland cement	10 mg/m³	20 mg/m³	
1310-58-3	Potassium hydroxide	**C2 mg/m³		
74-98-6	Propane	See Aliphatic hydrocarbon gases [C1-C4]		
107-19-7	Propargyl alcohol	1 ppm	3 ppm	Skin
57-57-8	beta-Propriolactone	0.5 ppm	1 ppm	T20
123-38-6	Propionaldehyde	20 ppm	30 ppm	
79-09-4	Propionic acid	10 ppm	15 ppm	
114-26-1	Propoxur	0.5 mg/m³	1.5 mg/m³	
109-60-4	n-Propyl acetate	200 ppm	250 ppm	
71-23-8	Propyl alcohol (n-propanol)	200 ppm	400 ppm	
78-87-5	Propylene dichloride	75 ppm	110 ppm	
6423-43-4	Propylene glycol dinitrate	0.05 ppm	0.15 ppm	Skin
107-98-2	Propylene glycol monomethyl ether (PGME or 1-methoxy-2-propanol)	100 ppm	150 ppm	
75-56-9	Propylene oxide	2 ppm	4 ppm	SEN, T20
75-55-8	Propylenimine	2 ppm	4 ppm	Skin, T20
627-13-4	n-Propyl nitrate	25 ppm	40 ppm	
8003-34-7	Pyrethrum	5 mg/m³	10 mg/m³	
110-86-1	Pyridine	1 ppm	3 ppm	
106-51-4	Quinone	0.1 ppm	0.3 ppm	
108-46-3	Resorcinol	10 ppm	20 ppm	
7440-16-6	Rhodium, (as Rh):			
	Metal and insoluble compounds	1 mg/m³	3 mg/m³	
	Soluble compounds	0.01 mg/m³	0.03 mg/m³	
299-84-3	Ronnel	10 mg/m³	20 mg/m³	
83-79-4	Rotenone (commercial)	5 mg/m³	10 mg/m³	
———	Rouge	10 mg/m³	20 mg/m³	
8030-30-6	Rubber solvent (Naphtha)	400 ppm	500 ppm	
7782-49-2	Selenium and compounds, (as Se)	0.2 mg/m³	0.6 mg/m³	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation+
7783-79-1	Selenium hexafluoride, (as Se)	0.05 ppm	0.15 ppm	
136-78-7	Sesone	10 mg/m³	20 mg/m³	
	Silica Amorphous:			
61790-53-2	Diatomaceous earth (uncalcined) (inhalable fraction ++)	10 mg/m³	20 mg/m³	
61790-53-2	Diatomaceous earth (uncalcined) (respirable fraction ++)	3 mg/m³	6 mg/m³	
112926-00-8	Precipitated silica and silica gel	10 mg/m³	20 mg/m³	
69012-46-2	Silica, fume (respirable fraction++)	2 mg/m³		
60676-86-0	Silica, fused (respirable fraction++)	0.1 mg/m³		
	Silica – Crystalline#:			
14464-46-1	Cristobalite (respirable fraction++)	0.05 mg/m³		
14808-60-7	Quartz (respirable fraction++)	0.05 mg/m³		T20
1317-95-9	Tripoli, as quartz (respirable fraction++)	0.1 mg/m³		
7440-21-3	Silicon	10 mg/m³	20 mg/m³	
409-21-2	Silicon Carbide:			
	Nonfibrous, (inhalable fraction++)	10 mg/m³	20 mg/m³	
	Nonfibrous, (respirable fraction++)	3 mg/m³	6 mg/m³	
	Fibrous (including whiskers), (respirable fibres)	0.1 f/cc##		T20
7803-62-5	Silicon tetrahydride (Silane)	5 ppm	10 ppm	
7440-22-4	Silver, metal	0.1 mg/m³	0.3 mg/m³	
———	Silver soluble compounds, (as Ag)	0.01 mg/m³	0.03 mg/m³	
———	Soapstone (total dust)	6 mg/m³		
———	Soapstone (respirable fraction++)	3 mg/m³	6 mg/m³	
26628-22-8	Sodium azide:			
	as Sodium azide	**C0.29 mg/m³		
	as Hydrazoic acid vapour	**C0.11 ppm		
7631-90-5	Sodium bisulphite	5 mg/m³	10 mg/m³	
62-74-8	Sodium fluoroacetate	0.05 mg/m³	0.15 mg/m³	Skin
1310-73-2	Sodium hydroxide	**C2 mg/m³		

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
7681-57-4	Sodium metabisulphite	5 mg/m³	10 mg/m³	
9005-25-8	Starch	10 mg/m³	20 mg/m³	
———	Stearates	10 mg/m³	20 mg/m³	
7803-52-3	Stibine (Antimony hydride)	0.1 ppm	0.3 ppm	
8052-41-3	Stoddard solvent	100 ppm	125 ppm	
7789-06-2	Strontium chromate, (as Cr)	0.0005 mg/m³	0.0015 mg/m³	T20
57-24-9	Strychnine	0.15 mg/m³	0.45 mg/m³	
100-42-5	Styrene, monomer	20 ppm	40 ppm	T20
1395-21-7; 9014-01-1	Subtilisins, (as crystalline active enzyme)	**C0.00006 mg/m³		
57-50-1	Sucrose	10 mg/m³	20 mg/m³	
74222-97-2	Sulphometuron methyl	5 mg/m³	10 mg/m³	
3689-24-5	Sulphotep (TEDP) (inhalable fraction⁺⁺ and vapour)	0.1 mg/m³	0.3 mg/m³	Skin
7446-09-5	Sulphur dioxide	2 ppm	5 ppm	
2551-62-4	Sulphur hexafluoride	1000 ppm	1250 ppm	
7664-93-9	Sulphuric acid, (thoracic fraction⁺⁺)	0.2 mg/m³	0.6 mg/m³	T20, strong acid mists only
10025-67-9	Sulphur monochloride	**C1 ppm		
5714-22-7	Sulphur pentafluoride	**C0.01 ppm		
7783-60-0	Sulphur tetrafluoride	**C0.1 ppm		
2699-79-8	Sulphuryl fluoride	5 ppm	10 ppm	
35400-43-2	Sulprofos	1 mg/m³	3 mg/m³	
	Synthetic Vitreous Fibres:			
	Continous filament glass fibres, (respirable fibres)	1 f/cc##	3 f/cc	
	Continous filament glass fibres, (inhalable fraction⁺⁺)	5 mg/m³	10 mg/m³	
	Glass wool fibres, (respirable fibres)	1 f/cc	3 f/cc	
	Rock wool fibres, (respirable fibres)	1 f/cc	3 f/cc	
	Slag wool fibres, (respirable fibres)	1 f/cc	3 f/cc	
	Special purpose glass fibres, (respirable fibres)	1 f/cc	3 f/cc	
	Refractory ceramic fibres, (respirable fibres)	0.2 f/cc		T20

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation+
93-76-5	2,4,5-T	10 mg/m³	20 mg/m³	
14807-96-6	Talc, (respirable fraction++)	2 mg/m³		
7440-25-7	Tantalum metal and oxide, (as Ta)	5 mg/m³	10 mg/m³	
7783-80-4	Tellurium hexafluoride, (as Te)	0.02 ppm	0.03 ppm	
13494-80-9	Tellurium and other tellurium compounds, (as Te) excluding hydrogen telluride	0.1 mg/m³	0.3 mg/m³	
3383-96-8	Temephos, (inhalable fraction++ and vapour)	1 mg/m³	3 mg/m³	Skin
13071-79-9	Terbufos, (inhalable fraction++ and vapour)	0.01 mg/m³	0.03 mg/m³	Skin
100-21-0	Terephthalic acid	10 mg/m³	20 mg/m³	
26140-60-3	Terphenyls	**C5 mg/m³		
76-11-9	1,1,1,2-Tetrachloro-2, 2-difluoroethane	500 ppm	625 ppm	
76-12-0	1,1,2,2-Tetrachloro-1, 2-difluoroethane	500 ppm	625 ppm	
79-34-5	1,1,2,2-Tetrachloroethane	1 ppm	2 ppm	Skin
127-18-4	Tetrachloroethylene (Perchloroethylene)	25 ppm	100 ppm	T20
1335-88-2	Tetrachloronaphthalene	2 mg/m³	4 mg/m³	
78-00-2	Tetraethyl lead, (as Pb)	0.1 mg/m³	0.3 mg/m³	Skin
107-49-3	Tetraethyl pyrophosphate (TEPP)	0.05 mg/m³	0.15 mg/m³	Skin
116-14-3	Tetrafluoroethylene	2 ppm	4 ppm	T20
109-99-9	Tetrahydrofuran	50 ppm	100 ppm	Skin

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation+
	Tetrakis (hydroxymethyl) phosphonium salts:			
124-64-1	Tetrakis (hydroxymethyl) phosphonium chloride	2 mg/m³	4 mg/m³	
55566-30-8	Tetrakis (hydroxymethyl) phosphonium sulphate	2 mg/m³	4 mg/m³	SEN
75-74-1	Tetramethyl lead, (as Pb)	0.15 mg/m³	0.45 mg/m³	Skin
3333-52-6	Tetramethyl succinonitrile	0.5 ppm	1 ppm	Skin
509-14-8	Tetranitromethane	0.005 ppm	0.015 ppm	T20
7722-88-5	Tetrasodium pyrophosphate	5 mg/m³	10 mg/m³	
479-45-8	Tetryl (2,4,6-trinitrophenyl-methyl nitramine)	1.5 mg/m³	3 mg/m³	
7440-28-0	Thallium and soluble compounds, (as Tl)	0.1 mg/m³	0.3 mg/m³	Skin
96-69-5	4,4'-Thiobis (6-tert-butyl-m-cresol)	10 mg/m³	20 mg/m³	
68-11-1	Thioglycolic acid	1 ppm	2 ppm	Skin
7719-09-7	Thionyl chloride	**C1 ppm		
137-26-8	Thiram	1 mg/m³	3 mg/m³	
7440-31-5	Tin, (as Sn):			
	metal	2 mg/m³	4 mg/m³	
	oxide and inorganic compounds except SnH_4	2 mg/m³	4 mg/m³	
	organic compounds	0.1 mg/m³	0.2 mg/m³	Skin
13463-67-7	Titanium dioxide	10 mg/m³	20 mg/m³	
108-88-3	Toluene (toluol)	50 ppm	60 ppm	Skin
584-84-9; 91-08-7	Toluene-2,4- or 2,6-diisocyanate (TDI)	0.005 ppm	0.02 ppm	SEN
95-53-4	o-Toluidine	2 ppm	4 ppm	Skin, T20
108-44-1	m-Toluidine	2 ppm	4 ppm	Skin
106-49-0	p-Toluidine	2 ppm	4 ppm	Skin, T20
126-73-8	Tributyl phosphate	0.2 ppm	0.4 ppm	
76-03-9	Trichloroacetic acid	1 ppm	2 ppm	
120-82-1	1,2,4-Trichlorobenzene	**C5 ppm		
71-55-6	1,1,1-Trichloroethane	350 ppm	450 ppm	
79-00-5	1,1,2-Trichloroethane	10 ppm	15 ppm	Skin
79-01-6	Trichloroethylene	50 ppm	100 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation⁺
75-69-4	Trichlorofluoromethane	**C1000 ppm		
1321-65-9	Trichloronaphthalene	5 mg/m³	10 mg/m³	Skin
96-18-4	1,2,3-Trichloropropane	10 ppm	15 ppm	Skin
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000 ppm	1250 ppm	
52-68-6	Trichlorphon, (inhalable fraction⁺⁺)	1 mg/m³	3 mg/m³	
102-71-6	Triethanolamine	5 mg/m³	10 mg/m³	
121-44-8	Triethylamine	1 ppm	3 ppm	Skin
75-63-8	Trifluorobromomethane	1000 ppm	1200 ppm	
2451-62-9	1,3,5-Triglycidyl-s-triazinetrione	0.05 mg/m³	0.15 mg/m³	
552-30-7	Trimellitic anhydride	**C0.04 mg/m³		
75-50-3	Trimethylamine	5 ppm	15 ppm	
25551-13-7	Trimethyl benzene (mixed isomer)	25 ppm	30 ppm	
121-45-9	Trimethyl phosphite	2 ppm	4 ppm	
118-96-7	2,4,6-Trinitrotoluene (TNT)	0.1 mg/m³	0.3 mg/m³	Skin
78-30-8	Triorthocresyl phosphate	0.1 mg/m³	0.3 mg/m³	Skin
603-34-9	Triphenylamine	5 mg/m³	10 mg/m³	
115-86-6	Triphenyl phosphate	3 mg/m³	6 mg/m³	
7440-33-7	Tungsten, (as W):			
	metal and insoluble compounds	5 mg/m³	10 mg/m³	
	soluble compounds	1 mg/m³	3 mg/m³	
8006-64-2; 80-56-8; 127-91-3; 13466-78-9	Turpentine and selected monoterpenes	20 ppm	30 ppm	SEN
7440-61-1	Uranium (natural)			
	Soluble and insoluble compounds, (as U)	0.2 mg/m³	0.6 mg/m³	T20
110-62-3	n-Valeraldehyde	50 ppm	60 ppm	
1314-62-1	Vanadium pentoxide, as V_2O_5, dust and fume (respirable fraction⁺⁺)	0.05 mg/m³	0.15 mg/m³	
———	Vegetable oil mists	10 mg/m³	20 mg/m³	
108-05-4	Vinyl acetate	10 ppm	15 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m³* or ppm*	15 minute average contamination limit mg/m³* or ppm*	Notation+
593-60-2	Vinyl bromide	0.5 ppm	1.5 ppm	T20
100-40-3	4-Vinyl cyclohexene	0.1 ppm	0.3 ppm	T20
106-87-6	Vinyl cyclohexene dioxide	0.1 ppm	0.3 ppm	Skin, T20
75-02-5	Vinyl fluoride	1 ppm	3 ppm	T20
88-12-0	N-Vinyl-2-pyrrolidone	0.05 ppm	0.15 ppm	
75-35-4	Vinylidene chloride	5 ppm	10 ppm	
75-38-7	Vinyledene fluoride	500 ppm	625 ppm	
25013-15-4	Vinyl toluene	50 ppm	100 ppm	
8032-32-4	VM and P Naphtha	300 ppm	375 ppm	
81-81-2	Warfarin	0.1 mg/m^3	0.3 mg/m^3	
———	Welding fumes	5 mg/m^3	10 mg/m^3	
	Wood dust:			
———	Softwoods	5 mg/m^3	10 mg/m^3	T20 (certain species), SEN*(certain species, see list at end of table)
———	Certain hardwoods such as beech and oak	1 mg/m^3	3 mg/m^3	T20 (certain species), SEN*(certain species, see list at end of table)
1330-20-7; 95-47-6; 108-38-3; 106-42-3	Xylene (o, —, p-isomers)	100 ppm	150 ppm	
1477-55-0	m-Xylene *alpha, alpha'*-diamine	**C0.1 mg/m^3		Skin
1300-73-8	Xylidine, mixed isomers (inhalable fraction++ and vapour)	0.5 ppm	1 ppm	T20, Skin
7440-65-5	Yttrium metal and compounds, (as Y)	1 mg/m^3	3 mg/m^3	
7646-85-7	Zinc chloride fume	1 mg/m^3	2 mg/m^3	
13530-65-9; 11103-86-9; 37300-23-5	Zinc chromates, as Cr	0.01 mg/m^3	0.03 mg/m^3	T20
1314-13-2	Zinc oxide, fume and dust (respirable fraction++)	2 mg/m^3	10 mg/m^3	
7440-67-7	Zirconium and compounds, (as Zr)	5 mg/m^3	10 mg/m^3	

Notes:

– Trydimite removed
– Fibres per cubic centimeter of air

+ – Explanation of Notations:

T20 – Substance is also in Table 17 and subject to sections 21-5 and 21-10
Skin – Potentially harmful after absorption through the skin or mucous membranes
SEN – Well-demonstrated potential to produce sensitization
SEN* – Wood species suspected of inducing sensitization (see Table D)

Table A

Inhalable fraction:
For the application of this limit, inhalable fraction is that fraction of the aerosol that passes a size selector with the following characteristics:

Particle Aerodynamic Diameter (µm)	Inhalable Particulate Mass (IPM) (%)
	100
1	97
2	94
5	87
10	77
20	65
30	58
40	54.5
50	52.5
100	50

Chemical and Biological Substances Guide

2021

For more information, please contact the Ministry of Labour Relations and Workplace Safety Occupational Health and Safety Division at:

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