

**Occupational Health and Safety Act
Loi sur la santé et la sécurité au travail**

**R.R.O. 1990, REGULATION 833
CONTROL OF EXPOSURE TO BIOLOGICAL OR CHEMICAL AGENTS**

Consolidation Period: From December 16, 2009 to the [e-Laws currency date](#).

Last amendment: O. Reg. 491/09.

This Regulation is made in English only.

1. In this Regulation,

“exposure” means exposure by inhalation, ingestion or skin contact. R.R.O. 1990, Reg. 833, s. 1.

Note: On July 1, 2010, section 1 is revoked and the following substituted:

1. In this Regulation,

“ACGIH” means the American Conference of Governmental Industrial Hygienists;

“ACGIH Table” means the table entitled “Adopted Values” shown at pages 10 to 61 of the publication entitled *2009 Threshold Limit Values and Biological Exposure Indices* published by ACGIH and identified by International Standard Book Number 978-1-882417-95-7;

“C” or “ceiling limit” means the maximum airborne concentration of a biological or chemical agent to which a worker may be exposed at any time;

“chemical agent” includes a chemical substance;

“exposure” means exposure by inhalation, ingestion, skin absorption or skin contact;

“Ontario Table” means Table 1 to this Regulation;

“STEL” or “short-term exposure limit” means the maximum airborne concentration of a biological or chemical agent to which a worker may be exposed in any 15-minute period;

“TWA” or “time-weighted average limit” means the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week. O. Reg. 491/09, s. 1.

See: O. Reg. 491/09, ss. 1, 10.

2. This Regulation does not apply at a project to an employer who primarily carries on the business of construction or to the workers of such an employer. R.R.O. 1990, Reg. 833, s. 2.

Note: On July 1, 2010, section 2 is revoked and the following substituted:

2. (1) This Regulation does not apply, at a project,

(a) to an employer who engages in construction; or

(b) to workers of an employer described in clause (a) who are engaged in construction. O. Reg. 491/09, s. 2.

(2) This Regulation does not apply,

(a) to a chemical agent listed in Table 1 of Ontario Regulation 490/09 (Designated Substances) made under the Act, in a workplace that is subject to that regulation with respect to that agent; or

(b) with respect to asbestos, in a workplace that is subject to Ontario Regulation 278/05 (Designated Substance — Asbestos on Construction Projects and in Buildings and Repair Operations) made under the Act. O. Reg. 491/09, s. 2.

See: O. Reg. 491/09, ss. 2, 10.

3. (1) Every employer shall take all measures reasonably necessary in the circumstances to protect workers from exposure to a hazardous biological or chemical agent because of the storage, handling, processing or use of such agent in the workplace. R.R.O. 1990, Reg. 833, s. 3 (1).

(2) The measures referred to in subsection (1) shall include the provision and use of engineering controls, work practices, hygiene facilities and practices and, subject to section 6, personal protective equipment. R.R.O. 1990, Reg. 833, s. 3 (2).

Note: On July 1, 2010, subsection (2) is revoked and the following substituted:

(2) The measures to be taken shall include the provision and use of,

- (a) engineering controls;
- (b) work practices;
- (c) hygiene facilities and practices; and
- (d) if section 7.2 applies, personal protective equipment. O. Reg. 491/09, s. 3.

See: O. Reg. 491/09, ss. 3, 10.

4. Without limiting the generality of section 3, every employer shall take the measures prescribed in section 3 to limit the exposure of workers to a biological or chemical agent listed in Part 4 or 11 of the Schedule, in accordance with all of the following rules:

1. If Part 4 or 11 sets out a time-weighted average exposure value (TWAEV) for the agent, exposure shall not exceed that value.
2. If Part 4 or 11 sets out a short-term exposure value (STEV) for the agent, exposure shall not exceed that value.
3. If Part 4 or 11 sets out a ceiling exposure value (CEV) for the agent, exposure shall not exceed that value.
4. If Part 4 or 11 sets out a TWAEV for the agent but neither a STEV nor a CEV, exposure shall not exceed the values calculated under Part 2B of the Schedule. O. Reg. 100/04, s. 1; O. Reg. 607/05, s. 1.

Note: On July 1, 2010, section 4 is revoked and the following substituted:

4. Without limiting the generality of section 3, every employer shall take the measures required by that section to limit the exposure of workers to a hazardous biological or chemical agent in accordance with the following rules:

1. If the agent is listed in the Ontario Table, exposure shall not exceed the TWA, STEL, or C set out in the Ontario Table.
2. If the agent is not listed in the Ontario Table but is listed in the ACGIH Table, exposure shall not exceed the TWA, STEL, or C set out in the ACGIH Table.
3. If the Table that applies under paragraph 1 or 2 sets out a TWA for an agent but sets out neither a STEL nor a C for that agent, exposure shall not exceed the following excursion limits:
 - i. Three times the TWA for any period of 30 minutes.
 - ii. Five times the TWA at any time.
4. Paragraph 3 does not apply with respect to an agent that is prescribed as a designated substance under Ontario Regulation 490/09 (Designated Substances) made under the Act. O. Reg. 491/09, s. 4.

See: O. Reg. 491/09, ss. 4, 10.

5. In determining the exposure of workers to a hazardous biological or chemical agent under section 3 or 4, no regard shall be had to the wearing and use of personal protective equipment. R.R.O. 1990, Reg. 833, s. 5.

6. Except in the circumstances set out in section 7, an employer shall protect workers from exposure to a hazardous biological or chemical agent without requiring the workers to wear and use personal protective equipment. R.R.O. 1990, Reg. 833, s. 6; O. Reg. 607/05, s. 2.

Note: On July 1, 2010, section 6 is revoked and the following substituted:

6. Airborne concentrations of hazardous biological or chemical agents and daily and weekly time-weighted average exposures shall be calculated in accordance with the rules set out in Schedule 1. O. Reg. 491/09, s. 5.

See: O. Reg. 491/09, ss. 5, 10.

7. Where engineering controls required by this Regulation,
- (a) are not in existence or are not obtainable;
 - (b) are not reasonable or not practical to adopt, install or provide because of the duration or frequency of the exposures or because of the nature of the process, operation or work;
 - (c) are rendered ineffective because of a temporary breakdown of such controls; or
 - (d) are ineffective to prevent, control or limit exposure because of an emergency,

the employer shall provide, and workers shall wear and use, personal protective equipment appropriate in the circumstances to protect the workers from exposure to a hazardous biological or chemical agent. R.R.O. 1990, Reg. 833, s. 7.

Note: On July 1, 2010, section 7 is revoked and the following substituted:

7. If the listing for an agent in the Ontario Table or in the ACGIH Table includes the notation “Skin” and the agent is present at the workplace, the employer shall take all measures reasonably necessary in the circumstances to protect workers from skin absorption of the agent. O. Reg. 491/09, s. 5.

7.1 If the listing for an agent in the ACGIH Table includes the reference “Simple asphyxiant” and the agent is present in the air at the workplace, the employer shall take all measures reasonably necessary in the circumstances to protect workers from,

- (a) exposure to an atmospheric oxygen level that is less than 19.5 per cent by volume; and
- (b) related hazards such as fire and explosion. O. Reg. 491/09, s. 5.

7.2 (1) An employer shall protect workers from exposure to a hazardous biological or chemical agent without requiring them to wear and use personal protective equipment, unless subsection (2) applies. O. Reg. 491/09, s. 5.

(2) The employer shall provide, and workers shall wear and use, personal protective equipment appropriate in the circumstances to protect the workers from exposure to the agent, if engineering controls required by this Regulation,

- (a) are not in existence or are not obtainable;
- (b) are not reasonable or not practical to adopt, install or provide because of the duration or frequency of the exposures or because of the nature of the process, operation or work;
- (c) are rendered ineffective because of a temporary breakdown of the controls; or
- (d) are ineffective to prevent, control or limit exposure because of an emergency. O. Reg. 491/09, s. 5.

See: O. Reg. 491/09, ss. 5, 10.

8. (1) Where a worker has been exposed to a hazardous biological or chemical agent and,

- (a) the worker or the worker’s physician has reason to believe that the worker’s health has been affected by exposure to the agent and the worker or the worker’s physician has so notified the employer;
- (b) the employer believes that the worker has been exposed to the agent, and the worker’s health is likely to be affected thereby and the employer has so notified the worker; or
- (c) the Provincial Physician, Ministry of Labour so requires,

the worker, subject to subsection (2), shall at the expense of the employer undergo medical examinations and clinical tests to determine whether the worker has an occupational illness because of the exposure and whether the worker is fit, fit with limitations or unfit to continue working in such an exposure. R.R.O. 1990, Reg. 833, s. 8 (1); O. Reg. 513/92, s. 1.

Note: On July 1, 2010, subsection (1) is revoked and the following substituted:

- (1) If a worker has been exposed to a hazardous biological or chemical agent and,
 - (a) the worker or the worker’s physician has reason to believe that the worker’s health has been affected by exposure to the agent and the worker or the worker’s physician has so notified the employer in writing; or
 - (b) the employer has reason to believe that the worker’s health is likely to be affected by the exposure and the employer has so notified the worker in writing,

the worker, if he or she agrees, shall undergo medical examinations and clinical tests, at the employer’s expense, to determine whether the worker has an occupational illness because of exposure to the agent and whether the worker is fit, fit with limitations or unfit to continue working in exposure to the agent. O. Reg. 491/09, s. 6.

See: O. Reg. 491/09, ss. 6, 10.

(2) A notice under clause (1) (a) or (b) shall be in writing and a notice under clause (1) (b) shall notify the worker that the worker may dispute whether he or she must undergo medical examinations and clinical tests by giving notice of the dispute to an inspector. R.R.O. 1990, Reg. 833, s. 8 (2).

Note: On July 1, 2010, subsection (2) is revoked. See: O. Reg. 491/09, ss. 6, 10.

(3) Where a dispute arises between an employer and a worker under clause (1) (a) or (b) as to whether a worker must undergo medical examinations or clinical tests the employer or the worker may notify an inspector thereof who shall cause an investigation to be made and give a decision in writing to the employer and the worker. R.R.O. 1990, Reg. 833, s. 8 (3).

Note: On July 1, 2010, subsection (3) is revoked. See: O. Reg. 491/09, ss. 6, 10.

(4) The employer shall provide the physician who examines the worker or under whose supervision clinical tests are performed with a copy of the records, if any, of the exposure of the worker to the hazardous biological or chemical agent. R.R.O. 1990, Reg. 833, s. 8 (4).

9. REVOKED: O. Reg. 607/05, s. 3 (2).

Note: On July 1, 2010, the Regulation is amended by adding the following Table:

TABLE 1
ONTARIO TABLE OF OCCUPATIONAL EXPOSURE LIMITS

Agent [CAS No.]	Time-Weighted Average Limit (TWA), Short-Term Exposure Limit (STEL), Ceiling Limit (C) and Notations
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	TWA	STEL/C	Notations
Acetic anhydride [108-24-7]		C 5 ppm C 21 mg/m ³	
*Acrylonitrile [107-13-1]	2 ppm	C 10 ppm	Skin
Aliphatic hydrocarbon gases			
Alkane [C ₁ -C ₄], except Butane, All isomers	1,000 ppm		
Butane, All isomers [106-97-8]; [75-28-5]	800 ppm		
*Arsenic, elemental arsenic and inorganic compounds [7440-38-2], and organic compounds (only where both inorganic and organic compounds are present), as As.	0.01 mg/m ³	0.05 mg/m ³	
*Asbestos – All forms [1332-21-4]	0.1 f/cc (a)		
Actinolite [77536-66-4]	0.1 f/cc (a)		
Amosite [12172-73-5]	0.1 f/cc (a)		
Anthophyllite [77536-67-5]	0.1 f/cc (a)		
Chrysotile [132207-32-0]	0.1 f/cc (a)		
Crocidolite [12001-28-4]	0.1 f/cc (a)		
Tremolite [77536-68-6]	0.1 f/cc (a)		
Benzaldehyde [100-52-7]		4 ppm 17 mg/m ³	
*Benzene [71-43-2]	0.5 ppm	2.5 ppm	Skin
Beryllium and its compounds, as Be [7440-41-7]	0.002 mg/m ³	0.01 mg/m ³	
sec-Butanol [78-92-2]	100 ppm	150 ppm	
tert-Butanol [75-65-0]	100 ppm	150 ppm	
Calcium chloride [10043-52-4]	5 mg/m ³		
Carbon monoxide [630-08-0]	25 ppm	100 ppm	
Carbon tetrachloride [56-23-5]	2 ppm	3 ppm	Skin
Charcoal, except activated [16291-96-6]	10 mg/m ³		
Chlordane [57-74-9]	0.5 mg/m ³	2 mg/m ³	Skin
Chlorinated diphenyl oxides [55720-99-5]	0.5 mg/m ³	2 mg/m ³	
o-Chlorobenzaldehyde [89-98-5]		4 ppm 23 mg/m ³	
Chlorobromomethane [74-97-5]	200 ppm	250 ppm	
Chlorodifluoromethane [75-45-6]	1,000 ppm	1,250 ppm	
Chlorodiphenyl (42% chlorine) [53469-21-9]	See listing for Polychlorinated Biphenyls (PCBs)		
Chlorodiphenyl (54% chlorine) [11097-69-1]			
Chloropicrin [76-06-2]	0.1 ppm	0.3 ppm	
o-Chlorotoluene [95-49-8]	50 ppm	75 ppm	
Clopidol [2971-90-6]	10 mg/m ³	20 mg/m ³	
N-Coco morpholine [1541-81-7]	5 ppm 52 mg/m ³		Skin
*Coke Oven Emissions ¹	0.15 mg/m ³		
Cotton dust, fabric knitting	0.5 mg/m ³		
Cotton dust, raw	0.2 mg/m ³ (G)		
Cotton dust, slashing and weaving	0.75 mg/m ³ (G)		
Cotton dust, waste	0.5 mg/m ³ (G)		
'Coumin 100' Polymer Flakes (total dust) [63393-89-5]	5 mg/m ³		
Crufomate [299-86-5]	5 mg/m ³	20 mg/m ³	
Cymene (sum of o-,m-and p-isomers) [25155-15-1]	50 ppm 274 mg/m ³		Skin
Diacetone alcohol [123-42-2]	50 ppm 240 mg/m ³	75 ppm 360 mg/m ³	
Diatomaceous earth (uncalcined) [61790-53-2]	10 mg/m ³ (I)(E) 3 mg/m ³ (R)(E)		
1, 3-Dichloro-2-Propanol [96-23-1]		1 ppm 5 mg/m ³	Skin
1,2-Dichloroethylene, All isomers [540-59-0; 156-59-2; 156-60-5]	200 ppm 790 mg/m ³	250 ppm 990 mg/m ³	
Diethylene glycol monoethyl ether [111- 90-0]	30 ppm 165 mg/m ³		
Di(2-ethylhexyl)phthalate (DEHP) [117-81-7]	3 mg/m ³	5 mg/m ³	
Diisodecyl phthalate [26761-40-0]	5 mg/m ³		
3-(Dimethylamino) propylamine [109-55-7]	0.5 ppm 2 mg/m ³		Skin
N, N-Dimethyl-cyclohexylamine [98-94-2]		5 ppm 26 mg/m ³	
N, N-Dimethyl-ethanolamine [108-01-0]	3 ppm	6 ppm	

	11 mg/m ³	22 mg/m ³	
Dimethyl terephthalate [120-61-6]	5 mg/m ³		
Dimethyl 2,3,5,6-tetrachloroterephthalate [1861-32-1]	5 mg/m ³		
Dipropylene glycol monomethyl ether acetate [88917-22-0]	100 ppm 776 mg/m ³	150 ppm 1,164 mg/m ³	
Diquat [2764-72-9; 85-00-7; 6385-62-2]	0.5 mg/m ³ 0.1 mg/m ³ (R)		Skin
Enflurane [13838-16-9]	2 ppm 16 mg/m ³		
Ethyl-3-ethoxy propionate [763-69-9]	50 ppm 300 mg/m ³		
Ethylene dibromide [106-93-4]	(L)		Skin
Ethylene glycol dimethyl ether [110-71-4]	5 ppm 18 mg/m ³		Skin
Ethylene glycol mono-n-propyl ether [2807-30-9]	25 ppm 110 mg/m ³		Skin
Ethylene glycol mononitrate [16051-48-2]	0.05 ppm 0.22 mg/m ³		Skin
*Ethylene oxide [75-21-8]	1 ppm 1.8 mg/m ³	10 ppm 18 mg/m ³	
Ethyl methacrylate [97-63-2]	100 ppm 470 mg/m ³		
Flour dust	See listing for Wheat Flour Dust (total dust)		
Forane [26675-46-7]	2 ppm 15 mg/m ³		
Formaldehyde [50-00-0]		STEL 1 ppm C 1.5 ppm	
Halothane [151-67-7]	2 ppm 16 mg/m ³		
Heptyl acetate [112-06-1]	50 ppm 320 mg/m ³		
Hexamethylenetetramine (HMT) [100-97-0]		0.35 ppm 2 mg/m ³	
Hexamethyl phosphoramidate [680-31-9]	(L)		Skin
Hexyl acetate (isomeric mixture)[88230-35-7]	50 ppm 294 mg/m ³		
Hydrogenated terphenyls2 [61788-32-7]	0.5 ppm		
Isobutyl acetate [110-19-0]	150 ppm	187 ppm	
*Isocyanates, organic compounds			
Toluene diisocyanate (TDI) [584-84-9] [91-08-7]	0.005 ppm	C 0.02 ppm	
Methylene bisphenyl isocyanate (MDI) [101-68-8]	0.005 ppm	C 0.02 ppm	
Hexamethylene diisocyanate (HDI) [822-06-0]	0.005 ppm	C 0.02 ppm	
Isophorone diisocyanate (IPDI) [4098-71-9]	0.005 ppm	C 0.02 ppm	
Methylene bis (4-cyclohexylisocyanate) [5124-30-1]	0.005 ppm	C 0.02 ppm	
Isopropylaminoethanols [109-56-8] [121-93-7]		400 ppm 1,900 mg/m ³	
Isosorbide dinitrate [87-33-2]	0.2 mg/m ³		Skin
* Lead [7439-92-1] elemental lead, inorganic and organic compounds of lead, as Pb			
Elemental lead, inorganic and organic compounds of lead, as Pb except tetraethyl lead [78-00-2]	0.05 mg/m ³		Skin (organic compounds)
Tetraethyl lead, as Pb [78-00-2]	0.10 mg/m ³	0.30 mg/m ³	
* Lead chromate [7758-97-6] as Pb (see listing for lead [7439-92-1]) as Cr	0.05 mg/m ³ 0.012 mg/m ³		
Lincomycin [154-21-2]	0.1 mg/m ³		
Lithium hydroxide			
Anhydrous [1310-65-2]		1 mg/m ³	
Monohydrate [1310-66-3]		1 mg/m ³	
Magnesite (total dust) [546-93-0]	10 mg/m ³ (E)		
*Mercury [7439-97-6], elemental mercury, inorganic and organic compounds of mercury, as Hg			
All forms of except alkyl, as Hg	0.025 mg/m ³		Skin
Alkyl compounds of, as Hg	0.01 mg/m ³	0.03 mg/m ³	Skin
Methoxyflurane [76-38-0]	2 ppm		

	13 mg/m ³		
Methyl acetylene [74-99-7]	1,000 ppm	1,250 ppm	
Methyl n-amyl ketone [110-43-0]	25 ppm 115 mg/m ³		
Methyl tert-butyl ether (MTBE) [1634-04-4]	40 ppm		
Methyl n-butyl ketone [591-78-6]	1 ppm 4 mg/m ³		Skin
4,4'-Methylene bis(2-chloroaniline) (MBOCA; MOCA®) [101-14-4]	0.0005 ppm 0.005 mg/m ³		Skin
4,4'-Methylene dianiline [101-77-9]	0.04 mg/m ³		Skin
N-Methyl-2-pyrrolidone [872-50-4]	400 mg/m ³		
Mineral Spirits	525 mg/m ³		
Morpholine [110-91-8]	20 ppm 70 mg/m ³	30 ppm 105 mg/m ³	Skin
Nepheline syenite (total dust) [37244-96-5]	10 mg/m ³		
Nickel			
Elemental/metal [7440-02-0]	1 mg/m ³ (I)		
Insoluble compounds, as Ni [7440-02-0]	0.2 mg/m ³ (I)		
Soluble compounds, as Ni [7440-02-0]	0.1 mg/m ³ (I)		
Nickel subsulfide, as Ni [12035-72-2]	0.1 mg/m ³ (I)		
2-Nitropropane [79-46-9]	10 ppm 35 mg/m ³	20 ppm 70 mg/m ³	
N-Nitrosamines, including n-Nitrosodimethylamine [62-75-9]	(L)		Skin
Nitrous oxide [10024-97-2]	25 ppm 45 mg/m ³		
Ozone [10028-15-6]	0.1 ppm 0.2 mg/m ³	0.3 ppm 0.6 mg/m ³	
Paraquat [4685-14-7]	0.1 mg/m ³		
Particles (Insoluble or Poorly Soluble) Not Otherwise Specified (PNOS)	10 mg/m ³ (I) 3 mg/m ³ (R)		
Penicillin (total dust) [1406-05-9]	0.1 mg/m ³		
Pentaerythritol tetrabenzoate [4196-86-5]		2 mg/m ³	
Pentane, All isomers [78-78-4; 109-66-0; 463-82-1]	600 ppm 1,770 mg/m ³	750 ppm 2,210 mg/m ³	
Perlite	10 mg/m ³ (E)		
Petroleum coke (total dust) [64741-79-3]	3.5 mg/m ³ (b)		
2-Phenoxyethanol [122-99-6]	25 ppm 141 mg/m ³		Skin
Phosphorus oxychloride [10025-87-3]	0.1 ppm 0.6 mg/m ³	0.5 ppm 3 mg/m ³	
Picloram [1918-02-1]	10 mg/m ³	20 mg/m ³	
Picric acid [88-89-1]	0.1 mg/m ³	0.3 mg/m ³	Skin
Platinum [7440-06-4]			
Metal	1 mg/m ³		
Water-soluble compounds of, including chloroplatينات (as Pt)	0.002 mg/m ³		
Polychlorinated biphenyls (PCBs) ²	0.05 mg/m ³		
Poultry dust (total dust)	5 mg/m ³		
Precipitated silica (total dust) [1343-98-2]	10 mg/m ³		
1,2-Propylene glycol [57-55-6]	50 ppm (V) 155 mg/m ³ (V) 10 mg/m ³ (H)(c)		
Propylene glycol monomethyl ether acetate [108-65-6]	50 ppm 270 mg/m ³		
Selenium hexafluoride [7783-79-1], as Se	0.025 ppm 0.1 mg/m ³		
Shellac dust (total dust) [9000-59-3]	10 mg/m ³		
* Silica, Crystalline			
Quartz/Tripoli [14808-60-7; 1317-95-9]	0.10 mg/m ³ (R)		
Cristobalite [14464-46-1]	0.05 mg/m ³ (R)		
Silica fume [69012-64-2]	2 mg/m ³ (R)		
Silica fused [60676-86-0]	0.1 mg/m ³ (R)		
Silica gel [112926-00-8]	10 mg/m ³		
Silicon (total dust) [7440-21-3]	10 mg/m ³		
Silicon carbide [409-21-2]			

Non-fibrous	10 mg/m ³ (I) (E) 3 mg/m ³ (R)(E)		
Fibrous (including whiskers)	0.1 f/cc (R)(F)		
Sisal dust (total dust)	2 mg/m ³		
Soap dust [68918-36-5]	5 mg/m ³		
Sodium fluoroacetate [62-74-8]	0.05 mg/m ³	0.15 mg/m ³	Skin
Spectinomycin [1695-77-8]	2 mg/m ³		
140 Degree C Flash Aliphatic Solvent, Type of Stoddard Solvent	525 mg/m ³		
Styrene - monomer [100-42-5]	35 ppm	100 ppm	
Sulfur dioxide [7446-09-5]	2 ppm 5.2 mg/m ³	5 ppm 10.4 mg/m ³	
Synthetic Vitreous Fibres (Man Made Mineral Fibres)			
Continuous filament glass fibres	5 mg/m ³ (I)		
Continuous filament glass fibres	1 f/cc (F)		
Glass wool fibres	1 f/cc (F)		
Refractory ceramic fibres	0.5 f/cc (F)		
Rock wool fibres	1 f/cc (F)		
Slag wool fibres	1 f/cc (F)		
Special purpose glass fibres	1 f/cc (F)		
Synthetic Vitreous Fibres, not otherwise classified (excluding fibrous glass dust and mineral wool fibre)	1 f/cc (F)(d)		
Talc [14807-96-6], containing no asbestos	2 mg/m ³ (R)(E) 2 f/cc (K)		
Tantalum, metal and oxide (total dust) [7440-25-7]	10 mg/m ³		
Tellurium hexafluoride [7783-80-4], as Te	0.01 ppm 0.1 mg/m ³		
Tetrachlorophthalic anhydride [117-08-8]	0.1 mg/m ³		
Tetrachlorophenol [25167-83-3]	0.5 mg/m ³		Skin
Tetrasodium pyrophosphate [7722-88-5]	5 mg/m ³		
Tin [7440-31-5], as Sn			
Metal	2 mg/m ³		
Oxide and inorganic compounds, as Sn, except tin hydride	2 mg/m ³		
Organic compounds, as Sn	0.1 mg/m ³		Skin (organic compounds)
o-Tolidine [119-93-7]	(L)		Skin
Triethanolamine [102-71-6]	0.5 ppm 3.1 mg/m ³		
Triethylenediamine [280-57-9]	1 ppm 4.6 mg/m ³		Skin
Triethylenetetramine [112-24-3]	0.5 ppm 3 mg/m ³		Skin
Trimethoxyvinylsilane [2768-02-7]		10 ppm 60 mg/m ³	
2,4,6-Trinitrotoluene (TNT) [118-96-7]	0.01 ppm 0.1 mg/m ³	0.02 ppm 0.2 mg/m ³	Skin
Trixylylphosphate [25155-23-1]	0.1 mg/m ³		
Vegetable oils (mists) except mists of irritant oils such as oils of castor and cashew nut	10 mg/m ³		
*Vinyl chloride [75-01-04]	1 ppm		
Vinylidene chloride [75-35-4]	1 ppm 4 mg/m ³	20 ppm 80 mg/m ³	
Wheat flour dust (total dust)	3 mg/m ³		
Wood dust			
Certain hardwoods as beech and oak	1 mg/m ³		
Softwood	5 mg/m ³	10 mg/m ³	

Endnotes and Abbreviations:

* Denotes a chemical agent listed in Table 1 of Ontario Regulation 490/09 (Designated Substances) made under the Act. See clause 2 (2) (a) of this Regulation.

¹ Means the benzene soluble fraction of total particulate matter of the substances emitted into the atmosphere from metallurgical coke ovens including condensed vapours and solid particulates.

² As sum of components assayed by chromatographic procedure with reference to the bulk sample.

[CAS No.] - CAS Registry Number.

f/cc - Fibres per cubic centimetre of air.

mg/m³ - Milligrams of the agent per cubic metre of air.

ppm - Parts of the agent per million parts of air by volume.

Skin - Danger of cutaneous absorption.

(E) The value is for particulate matter containing no asbestos and < 1 per cent crystalline silica.

(F) Respirable fibres: length > 5µm; aspect ratio ≥3:1, as determined by the membrane filter method at 400-450 times magnification (4-mm objective), using phase-contrast illumination.

(G) As measured by the vertical elutriator, cotton-dust sampler.

(H) Aerosol only.

(I) Inhalable fraction: means that size fraction of the airborne particulate deposited anywhere in the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the ACGIH particle size-selective sampling criteria for airborne particulate matter; and (b) has the cut point of 100 µm at 50 per cent collection efficiency.

(K) Should not exceed 2 mg/m³ respirable particulate mass.

(L) Exposure by all routes should be carefully controlled to levels as low as possible.

(R) Respirable fraction: means that size fraction of the airborne particulate deposited in the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the ACGIH particle size-selective sampling criteria for airborne particulate matter; and (b) has the cut point of 4 µm at 50 per cent collection efficiency.

(V) Vapour and aerosol.

(a) Asbestos fibres longer than 5 µm in length and less than 3 µm in width and that have a length to width ratio not less than 3:1 as viewed in a phase contrast optical microscope at 400-450 times magnification.

(b) Provided that the total dust contains less than 0.7 per cent vanadium.

(c) For assessing the visibility in a work environment where 1,2-propylene glycol aerosol is present.

(d) A secondary limit of 5 mg/m³ (total dust) is recommended to deal with dusty operations where fibre counts are usually difficult to determine. Where both types of measurements are made simultaneously, the more restrictive limit should be used to assess the exposures.

O. Reg. 491/09, s. 7.

See: O. Reg. 491/09, ss. 7, 10.

SCHEDULE EXPOSURE VALUES FOR BIOLOGICAL AND CHEMICAL AGENTS IN WORKPLACES

Agents have been assigned to tables given in Parts 4, 9, 10 and 11 of the Schedule.

Also, many of the agents' names in the Schedule are based on the naming rules of the International Union of Pure and Applied Chemistry (IUPAC).

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PART 1 REVOKED: O. Reg. 388/00, s. 3.

**PART 2A
CALCULATION OF EXPOSURE VALUES**

1. The time-weighted average exposure value (TWAEV) is the average of the airborne concentrations of a biological or chemical agent determined from air samples of the airborne concentrations to which a worker is exposed in a work day or a work week.
2. The short-term exposure value (STEV) is the maximum airborne concentration of a biological or chemical agent to which a worker is exposed in any fifteen-minute period determined from a single sample or a time-weighted average of sequential samples taken during such period.
3. The ceiling exposure value (CEV) is the maximum airborne concentration of a biological or chemical agent to which a worker is exposed at any time.
4. The airborne concentrations of the agent are expressed as parts of the agent per million parts of air by volume (ppm) or as milligrams of the agent per cubic metre of air (mg/m³).
5. Air sampling of the airborne concentrations of an agent is not required for the full period of a work day or a work week where the air sampling is representative of airborne concentrations of an agent likely to be present during the period.
6. The method of air sampling, the number and volume of the air samples and the method of analyses of the air samples shall be determined according to the nature of the operations or processes and the characteristics of the agent in accordance with recognized industrial hygiene practice.
7. In determining exposure to airborne concentrations of a biological or chemical agent, no regard shall be had or taken to the wearing or use by a worker of respiratory equipment.
8. The daily and weekly time-weighted exposure values shall be calculated as follows:
 - (a) $C_1T_1 + C_2T_2 + \dots + C_nT_n =$ cumulative daily or weekly exposure, where C_i is the concentration found in an air sample and T_i is the total time in hours to which the worker is taken to be exposed to concentration C_i in a work day or a work week for i taking on the values of 1, 2, ..., n.
 - (b) The time-weighted average exposure shall be calculated by dividing the cumulative daily exposure by 8 and the weekly exposure by 40 respectively.
9. For mixtures of airborne chemical agents which exert an additive health effect and when analytical results of individual airborne agents are available, the following formula shall be used:

$$\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} = E$$

where C_1, C_2, \dots, C_n are the concentrations found in the air sample;

and L_1, L_2, \dots, L_n are the respective exposure values for the agents set out in the Schedule.

The sum of these ratios, E, shall not exceed 1.

When calculating E for time-weighted average exposures, C shall be taken to be the time-weighted average exposure value calculated for each agent.

10. Paragraph 9 does not apply where the agents have widely different health effects. In such circumstances, independent exposure values for each agent shall be used and calculated in accordance with paragraph 8.

R.R.O. 1990, Reg. 833, Sched., Part 2A.

**PART 2B
EXCURSION LIMITS WHERE NEITHER A SHORT-TERM EXPOSURE VALUE (STEV) NOR A CEILING EXPOSURE VALUE (CEV) IS INDICATED**

1. Where a TWAEV but neither a STEV nor a CEV is set out for a biological or chemical agent listed in Part 4 or 11 of this Schedule, a worker shall not be exposed to a concentration of the biological or chemical agent that exceeds,
 - (a) three times the TWAEV set out in this Schedule with respect to that agent for any period of 30 minutes; and

(b) five times the TWAEV set out in this Schedule with respect to that agent for any period of time.

O. Reg. 100/04, s. 3.

PART 3
EXPLANATORY NOTES ON CHEMICAL NAMES, CAS REG. NOS., AND OTHER NOTATIONS

Parts 4, 9, 10 and 11 of this Schedule deal with biological and chemical agents and contain names of the agents, Chemical Abstracts Service Registry Numbers, and some notations.

Chemical Names

The chemical names used in this Schedule conform with nomenclature rules of the International Union of Pure and Applied Chemistry or with common usage.

Numerals and prefixes (e.g.: o-, p-, n-, O-, N-, sec-, tert-) are disregarded when listing the main entries in alphabetical order, but are used to assign the order when main entry names are identical. For example, “N-methylaniline” is listed under “m”, and “sec-butyl acetate” precedes “tert-butyl acetate”.

Chemical Abstracts Service Registry Number

The Chemical Abstracts Service Registry Number (CAS Reg. No.) is a unique numerical identifier assigned to a chemical substance in the CAS registry system by the Chemical Abstracts Service (P.O. Box 3012, Columbus, Ohio, 43210). The CAS Reg. No. itself has no chemical or structural significance; it is merely a computer-verifiable number assigned in sequential order to each agent as it is entered in the CAS registry system. Some of the CAS Reg. Nos. listed in this guide were assigned by the CAS under contract for the United States Environmental Protection Agency (U.S. EPA). CAS Reg. Nos. have been used as chemical or biological identifiers in inventories and computer literature-retrieval systems.

The CAS Reg. No. has the format (xxxxxx-xx-x) and consists of up to 9 digits, separated by hyphens into 3 groups: (a) the first group has up to 6 digits; (b) the second always contains 2 digits; and (c) the third contains 1 digit.

Notations

The notation “inhalable” following the name of an agent in this Schedule means that size fraction of the airborne particulate deposited anywhere in the respiratory tract and collected during air sampling with a particle size-selective device that,

- (a) meets the American Conference of Governmental Industrial Hygienists (ACGIH) particle size-selective criteria; and
- (b) has the cut point of 100 microns at 50 per cent collective efficiency.

The notation “respirable” following the name of an agent in this Schedule means that size fraction of the airborne particulate deposited in the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-selective device that,

- (a) meets the American Conference of Governmental Industrial Hygienists (ACGIH) particle size-selective criteria; and
- (b) has the cut point of 4 microns at 50 per cent collective efficiency.

The notation “skin” following the name of an agent in this Schedule indicates that direct or airborne contact with the agents may result in significant absorption of the agent through the skin, mucous membranes or eyes. Vehicles, such as certain solvents, may enhance the rate of skin absorption. Inclusion of this notation is intended to suggest that preventative action should be taken against absorption of the agent through the skin, mucous membranes or eyes.

The notation “thoracic” following the name of an agent in this Schedule means that size fraction of the airborne particulate deposited anywhere in the lung airways and the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-selective device that,

- (a) meets the American Conference of Governmental Industrial Hygienists (ACGIH) particle size-selective criteria; and
- (b) has the cut point of 10 microns at 50 per cent collective efficiency.

(As...) — In the lists of biological and chemical agents, the notation “(as...)”, e.g.: “nickel carbonyl (as nickel)”, is used to indicate that the agent is to be analyzed for the substance indicated in parentheses, nickel in this example, rather than nickel carbonyl.

O. Reg. 100/04, s. 4; O. Reg. 607/05, s. 4.

PART 4
TIME-WEIGHTED AVERAGE EXPOSURE VALUES (TWAEV), SHORT-TERM EXPOSURE VALUES (STEV) AND CEILING EXPOSURE VALUES (CEV)

AGENT (CAS Reg. no)	TWAEV		STEV		CEV	
	ppm	mg/m3	ppm	mg/m3	ppm	mg/m3

Acetaldehyde (75-07-0)					25	
Acetic acid (64-19-7)	10	25	15	37		
Acetic anhydride (108-24-7)					5	21
Acetone (67-64-1)	500		750			
Acetone cyanohydrin (75-86-5), as CN — Skin					4.7	
Acetonitrile (75-05-8) — Skin	20					
Acetophenone (98-86-2)	10					
2-(Acetyloxy) benzoic acid (50-78-2)		5				
Acrolein (107-02-8)					0.1	
Acrylamide, inhalable, vapour and aerosol (79-06-1) — Skin		0.03				
Acrylic acid (79-10-7)	2					
Adipic acid (124-04-9)		5				
Adiponitrile (111-69-3) — Skin	2					
Alachlor, inhalable aerosol and vapour (15972-60-8)		1				
Aldrin, inhalable aerosol and vapour (309-00-2) — Skin		0.05				
Allyl alcohol (107-18-6) — Skin	0.5					
Allyl chloride (107-05-1)	1	3	2	6		
Allyl propyl disulfide (2179-59-1)	0.5					
alpha-Alumina (total dust) (1344-28-1)		10				
Aluminum-powder (7429-90-5)		5				
Aluminum, alkyl derivatives of (7429-90-5)		2				
Aluminum, metal and oxide dust (7429-90-5)		10				
Aluminum, water-soluble compounds of (7429-90-5)		2				
2-Aminoethanol (141-43-5)	3	7.5	6	15		
2-Aminopyridine (504-29-0)	0.5	2				
3-Amino-1 H-1,2,4-triazole (61-82-5)		0.2				
4-Amino-3,5,6-trichloro-2- pyridinecarboxylic acid (1918-02-1)		10		20		
Ammonia (7664-41-7)	25	17	35	24		
Ammonium chloride fume (12125-02-9)		10		20		
Ammonium perfluoro-octanoate (3825-26-1)		0.01				
Ammonium sulfamate (7773-06-0)		10				
tert-Amyl methyl ether (TAME)						

(994-05-8)	20				
Aniline and homologues (62-53-3) — Skin	2	8			
Anisidine (sum of o-, and p-isomers) (29191-52-4) — Skin	0.1	0.5			
Antimony and its compounds, including antimony trioxide handling and use, but excluding stibine (as antimony) (7440-36-0)		0.5			
Antimony hydride (7803-52-3)	0.1	0.5			
Arsine (7784-42-1)	0.005				
Asphalt (Bitumen) fume, as benzene- soluble aerosol, inhalable (8052-42-4)		0.5			
Atrazine (1912-24-9)		5			
Azinphos-methyl, inhalable, vapour and aerosol (86-50-0) — Skin		0.2			
Barium carbonate, chloride, nitrate, or oxide (as barium) (7440-39-3)		0.5			
Barium sulfate (total dust) (7727-43-7)		10			
Benomyl (17804-35-2)	0.8	9			
Benzaldehyde (100-52-7)			4	17	
1,2-Benzenedicarboxylic acid bis(2- ethylhexyl) ester (117-81-7)		3		5	
Benzotrichloride (98-07-7) — Skin					0.1
Benzoyl chloride (98-88-4)					0.5
Benzoyl peroxide (94-36-0)		5			
Benzyl acetate (140-11-4)	10				
Benzyl chloride (100-44-7)	1	5			
Beryllium and its compounds (as beryllium) (7440-41-7)		0.002		0.01	
Biphenyl (92-52-4)	0.2	1.3			
Bis(eta-cyclopentadienyl)iron (102-54-5)		10			
Bis(2-(dimethylaminoethyl)) ether (DMAEE) (3033-62-3) — Skin	0.05		0.15		
2,6-Bis(1,1-dimethylethyl)-4- methylphenol, also known as Butylated hydroxytoluene (BHT), inhalable, vapour and aerosol (128-37-0)		2			
Bis(dimethylthiocarbonyl) disulfide (137-26-8)		1			
Bismuth telluride (1304-82-1)		10			
Bismuth telluride, selenium-doped (1304-82-1)		5			
Borate compounds, Inorganic, inhalable - Anhydrous (1330-43-4)		2		6	

- Decahydrate (1303-96-4)		2		6	
- Orthoboric acid (10043-35-3)		2		6	
- Pentahydrate (12179-04-3)		2		6	
Boron oxide (1303-86-2)		10			
Boron tribromide (10294-33-4)				1	10
Boron trifluoride (7637-07-2)				1	2.8
Bromacil (314-40-9)		10			
Bromine (7726-95-6)	0.1		0.2		
Bromine pentafluoride (7789-30-2)	0.1	0.7			
Bromochloromethane (74-97-5)	200	1,060	250	1,320	
Bromoform (75-25-2) — Skin	0.5	5			
1-Bromopropane (106-94-5)	10				
Bromotrifluoromethane (75-63-8)	1,000	6,085			
1, 3-Butadiene (106-99-0)	2				
Butane, all isomers (106-97-8)	800	1,900			
1-Butanethiol (109-79-5)	0.5	1.8			
2-Butanone (78-93-3)	200	590	300	885	
2-Butoxyethanol (111-76-2) — Skin	20				
2-Butoxyethyl acetate (EGBEA) (112-07-2)	20				
n-Butyl acetate (123-86-4)	150	710	200	950	
sec-Butyl acetate (105-46-4)	200	950			
tert-Butyl acetate (540-88-5)	200	950			
n-Butyl acrylate (141-32-2)	2				
n-Butyl glycidyl ether (BGE), also known as (Butoxymethyl) oxirane (2426-08-6) — Skin	3				
n-Butanol, also known as n-Butyl alcohol (71-36-3)	20				
sec-Butyl alcohol (78-92-2)	100	303	150	454	
tert-Butyl alcohol (75-65-0)	100	303	150	454	
n-Butyl lactate (138-22-7)	5	30			
n-Butylamine (109-73-9) — Skin				5	15
o-sec-Butylphenol (89-72-5) — Skin	5	31			
p-tert-Butyltoluene (98-51-1)	1				
tert-Butyl chromate, (as chromate) (1189-85-1) — Skin					0.1
Cadmium, elemental (7440-43-9), and compounds, as Cd		0.01			
Cadmium, elemental					

(7440-43-9), and compounds, as Cd, respirable		0.002				
Calcium chloride (10043-52-4)		5				
Calcium chromate (13765-19-0), as Cr		0.001				
Calcium cyanamide (156-62-7)		0.5				
Calcium hydroxide (1305-62-0)		5				
Calcium oxide (1305-78-8)		2				
Calcium silicate (total dust) (1344-95-2)		10				
Calcium sulfate, inhalable, including Gypsum and plaster of Paris (7778-18-9; 10034-76-1; 10101-41-4; 13397-24-5)		10				
Camphor (76-22-2)	2	12	3	19		
Caprolactam, inhalable, vapour and aerosol (105-60-2)		5				
Captafol (2425-06-1) — Skin		0.1				
Captan, inhalable (133-06-2)		5				
Carbofuran, inhalable, vapour and aerosol (1563-66-2)		0.1				
Carbon black (1333-86-4)		3.5				
Carbon dioxide (124-38-9)	5,000	9,000	30,000	54,000		
Carbon disulfide (75-15-0) — Skin	1					
Carbon monoxide (630-08-0)	25	29	100	115		
Carbon tetrabromide (558-13-4)	0.1	1.4	0.3	4.1		
Carbon tetrachloride (56-23-5) — Skin	2	13	3	19		
Carbonyl chloride (75-44-5)	0.1	0.4				
Carbonyl fluoride (353-50-4)	2	5.4	5	13		
Cellulose (paper fibre, total dust) (9004-34-6)		10				
Cesium hydroxide (21351-79-1)		2				
Charcoal, except activated (16291-96-6)		10				
Chloroacetaldehyde (107-20-0)					1	3
Chlordane (57-74-9) — Skin		0.5			2	
Chlorinated diphenyl oxides (55720-99-5)		0.5			2	
Chlorine (7782-50-5)	0.5		1			
Chlorine dioxide (10049-04-4)	0.1	0.3	0.3	0.9		
Chlorine trifluoride (7790-91-2)					0.1	0.4
Chloroacetone (78-95-5)					1	
Chloroacetyl chloride						

(79-04-9)	0.05		0.15		
Chlorobenzene (108-90-7)	10				
o-Chlorobenzaldehyde (89-98-5)			4	23	
o-Chlorobenzylidene malononitrile (2698-41-1) — Skin					0.05 0.4
2-Chloro-1,3-butadiene (126-99-8) — Skin	10	36			
Chlorodifluoromethane (75-45-6)	1,000	3,535	1,250	4,415	
1-Chloro-2,3-epoxypropane (106-89-8) — Skin	0.5				
2-Chloroethanol (107-07-3) — Skin					1 3.3
p-Chloronitrobenzene (100-00-5)	0.1	0.6			
1-Chloro-1-nitropropane (600-25-9)	2	10			
Chloropentafluoroethane (76-15-3)	1,000	6,315			
2-Chloro-1-phenylethanone (532-27-4)	0.05	0.32			
1-Chloro-2-propanol (127-00-4) — Skin	1				
2-Chloro-1-propanol (78-89-7) — Skin	1				
2-Chloropropionic acid (598-78-7) — Skin	0.1				
o-Chlorostyrene (2039-87-4)	50	283	75	425	
o-Chlorotoluene (95-49-8)	50	260	75	388	
2-Chloro-6-(trichloro-methyl)pyridine (1929-82-4)		10		20	
Chlorpyrifos, inhalable, vapour and aerosol (2921-88-2) — Skin		0.1			
Chromates, dichromates and other hexavalent chromium compounds (as chromium) (7440-47-3)		0.05			
Chromium (7440-47-3), insoluble Cr VI compounds, as Cr		0.01			
Chromium metal, and divalent and trivalent chromium compounds (as chromium) (7440-47-3)		0.5			
Chromyl chloride (14977-61-8)	0.025	0.16			
Clopidol (2971-90-6)		10		20	
Coal dust, Anthracite (respirable)		0.4			
Coal dust, Bituminous (respirable)		0.9			
Coal tar pitch volatiles (as total benzene- soluble compounds) (65996-93-2)		0.2			
Cobalt carbonyl and hydrocarbonyl (as cobalt) (7440-48-4)		0.1			
Cobalt metal, dust and fume (as cobalt) (7440-48-4)		0.02			
N-Coco morpholine (1541-81-7) — Skin	5	52			
Copper fume (as copper)					

(7440-50-8)		0.2			
Copper dust and mists (as copper) (7440-50-8)		1			
Cotton dust, fabric knitting		0.5			
Cotton dust, raw		0.2(F)			
Cotton dust, slashing and weaving		0.75(F)			
Cotton dust, waste		0.5(F)			
Coumaphos, inhalable aerosol and vapour (56-72-4) — Skin		0.05			
'Coumin 100' Polymer Flakes (total dust) (63393-89-5)		5			
Cresol (sum of o-, m-, and p-isomers) (1319-77-3) — Skin	5	22			
Crotonaldehyde (4170-30-3)				0.3	
Crufomate (299-86-5)		5		20	
Cumene (98-82-8) — Skin	50	245			
Cyanamide (420-04-2)		2			
Cyanogen (460-19-5)	10	21			
Cyanogen chloride (506-77-4)				0.3	0.75
Cyclohexane (110-82-7)	100				
Cyclohexanol (108-93-0) — Skin	50	200			
Cyclohexanone (108-94-1) — Skin	20		50		
Cyclohexene (110-83-8)	300	1,010			
Cyclohexylamine (108-91-8)	10	40			
Cyclopentadiene (542-92-7)	75	200			
Cyclopentane (287-92-3)	600	1,720			
Cyhexatin (13121-70-5)		5			
Cymene (sum of o-, m- and p-isomers) (25155-15-1) — Skin	50	274			
Decaborane (17702-41-9) — Skin	0.05	0.25	0.15	0.75	
Demeton, inhalable, vapour and aerosol (8065-48-3) — Skin		0.05			
Demeton-S-methyl, inhalable, vapour and aerosol (919-86-8) — Skin		0.05			
1,2-Diaminoethane (107-15-3)	10	25			
Diatomaceous earth, (uncalcined) inhalable (61790-53-2)		10(D)			
Diatomaceous earth (uncalcined) respirable (61790-53-2)		3(D)			
Diazinon, inhalable, vapour and aerosol, also known as Phosphorothionic acid 0,0- diethyl 0-(6-methyl)-2-(1-methylethyl)-4- pyrimidinyl ester (333-41-5) — Skin		0.01			
Diazomethane (334-88-3)	0.2	0.34			
Diborane					

(19287-45-7)	0.1	0.11				
Dibromodifluoromethane (75-61-6)	100	860				
2-N-(Dibutylamino) ethanol (102-81-8) — Skin	0.5					
Dibutyl phenyl phosphate (2528-36-1) — Skin	0.3					
Dibutyl phosphate (107-66-4)	1	8.6	2	17		
Dibutyl phthalate (84-74-2)		5				
Dichloroacetic acid (79-43-6) — Skin	0.5					
o-Dichlorobenzene (95-50-1)	25		50			
p-Dichlorobenzene (106-46-7)	10					
Dichlorodifluoromethane (75-71-8)	1,000	4,940				
1,4-Dichloro-2-butene (764-41-0) — Skin	0.005					
1,3-Dichloro-5,5-dimethyl-hydantoin (118-52-5)		0.2		0.4		
1, 3-Dichloro-2-Propanol (96-23-1) — Skin			1	5		
1,1-Dichloroethane (75-34-3)	100					
1,2-Dichloroethane (107-06-2)	10	40				
1,1-Dichloroethene (75-35-4)	1	4	20	80		
1,2-Dichloroethylene (540-59-0)	200	790	250	990		
Dichloroethyne (7572-29-4)					0.1	0.4
Dichlorofluoromethane (75-43-4)	10	42				
Dichloromethane (75-09-2)	50	175				
1,1-Dichloro-1-nitroethane (594-72-9)	2	12				
(2,4-Dichlorophenoxy) acetic acid and its esters (as 2,4-D) (94-75-7)		10				
2-(2,4-Dichlorophenoxy) ethanol hydrogen sulfate sodium salt (136-78-7)		10				
1,3-Dichloropropene (542-75-6) — Skin	1	5				
2,2-Dichloropropionic acid, inhalable (75-99-0)		5				
1,2-Dichloro-1,1,2,2-tetra-fluoroethane (76-14-2)	1,000	6,985				
Dichlorvos (DDVP), inhalable, vapour and aerosol (62-73-7) — Skin		0.1				
Dicrotophos, inhalable, vapour and aerosol (141-66-2) — Skin		0.05				
Dicyclopentadiene (77-73-6)	5	27				
Dieldrin (60-57-1) — Skin		0.25				
Diesel fuel, as total hydrocarbons, vapour and aerosol						

(68334-30-5; 68476-30-2; 68476-31-3; 68476-34-6; 77650-28-3) — Skin		100			
Diethanolamine (111-42-2)		2			
Diethylamine (109-89-7)	5		15		
2-Diethylaminoethanol (100-37-8) — Skin	2				
Diethylene glycol monoethyl ether (111-90-0)	30	165			
Diethylene triamine (111-40-0) — Skin	1	4			
Diethyl phthalate (84-66-2)		5			
Diglycidyl ether (DGE), also known as 2,2'-(Oxybis(methylene))-bisoxirane (2238-07-5)	0.01				
1,2-Dihydroxybenzene (120-80-9)	5	22			
1,4-Dihydroxybenzene (123-31-9)		2			
Diisodecyl phthalate (26761-40-0)		5			
Diisopropylamine (108-18-9) — Skin	5	20			
Dimethoxymethane (109-87-5)	1,000	3,110			
N,N-Dimethylacetamide (127-19-5) — Skin	10	36			
Dimethylamine (124-40-3)	5		15		
3-(Dimethylamino) propylamine (111-90-0) — Skin	0.5	2			
N,N-Dimethylaniline (121-69-7) — Skin	5	25	10	50	
ar,ar-Dimethylbenzenamine (sum of all isomers), inhalable, vapour and aerosol, also known as Xylidine (1300-73-8) — Skin	0.5				
Dimethylbenzene (sum of o-, m- and p-isomers) (1330-20-7)	100	435	150	650	
Dimethyl carbamoyl chloride (79-44-7) — Skin	0.005				
N, N-Dimethyl-cyclohexylamine (98-94-2)			5	26	
Dimethyl disulfide (624-92-0) — Skin	0.5				
Dimethylethoxysilane (14857-34-2)	0.5		1.5		
N, N-Dimethyl-ethanolamine (108-01-0)	3	11	6	22	
N,N-Dimethylformamide (68-12-2) — Skin	10	30			
2,6-Dimethyl-4-heptanone (108-83-8)	25	145			
1,1-Dimethylhydrazine (57-14-7) — Skin	0.01				
2-(2,2-Dimethyl-1-oxopropyl)-H-indene-1,3(2H)-dione (83-26-1)		0.1			
Dimethyl phthalate (131-11-3)		5			
Dimethyl sulfate (77-78-1) — Skin	0.1	0.5			
Dimethyl sulfide					

(75-18-3)	10				
Dimethyl terephthalate (120-61-6)		5			
Dimethyl 2,3,5,6-tetrachloroterephthalate (1861-32-1)		5			
Dinitrobenzene (sum of m-, o-, and p-isomers: (99-65-0), (528-29-0), and (100-25-4)) — Skin	0.15	1.0			
Dinitro-o-cresol (534-52-1) — Skin		0.2			
3,5-Dinitro-o-toluamide, also known as 2-Methyl-3,5-dinitrobenzamide and Dinitolmide (148-01-6)		1			
Dinitrotoluene (sum of all isomers) (25321-14-6) — Skin		0.2			
1,4-Dioxane (123-91-1) — Skin	20				
Dioxathion, inhalable, vapour and aerosol (78-34-2) — Skin		0.1			
1,3-Dioxolane (646-06-0)	20				
N,N-Diphenylamine (122-39-4)		10			
Dipropylene glycol monomethyl ether (34590-94-8)	100	605	150	910	
Dipropylene glycol monomethyl ether acetate (88917-22-0)	100	776	150	1,164	
Diquat (2764-72-9) — Skin		0.5			
Diquat, respirable (2764-72-9) — Skin		0.1			
Disulfiram (97-77-8)		2			
Disulfoton, inhalable, vapour and aerosol (298-04-4) — Skin		0.05			
Diuron (330-54-1)		10			
m-Divinylbenzene (108-57-6)	10	53			
Dodecyl mercaptan (112-55-0)	0.1				
Emery (total dust) (1302-74-5)		10			
Endosulfan (115-29-7) — Skin		0.1			
Endrin (72-20-8) — Skin		0.1			
Enflurane (13838-16-9)	2	16			
1,2-Epoxy-4-(epoxyethyl)-cyclohexane (106-87-6) — Skin	0.1				
2,3-Epoxy-1-propanol (556-52-5)	2				
Ethane (74-84-0)	1,000				
Ethanethiol (75-08-1)	0.5	1.3			
Ethanol (64-17-5)	1,000	1,900			
Ethion, inhalable, vapour and aerosol (563-12-2) — Skin		0.05			
Ethoxyethane					

(60-29-7)	400	1,210	500	1,515		
2-Ethoxyethanol (EGEE) (110-80-5) — Skin	5	18				
2-Ethoxyethyl acetate (EGEEA) (111-15-9) — Skin	5	27				
Ethyl acetate (141-78-6)	400	1,440				
Ethyl acrylate (140-88-5) — Skin	5		15			
Ethylamine (75-04-7)	5		15			
Ethyl amyl ketone, also known as 5-Methyl-3-heptanone (541-85-5)	10					
Ethylbenzene (100-41-4)	100	435	125	540		
Ethyl bromide (74-96-4)	5					
Ethyl tert-butyl ether (ETBE) (637-92-3)	5					
Ethyl chloride (75-00-3)	100					
Ethyl cyanoacrylate (7085-85-0)	0.2					
Ethyl-3-ethoxy propionate (763-69-9)	50	300				
Ethylene (74-85-1)	200					
Ethylene glycol (107-21-1)						100
Ethylene glycol dimethyl ether (110-71-4) — Skin	5	18				
Ethylene glycol dinitrate (EGDN) (628-96-6) — Skin	0.05	0.31				
Ethylene glycol mono-n-propyl ether (2807-30-9) — Skin	25	110				
Ethylene glycol mononitrate (16051-48-2) — Skin	0.05	0.22				
5-Ethylidene-2-norbornene (16219-75-3)					5	25
Ethylenimine (151-56-4) — Skin	0.5	0.9				
Ethyl formate (109-94-4)	100	300				
2-Ethylhexanoic acid, inhalable, vapour and aerosol (149-57-5)		5				
Ethyl methacrylate (97-63-2)	100	470				
N-Ethylmorpholine (100-74-3) — Skin	5	23				
O-Ethyl O-p-nitrophenyl phenylphosphonothioate (EPN), inhalable (2104-64-5) — Skin		0.1				
Ethyl silicate (78-10-4)	10	85				
Fenamiphos, inhalable, vapour and aerosol (22224-92-6) — Skin		0.05				
Fensulfothion, inhalable, vapour and aerosol (115-90-2) — Skin		0.01				
Fenthion, inhalable, vapour and aerosol (55-38-9) — Skin		0.05				
Ferbam (14484-64-1)		10				

Ferrovandium dust (12604-58-9)		1		3	
Fluorides (as fluoride) (16984-48-8)		2.5			
Fluorine (7782-41-4)	1	1.6	2	3.1	
Fonofos, inhalable, vapour and aerosol (944-22-9) — Skin		0.01			
Forane (26675-46-7)	2	15			
Formaldehyde (50-00-0)			1.0		1.5
Formamide (75-12-7) — Skin	10	15			
Formic acid (64-18-6)	5		10		
Furfural (98-01-1) — Skin	2	8			
Furfuryl alcohol (98-00-0) — Skin	10	40	15	60	
Gallium arsenide, respirable (1303-00-0)		0.0003			
Gasoline (86290-81-5)	300		500		
Germanium tetrahydride (7782-65-2)	0.2	0.63			
Glycerin mist (56-81-5)		10			
Glutaraldehyde (111-30-8), activated and inactivated					0.05
Glyoxal, inhalable, vapour and aerosol (107-22-2)		0.1			
Grain dust (oats, wheat, barley)		4			
Grain dust, not otherwise classified (total dust)		4			
Graphite (all forms except graphite fibres), respirable (7782-42-5)		2			
Hafnium (7440-58-6)		0.5			
Halothane (151-67-7)	2	16			
Heptachlor (76-44-8) and Heptachlor epoxide (1024-57-3) — Skin		0.05			
n-Heptane, also known as Heptane (142-82-5)	400	1,635	500	2,045	
2-Heptanone (110-43-0)	25	115			
3-Heptanone (106-35-4)	50		75		
4-Heptanone (123-19-3)	50	233			
Heptyl acetate (90438-79-2)	50	320			
Hexachlorobenzene (118-74-1) — Skin		0.002			
Hexachloro-1,3-butadiene (87-68-3) — Skin	0.02	0.21			
Hexachlorocyclopentadiene (77-47-4)	0.01	0.11			
Hexachloroethane (67-72-1)	1				
Hexachloronaphthalene (1335-87-1) — Skin		0.2			

Hexafluoroacetone (684-16-2) — Skin	0.1	0.7				
Hexafluoropropylene (116-15-4)	0.1					
Hexahydrophthalic anhydride, All isomers, inhalable, vapour and aerosol (85-42-7; 13149-00-3; 14166-21-3)						0.005
Hexahydro-1,3,5-trinitro-1,3,5-triazine (121-82-4) — Skin		0.5				
Hexamethylenetetramine (HMT) (100-97-0)			0.35	2		
n-Hexane (110-54-3)	50	176				
Hexane, other isomers of	500	1,760	1,000	3,520		
1,6-Hexanediamine (124-09-4)	0.5					
2-Hexanone (591-78-6)	1	4				
1-Hexene (592-41-6)	30					
sec-Hexyl acetate (142-92-7)	50	294				
Hexyl acetate (isomeric mixture) (88230-35-7)	50	294				
Hexylene glycol (107-41-5)					25	120
Hydrazine (302-01-2) — Skin	0.01					
Hydrogenated terphenyls ¹ (61788-32-7)	0.5					
Hydrogen bromide (10035-10-6)					2	
Hydrogen chloride (7647-01-0)					2	
Hydrogen cyanide and Cyanide salts, as CN						
Hydrogen cyanide (74-90-8) — Skin					4.7	
Calcium cyanide (592-01-8) — Skin						5
Potassium cyanide (151-50-8) — Skin						5
Sodium cyanide (143-33-9) — Skin						5
Hydrogen fluoride (as F) (7664-39-3)	0.5				2	
Hydrogen peroxide (7722-84-1)	1	1.4				
Hydrogen selenide (as selenium) (7783-07-5)	0.05	0.16				
Hydrogen sulfide (7783-06-4)	10	14	15	21		
4-Hydroxy-4-methyl-2-pentanone (123-42-2)	50	240	75	360		
2-Hydroxypropyl acrylate (999-61-1) — Skin	0.5	2.7				
Indene (95-13-6)	10	47				
Indium and its compounds (as indium) (7440-74-6)		0.1				
Iodine (7553-56-2)					0.1	1
Iodoform (75-47-8)	0.6	10				

Iron oxide (Fe ₂ O ₃), respirable, including Rouge (1309-37-1)		5			
Iron pentacarbonyl (as iron) (13463-40-6)	0.1	0.8	0.2	1.6	
Iron salts, water-soluble (as iron) (7439-89-6)		1			
Isoamyl alcohol (123-51-3)	100	360	125	450	
Isobutyl acetate (110-19-0)	150	710	187	887	
Isobutyl alcohol (78-83-1)	50	150			
Isobutyl nitrite, inhalable, vapour and aerosol (542-56-3)					1
Isooctyl alcohol (26952-21-6) — Skin		270			
2-Isopropoxyethanol (109-59-1)	25	105			
Isopropanol, also known as Isopropyl alcohol (67-63-0)	200		400		
Isopropyl acetate (108-21-4)	100		200		
Isopropylamine (75-31-0)	5	12	10	24	
Isopropylaminoethanols			400	1,900	
N-Isopropylaniline (768-52-5) — Skin	2	11			
Isosorbide dinitrate (87-33-2) — Skin		0.2			
Kaolin, respirable (1332-58-7)		2(D)			
Kerosene, as total hydrocarbon vapour (8008-20-6; 64742-81-0/Jet fuels) — Skin		200 (G)			
Ketene (463-51-4)	0.5	0.9	1.5	2.6	
L.P.G. (Liquified petroleum gas) (68476-85-7)	1,000				
Lead chromate (7758-97-6), as Cr		0.012			
Lincomycin (154-21-2)		0.1			
Lindane (58-89-9) — Skin		0.5			
Lithium hydride (7580-67-8)		0.025			
Lithium hydroxide, Anhydrous (1310-65-2)				1	
Lithium hydroxide, Monohydrate (1310-66-3)				1	
Magnesite (total dust) (546-93-0)		10(D)			
Magnesium oxide, inhalable (1309-48-4)		10			
Malathion, inhalable, vapour and aerosol (121-75-5) — Skin		1			
Maleic anhydride (108-31-6)	0.1				
Manganese, and inorganic compounds (as manganese) (7439-96-5)		0.2			
Manganese cyclo-pentadienyltricarbonyl (as manganese)					

(12079-65-1) — Skin		0.1			
Manganese tetroxide (as manganese) (1317-35-7) — Skin		1			
Mesityl oxide (141-79-7)	15	60	25	100	
Methacrylic acid (79-41-4)	20	70			
Methane (74-82-8)	1,000				
Methanethiol (74-93-1)	0.5	1			
Methanol (67-56-1) — Skin	200	260	250	325	
Methomyl (16752-77-5)		2.5			
Methoxychlor (72-43-5)		10			
2-Methoxyethanol (EGME) (109-86-4) — Skin	0.1				
2-Methoxyethyl acetate (EGMEA) (110-49-6) — Skin	0.1				
Methoxyflurane (76-38-0)	2	13			
4-Methoxyphenol (150-76-5)		5			
1-Methoxy-2-propanol (PGME) (107-98-2)	100	365	150	550	
Methyl acetate (79-20-9)	200	605	250	755	
Methyl acetylene-propadiene mixture (MAPP)	1,000		1,250		
Methyl acrylate (96-33-3) — Skin	2				
Methylamine (74-89-5)	5		15		
N-Methylbenzenamine (100-61-8) — Skin	0.5	2.2			
Methyl bromide (74-83-9) — Skin	1				
3-Methyl-2-butanone (563-80-4)	200	705			
Methyl tert-butyl ether (MTBE) (1634-04-4)	40				
Methyl chloride (74-87-3)	50	103	100	205	
Methyl 2-cyanoacrylate (137-05-3)	0.2				
Methylcyclohexane (108-87-2)	400	1,600			
2-Methylcyclohexanol (583-59-5)	50	233			
2-Methylcyclohexanone (583-60-8) — Skin	50	230	75	345	
2-Methylcyclopentadienyl-manganese tricarbonyl (as manganese) (12108-13-3) — Skin		0.2			
Methyl demeton, inhalable aerosol and vapour (8022-00-2) — Skin		0.05			
Methylene bis (4-cyclohexyl isocyanate) (5124-30-1)	0.005				
4,4'-Methylene bis (2-chloroaniline) (101-14-4) — Skin	0.0005	0.005			
4,4'-Methylene-dianiline (101-77-9) — Skin		0.04			

((1-Methylethoxy)methyl)-oxirane (4016-14-2)	50	237	75	356		
Methyl ethyl ketone peroxides					0.2	1.5
Methyl formate (107-31-3)	100	245	150	370		
5-Methyl-2-hexanone (110-12-3)	50	233				
Methylhydrazine (60-34-4) — Skin	0.01					
Methyl iodide (74-88-4) — Skin	2	12				
Methyl methacrylate (80-62-6)	50		100			
1-Methyl naphthalene (90-12-0) — Skin	0.5					
2-Methyl naphthalene (91-57-6) — Skin	0.5					
Methyl parathion (298-00-0) — Skin		0.2				
4-Methyl-2-pentanol (108-11-2) — Skin	25	104	40	167		
4-Methyl-2-pentanone (108-10-1)	50	205	75			
2-Methyl-2-propenenitrile (126-98-7) — Skin	1	2.7				
Methyl propyl ketone, also known as 2- Pentanone (107-87-9)			150			
N-Methyl-2-pyrrolidone (872-50-4)		400				
alpha-Methylstyrene (98-83-9)	50	241	100	482		
1-Methyl-2,4,6-trinitrobenzene (118-96-7) — Skin	0.01	0.1	0.02	0.2		
Methyl vinyl ketone (78-94-4) — Skin					0.2	
Metribuzin (21087-64-9)		5				
Mevinphos, inhalable, vapour and aerosol (7786-34-7) — Skin		0.01				
Mica, respirable (12001-26-2)		3(D)				
Mineral Spirits		525				
Molybdenum, as molybdenum (7439-98-7) Metal and insoluble compounds - inhalable - respirable Soluble compounds -respirable		10 3 0.5				
Monochloroacetic acid, inhalable, vapour and aerosol (79-11-8) — Skin	0.5					
Monocrotophos, inhalable, vapour and aerosol (6923-22-4) — Skin		0.05				
Morpholine (110-91-8) — Skin	20	70	30	105		
Naled, inhalable, vapour and aerosol (300-76-5) — Skin		0.1				
Naphthalene (91-20-3)	10	52	15	78		
1-Naphthyl N-methyl-carbamate (63-25-2)		5				
alpha-Naphthylthiourea (86-88-4)		0.3				

Natural gas (8006-14-2)	1,000				
Natural rubber latex, as Total proteins, inhalable (9006-04-6) — Skin		0.001			
Nepheline syenite (total dust) (37244-96-5)		10			
Nickel carbonyl (as nickel) (13463-39-3)	0.05	0.35			
Nickel, elemental/metal, inhalable (7440-02-0)		1			
Nickel, insoluble compounds, as Ni, inhalable (7440-02-0)		0.2			
Nickel, soluble compounds, as Ni, inhalable (7440-02-0)		0.1			
Nickel subsulfide, inhalable, as Ni (12035-72-2)		0.1			
Nicotine (54-11-5) — Skin		0.5			
Nitramine (479-45-8) — Skin		1.5			
Nitric acid (7697-37-2)	2	5	4	10	
Nitric oxide (10102-43-9)	25	31			
p-Nitroaniline (100-01-6) — Skin		3			
Nitrobenzene (98-95-3) — Skin	1	5			
Nitroethane (79-24-3)	100	306			
Nitrogen dioxide (10102-44-0)	3	5.6	5	9.4	
Nitrogen trifluoride (7783-54-2)	10	29			
Nitroglycerine (NG) (55-63-0) — Skin	0.05	0.5			
Nitromethane (75-52-5)	20				
5-Nitro-o-toluidine, inhalable (99-55-8)		1			
1-Nitropropane (108-03-2)	25	90			
2-Nitropropane (79-46-9)	1	35	20	70	
Nitrotoluene (sum of m-, o-, and p- isomers: (99-08-1), (88-72-2), and (99-99-0)) — Skin	2	11			
Nitrous oxide (10024-97-2)	25	45			
Nonane (111-84-2)	200	1,050			
Octachloronaphthalene (2234-13-1) — Skin		0.1		0.3	
Octane (111-65-9)	300	1,400	375	1,750	
Oil, mineral — Mist (8012-95-1)		5		10	
Osmium tetroxide (as osmium) (20816-12-0)	0.0002	0.002	0.0006	0.006	
Oxalic acid (144-62-7)		1		2	
1,1'-Oxybisbenzene					

(101-84-8)	1	7	2	14		
p,p'-Oxybis(benzenesulfonyl hydrazide), inhalable (80-51-3)		0.1				
1,1'-Oxybis(2-chloroethane) (111-44-4) — Skin	5	29	10	58		
Oxybis (chloromethane) (542-88-1)	0.001	0.005				
2,2'-Oxybis(propane) (108-20-3)	250	1,045	310	1,295		
Oxygen difluoride (7783-41-7)					0.05	0.1
Ozone (10028-15-6)	0.1	0.2	0.3	0.6		
Paraffin wax fume (8002-74-2)		2				
Paraquat (1910-42-5)		0.1				
Parathion, inhalable, vapour and aerosol (56-38-2) — Skin		0.05				
Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS)						
- inhalable particulate		10				
- respirable particulate		3				
Penicillin (total dust) (1406-05-9)		0.1				
Pentaborane (19624-22-7)	0.005	0.013	0.015	0.039		
Pentachloronaphthalene (1321-64-8)		0.5				
Pentachloronitrobenzene (82-68-8)		0.5				
Pentachlorophenol (87-86-5) — Skin		0.5				
Pentaerythritol (total dust) (115-77-5)		10				
Pentaerythritol tetrabenzoate (4196-86-5)				2		
Pentane (109-66-0)	600	1,770	750	2,210		
3-Pentanone (96-22-0)	200		300			
Pentyl acetate, All isomers (628-63-7, n-Amyl acetate; 626-38-0, Sec-amyl acetate; 123-92-2, Isoamyl acetate; 625-16-1; 624-41-9; 620-11-1)	50		100			
Perchloryl fluoride (7616-94-6)	3	13	6	25		
Perfluorobutyl ethylene (19430-93-4)	100					
Perfluoroisobutylene (382-21-8)					0.01	
Perlite (a)		10(D)				
Persulfates, ammonium (7727-54-1), sodium (7775-27-1) and potassium persulfates (7727-21-1)		0.1				
Petroleum ether		500				
Petroleum coke (total dust) (64741-79-3)		3.5(A)				
Phenol (108-95-2) — Skin	5	19				
Phenothiazine (92-84-2) — Skin		5				
2-Phenoxyethanol (122-99-6) — Skin	25	141				

(Phenoxymethyl)oxirane, also known as Phenyl glycidyl ether (PGE) — Skin (122-60-1)	0.1				
o-Phenylenediamine (95-54-5)		0.1			
m-Phenylenediamine (108-45-2)		0.1			
p-Phenylenediamine (106-50-3) — Skin		0.1			
Phenylhydrazine (100-63-0) — Skin	0.1				
Phenyl mercaptan, also known as Benzenethiol (108-98-5) — Skin	0.1				
Phenylphosphine (638-21-1)				0.05	0.23
Phorate, inhalable, vapour and aerosol (298-02-2) — Skin		0.05			
Phosphine (7803-51-2)	0.3	0.4	1	1.4	
Phosphoric acid (7664-38-2)		1		3	
Phosphorus (yellow) (12185-10-3)		0.1			
Phosphorus oxychloride (10025-87-3)	0.1	0.6	0.5	3	
Phosphorus pentachloride (10026-13-8)	0.1	0.85			
Phosphorus pentasulfide (1314-80-3)		1		3	
Phosphorus trichloride (7719-12-2)	0.2	1.1	0.5	2.8	
Phthalic anhydride (85-44-9)	1	6			
m-Phthalodinitrile (626-17-5)		5			
Piperazine dihydrochloride (142-64-3)		5			
Platinum metal (7440-06-4)		1			
Platinum, water-soluble compounds of, including chloroplatinates (as platinum) (7440-06-4)		0.002			
Polychlorinated biphenyls (PCBs) ¹		0.05			
Portland cement (total dust) (65997-15-1)		10(D)			
Potassium hydroxide (1310-58-3)					2
Poultry dust (total dust)		5			
Precipitated silica (total dust) (1309-37-1)		10			
Propane (74-98-6)	1,000				
n-Propanol, also known as n-Propyl alcohol (71-23-8)	100				
Propargyl alcohol (107-19-7) — Skin	1	2.3			
((2-Propenyloxy) methyl) oxirane (106-92-3) — Skin	1				
beta-Propiolactone (57-57-8)	0.5	1.5			
Propionaldehyde (123-38-6)	20				
Propionic acid (79-09-4)	10	30			

Propoxur (114-26-1)		0.5				
n-Propyl acetate (109-60-4)	200	830	250	1,040		
Propylene (115-07-1)	500					
Propylene dichloride, also known as 1,2-Dichloropropane (78-87-5)	10					
1,2-Propylene glycol dinitrate (6423-43-4) — Skin	0.05	0.34				
1,2-Propylene glycol, total vapour and aerosol (57-55-6)	50	155				
1,2-Propylene glycol, aerosol only (57-55-6)		10(C)				
Propylene glycol monomethyl ether acetate (108-65-6)	50	270				
Propylene oxide, also known as 1,2-Epoxypropane (75-56-9)	2					
Propylenimine (75-55-8) — Skin	2	4.7				
n-Propyl nitrate (627-13-4)	25	105	40	170		
Propyne (74-99-7)	1,000	1,635	1,250	2,045		
Pyrethrum (8003-34-7)		5				
Pyridine (110-86-1)	1					
Quinone (106-51-4)	0.1	0.44				
Resorcinol (108-46-3)	10	45	20	90		
Rhodium, metal and water-insoluble compounds of (as rhodium) (7440-16-6)		1				
Rhodium, water-soluble compounds of, including chloride, nitrate, and sulfate (as rhodium) (7440-16-6)		0.01				
Ronnel, inhalable, vapour and aerosol (299-84-3)		5				
Rotenone (commercial) (83-79-4)		5				
Rubber solvent ¹		1,600				
Selenium and its compounds except selenium hexafluoride and hydrogen selenide (as selenium) (7782-49-2)		0.2				
Selenium hexafluoride (as selenium) (7783-79-1)	0.025	0.1				
Shellac dust (total dust) (9000-59-3)		10				
Silane (7803-62-5)	5	6.6				
Silica fume, respirable (69012-64-2)		2				
Silica fused, respirable (60676-86-0)		0.1				
Silica gel (112926-00-8)		10				
Silicon (total dust) (7440-21-3)		10				

Silicon carbide (409-21-2) Nonfibrous - inhalable - respirable Fibrous (including whiskers) - respirable	0.1 f/cc (F)	10(D) 3 (D)				
Silver, metal (7440-22-4)		0.1				
Silver, water-soluble compounds of (as silver) (7440-22-4)		0.01				
Sisal dust (total dust)		2				
Soap dust (68918-36-5)		5				
Soapstone, total dust		6(D)				
Soapstone, respirable		3(D)				
Sodium azide (26628-22-8)				0.1		0.26
Sodium bisulfite (7631-90-5)		5				
Sodium fluoroacetate (62-74-8) — Skin		0.05		0.15		
Sodium hydroxide (1310-73-2)						2
Sodium metabisulfite (7681-57-4)		5				
Spectinomycin		2				
Starch (total dust) (9005-25-8)		10				
Stearates (total dust)		10				
Stoddard solvent ¹ (8052-41-3)		525				
140 Degree C Flash Aliphatic Solvent, Type of Stoddard Solvent		525				
Strontium chromate, as Cr (7789-06-2)		0.0005				
Strychnine (57-24-9)		0.15				
Styrene (100-42-5)	35		100			
Sucrose (total dust) (57-50-1)		10				
Subtilisins (proteolytic enzymes as 100% pure crystalline enzyme) (9014-01-1)						0.00006
Sulfometuron methyl (74222-97-2)		5				
Sulfotepp, inhalable, vapour and aerosol, also known as Tetraethyl dithiono- pyrophosphate(TEDP) (3689-24-5) — Skin		0.1				
Sulfur dioxide (7446-09-5)	2	5.2	5	10.4		
Sulfur hexafluoride (2551-62-4)	1,000	5,970				
Sulfuric acid, thoracic (7664-93-9)		0.2				
Sulfur monochloride (10025-67-9)					1	6
Sulfur pentafluoride (5714-22-7)					0.01	0.1
Sulfur tetrafluoride (7783-60-0)					0.1	0.4
Sulfuryl fluoride (2699-79-8)	5	21	10	42		
Sulprofos						

(35400-43-2)		1			
Synthetic Vitreous Fibres (Man made Mineral Fibres)					
- Continuous filament glass fibres, inhalable		5			
- Continuous filament glass fibres	1f/cc(H)				
- Glass wool fibres	1f/cc(H)				
- Refractory ceramic fibres	0.5f/cc(H)				
- Rock wool fibres	1f/cc(H)				
- Slag wool fibres	1f/cc(H)				
- Special purpose glass fibres	1f/cc(H)				
- Synthetic vitreous fibres, not otherwise classified (excluding fibrous glass dust and mineral wool fibre)	1f/cc(E)(H)				
Talc (containing no asbestos fibres), respirable (14807-96-6)		2(D)			
Talc (containing fibres other than those of asbestos and tremolite asbestos)		2f/cc(B)			
Tantalum, metal and oxide (total dust) (7440-25-7)		10			
Tellurium and its compounds except tellurium hexafluoride (as tellurium) (13494-80-9)		0.1			
Tellurium hexafluoride (as tellurium) (7783-80-4)	0.01	0.1			
Temephos, inhalable, vapour and aerosol (3383-96-8) — Skin		1			
Terbufos, inhalable, vapour and aerosol (13071-79-9) — Skin		0.01			
Terephthalic acid (100-21-0)		10			
Terphenyls (sum of o-, m-, and p-isomers) (84-15-1), (92-06-8), (92-94-4)				0.5	4.7
1,1,2,2-Tetrabromoethane, inhalable, vapour and aerosol (79-27-6)	0.1				
1,1,1,2-Tetrachloro-2,2-difluoroethane (76-11-9)	500	4,165			
1,1,2,2-Tetrachloro-1,2-difluoroethane (76-12-0)	500	4,165			
1,1,2,2-Tetrachloroethane (79-34-5) — Skin	1	7			
Tetrachloroethylene (127-18-4)	25		100		
Tetrachloronaphthalene (1335-88-2)		2			
Tetrachlorophthalic anhydride (117-08-8)		0.1			
Tetrachlorophenol (25167-83-3) — Skin		0.5			
Tetraethyl pyrophosphate (TEPP), inhalable aerosol and vapour (107-49-3) — Skin		0.01			
Tetrafluoroethylene (116-14-3)	2				
Tetrahydrofuran (109-99-9) — Skin	50		100		
Tetrakis (hydroxymethyl) phosphonium salts					
- Tetrakis (hydroxymethyl) phosphonium chloride (124-64-1)		2			

- Tetrakis (hydroxymethyl) phosphonium sulphate (55566-30-8)		2				
Tetramethoxysilane (681-84-5)	1	6.2				
Tetramethylsuccino-dinitrile (3333-52-6) — Skin	0.5	2.8				
Tetranitromethane (509-14-8)	0.005					
Tetrasodium pyrophosphate (7722-88-5)		5				
Thallium, water-soluble compounds of (as thallium) (7440-28-0) — Skin		0.1				
4,4'-Thiobis(6-tert-butyl-m-cresol) (96-69-5)		10				
Thioglycolic acid (68-11-1) — Skin	1	3.8				
Thionyl chloride (7719-09-7)					1	5
Tin, metal, oxide and inorganic compounds of, except stannane (as tin) (7440-31-5)		2				
Tin, organic compounds of (as tin) (7440-31-5) — Skin		0.1				
Titanium dioxide (total dust) (13463-67-7)		10				
Toluene, also known as Methylbenzene (108-88-3)	20					
Toluidine (sum of o-, m- and p-isomers: (95-53-4), (108-44-1), and (108-49-0)) — Skin	2	9				
Toxaphene ¹ (8001-35-2) — Skin		0.5		1		
Tributyl phosphate (126-73-8)	0.2	2.2				
Trichloroacetic acid (76-03-9)	1	6.7				
1,2,4-Trichlorobenzene (120-82-1)					5	37
1,1,1-Trichloro-2,2-bis-(p-chlorophenyl)ethane (50-29-3)		1				
1,1,1-Trichloroethane (71-55-6)	350	1,910	450	2,455		
1,1,2-Trichloroethane (79-00-5) — Skin	10	55				
Trichloroethylene (79-01-6)	10		25			
Trichlorofluoromethane (75-69-4)					1,000	5,600
Trichloromethane (67-66-3)	10	49				
Trichloromethanesulfonyl chloride (594-42-3)	0.1	0.8				
Trichloronaphthalene (1321-65-9) — Skin		5				
Trichloronitromethane (76-06-2)	0.1	0.67	0.3	2		
(2,4,5-Trichlorophenoxy) acetic acid and esters of (as 2,4,5-T) (93-76-5)		10				
1,2,3-Trichloropropane (96-18-4) — Skin	10	60				
1,1,2-Trichloro-1,2,2-trifluoroethane (76-13-1)	1,000	7,650	1,250	9,560		

Trichlorphon, inhalable (52-68-6)		1				
Tri-ortho-cresyl phosphate (78-30-8) — Skin		0.1				
Triethanolamine (102-71-6)	0.5	3.1				
Triethylamine (121-44-8)	1		3			
Triethylenediamine (280-57-9) — Skin	1	4.6				
Triethylenetetramine (112-24-3) — Skin	0.5	3				
1,3,5-Triglycidyl-s-triazinetrione (2451-62-9)		0.05				
3,5,5-Trimethyl-2-cyclohexen-1-one (78-59-1)					5	28
Trimellitic anhydride (552-30-7)						0.04
Trimethoxyvinylsilane (2768-02-7)			10	60		
Trimethylamine (75-50-3)	5		15			
Trimethylbenzene (sum of isomers) (25551-13-7)	25	123				
Trimethyl phosphite (121-45-9)	2	10				
2,4,6-Trinitrophenol (88-89-1) — Skin		0.1		0.3		
Triphenyl amine (603-34-9)		5				
Triphenyl phosphate (115-86-6)		3				
Trixylylphosphate (25155-23-1)		0.1				
Tungsten, water-insoluble compounds of (as tungsten) (7440-33-7)		5		10		
Tungsten, water-soluble compounds of, including tungstic acids, phosphotungstic acids and their salts (as tungsten) (7440-33-7)		1		3		
Turpentine and selected monoterpenes (8006-64-2; 80-56-8; 127-91-3; 13466- 78-9)	20					
Uranium (natural) and its compounds (as uranium) (7440-61-1)		0.2		0.6		
V.M.& P. Naphtha ¹ (8030-30-6)		1,350				
n-Valeraldehyde (110-62-3)	50	175				
Vanadium respirable dust and fume (as vanadium pentoxide) (1314-62-1)		0.05				
Vegetable oils (mists) except mists of irritant oils such as oils of castor and cashew nut		10				
Vinyl acetate (108-05-4)	10		15			
Vinyl bromide (593-60-2)	0.5					
4-Vinyl cyclohexene (100-40-3)	0.1					
Vinyl fluoride (75-02-5)	1					
Vinylidene fluoride						

(75-38-7)	500				
N-Vinyl-2-pyrrolidone (88-12-0)	0.05				
Vinyltoluene (mixture of m- and p- isomers) (25013-15-4)	50	241	100	482	
Warfarin (81-81-2)		0.1			
Welding fume, not otherwise specified					
Aluminum-containing (as Aluminum) (7429-90-5)		5			
Iron-containing (as iron) (7439-89-6)		5			
Other, not otherwise classified (total weight, oil free)		5			
Wheat flour dust (total dust)		3			
Wood dust					
- certain hardwoods as beech and oak		1			
- softwood		5		10	
m-Xylene-alpha, alpha'-diamine (1477-55-0) — Skin					0.1
Yttrium, metal and compounds (as yttrium) (7440-65-5)		1			
Zinc chloride fume (7646-85-7)		1		2	
Zinc chromates, (13530-65-9;11103-86-9;37300-23-5) as Cr		0.01			
Zinc oxide, respirable (1314-13-2)		2		10	
Zirconium compounds (as zirconium) (7440-67-7)		5		10	

Footnotes

- (A) Provided that the total dust contains less than 0.7% vanadium.
- (B) Provided that the respirable dust concentration does not exceed 2 mg/m³.
- (C) For assessing the visibility in a work environment where 1,2-propylene glycol aerosol is present.
- (D) The value is for particulate matter containing no asbestos and less than 1% crystalline silica.
- (E) A secondary limit of 5 mg/m³ (total dust) is recommended to deal with dusty operations where fibre counts are usually difficult to determine. Where both types of measurements are made simultaneously, the more restrictive limit should be used to assess the exposures.
- (F) As measured by the vertical elutriator, cotton-dust sampler.
- (G) Application of limit restricted to conditions in which there are negligible aerosol exposures.
- (H) Respirable fibres: length greater than 5 microns; aspect ratio greater than or equal to 3:1 as determined by the membrane filter method at 400-450 times magnification (4 mm objective), using phase-contrast illumination.

¹ As sum of components assayed by chromatographic procedure with reference to the bulk sample.

O. Reg. 16/05, s. 1 (1-3); O. Reg. 77/05, s. 1; O. Reg. 177/05, s. 1; O. Reg. 607/05, s. 5; O. Reg. 83/07; O. Reg. 248/08, s. 1.

PART 5 REVOKED: O. Reg. 388/00, s. 7.

PART 6 REVOKED: O. Reg. 388/00, s. 7.

PART 7 REVOKED: O. Reg. 388/00, s. 7.

PART 8 REVOKED: O. Reg. 388/00, s. 7.

**PART 9
EXPOSURE VALUES FOR SIMPLE ASPHYXIANTS**

The agents listed below are examples of simple asphyxiants which have not been assigned any definite exposure values. These agents cause asphyxiation by diluting the atmospheric oxygen level below that required to maintain normal respiratory function. If any of the listed gases and vapours is present in the air, the minimal oxygen content should not be less than 18 per cent by volume at any time. A number of the simple asphyxiants can form explosive mixtures in air; therefore, the explosive hazard should be considered when limiting the airborne concentration of these asphyxiants.

Agent	(CAS Reg. No.)
Acetylene	(74-86-2)
Argon	(7440-37-1)
Helium	(7440-59-7)
Hydrogen	(1333-74-0)
Neon	(7440-01-9)
Nitrogen	(7727-37-9)

R.R.O. 1990, Reg. 833, Sched., Part 9; O. Reg. 16/05, s. 1 (4); O. Reg. 607/05, s. 6; O. Reg. 83/07, s. 2.

**PART 10
KNOWN TOXIC AGENTS FOR WHICH EXPOSURE VALUES HAVE NOT BEEN ESTABLISHED, AND TO WHICH
ANY EXPOSURE SHOULD BE AVOIDED**

Agent	(CAS Reg. No.)
Benzidine — Skin	(92-87-5)
Benzo(a)pyrene	(50-32-8)
(1,1'-Biphenyl)-4-amine — Skin	(92-67-1)
Chloromethyl methyl ether	(107-30-2)
Chrysene	(218-01-9)
1,2-Dibromoethane — Skin	(106-93-4)
3,3' Dichlorobenzidine — Skin	(91-94-1)
3,3'-Dimethyl-(1,1'-biphenyl)-4,4'-diamine — Skin	(119-93-7)
Hexamethylphosphoric triamide — Skin	(680-31-9)
beta-Naphthylamine	(91-59-8)
4-Nitrobiphenyl	(92-93-3)
N-Nitrosamines — Skin (e.g. N-Nitrosodimethylamine)	
1,2-Oxathiolane 2,2-dioxide	(1120-71-4)
N-Phenyl-beta-naphthylamine	(135-88-6)
Rosin core solder pyrolysis products (as formaldehyde)	

R.R.O. 1990, Reg. 833, Sched., Part 10; O. Reg. 100/04, s. 6; O. Reg. 607/05, s. 7; O. Reg. 248/08, s. 2.

**PART 11
EXPOSURE VALUES* FOR ACRYLONITRILE, BENZENE AND MERCURY**

Agent (CAS Reg. No.)	TWA EV		STEV		CEV	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Acrylonitrile (107-13-1) — Skin	2	4.3				
Benzene (71-43-2)	0.5		2.5			
Mercury						
- All forms of except alkyl (as mercury) (7439-97-6) — Skin		0.025				
- Alkyl compounds of (as mercury) (7439-97-6) — Skin		0.01		0.03		

* The values listed in this part apply to workplaces to which the designated substance regulation does not apply.

O. Reg. 100/04, s. 7; O. Reg. 16/05, s. 1 (5).

R.R.O. 1990, Reg. 833, Sched.; O. Reg. 597/94, ss. 1, 2; O. Reg. 388/00, ss. 1-9; O. Reg. 100/04, ss. 2-7; O. Reg. 16/05, s. 1; O. Reg. 607/05, ss. 4, 5 (1, 2, 3, 6), 6, 7; O. Reg. 248/08, ss. 1, 2.

Note: On July 1, 2010, the Schedule to the Regulation is revoked. See: O. Reg. 491/09, ss. 8, 10.

Note: On July 1, 2010, the Regulation is amended by adding the following Schedule:

SCHEDULE 1

AIRBORNE MEASUREMENT AND CALCULATION OF EXPOSURE

1. Airborne concentrations of a biological or chemical agent are expressed as,
 - (a) parts of the agent per million parts of air by volume (ppm);
 - (b) milligrams of the agent per cubic metre of air (mg/m³); or
 - (c) fibres per cubic centimetre of air (f/cc).
2. Air sampling of the airborne concentrations of the biological or chemical agent is not required for the full period of a work day or a work week if the air sampling is representative of airborne concentrations of the agent likely to be present during the full period.
3. The method of air sampling, the number and volume of the samples and the method of analysis of the samples shall be determined,
 - (a) according to the nature of the operations or processes and the characteristics of the biological or chemical agent; and
 - (b) in accordance with recognized industrial hygiene practice.
4. In determining exposure to airborne concentrations of the biological or chemical agent, no regard shall be had to the wearing or use of personal protective equipment.
5. The time-weighted average exposure to an airborne biological or chemical agent in a work day or work week shall be calculated as follows:
 1. The cumulative daily or weekly exposure shall be calculated using the following formula:

$$C_1T_1 + C_2T_2 + \dots + C_nT_n$$

where,

C_1 is the concentration found in an air sample, and

T_1 is the total time in hours to which the worker is taken to be exposed to concentration C_1 in a work day or a work week.

2. The time-weighted average exposure shall be calculated by dividing the cumulative daily exposure by eight and the cumulative weekly exposure by 40 respectively.
6. Short-term exposures to the biological or chemical agent in any 15-minute period are determined from a single sample or from a time-weighted average of sequential samples taken during that period.
7. For mixtures of airborne chemical agents that exert an additive health effect, if analytical results of individual airborne agents are available, the following formula shall be used, subject to section 8 of this Schedule:

$$\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} = E$$

where,

C_1, C_2, \dots, C_n are the concentrations of the individual agents found in the air sample,

L_1, L_2, \dots, L_n are the respective exposure limits for the agents determined in accordance with the rules set out in section 4 of the Regulation,

and the sum of these ratios, E , shall not exceed 1.

8. If the agents in a mixture of airborne chemical agents have substantially different health effects,
 - i. section 7 of this Schedule does not apply, and
 - ii. exposure to each agent shall be calculated independently.

O. Reg. 491/09, s. 9.

See: O. Reg. 491/09, ss. 9, 10.

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