

[Français](#)

Occupational Health and Safety Act

R.R.O. 1990, REGULATION 833

CONTROL OF EXPOSURE TO BIOLOGICAL OR CHEMICAL AGENTS

Consolidation Period: From January 1, 2013 to the [e-Laws currency date](#).

Last amendment: O. Reg. 149/12.

This is the English version of a bilingual regulation.

1. In this Regulation,

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

“ACGIH Table” means the table entitled “Adopted Values” shown at pages 10 to 61 of the publication entitled *2011 Threshold Limit Values and Biological Exposure Indices* published by ACGIH and identified by International Standard Book Number 978-1-607260-28-8; (“tableau de l’ACGIH”)

“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; (“C”, “valeur C”, “valeur plafond”)

“chemical agent” includes a chemical substance; (“agent chimique”)

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

“Ontario Table” means Table 1 to this Regulation; (“tableau de l’Ontario”)

“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; (“LECT”, “limite d’exposition à court terme”)

“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. (“LMPT”, “limite moyenne pondérée dans le temps”) O. Reg. 491/09, s. 1; O. Reg. 149/12, s. 1.

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.

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 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.

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.

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. 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.

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.

8. (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.

(2), (3) Revoked: O. Reg. 491/09, s. 6.

(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).

TABLE / TABLEAU 1

ONTARIO TABLE OF OCCUPATIONAL EXPOSURE LIMITS / TABLEAU DE L’ONTARIO : LIMITES D’EXPOSITION PROFESSIONNELLE

Agent / Agent [CAS No. / numéro CAS]	Time-Weighted Average Limit (TWA), Short-Term Exposure Limit (STEL), Ceiling Limit (C) and Notations / Limite moyenne pondérée dans le temps (LMPT), limite d'exposition à court terme (LECT), valeur plafond (C) et notations		
	TWA / LMPT	STEL / C	Notations /
		LECT / C	Notations
*Acrylonitrile / Acrylonitrile [107-13-1]	2 ppm	C 10 ppm	Skin / Peau

Aliphatic hydrocarbon gases / <i>Hydrocarbures aliphatiques gazeux</i>			
Alkane [C ₁ -C ₄], except Butane, All isomers / <i>Alcane [C₁-C₄], sauf le butane, tous les isomères</i>	1,000 ppm		
Butane, All isomers / <i>Butane, tous les isomères</i> [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. / <i>Arsenic, arsenic élémentaire et composés inorganiques [7440-38-2], et composés organiques (seulement lorsque les composés inorganiques et organiques sont tous les deux présents), en As</i>	0.01 mg/m ³	0.05 mg/m ³	
*Asbestos – All forms / <i>Amiante – Toutes les formes</i> [1332-21-4]	0.1 f/cc (F)		
Actinolite / <i>Actinolite</i> [77536-66-4]	0.1 f/cc (F)		
Amosite / <i>Amosite</i> [12172-73-5]	0.1 f/cc (F)		
Anthophyllite / <i>Anthophyllite</i> [77536-67-5]	0.1 f/cc (F)		
Chrysotile / <i>Chrysotile</i> [132207-32-0]	0.1 f/cc (F)		
Crocidolite / <i>Crocidolite</i> [12001-28-4]	0.1 f/cc (F)		
Tremolite / <i>Trémolite</i> [77536-68-6]	0.1 f/cc (F)		
Benzaldehyde / <i>Benzaldéhyde</i> [100-52-7]		4 ppm	
		17 mg/m ³	
*Benzene / <i>Benzène</i> [71-43-2]	0.5 ppm	2.5 ppm	Skin / <i>Peau</i>
Beryllium and compounds, as Be / <i>Béryllium et composés, en Be</i> [7440-41-7]	0.002 mg/m ³	0.01 mg/m ³	
Calcium chloride / <i>Chlorure de calcium</i> [10043-52-4]	5 mg/m ³		
Carbon tetrachloride / <i>Carbone, tétrachlorure de</i> [56-23-5]	2 ppm	3 ppm	Skin / <i>Peau</i>
Charcoal, except activated / <i>Charbon de bois, sauf charbon actif</i> [16291-96-6]	10 mg/m ³		
Chlorinated diphenyl oxides / <i>Oxyde de diphenyle chloré</i> [55720-99-5]	0.5 mg/m ³	2 mg/m ³	
o-Chlorobenzaldehyde / <i>Chloro-2 benzaldéhyde</i> [89-98-5]		4 ppm	
		23 mg/m ³	
Chlorodiphenyl (42% chlorine) / <i>Biphényles polychlorés (42 % chlore)</i> [53469-21-9]	See listing for Polychlorinated Biphenyls (PCBs) / <i>Voir l'inscription «Biphényles polychlorés (BPC)»</i>		
Chlorodiphenyl (54% chlorine) / <i>Biphényles polychlorés (54 % chlore)</i> [11097-69-1]			
N-Cocomorpholine / <i>N-Cocomorpholine</i> [1541-81-7]	5 ppm		Skin / <i>Peau</i>
	52 mg/m ³		
*Coke Oven Emissions ¹ / <i>Fumées de four à coke</i> ¹	0.15 mg/m ³		
Coumarone-Indene Resins (total dust) / <i>Résines de coumarone et d'indène (poussières totales)</i> [63393-89-5]	5 mg/m ³		
Cymene (sum of o-, m- and p-isomers) / <i>Cymène (somme des isomères o, m et p)</i> [25155-15-1]	50 ppm		Skin / <i>Peau</i>
	274 mg/m ³		
Diatomaceous earth (uncalcined) / <i>Silice amorphe, terre diatomée (non calcinée)</i> [61790-53-2]	10 mg/m ³ (I) (E)		
	3 mg/m ³ (R) (E)		
1,3-Dichloro-2-Propanol / <i>Dichloro-1,3 propanol-2</i> [96-23-1]		1 ppm	Skin / <i>Peau</i>
		5 mg/m ³	
Diethylene glycol monoethyl ether / <i>Éther monoéthylrique du diéthylène glycol</i> [111- 90-0]	30 ppm		
	165 mg/m ³		
Di(2-ethylhexyl)phthalate (DEHP) / <i>Phtalate de dioctyle secondaire (DEHP)</i> [117-81-7]	3 mg/m ³	5 mg/m ³	
Diisodecyl phthalate / <i>Phtalate de diisodécyle</i> [26761-40-0]	5 mg/m ³		
3-(Dimethylamino) propylamine / <i>gamma-Diméthylaminopropylamine</i> [109-55-7]	0.5 ppm		Skin / <i>Peau</i>
	2 mg/m ³		
N, N-Dimethyl-cyclohexylamine / <i>N,N-Diméthyl-N-cyclohexylamine</i> [98-94-2]		5 ppm	
		26 mg/m ³	
N, N-Dimethyl-ethanolamine / <i>Diméthyléthanolamine</i> [108-01-0]	3 ppm	6 ppm	
	11 mg/m ³	22 mg/m ³	
Dimethyl terephthalate / <i>Téréphtalate de diméthyle</i> [120-61-6]	5 mg/m ³		

Dimethyl 2,3,5,6-tetrachloroterephthalate / <i>Chlorthal-diméthyl</i> [1861-32-1]	5 mg/m ³		
Dipropylene glycol monomethyl ether acetate / <i>Méthoxy-2 méthyléthoxyacétate de propyle</i> [88917-22-0]	100 ppm 776 mg/m ³	150 ppm 1,164 mg/m ³	
Diquat / <i>Diquat</i> [2764-72-9; 85-00-7; 6385-62-2]	0.5 mg/m ³		Skin / <i>Peau</i>
	0.1 mg/m ³ (R)		
Enflurane / <i>Enflurane</i> [13838-16-9]	2 ppm		
	16 mg/m ³		
Ethyl-3-ethoxy propionate / <i>Éthoxy-3 propionate d'éthyle</i> [763-69-9]	50 ppm 300 mg/m ³		
Ethylene dibromide / <i>Dibromo-1,2 éthane</i> [106-93-4]	(L)		Skin / <i>Peau</i>
Ethylene glycol dimethyl ether / <i>Éther diméthylque de l'éthylène glycol</i> [110-71-4]	5 ppm 18 mg/m ³		Skin / <i>Peau</i>
Ethylene glycol mono-n-propyl ether / <i>Éther monopropylique de l'éthylène glycol</i> [2807-30-9]	25 ppm 110 mg/m ³		Skin / <i>Peau</i>
Ethylene glycol mononitrate / <i>Mononitrate d'éthylène glycol</i> [16051-48-2]	0.05 ppm 0.22 mg/m ³		Skin / <i>Peau</i>
*Ethylene oxide / <i>Oxyde d'éthylène</i> [75-21-8]	1 ppm 1.8 mg/m ³	10 ppm 18 mg/m ³	
Ethyl methacrylate / <i>Méthacrylate d'éthyle</i> [97-63-2]	100 ppm 470 mg/m ³		
Flour dust / <i>Poussières de farine</i>	See listing for Wheat Flour Dust (total dust) / <i>Voir l'inscription «Poussières de farine de blé (poussières totales)»</i>		
Forane / <i>Forane</i> [26675-46-7]	2 ppm 15 mg/m ³		
Formaldehyde / <i>Formaldéhyde</i> [50-00-0]		STEL / <i>LECT</i> 1 ppm C 1.5 ppm	
Halothane / <i>Halothane</i> [151-67-7]	2 ppm 16 mg/m ³		
Heptyl acetate / <i>Acétate d'heptyle</i> [112-06-1]	50 ppm 320 mg/m ³		
Hexamethylenetetramine (HMT) / <i>Hexaméthylène tétramine (HMT)</i> [100-97-0]		0.35 ppm 2 mg/m ³	
Hexamethyl phosphoramidate / <i>Hexaméthylphosphoramidate</i> [680-31-9]	(L)		Skin / <i>Peau</i>
Hexyl acetate (isomeric mixture) / <i>Acétate d'hexanol (mélange isomérique)</i> [88230-35-7]	50 ppm 294 mg/m ³		
Hydrogen sulfide / <i>Sulfure d'hydrogène</i> [7783-06-4]	10 ppm	15 ppm	
Hydrogenated terphenyls ² / <i>Terphényles hydrogénés²</i> [61788-32-7]	0.5 ppm		
*Isocyanates, organic compounds / <i>Isocyanates, composés organiques</i>			
Toluene diisocyanate (TDI) / <i>Diisocyanate de toluène (TDI)</i> [584-84-9] [91-08-7]	0.005 ppm	C 0.02 ppm	
Methylene bisphenyl isocyanate (MDI) / <i>Diisocyanate-4,4' de diphénylméthane (MDI)</i> [101-68-8]	0.005 ppm	C 0.02 ppm	
Hexamethylene diisocyanate (HDI) / <i>Diisocyanate d'hexaméthylène (HDI)</i> [822-06-0]	0.005 ppm	C 0.02 ppm	
Isophorone diisocyanate (IPDI) / <i>Diisocyanate d'isophorone (IPDI)</i> [4098-71-9]	0.005 ppm	C 0.02 ppm	
Methylene bis (4-cyclohexylisocyanate) / <i>Diisocyanate-4,4' de dicyclohexylméthane</i> [5124-30-1]	0.005 ppm	C 0.02 ppm	
Methyl Isocyanate / <i>Isocyanate de méthyle</i> [624-83-9]	0.02 ppm		Skin / <i>Peau</i>
Isopropylaminoethanols / <i>Isopropylaminoéthanols</i> [109-56-8] [121-93-7]		400 ppm 1,900 mg/m ³	

Isosorbide dinitrate / <i>Dinitrate d'isosorbide</i> [87-33-2]	0.2 mg/m ³		Skin / <i>Peau</i>
* Lead [7439-92-1], elemental lead, inorganic and organic compounds of lead, as Pb / <i>Plomb [7439-92-1], plomb élémentaire, composés inorganiques et organiques du plomb, en Pb</i>			
Elemental lead, inorganic and organic compounds of lead, as Pb except tetraethyl lead / <i>Plomb élémentaire, composés inorganiques et organiques du plomb, en Pb, sauf le plomb tétraéthyle</i> [78-00-2]	0.05 mg/m ³		Skin (organic compounds) / <i>Peau (composés organiques)</i>
Tetraethyl lead, as Pb / <i>Plomb tétraéthyle, en Pb</i> [78-00-2]	0.10 mg/m ³	0.30 mg/m ³	
* Lead chromate / <i>Chromate de plomb</i> [7758-97-6]			
as Pb (see listing for lead) / <i>en Pb (voir l'inscription «plomb»)</i> [7439-92-1]	0.05 mg/m ³		
as Cr / <i>en Cr</i>	0.012 mg/m ³		
Lincomycin / <i>Lincomycine</i> [154-21-2]	0.1 mg/m ³		
Lithium hydroxide / <i>Hydroxyde de lithium</i>			
Anhydrous / <i>anhydre</i> [1310-65-2]		1 mg/m ³	
Monohydrate / <i>monohydraté</i> [1310-66-3]		1 mg/m ³	
Magnesite (total dust) / <i>Magnésite (poussières totales)</i> [546-93-0]	10 mg/m ³ (E)		
*Mercury [7439-97-6], elemental mercury, inorganic and organic compounds of mercury, as Hg / <i>Mercury [7439-97-6], mercure élémentaire, composés inorganiques et organiques du mercure, en Hg</i>			
All forms of except alkyl, as Hg / <i>Toutes les formes de mercure, sauf les composés alkylés, en Hg</i>	0.025 mg/m ³		Skin / <i>Peau</i>
Alkyl compounds of, as Hg / <i>Composés alkylés du mercure, en Hg</i>	0.01 mg/m ³	0.03 mg/m ³	Skin / <i>Peau</i>
Methoxyflurane / <i>Méthoxyflurane</i> [76-38-0]	2 ppm		
	13 mg/m ³		
Methyl n-amyl ketone / <i>Méthyl n-amyl cétone</i> [110-43-0]	25 ppm		
	115 mg/m ³		
Methyl tert-butyl ether (MTBE) / <i>Éther de méthyle et de butyle tertiaire (MTBE)</i> [1634-04-4]	40 ppm		
Methyl n-butyl ketone / <i>Méthyl n-butyl cétone</i> [591-78-6]	1 ppm		Skin / <i>Peau</i>
	4 mg/m ³		
4,4'-Methylene bis(2-chloroaniline) (MBOCA; MOCA®) / <i>Dichloro-3,3'diamino-4,4'diphénylméthane (MBOCA; MOCA®)</i>	0.0005 ppm		Skin / <i>Peau</i>
[101-14-4]	0.005 mg/m ³		
4,4'-Methylene dianiline / <i>Diamino-4,4' diphénylméthane</i> [101-77-9]	0.04 mg/m ³		Skin / <i>Peau</i>
N-Methyl-2-pyrrolidone / <i>N-Méthyl 2-pyrrolidone</i> [872-50-4]	400 mg/m ³		
Mineral Spirits / <i>Essences minérales</i>	525 mg/m ³		
Nepheline syenite (total dust) / <i>Syénite néphélinique (poussières totales)</i> [37244-96-5]	10 mg/m ³		
Nickel / <i>Nickel</i>			
Elemental/metal / <i>Nickel élémentaire/métal</i> [7440-02-0]	1 mg/m ³ (I)		
Insoluble compounds, as Ni / <i>Composés insolubles, en Ni</i> [7440-02-0]	0.2 mg/m ³ (I)		
Soluble compounds, as Ni / <i>Composés solubles, en Ni</i> [7440-02-0]	0.1 mg/m ³ (I)		
Nickel subsulfide, as Ni / <i>Sous-sulfure de nickel, en Ni</i> [12035-72-2]	0.1 mg/m ³ (I)		
N-Nitrosamines, including n-Nitrosodimethylamine / <i>Nitrosoamines, notamment N-nitrosodiméthylamine</i> [62-75-9]	(L)		Skin / <i>Peau</i>
Nitrous oxide / <i>Azote, protoxyde d'</i> [10024-97-2]	25 ppm		
	45 mg/m ³		
Ozone / <i>Ozone</i> [10028-15-6]	0.1 ppm	0.3 ppm	
	0.2 mg/m ³	0.6 mg/m ³	
Paraquat / <i>Paraquat</i> [4685-14-7]			

	0.1 mg/m ³		
Particles (Insoluble or Poorly Soluble) Not Otherwise	10 mg/m ³ (I)		
Specified (PNOS) / <i>Particules (insolubles ou peu solubles) non précisées par ailleurs</i>	3 mg/m ³ (R)		
Penicillin (total dust) / <i>Pénicilline (poussières totales)</i>	0.1 mg/m ³		
[1406-05-9]			
Pentaerythritol tetrabenzoate / <i>Tétrabenzate de pentaérythritol</i> [4196-86-5]		2 mg/m ³	
Perlite / <i>Perlite</i>	10 mg/m ³ (E)		
Petroleum coke (total dust) / <i>Coke de pétrole (poussières totales)</i> [64741-79-3]	3.5 mg/m ³ (a)		
2-Phenoxy ethanol / <i>Phénoxyéthanol</i> [122-99-6]	25 ppm		Skin / <i>Peau</i>
	141 mg/m ³		
Platinum / <i>Platine</i> [7440-06-4]			
Metal / <i>Métal</i>	1 mg/m ³		
Water-soluble compounds of, including chloroplatinates (as Pt) / <i>Composés hydrosolubles de, y compris chloroplatinate (en P t)</i>	0.002 mg/m ³		
Polychlorinated biphenyls (PCBs) ² / <i>Biphényles polychlorés (BPC)²</i>	0.05 mg/m ³		
Poultry dust (total dust) / <i>Poussières de volaille (poussières totales)</i>	5 mg/m ³		
Precipitated silica (total dust) / <i>Silice amorphe, précipité (poussières totales)</i> [1343-98-2]	10 mg/m ³		
1,2-Propylene glycol / <i>1,2-Propylène glycol</i> [57-55-6]	50 ppm (V)		
	155 mg/m ³ (V)		
	10 mg/m ³ (H)(b)		
Propylene glycol monomethyl ether acetate / <i>Acétate de l'éther monométhyle du propylène glycol</i> [108-65-6]	50 ppm		
	270 mg/m ³		
Selenium hexafluoride, as Se / <i>Sélénium, hexafluorure de, en Se</i> [7783-79-1]	0.025 ppm		
	0.1 mg/m ³		
Shellac dust (total dust) / <i>Poussières de shellac (poussières totales)</i> [9000-59-3]	10 mg/m ³		
* Silica, Crystalline / <i>Silice cristalline</i>			
Quartz/Tripoli / <i>Quartz ou tripoli</i> [14808-60-7; 1317-95-9]	0.10 mg/m ³ (R)		
Cristobalite / <i>Cristobalite</i> [14464-46-1]	0.05 mg/m ³ (R)		
Silica fume / <i>Silice amorphe, fumées de</i> [69012-64-2]	2 mg/m ³ (R)		
Silica fused / <i>Silice amorphe, fondue</i> [60676-86-0]	0.1 mg/m ³ (R)		
Silica gel / <i>Silice amorphe, gel</i> [112926-00-8]	10 mg/m ³		
Silicon (total dust) / <i>Silicium (poussières totales)</i> [7440-21-3]	10 mg/m ³		
Silicon carbide / <i>Silicium, carbure de</i> [409-21-2]			
Non-fibrous / <i>non fibreux</i>	10 mg/m ³ (I) (E)		
	3 mg/m ³ (R)(E)		
Fibrous (including whiskers) / <i>fibreux (y compris les trichites)</i>	0.1 f/cc (R)(F)		
Sisal dust (total dust) / <i>Poussières de sisal (poussières totales)</i>	2 mg/m ³		
Soap dust / <i>Poussières de savon</i> [68918-36-5]	5 mg/m ³		
Spectinomycin / <i>Spectinomycine</i> [1695-77-8]	2 mg/m ³		
140 °F Flash Aliphatic Solvent, Type of Stoddard	525 mg/m ³		
Solvent / <i>Solvant aliphatique à point d'éclair de 140 degrés F, type de solvant Stoddard</i>			
Styrene - monomer / <i>Styrène (monomère)</i> [100-42-5]	35 ppm	100 ppm	
Sulfur dioxide / <i>Soufre, dioxyde de</i> [7446-09-5]	2 ppm	5 ppm	
	5.2 mg/m ³	10.4 mg/m ³	
Synthetic Vitreous Fibres (Man Made Mineral Fibres) / <i>Fibres vitreuses synthétiques (fibres minérales synthétiques)</i>			

Continuous filament glass fibres / <i>Fibres de verre en filament continu</i>	5 mg/m ³ (I)		
Continuous filament glass fibres / <i>Fibres de verre en filament continu</i>	1 f/cc (F)		
Glass wool fibres / <i>Fibres de laine de verre</i>	1 f/cc (F)		
Refractory ceramic fibres / <i>Fibres de céramique réfractaire</i>	0.5 f/cc (F)		
Rock wool fibres / <i>Fibres de laine de roche</i>	1 f/cc (F)		
Slag wool fibres / <i>Fibres de laine de laitier</i>	1 f/cc (F)		
Special purpose glass fibres / <i>Fibres de verre à usage spécial</i>	1 f/cc (F)		
Synthetic Vitreous Fibres, not otherwise classified (excluding fibrous glass dust and mineral wool fibre) / <i>Fibres vitreuses synthétiques, non classifiées par ailleurs (sauf les poussières de laine de verre et les fibres de laine minérale)</i>	1 f/cc (F)(c)		
Talc / <i>Talc</i> [14807-96-6], containing no asbestos / <i>sans amiante</i>	2 mg/m ³ (R)(E)		
	2 f/cc (K)		
Tellurium hexafluoride, as Te / <i>Tellure, hexafluorure de, en Te</i> [7783-80-4]	0.01 ppm		
	0.1 mg/m ³		
Tetrachlorophthalic anhydride / <i>Anhydride tétrachlorophthalique</i> [117-08-8]	0.1 mg/m ³		
Tetrachlorophenol / <i>Tétrachlorophénol</i> [25167-83-3]	0.5 mg/m ³		Skin / <i>Peau</i>
Tetrasodium pyrophosphate / <i>Pyrophosphate de tétrasodium</i> [7722-88-5]	5 mg/m ³		
Tin, as Sn / <i>Étain, en Sn</i> [7440-31-5]			
Metal / <i>Métal</i>	2 mg/m ³		
Oxide and inorganic compounds, as Sn, except tin hydride / <i>Oxyde et composés inorganiques, en Sn, sauf hydrure d'étain</i>	2 mg/m ³		
Organic compounds, as Sn / <i>Composés organiques, en Sn</i>	0.1 mg/m ³		Skin (organic compounds) / <i>Peau (composés organiques)</i>
o-Tolidine / <i>o-Tolidine</i> [119-93-7]	(L)		Skin / <i>Peau</i>
Triethanolamine / <i>Triéthanolamine</i> [102-71-6]	0.5 ppm		
	3.1 mg/m ³		
Triethylenediamine / <i>Triéthylènediamine</i> [280-57-9]	1 ppm		Skin / <i>Peau</i>
	4.6 mg/m ³		
Triethylenetetramine / <i>Triéthylènetétramine</i> [112-24-3]	0.5 ppm		Skin / <i>Peau</i>
	3 mg/m ³		
Trimethoxy vinylsilane / <i>Triméthoxyvinylsilane</i> [2768-02-7]		10 ppm	
		60 mg/m ³	
Trixylylphosphate / <i>Phosphate de trixylényle</i> [25155-23-1]	0.1 mg/m ³		
Vegetable oils (mists) except mists of irritant oils such as oils of castor and cashew nut / <i>Huiles végétales (brouillards) sauf les brouillards d'huiles irritantes comme l'huile de ricin et l'huile de noix d'acajou</i>	10 mg/m ³		
*Vinyl chloride / <i>Chlorure de vinyle</i> [75-01-04]	1 ppm		
Vinylidene chloride / <i>Dichloro-1,1 éthylène</i> [75-35-4]	1 ppm	20 ppm	
	4 mg/m ³	80 mg/m ³	
Wheat flour dust (total dust) / <i>Poussières de farine de blé (poussières totales)</i>	3 mg/m ³		
Wood dust / <i>Poussières de bois</i>			
Certain hardwoods as beech and oak / <i>Certains bois durs, comme le hêtre et le chêne</i>	1 mg/m ³		
Softwood / <i>Bois mous</i>	5 mg/m ³	10 mg/m ³	
Endnotes and Abbreviations:	<i>Notes et abréviations :</i>		
* 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.	* Indique un agent chimique figurant au tableau 1 du Règlement de l'Ontario 490/09 (Designated Substances) pris en application de la Loi. Voir l'alinéa 2 (2) a) du présent règlement.		
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.	¹ Fraction soluble dans le benzène de la matière particulaire totale des substances rejetées dans l'atmosphère par les fours à coke métallurgique, y compris les vapeurs condensées et les particules		

	<i>solides.</i>
² As sum of components assayed by chromatographic procedure with reference to the bulk sample.	² <i>Somme des composants dosés par la méthode chromatographique par rapport à l'échantillon global.</i>
[CAS No.] - CAS Registry Number.	<i>[numéro CAS] - numéro de registre CAS.</i>
f/cc - Fibres per cubic centimetre of air.	<i>f/cc - Fibres par centimètre cube d'air.</i>
mg/m ³ - Milligrams of the agent per cubic metre of air.	<i>mg/m³ - Milligrammes par mètre cube d'air.</i>
ppm - Parts of the agent per million parts of air by volume.	<i>ppm - Parties par million de parties d'air par volume.</i>
Skin - Danger of cutaneous absorption.	<i>Peau - Danger d'absorption cutanée.</i>
(E) The value is for particulate matter containing no asbestos and < 1 per cent crystalline silica.	<i>(E) Valeur donnée pour la matière particulaire ne contenant pas d'amiante et dont la teneur en silice cristalline est inférieure à 1 pour cent.</i>
(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.	<i>(F) Fibres respirables : longueur supérieure à 5 µm; rapport longueur-diamètre supérieur ou égal à 3:1, déterminé par la méthode de filtration par membrane à un grossissement de 400 à 450 fois la grandeur réelle (objectif de 4 mm), en utilisant un éclairage par contraste de phase.</i>
(H) Aerosol only.	<i>(H) Aérosol seulement.</i>
(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.	<i>(I) Fraction inhalable : la tranche granulométrique des particules en suspension dans l'air qui sont déposées où que ce soit dans les voies respiratoires et recueillies lors d'un échantillonnage de l'air à l'aide d'un appareil de sélection granulométrique qui : a) satisfait aux critères de sélection granulométrique établis par l'ACGIH; b) a un point de coupure à 100 µm à 50 pour cent d'efficacité.</i>
(K) Should not exceed 2 mg/m ³ respirable particulate mass.	<i>(K) Ne devrait pas dépasser 2 mg/m³ de masse de particule respirable.</i>
(L) Exposure by all routes should be carefully controlled to levels as low as possible.	<i>(L) L'exposition par toutes les voies devrait être maintenue aux niveaux les plus bas possibles.</i>
(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.	<i>(R) Fraction respirable : la tranche granulométrique des particules en suspension dans l'air qui sont déposées dans la zone d'échange de gaz des voies respiratoires et recueillies lors d'un échantillonnage de l'air à l'aide d'un appareil de sélection granulométrique qui : a) satisfait aux critères de sélection granulométrique établis par l'ACGIH; b) a un point de coupure à 4 µm à 50 pour cent d'efficacité.</i>
(V) Vapour and aerosol.	<i>(V) Vapeur et aérosol.</i>
(a) Provided that the total dust contains less than 0.7 per cent vanadium.	<i>(a) À condition que les poussières totales contiennent moins de 0,7 pour cent de vanadium.</i>
(b) For assessing the visibility in a work environment where 1,2-propylene glycol aerosol is present.	<i>(b) Pour l'évaluation de la visibilité dans l'environnement de travail en présence de 1,2-propylène glycol en aérosol.</i>
(c) A secondary limit of 5 mg/m ³ (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.	<i>(c) Une limite secondaire de 5 mg/m³ (poussières totales) est recommandée dans le cas d'activités dégageant de la poussière lorsque le dénombrement des fibres est habituellement difficile à effectuer. Lorsque les deux types de mesure sont effectués simultanément, il faut utiliser la limite la plus restrictive pour évaluer les expositions.</i>

O. Reg. 149/12, s. 2.

SCHEDULE Revoked: O. Reg. 491/09, s. 8.

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:

$$[(C_1/L_1) + (C_2/L_2) + \dots + (C_n/L_n)] = E$$

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.

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