

SUMMARY of
O. REG. 419/05 STANDARDS and
POINT of IMPINGEMENT GUIDELINES &
AMBIENT AIR QUALITY CRITERIA (AAQCs)

STANDARDS DEVELOPMENT BRANCH
ONTARIO MINISTRY of the ENVIRONMENT

December 2005

INTRODUCTION

Ontario Regulation 419/05 “Air Pollution – Local Air Quality” under the *Environmental Protection Act (EPA)* (‘Regulation 419/05’) revokes and replaces Regulation 346 “General – Air Pollution” on November 30, 2005. Regulation 419/05 is the primary regulatory tool for creating standards for contaminants that are protective of local air quality and which emitters in Ontario must meet.

In addition to listing the standards that are found in Schedules 1, 2 and 3 of O. Reg. 419/05, this document lists the current Ministry of the Environment (MOE) Point of Impingement (POI) Guidelines and Ambient Air Quality Criteria (AAQC). While this document provides general information on the phase-in of the standards, Regulation 419/05 takes precedence over this document and should be referred to for a full account of the requirements relating to the phase in of standards contained in Schedules 1, 2 and 3 of the Regulation.

There are a number of differences between the current and previously released listings of standards, guidelines and AAQCs. This is primarily due to the fact that O. Reg. 419/05 introduces several new standards, phases in the requirement to meet effects-based standards (Schedule 3 of the Regulation), and phases in the requirement to use U.S. Environmental Protection Agency air dispersion models (i.e. ‘approved dispersion models’ referred to in s. 6(2) of Regulation 419/05).

The basic approach in the standard setting process is to develop AAQCs, which are acceptable effects-based levels in air, with variable averaging times (e.g., 24 hr, 1 hr, 10 minutes) appropriate for the effect. The effects considered may be based on health, odour, vegetation, soiling, visibility, corrosion or other effects. To develop the half-hour average standards (i.e., those in Schedules 1 and 2) and also the half-hour POI guidelines, generally the most conservative half-hour value, derived from the AAQCs of variable averaging times, is selected. Regulation 419/05 phases in the effects-based air standards set out in Schedule 3 of the Regulation (referred to as AAQCs in the previous version of this document).

Schedule 1 will apply between November 30, 2005 and February 1, 2010. As of February 1, 2010, Schedule 2 applies to all sectors for whom phase-in of Schedule 3 has not occurred, as follows:

- On February 1, 2010, Schedule 3 will apply to sectors listed in Schedule 4 of Regulation 419/05.
- On February 1, 2013, Schedule 3 will apply to sectors listed in Schedule 5 of Regulation 419/05.
- On February 1, 2020, Schedule 3 will apply to all sectors/emitters in Ontario.

It is important to note that there are some exceptions (i.e. ‘new facilities’ and facilities subject to ‘speed up’ notices and orders) to these general phase in rules. Please refer to sections 18, 19 and 20 of Regulation 419/05 for a full account of these exceptions.

Some contaminants are not listed in Schedules 1, 2 and 3 of the Regulation, but are instead listed as a half-hour POI guideline or an AAQC in this document. The Regulation allows a Director to issue certain Notices and impose certain notification requirements on emitters if a discharge from a facility may cause an adverse effect. Exceedence of a POI guideline or of an AAQC may cause adverse effects and as such could trigger the issuance of a Director's Notice. (Please refer to O. Reg. 419/05 for more specifics).

Applicants for approval under Section 9 of the EPA will be required to demonstrate compliance with the appropriate POI guideline and/or AAQC for the contaminants that are the subject of the application.

If a contaminant is not listed in this document, there may still be concerns regarding the contaminant and its potential to cause adverse effects. Further direction on the issue of how to consider contaminants without limits is included in the *Guide to Applying for Approval (Air and Noise)*. This document may be found on the Ministry's website and will be of particular interest to those preparing an application for a Certificate of Approval or an amendment to an existing Certificate of Approval pursuant to s. 9 of the *Environmental Protection Act*.

This document is comprised of (i) a table listing of MOE standards, POI guidelines and AAQCs and (ii) explanatory endnotes. The table is divided into three main sections:

- The *left-hand* section of the table includes: (i) a simple number counter, (ii) the Chemical Abstracts Services number (CAS No.), which is a unique, universal identifier for a substance and (iii) the contaminant name listed in alphabetical order. Another list, containing the same information, but sorted according to CAS numbers is also available on the Ministry's website.
- The *middle* section of the table contains the three Schedules of O. Reg. 419/05 that list the standards. The middle section also refers to endnotes that explain the phase-in of Schedules 1, 2 and 3 of O. Reg. 419:
 - Schedule 1 - contains the half-hour standards as they existed under O. Reg. 346 plus 6 additional contaminants that were previously guidelines and have been converted into standards.
 - Schedule 2 – is similar to Schedule 1 but contains updated and/or new half-hour standards for some contaminants.
 - Schedule 3 – contains effects-based standards with various appropriate averaging times.
- The *right-hand* section of the table contains the POI guidelines and Ambient Air Quality Criteria (AAQCs).

It should be noted that the limiting effect for the standards, guidelines and AAQCs are identified in brackets beside the respective limits. As well, definition of terms and symbols are included at the end of the table.

In addition, it should be noted that the concept of Upper Risk Thresholds (see s. 30 and Schedule 6 of O. Reg. 419/05 for the contaminants with Upper Risk Thresholds) was introduced in Regulation 419/05. It should be noted that exceedance of an Upper Risk Threshold triggers certain requirements under Regulation 419/05. Please refer to s. 30 of Regulation 419/05 for a full account of the requirements relating to Upper Risk Thresholds.

Summary of O. Reg. 419/05 Standards and Point of Impingement (POI) Guidelines & Ambient Air Quality Criteria (AAQCs)

December 2005

			O.Reg. 419/05 Schedule 1 Applicability Dates: See Note # 1	O.Reg. 419/05 Schedule 2 Applicability Dates: See Note # 2	O. Reg. 419/05 Schedule 3 Applicability Dates: See Note # 3			List of POI Guidelines and AAQCs			
							Point of Impingement (POI) Guideline	Ambient Air Quality Criteria (AAQCs) ¹³			
Item	CAS No.	Contaminant Name	Half Hour Standard (µg/m ³) ⁴	Half Hour Standard (µg/m ³) ^{4 & 5}	One Hour Standard (µg/m ³) ^{4 & 5}	24 Hour Standard (µg/m ³) ^{4 & 5}	Other Time Period Standard (µg/m ³ -time period) ^{4 & 5}	Half Hour (µg/m ³) ⁴	24 Hour (µg/m ³) ⁴	1 Hour (µg/m ³) ⁴	10 Minute (µg/m ³) ⁴
1	75-07-0	Acetaldehyde	500 (Health)	500 (Health)	-	500 (Health)	500 (Health); ½-hr				
2	64-19-7	Acetic acid	2500 (Odour)	2500 (Odour)	-	-	-		TBU ¹¹ - 2500 (Odour)		
3	67-64-1	Acetone	48000 (Odour)	35640 (Health)	-	11880 (Health)	-				
4	98-86-2	Acetophenone	-	-	-	-	-	625 (Odour)		1167 (Health)	850 (Odour)
5	75-05-8	Acetonitrile	-	210 (Health)	-	70 (Health)	-				
6	74-86-2	Acetylene	56000 (Odour)	56000 (Odour)	-	-	-		TBU ¹¹ - 56000 (Odour)		
7	107-02-8	Acrolein	-	0.24 (Health)	-	0.08 (Health)	0.24 (Health); ½-hr	See Note # 5a		See Note # 5a	
8	79-06-1	Acrylamide	45 (Health)	45 (Health)	-	15 (Health)	-				
9	107-13-1	Acrylonitrile	180 (Interim ^{4a})	1.8 (Health)	-	0.6 (Health)	-				
10	124-04-9	Adipic acid	-	-	-	-	-	3500 (Health)	1167 (Health)		
11	N/A	Alkyltoluene sulphonamide, N-	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
12	106-92-3	Allyl glycidyl ether	-	-	-	-	-	180 (Health)	60 (Health)		
13	300-92-5	Aluminum distearate	-	-	-	-	-	100 (Particulate)	2180 (Health)		
14	1344-28-1	Aluminum oxide	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
15	7047-84-9	Aluminum stearate	-	-	-	-	-	100 (Particulate)	2180 (Health)		
16	637-12-7	Aluminum tristearate	-	-	-	-	-	100 (Particulate)	2180 (Health)		
17	7664-41-7	Ammonia	3600 (Interim ^{4a})	300 (Health)	-	100 (Health)	-				
18	12125-02-9	Ammonium chloride	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
19	123-92-2	Amyl acetate, iso-	-	-	-	-	-		53200 (Health & Odour)		
20	628-63-7	Amyl acetate, n-	-	-	-	-	-		53200 (Health & Odour)		
21	626-38-0	Amyl acetate, secondary	-	-	-	-	-		66500 (Health & Odour)		
22	7440-36-0	Antimony	75 (Health)	75 (Health)	-	25 (Health)	-				
23	7440-38-2	Arsenic and compounds	-	-	-	-	-	1 (Health)	0.3 (Health)		
24	7784-42-1	Arsine	10 (Health)	10 (Health)	-	5 (Health)	10 (Health); ½-hr				
25	1332-21-4	Asbestos (fibres > 5:µm in length)	-	-	-	-	-		0.04 fibres/cm ³ (Health)		
26	1332-21-4	Asbestos (total)	-	-	-	-	-	5 (Health)			
27	7440-39-3	Barium - total water soluble	-	-	-	-	-	30 (Health)	10 (Health)		
28	71-43-2	Benzene	-	-	-	-	-		CARC		
29	50-32-8	Benzo(a)pyrene - single source	-	-	-	-	-	0.0033 (Health)	0.0011 (Health)		
30	50-32-8	Benzo(a)pyrene - all sources	-	-	-	-	-		0.0003 [ANNUAL] (Health)		
31	65-85-0	Benzoic acid	-	-	-	-	-	2100 (Health)	700 (Health)		
32	95-16-9	Benzothiazole	-	-	-	-	-	200 (Health)	70 (Health)		
33	98-88-4	Benzoyl chloride	-	-	-	-	-	350 (Health)	125 (Corrosion & Health)		
34	100-51-6	Benzyl alcohol	-	-	-	-	-	2640 (Health)	880 (Health)		
35	7440-41-7	Beryllium and compounds	0.03 (Health)	0.03 (Health)	-	0.01 (Health)	-				
36	92-52-4	Biphenyl	-	-	-	-	-	60 (Odour)		60 (Odour)	
37	1303-96-4	Borax	-	-	-	-	-	100 (Health)	33 (Health)		
38	10043-35-3	Boric acid	-	-	-	-	-	100 (Health)	33 (Health)		
39	7440-42-8	Boron	100 (Particulate)	100 (Particulate)	-	120 (Particulate)	-				
40	10294-33-4	Boron tribromide	100 (Corrosion)	100 (Corrosion)	-	35 (Corrosion)	-				
41	10294-34-5	Boron trichloride	100 (Corrosion)	100 (Corrosion)	-	35 (Corrosion)	-				
42	7637-07-2	Boron trifluoride	5 (Vegetation)	5 (Vegetation)	-	2 (Vegetation)	-				
43	314-40-9	Bromacil	-	-	-	-	-	30 (Health)	10 (Health)		
44	7726-95-6	Bromine	70 (Health)	70 (Health)	-	20 (Health)	-				
45	75-25-2	Bromoform	-	-	-	-	-	165 (Health)	55 (Health)		
46	78-83-1	Butanol, iso-	-	-	-	-	-	1940 (Odour)		15000 (Health)	2640 (Odour)
47	71-36-3	Butanol, n-	-	-	-	-	-	2278 (Odour)		15000 (Health)	3100 (Odour)
48	75-65-0	Butanol, tertiary	-	-	-	-	-	UD	30300 (Health)		
49	5131-66-8	Butoxy-2-propanol, 1-	-	-	-	-	-	9900 (Health)	3300 (Health)		
50	123-86-4	Butyl acetate, n-	-	-	-	-	-	735 (Odour)		15000 (Health)	1000 (Odour)
51	141-32-2	Butyl acrylate	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
52	3622-84-2	Butyl benzene sulphonamide, N-	-	-	-	-	-	105 (Health)	35 (Health)		
53	85-68-7	Butyl benzene phthalate	-	-	-	-	-	450 (Health)	150 (Health)		
54	123-95-5	Butyl stearate	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
55	7440-43-9	Cadmium and compounds	5 (Health)	5 (Health)	-	2 (Health)	-				
56	75-20-7	Calcium carbide	-	-	-	-	-	20 (Corrosion)	10 (Corrosion)		

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			Half Hour Standard ($\mu\text{g}/\text{m}^3$) ⁴	Half Hour Standard ($\mu\text{g}/\text{m}^3$) ^{4 & 5}	One Hour Standard ($\mu\text{g}/\text{m}^3$) ^{4 & 5}	24 Hour Standard ($\mu\text{g}/\text{m}^3$) ^{4 & 5}	Other Time Period Standard ($\mu\text{g}/\text{m}^3$ -time period) ^{4 & 5}	Point of Impingement (POI) Guideline	Ambient Air Quality Criteria (AAQCs) ¹³		
								Half Hour ($\mu\text{g}/\text{m}^3$) ⁴	24 Hour ($\mu\text{g}/\text{m}^3$) ⁴	1 Hour ($\mu\text{g}/\text{m}^3$) ⁴	10 Minute ($\mu\text{g}/\text{m}^3$) ⁴
57	592-01-8	Calcium cyanide (as total salt)	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
58	1305-62-0	Calcium hydroxide	27 (Corrosion)	27 (Corrosion)	-	13.5 (Corrosion)	-				
59	1305-78-8	Calcium oxide	20 (Corrosion)	20 (Corrosion)	-	10 (Corrosion)	-				
60	1592-23-0	Calcium stearate	-	-	-	-	-	100 (Particulate)	35 (Health)		
61	133-06-2	Captan	-	-	-	-	-	75 (Health)	25 (Health)		
62	1333-86-4	Carbon black	25 (Soiling)	25 (Soiling)	-	10 (Soiling)	-				
63	75-15-0	Carbon disulphide	330 (Odour)	330 (Odour)	-	-	-			TBU ¹¹ - 330 (Odour)	
64	630-08-0	Carbon monoxide (single source) ⁶	6000 (Health)	6000 (Health)	-	-	6000 (Health); ½-hr				
	630-08-0	Carbon monoxide (multiple sources)	-	-	36200 (Health)	-	15700 (Health); 8 hr				
65	56-23-5	Carbon tetrachloride	7.2 (Health)	7.2 (Health)	-	2.4 (Health)	-				
66	133-90-4	Chloramben	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
67	57-74-9	Chlordane	-	-	-	-	-	15 (Health)	5 (Health)		
68	N/A	Chlorinated dibenzo-p-dioxins (CDDs) [See Note 12]	-	-	-	-	-	15 pg TEQ/m ³ (Health)	5 pg TEQ/m ³ (Health)		
69	7782-50-5	Chlorine	300 (Interim ^{4a})	30 (Health)	-	10 (Health)	-				230 (Odour)
70	10049-04-4	Chlorine dioxide	85 (Health)	85 (Health)	-	30 (Health)	-				
71	75-45-6	Chlorodifluoromethane (Freon 22) ⁷	-	-	-	-	-	1050000 (Health) ⁷	350000 (Health) ⁷		
72	67-66-3	Chloroform	300 (Interim ^{4a})	3 (Health)	-	1 (Health)	-				
73	7440-47-3	Chromium, di-, tri- and hexavalent forms	-	-	-	-	-	5 (Health)	1.5 (Health)		
74	77-92-9	Citric acid	-	-	-	-	-	100 (Particulate)	120 (Particulate)	300 (Health)	
75	8007-45-2	Coal tar pitch volatiles - soluble fraction	-	-	-	-	-	3 (Health)	1 (Health)		
76	7440-48-4	Cobalt	-	-	-	-	-	0.3 (Health)	0.1 (Health)		
77	7440-50-8	Copper	100 (Health)	100 (Health)	-	50 (Health)	-				
78	1319-77-3	Cresols	230 (Health)	230 (Health)	-	75 (Health)	-				
79	506-77-4	Cyanogen chloride	-	-	-	-	-	15 (Health)	12 (Health)		
80	110-82-7	Cyclohexane	-	18300 (Health)	-	6100 (Health)	-	See Note # 5a	See Note # 5a		
81	127-20-8	Dalapon sodium salt	-	-	-	-	-	100 (Health)	50 (Health)		
82	17702-41-9	Decaborane	50 (Health)	50 (Health)	-	25 (Health)	-				
83	124-18-5	Decane, n-	-	-	-	-	-	UD		60000(Health & Odour)	
84	872-05-9	Decene, 1-	-	-	-	-	-	180000 (Health)	60000 (Health)		
85	1395-21-7	Detergent enzyme (Subtilisin)	-	-	-	-	-	0.2 (Health)	0.06 (Health)		
86	123-42-2	Diacetone alcohol	-	-	-	-	-	990 (Odour)			1350 (Odour)
87	333-41-5	Diazinon	-	-	-	-	-	9 (Health)	3 (Health)		
88	117-81-7	Di(2-ethylhexyl) phthalate	100 (Hlth. & Part.)	100 (Hlth. & Part.)	-	50 (Health)	-				
89	19287-45-7	Diborane	20 (Health)	20 (Health)	-	10 (Health)	-				
90	111-92-2	Dibutyl amine	-	-	-	-	-	UD		2645 (Health)	
91	84-74-2	Dibutyl phthalate (DBP, di-n-butyl phthalate)	-	-	-	-	-	100 (Health)	50 (Health)		
92	77-58-7	Dibutyltin dilaurate	-	-	-	-	-	100 (Health)	30 (Health)		
93	131-15-7	Dicapryl phthalate	100 (Particulate)	100 (Particulate)	-	120 (Particulate)	-				
94	76-14-2	Dichloro-1,1,2,2-tetrafluoroethane, 1,2 (Freon 114) ⁷	-	-	-	-	-	2100000 (Health) ⁷	700000 (Health) ⁷		
95	95-50-1	Dichlorobenzene, 1,2-	-	-	-	-	-	37000 (Health)		30500 (Health)	
96	106-46-7	Dichlorobenzene, 1,4-	285 (Health)	285 (Health)	-	95 (Health)	-				
97	91-94-1	Dichlorobenzidine, 3,3'-	-	-	-	-	-	CARC	CARC		
98	75-34-3	Dichloroethane, 1,1-	-	-	-	-	-	600 (Health)	200 (Health)		
99	156-59-2	Dichloroethylene, cis-1,2-	-	-	-	-	-	315 (Health)	105 (Health)		
100	540-59-0	Dichloroethylene, sym-1,2-	-	-	-	-	-	315 (Health)	105 (Health)		
101	156-60-5	Dichloroethylene, trans-1,2-	-	-	-	-	-	315 (Health)	105 (Health)		
102	109-89-7	Diethyl amine	-	-	-	-	-	UD		2910 (Health)	
103	84-66-2	Diethyl phthalate (DEP)	-	-	-	-	-	100 (Health)	125 (Health)		
104	112-34-5	Diethylene glycol monobutyl ether	-	-	-	-	-		65 (Health)		

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								Half Hour (µg/m ³) ⁴	24 Hour (µg/m ³) ⁴	1 Hour (µg/m ³) ⁴	10 Minute (µg/m ³) ⁴
105	124-17-4	Diethylene glycol monobutyl ether acetate	-	-	-	-	-	-	85 (Health)		
106	111-90-0	Diethylene glycol monoethyl ether	-	-	-	-	-	800 (Odour)			1100 (Odour)
107	112-15-2	Diethylene glycol monoethyl ether acetate	-	-	-	-	-		1800 (Health)		
108	111-77-3	Diethylene glycol monomethyl ether	-	-	-	-	-	800 (Odour)	1200 (Health)		
109	75-71-8	Difluorodichloromethane (Freon 12) ⁷	-	-	-	-	-	1500000 (Health) ⁷	500000 (Health) ⁷		
110	84-75-3	Dihexyl phthalate (DHP)	-	-	-	-	-	100 (Health)	50 (Health)		
111	108-83-8	Diisobutyl ketone	-	-	-	-	-	470 (Odour)	3500 (Health)		649 (Odour)
112	127-19-5	Dimethyl acetamide, N,N-	-	-	-	-	-	900 (Health)	300 (Health)		
113	124-40-3	Dimethyl amine	-	-	-	-	-	UD		1840 (Health & Odour)	
114	624-92-0	Dimethyl disulphide	40 (Odour)	40 (Odour)	-	-	-			TBU ¹¹ - 40 (Odour)	
115	115-10-6	Dimethyl ether	-	-	-	-	-	2100 (Odour)	TBU ¹¹ - 2100 (Odour)		
116	756-79-6	Dimethyl methylphosphonate	-	-	-	-	-		875 (Health)		
117	131-11-3	Dimethyl phthalate (DMP)	-	-	-	-	-	100 (Health)	125 (Health)		
118	67-68-5	Dimethyl sulfoxide	-	-	-	-	-	6300 (Health)	2100 (Health)		
119	75-18-3	Dimethyl sulphide	30 (Odour)	30 (Odour)	-	-	-			TBU ¹¹ - 30 (Odour)	
120	109-55-7	Dimethyl-1,3-diamino propane, N,N-	-	-	-	-	-	60 (Health)	20 (Health)		
121	117-84-0	Di-n-Octyl phthalate	100 (Hlth. & Part.)	100 (Hlth. & Part.)	-	-	100 (Hlth. & Part.)				
122	123-91-1	Dioxane	-	-	-	-	-	UD	3500 (Health)		
123	646-06-0	Dioxolane-1,3	-	-	-	-	-	30 (Health)	10 (Health)		
124	122-39-4	Diphenylamine	-	-	-	-	-	50 (Health)	17.5 (Health)		
125	85-00-7	Diquat dibromide - respirable	-	-	-	-	-	0.096 (Health)	0.032 (Health)		
126	85-00-7	Diquat dibromide - total in ambient air	-	-	-	-	-	0.48 (Health)	0.16 (Health)		
127	1886-81-3	Dodecyl benzene sulphonic acid	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
128	2439-10-3	Dodine	-	-	-	-	-	30 (Health)	10 (Health)		
129	548-73-2	Droperidol	-	-	-	-	-	3 (Health)	1 (Health)		
130	N/A	Dustfall	8000 µg/m ² (Soiling)	8000 µg/m ² (Soiling)	-	-	7 g/m ² ; 30-day(Soiling)				
131	64-17-5	Ethanol (Ethyl alcohol)	-	-	-	-	-	19000 (Odour)		TBU ¹¹ - 19000 (Odour)	
132	141-78-6	Ethyl acetate	19000 (Odour)	19000 (Odour)	-	-	-			TBU ¹¹ - 19000 (Odour)	
133	140-88-5	Ethyl acrylate	4.5 (Odour)	4.5 (Odour)	-	-	-			TBU ¹¹ - 4.5 (Odour)	
134	100-41-4	Ethyl benzene	3000 (Interim ^{4a})	1400 (Odour)	-	-	1000 (Health)				1900 (Odour)
135	60-29-7	Ethyl ether	7000 (Interim ^{4a})	700 (Odour)	-	-	8000 (Health)				950 (Odour)
136	104-76-7	Ethyl hexanol, 2-	-	-	-	-	-	600 (Odour)		TBU ¹¹ - 600 (Odour)	
137	763-69-9	Ethyl-3-ethoxy propionate	-	-	-	-	-	147 (Odour)			200 (Odour)
138	84-51-5	Ethylanthraquinone, 2-	-	-	-	-	-	30 (Health)	10 (Health)		
139	74-85-1	Ethylene	-	-	-	-	-	UD	40 (Vegetation)		
140	106-93-4	Ethylene dibromide	-	-	-	-	-	9 (Health)	3 (Health)		
141	107-06-2	Ethylene dichloride	6 (Health)	6 (Health)	-	-	2 (Health)				
142	107-21-1	Ethylene glycol	-	-	-	-	-		12700 (Health)		
143	111-76-2	Ethylene glycol butyl ether (Butyl cellosolve)	-	-	-	-	-	350 (Odour)	2400 (Health)		500 (Odour)
144	112-07-2	Ethylene glycol butyl ether acetate (But. cell.ace.)	-	-	-	-	-	500 (Odour)	3250 (Health)		700 (Odour)
145	628-96-6	Ethylene glycol dinitrate	-	-	-	-	-	10 (Health)	3 (Health)		
146	110-80-5	Ethylene glycol ethyl ether (Cellosolve)	-	-	-	-	-	800 (Odour)	380 (Health)		1100 (Odour)
147	111-15-9	Ethylene glycol ethyl ether acetate (Cell.ace.)	-	-	-	-	-	220 (Odour)	540 (Health)		300 (Odour)
148	112-25-4	Ethylene glycol monoethyl ether	-	-	-	-	-		2500 (Health)		
149	75-21-8	Ethylene oxide	-	-	-	-	-	15 (Health)	5 (Health)		
150	60-00-4	Ethylenediaminetetra acetic acid	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
151	990-73-8	Fentanyl citrate	-	-	-	-	-	0.06 (Health)	0.02 (Health)		
152	1309-37-1	Ferric oxide	75 (Soiling)	75 (Soiling)	-	-	25 (Soiling)				
153	7664-39-3	Fluoridation-as total fluorides, total (Growing Season)	-	-	-	-	-		40 µg/100cm ² /30 day (Veg.)		

Summary of O. Reg. 419/05 Standards and Point of Impingement (POI) Guidelines & Ambient Air Quality Criteria (AAQCs)

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Item	CAS No.	Contaminant Name	O.Reg. 419/05 Schedule 1 Applicability Dates: See Note # 1	O.Reg. 419/05 Schedule 2 Applicability Dates: See Note # 2	O. Reg. 419/05 Schedule 3 Applicability Dates: See Note # 3			List of POI Guidelines and AAQCs			
			Half Hour Standard (µg/m ³) ⁴	Half Hour Standard (µg/m ³) ^{4 & 5}	One Hour Standard (µg/m ³) ^{4 & 5}	24 Hour Standard (µg/m ³) ^{4 & 5}	Other Time Period Standard (µg/m ³ -time period) ^{4 & 5}	Point of Impingement (POI) Guideline	Ambient Air Quality Criteria (AAQCs) ¹³		
								Half Hour (µg/m ³) ⁴	24 Hour (µg/m ³) ⁴	1 Hour (µg/m ³) ⁴	10 Minute (µg/m ³) ⁴
154	7664-39-3	Fluoridation-as total fluorides, total (Non-Growing Season)	-	-	-	-	-		80 µg/100cm ² /30 day (Veg.)		
155	7664-39-3	Fluorides (as HF) - Gaseous (Growing Season)	4.3 (Vegetation)	4.3 (Vegetation)	-	0.86 (Vegetation)	0.34; 30-day(Vegetation)				
156	7664-39-3	Fluorides (as HF) - Total (Growing Season)	8.6 (Vegetation)	8.6 (Vegetation)	-	1.72 (Vegetation)	0.69; 30-day(Vegetation)				
157	7664-39-3	Fluorides (as HF) - Total (Non-Growing Season)	17.2 (Vegetation)	17.2 (Vegetation)	-	3.44 (Vegetation)	1.38; 30-day(Vegetation)				
158	7664-39-3	Fluorides in dry forage-dry weight	-	-	-	-	-		35 ppm/30 day ave.* 80 ppm/30 day ave.** 60 ppm/60 day ave.*** (Effects on animals)		
159	N/A	Fluorinert 3M-FC-70	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
160	50-00-0	Formaldehyde	65 (Odour/Irritation)	65 (Odour/Irritation)	-	65 (Health)	-				
161	64-18-6	Formic acid	1500 (Health)	1500 (Health)	-	500 (Health)	-				
162	98-01-1	Furfural	1000 (Odour)	1000 (Odour)	-	-	-			TBU ¹¹ - 1000 (Odour)	
163	98-00-0	Furfuryl alcohol	3000 (Health)	3000 (Health)	-	1000 (Health)	-				
164	111-30-8	Glutaraldehyde	-	-	-	-	-	42 (Health)	14 (Health)	35 (Health)	
165	52-86-8	Haloperidol	-	-	-	-	-	0.3 (Health)	0.1 (Health)		
166	77-47-4	Hexachlorocyclopentadiene	-	-	-	-	-	6 (Health)	2 (Health)		
167	999-97-3	Hexamethyl disilazane	-	-	-	-	-	5 (Health)	2 (Health)		
168	4035-89-6	HDI Biuret (HDI-BT)	-	9 (Health)	-	3 (Health)	-	9 (Health) ⁸	3 (Health) ⁸		
169	3779-63-3	HDI Isocyanurate (HDI IC)	-	9 (Health)	-	3 (Health)	-				
170	28182-81-2	HDI Polyisocyanate (HDI-BT & HDI-IC)	-	9 (Health)	-	3 (Health)	-				
171	822-06-0	Hexamethylene Diisocyanate (HDI) Monomer	-	0.1 (Health)	-	0.03 (Health)	-	See Note # 5a	See Note # 5a		
172	124-09-4	Hexamethylenediamine	-	-	-	-	-	48 (Health)	16 (Health)		
173	111-49-9	Hexamethyleneimine	-	-	-	-	-	945 (Health)	315 (Health)		
174	107-41-5	Hexylene glycol	-	-	-	-	-	14400 (Health)		12000 (Health)	
175	10035-10-6	Hydrogen bromide	-	-	-	-	-	800 (Health)		668 (Health)	
176	7647-01-0	Hydrogen chloride	100 (Interim ⁴⁹)	60 (Health)	-	20 (Health)	-				
177	74-90-8	Hydrogen cyanide	See Note # 14	24 (Health)	-	8 (Health)	-				
178	7722-84-1	Hydrogen peroxide	-	-	-	-	-	90 (Health)	30 (Health)		
179	7783-06-04	Hydrogen sulphide	30 (Odour)	30 (Odour)	-	-	-			TBU ¹¹ - 30 (Odour)	
180	15438-31-0	Iron (metallic)	10 (Soiling)	10 (Soiling)	-	4 (Soiling)	-				
181	110-19-0	Isobutyl acetate	-	-	-	-	-	1220 (Odour)			1660 (Odour)
182	108-20-3	Isopropyl ether	-	-	-	-	-	220 (Odour)	110000 (Health)		
183	108-21-4	Isopropyl acetate	-	-	-	-	-	1470 (Odour)			2000 (Odour)
184	67-63-0	Isopropanol (Isopropyl Alcohol)	-	22000 (Health)	-	7300 (Health)	-	24000 ^{5a}	24000 ^{5a}		
185	98-82-8	Isopropyl benzene	100 (Odour)	100 (Odour)	-	400 (Health)	-				
186	7439-92-1	Lead	6 (Health)	6 (Health)	-	2 (Health)	0.7; 30-day ⁺ (Health)				
187	7439-92-1	Lead - in dustfall	-	-	-	-	-		0.1 g/m ² /30 day(Health)		
188	58-89-9	Lindane (Hexachlorocyclohexane)	-	-	-	-	-	15 (Health)	5 (Health)		
189	7439-93-2	Lithium (other than hydrides)	60 (Health)	60 (Health)	-	20 (Health)	-				
190	7580-67-8	Lithium hydrides	7.5 (Health)	7.5 (Health)	-	2.5 (Health)	-				
191	1309-48-4	Magnesium oxide	100 (Particulate)	100 (Particulate)	-	120 (Particulate)	-				
192	557-04-0	Magnesium stearate	-	-	-	-	-	100 (Particulate)	35 (Health)		
193	121-75-5	Malathion	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
194	108-31-6	Maleic anhydride	-	-	-	-	-	100 (Health)	30 (Health)		
195	7439-96-5	Manganese compounds (including permanganates)	-	-	-	-	-	7.5 (Health)	2.5 (Health)		
196	74-93-1	Mercaptans (as Methyl mercaptan) - total	20 (Odour)	20 (Odour)	-	-	-			TBU ¹¹ - 20 (Odour)	
197	120-78-5	Mercaptobenzothiazole disulphide	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
198	7439-97-6	Mercury (Hg)	5 (Health)	5 (Health)	-	2 (Health)	-				
199	7439-97-6	Mercury (as Hg) - alkyl compounds	1.5 (Health)	1.5 (Health)	-	0.5 (Health)	-				

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			Half Hour Standard (µg/m ³) ⁴	Half Hour Standard (µg/m ³) ^{4 & 5}	One Hour Standard (µg/m ³) ^{4 & 5}	24 Hour Standard (µg/m ³) ^{4 & 5}	Other Time Period Standard (µg/m ³ -time period) ^{4 & 5}	Point of Impingement (POI) Guideline	Ambient Air Quality Criteria (AAQCs) ¹³		
								Half Hour (µg/m ³) ⁴	24 Hour (µg/m ³) ⁴	1 Hour (µg/m ³) ⁴	10 Minute (µg/m ³) ⁴
200	108-62-3	Metaldehyde (Acetaldehyde tetramer)	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
201	79-41-4	Methacrylic acid	-	-	-	-	-	2000 (Odour)	TBU ¹¹ - 2000 (Odour)		
202	101-68-8	Methane diphenyl diisocyanate (MDI Monomer)	-	2 (Health)	-	0.7(Health)	-	3 ^{5a}	1 ^{5a}		
203	67-56-1	Methanol (Methyl alcohol)	12000 (Health)	12000 (Health)	-	4000 (Health)	-				
204	70657-70-4	Methoxy-1-propyl acetate, 2-	-	-	-	-	-	4600 (Health)	1530 (Health)		
205	72-43-5	Methoxychlor	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
206	96-33-3	Methyl acrylate	4 (Odour)	4 (Odour)	-	-	-			TBU ¹¹ - 4 (Odour)	
207	74-83-9	Methyl bromide	-	-	-	-	-	4000 (Health)	1350 (Health)		
208	74-87-3	Methyl chloride	-	-	-	-	-	20000 (Health)	7000 (Health)		
209	71-55-6	Methyl chloroform (1-1-1 Trichloroethane)	350000 (Health)	350000 (Health)	-	115000 (Health)	-				
210	78-93-3	Methyl ethyl ketone (2-Butanone)	30000 (Interim ^{4a})	3000 (Health)	-	1000 (Health)	-				
211	1338-23-4	Methyl ethyl ketone peroxide	-	-	-	-	-	250 (Health)	80 (Health)	200 (Health)	
212	624-83-9	Methyl isocyanate	-	3 (Health)	-	1 (Health)	-				
213	108-10-1	Methyl isobutyl ketone	1200 (Odour)	1200 (Odour)	-	-	-		TBU ¹¹ - 1200 (Odour)		
214	80-62-6	Methyl methacrylate	860 (Odour)	860 (Odour)	-	-	-		TBU ¹¹ - 860 (Odour)		
215	119-36-8	Methyl salicylate	-	-	-	-	-	300 (Health)	100 (Health)		
216	98-83-9	Methyl styrene, alpha	-	-	-	-	-	UD		24000 (Health)	
217	1634-04-4	Methyl tert-butyl ether	-	-	-	-	-	2200 (Odour)	7000 (Health)		
218	110-12-3	Methyl-2-hexanone, 5-	-	-	-	-	-	460 (Odour)			630 (Odour)
219	872-50-4	Methyl-2-pyrrolidone, N-	-	-	-	-	-	-	-	40000 (Health)	
220	110-43-0	Methyl-n-amyl ketone	-	-	-	-	-	UD	4600 (Health)		
221	109-87-5	Methylal	-	-	-	-	-	18000 (Health)	6200 (Health)		
222	12108-13-3	Methylcyclopentadienyl manganese tricarbonyl (MMT)	-	-	-	-	-	30 (Health)	10 (Health)		
223	75-09-2	Methylene chloride	-	660 (Health)	-	220 (Health)	-	5300 ^{5a} (Interim)	220(Health) ^{5a}		
224	101-77-9	Methylene dianiline	-	-	-	-	-	30 (Health)	10 (Health)		
225	75-11-6	Methylene iodide	-	-	-	-	-	195 (Health)	65 (Health)		
226	101-14-4	Methylene-bis-2-chloroaniline, 4,4-	-	-	-	-	-	30 (Health)	10 (Health)		
227	22832-87-7	Miconazole nitrate	-	-	-	-	-	15 (Health)	5 (Health)		
228	N/A	Milk powder	20 (Soiling)	20 (Soiling)	-	20 (Soiling & Odour)	-				
229	N/A	Mineral spirits ⁹	7800 (Interim ^{4a})	3000 (Odour)	-	2600 (Health)	-				
230	7439-98-7	Molybdenum	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
231	108-90-7	Monochlorobenzene	-	-	-	-	-	4200 (Health)		3500 (Health)	4500 (Odour)
232	74-89-5	Monomethyl amine	25 (Odour)	25 (Odour)	-	-	-		TBU ¹¹ - 25 (Odour)		
233	142-82-5	n-Heptane	33000 (Health)	33000 (Health)	-	11000 (Health)	-				
	110-54-3	n-Hexane (mixture)	-	7500 (Health)	-	2500 (Health)	-	See Note # 5a	See Note # 5a		
234	110-54-3	n-Hexane (n-Hexane and Hexane isomers only)	-	22500 (Health)	-	7500 (Health)	-	See Note # 5a	See Note # 5a		
235	91-20-3	Naphthalene	-	-	-	-	-	36 (Odour)	22.5 (Health)		50 (Odour)
236	90-15-3	Naphthol, alpha-	-	-	-	-	-	100 (Health)	100 (Health)		
237	7440-02-0	Nickel	5 (Vegetation)	5 (Vegetation)	-	2 (Vegetation)	-				
238	13463-39-3	Nickel carbonyl	1.5 (Health)	1.5 (Health)	-	0.5 (Health)	-				
239	7697-37-2	Nitric acid	100 (Corrosion)	100 (Corrosion)	-	35 (Corrosion)	-				
240	139-13-9	Nitrioltriacetic Acid	100 (Particulate)	100 (Particulate)	-	120 (Particulate)	-				
241	10102-44-0	Nitrogen oxides ¹⁰	500 (Health)	500 (Health)	400 (Health)	200 (Health)	-				
242	55-63-0	Nitroglycerin	-	-	-	-	-	10 (Health)	3 (Health)		
243	55-18-5	Nitrosodiethylamine, N-	-	-	-	-	-			CARC	
244	62-75-9	Nitrosodimethylamine, N-	-	-	-	-	-			CARC	
245	10024-97-2	Nitrous oxide	-	-	-	-	-	27000 (Health)	9000 (Health)		
246	111-65-9	Octane	-	-	-	-	-	45400 (Odour)			61800 (Odour)
247	25377-83-7	Octene, 1-	-	-	-	-	-	150000 (Health)	50000 (Health)		
248	112-80-1	Oleic acid	-	-	-	-	-	6 (Health)		5 (Health)	
249	144-62-7	Oxalic acid	-	-	-	-	-	75 (Health)	25 (Health)		

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			Half Hour Standard ($\mu\text{g}/\text{m}^3$) ⁴	Half Hour Standard ($\mu\text{g}/\text{m}^3$) ^{4 & 5}	One Hour Standard ($\mu\text{g}/\text{m}^3$) ^{4 & 5}	24 Hour Standard ($\mu\text{g}/\text{m}^3$) ^{4 & 5}	Other Time Period Standard ($\mu\text{g}/\text{m}^3$ -time period) ^{4 & 5}	Point of Impingement (POI) Guideline	Ambient Air Quality Criteria (AAQCs) ¹³		
							Half Hour ($\mu\text{g}/\text{m}^3$) ⁴	24 Hour ($\mu\text{g}/\text{m}^3$) ⁴	1 Hour ($\mu\text{g}/\text{m}^3$) ⁴	10 Minute ($\mu\text{g}/\text{m}^3$) ⁴	
250	90438-79-2	Oxo-heptyl acetate	-	-	-	-	255 (Health)	85 (Health)			
251	88230-35-7	Oxo-hexyl acetate	-	-	-	-	255 (Health)	85 (Health)			
252	10028-15-6	Ozone	200 (Health)	200 (Health)	165 (Health)	-					
253	7657-10-1	Palladium - water soluble compounds	-	-	-	-	30 (Health)	10 (Health)			
254	1910-42-5	Paraquat dichloride - respirable	-	-	-	-	0.009 (Health)	0.003 (Health)			
255	1910-42-5	Paraquat dichloride - total in ambient air	-	-	-	-	0.045 (Health)	0.015 (Health)			
256	1406-05-9	Penicillin	-	-	-	-	0.3 (Health)	0.1 (Health)			
257	19624-22-7	Pentaborane	3 (Health)	3 (Health)	-	1 (Health)					
258	87-86-5	Pentachlorophenol	-	-	-	-	60 (Health)	20 (Health)			
259	127-18-4	Perchloroethylene	-	1080 (Health)	-	360 (Health)	10000 (Interim) ^{5a}	360 (Health) ^{5a}			
260	108-95-2	Phenol	100 (Health)	100 (Health)	-	30 (Health)					
261	75-44-5	Phosgene	130 (Health)	130 (Health)	-	45 (Health)					
262	7803-51-2	Phosphine	-	-	-	-	30 (Health)	10 (Health)			
263	7664-38-2	Phosphoric acid (as P ₂ O ₅)	100 (Particulate)	100 (Particulate)	-	120 (Particulate)					
264	10025-87-3	Phosphorous oxychloride	-	-	-	-	40 (Health)	12 (Health)			
265	10026-13-8	Phosphorous pentachloride	-	-	-	-	30 (Health)	10 (Health)			
266	85-44-9	Phthalic anhydride	100 (Particulate)	100 (Particulate)	-	120 (Particulate)					
267	2062-78-4	Pimozide	-	-	-	-	3 (Health)	1 (Health)			
268	7440-06-4	Platinum - water soluble compounds	-	-	-	-	0.6 (Health)	0.2 (Health)			
269	N/A	Polybutene-1-sulphone	-	-	-	-	100 (Particulate)	120 (Particulate)			
270	1336-36-3	Polychlorinated biphenyls (PCBs)	-	-	-	-	0.45 (Health)	0.15 (Health)			
271	9010-98-4	Polychloroprene	-	-	-	-	100 (Particulate)	500 (Health)			
272	151-50-8	Potassium cyanide	-	-	-	-	100 (Particulate)	120 (Particulate)			
273	1310-58-3	Potassium hydroxide	-	-	-	-	28 (Corrosion)	14 (Corrosion)			
274	7757-79-1	Potassium nitrate	-	-	-	-	100 (Particulate)	120 (Particulate)			
275	67-63-0	Propanol, iso- (Isopropyl alcohol, Isopropanol)	-	-	-	-	24000 (Odour)	TBU ¹¹ - 24000 (Odour)			
276	71-23-8	Propanol, n- (Propyl alcohol)	-	-	-	-	48000 (Health)	16000 (Health)			
277	123-38-6	Propionaldehyde	-	-	-	-	7 (Odour)			10 (Odour)	
278	79-09-4	Propionic acid	-	-	-	-	100 (Odour)		TBU ¹¹ - 100 (Odour)		
279	123-62-6	Propionic anhydride (as Propionic acid)	-	-	-	-	100 (Odour)		TBU ¹¹ - 100 (Odour)		
280	109-60-4	Propyl acetate, n-	-	-	-	-	900 (Odour)	6600 (Health)			
281	9016-87-9	Polymeric methane diphenyl diisocyanate (PMDI)	-	2 (Health)	-	0.7 (Health)					
282	78-87-5	Propylene dichloride	2400 (Odour)	2400 (Odour)	-	-		TBU ¹¹ - 2400 (Odour)			
283	57-55-6	Propylene glycol	-	-	-	-	100 (Particulate)	120 (Particulate)			
284	107-98-2	Propylene glycol methyl ether	-	-	-	-	89000 (Odour)			121000 (Odour)	
285	108-65-6	Propylene glycol monomethyl ether acetate	-	-	-	-	5000 (Odour)	TBU ¹¹ - 5000 (Odour)			
286	75-56-9	Propylene oxide	450 (Interim ^{4a})	4.5 (Health)	-	1.5 (Health)					
287	110-86-1	Pyridine	-	-	-	-	60 (Odour)	150 (Health)		80 (Odour)	
288	106-51-4	Quinone	-	-	-	-	45 (Health)	15 (Health)			
289	7782-49-2	Selenium	-	-	-	-	20 (Health)	10 (Health)			
290	7803-62-5	Silane	-	-	-	-	450 (Health)	150 (Health)			
291	14464-46-1	Silica - respirable (<10 μm diameter), cristabolite	-	-	-	-	15 (Health)	5 (Health)			
292	14808-60-7	Silica - respirable (<10 μm diameter), quartz	-	-	-	-	15 (Health)	5 (Health)			
293	15468-32-3	Silica - respirable (<10 μm diameter), tridymite	-	-	-	-	15 (Health)	5 (Health)			
294	7440-22-4	Silver	3 (Health)	3 (Health)	-	1 (Health)					
295	7631-90-5	Sodium bisulphite	-	-	-	-	100 (Particulate)	120 (Particulate, Health)			
296	7775-09-9	Sodium chlorate	-	-	-	-	18 (Health)	6 (Health)			
297	7758-19-2	Sodium chlorite	-	-	-	-	60 (Health)	20 (Health)			

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								Half Hour ($\mu\text{g}/\text{m}^3$) ⁴	24 Hour ($\mu\text{g}/\text{m}^3$) ⁴	1 Hour ($\mu\text{g}/\text{m}^3$) ⁴	10 Minute ($\mu\text{g}/\text{m}^3$) ⁴
298	143-33-9	Sodium cyanide	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
299	1310-73-2	Sodium hydroxide	-	-	-	-	-	20 (Corrosion)	10 (Corrosion)		
300	7631-99-4	Sodium nitrate	-	-	-	-	-	100 (Particulate)	7000 (Health)		
301	7772-99-8	Stannous chloride (as Sn)	-	-	-	-	-	30 (Health)	10 (Health)		
302	7440-24-6	Strontium	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
303	1633-05-2	Strontium carbonate	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
304	18480-07-4	Strontium hydroxide	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
305	1314-11-0	Strontium oxide	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
306	100-42-5	Styrene	400 (Odour)	400 (Odour)	-	400 (Health)	-				
307	5329-14-6	Sulfamic acid	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
308	7446-09-5	Sulphur dioxide	830 (Health)	830 (Health)	690 (Health&Veg)	275 (Health & Veg.)	-				
309	2551-62-4	Sulphur hexafluoride	-	-	-	-	-	1800000 (Health)	600000 (Health)		
310	7664-93-9	Sulphuric acid	100 (Corrosion)	100 (Corrosion)	-	35 (Corrosion)	-				
311	N/A	Suspended particulate matter (< 44 μm Diameter)	100 (Visibility)	100 (Visibility)	-	120 (Visibility)	-				
312	14807-96-6	Talc - fibrous	-	-	-	-	-	5 (Health)	2 (Health)		
313	13494-80-9	Tellurium (except hydrogen telluride)	30 (Health)	30 (Health)	-	10 (Health)	-				
314	4559-86-8	Tetrabutylurea	-	-	-	-	-	30 (Health)	10 (Health)		
315	109-99-9	Tetrahydrofuran	93000 (Odour)	93000 (Odour)	-	-	-			TBU ¹¹ - 93000 (Odour)	
316	137-26-8	Tetramethyl thiuram disulphide	-	-	-	-	-	30 (Health)	10 (Health)		
317	62-56-6	Thiourea	-	-	-	-	-	60 (Health)	20 (Health)		
318	7440-31-5	Tin	30 (Health)	30 (Health)	-	10 (Health)	-				
319	7440-32-6	Titanium	100 (Particulate)	100 (Particulate)	-	120 (Particulate)	-				
320	13463-67-7	Titanium dioxide	-	-	-	-	-	100 (Health)	34 (Health)		
321	35711-34-3	Tolmetin sodium	-	-	-	-	-	15 (Health)	5 (Health)		
322	108-88-3	Toluene	2000 (Odour)	2000 (Odour)	-	-	-			TBU ¹¹ - 2000 (Odour)	
323	584-84-9	Toluene di-isocyanate, 2,4-	1 (Health)	0.6 (Health)	-	0.2 (Health)	-				
324	26471-62-5	Toluene di-isocyanate, 2,4- and 2,6- (mixed isomers)	-	0.6 (Health)	-	0.2 (Health)	-				
325	N/A	Total reduced sulphur (as hydrogen sulphide)	-	-	-	-	-	40 (Odour)		TBU ¹¹ - 40 (Odour)	
326	56-35-9	Tributyltin oxide	-	-	-	-	-	0.42 (Health)	0.14 (Health)		
327	120-82-1	Trichlorobenzene, 1,2,4-	-	-	-	-	-	100 (Particulate)	400 (Health)		
328	79-01-6	Trichloroethylene (TCE)	3500 (Interim ^{4a})	36 (Health)	-	12 (Health)	-				
329	75-69-4	Trichlorofluoromethane ⁷	-	-	-	-	-	18000 (Health) ⁷	6000 (Health) ⁷		
330	76-05-1	Trifluoroacetic acid	-	-	-	-	-	45 (Health)	15 (Health)		
331	76-13-1	Trifluorotrchloroethane ⁷	2400000 (Health) ⁷	2400000 (Health) ⁷	-	800000 (Health) ⁷	-				
332	75-50-3	Trimethyl amine	-	-	-	-	-	0.5 (Odour)		TBU ¹¹ - 0.5 (Odour)	
333	95-63-6	Trimethylbenzene, 1,2,4-	-	-	-	-	-	500 (Odour)	1000 (Health)		
334	77-99-6	Trimethylol propane	-	-	-	-	-	100 (Health)	1250 (Health)		
335	N/A	Tripropyltin methacrylate	-	-	-	-	-	3 (Health)	1 (Health)		
336	7440-62-2	Vanadium	5 (Health)	5 (Health)	-	2 (Health)	-				
337	75-01-4	Vinyl chloride	3 (Health)	3 (Health)	-	1 (Health)	-				
338	75-35-4	Vinylidene chloride (1,1-Dichloroethene)	30 (Health)	30 (Health)	-	10 (Health)	-				
339	81-81-2	Warfarin	-	-	-	-	-	30 (Health)	10 (Health)		
340	N/A	Whey powder	-	-	-	-	-	100 (Particulate)	120 (Particulate)		
341	1330-20-7	Xylenes	2300 (Odour)	2200 (Health)	-	730 (Health)	-				3000 (Odour)
342	7440-66-6	Zinc	100 (Particulate)	100 (Particulate)	-	120 (Particulate)	-				
343	7646-85-7	Zinc chloride	-	-	-	-	-	12 (Health)		10 (Health)	
344	557-05-1	Zinc stearate	-	-	-	-	-	100 (Particulate)	35 (Health)		

NOTES:

1: O.Reg. 419/05 Schedule 1 Standards to be used with the dispersion models in the Appendix to Regulation 346 (for further information see Appendix C in the *Air Dispersion Modelling Guideline for Ontario*). For phase-out of Schedule 1 see Table 1 below.

2: O.Reg. 419/05 Schedule 2 Standards to be used with the dispersion models in the Appendix to Regulation 346 (for further information see Appendix C in the *Air Dispersion Modelling Guideline for Ontario*). For phase-in of Schedule 2, see Table1 below.

3: O.Reg. 419/05 Schedule 3 Standards to be used with the U.S. EPA models listed in s. 6 of O. Reg. 419/05 (i.e., SCREEN 3; ISCST3; ISCPRIME; and AERMOD. For further information on how to use these models see, the *Air Dispersion Modelling Guideline for Ontario* and also the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (<http://www.ene.gov.on.ca/envision/gp/3614e02.pdf>). For phase-in of Schedule 3, see Table 1 below.

Table 1 – Phase in of Schedules in O. Reg. 419/05

Type of Facility	Nov. 30, 2005	Feb. 1, 2010	Feb. 1, 2013	Feb. 1, 2020
Existing Facility that is not in Schedule 4 or 5	Schedule 1 s. 18	Schedule 2 s.19	Schedule 2 s.19	Schedule 3 s.20
Existing Facility that is in Schedule 4	Schedule 1 s. 18	Schedule 3 s.20	Schedule 3 s.20	Schedule 3 s.20
Existing Facility that is in Schedule 5	Schedule 1 s. 18	Schedule 2 s.19	Schedule 3 s.20	Schedule 3 s.20
New Facility that is not in Schedule 4 or 5	Schedule 1 s. 18	Schedule 2 s.19	Schedule 2 s.19	Schedule 3 s.20
New Facility that is in Schedule 4 or 5	Schedule 3 s.20	Schedule 3 s.20	Schedule 3 s.20	Schedule 3 s.20
Facility requesting and obtaining a s.20(4) Notice	Schedule 3 s.20	Schedule 3 s.20	Schedule 3 s.20	Schedule 3 s.20
Facility given a s.20(5) Order	N/A	Schedule 3 s.20	Schedule 3 s.20	Schedule 3 s.20

- Schedule 4 Target Sectors (with NAICS Code in brackets) are: Metal Ore Mining (2122);Fossil-Fuel Electric Power Generation (221112); Petroleum Refineries (324110); Basic Chemical Manufacturing (3251); Resin, Synthetic Rubber, and Artificial and Synthetic Fibres and Filaments Manufacturing (3252); Iron and Steel Mills and Ferro-Alloy Manufacturing (3311); Non-Ferrous Metal (except Aluminum) Smelting and Refining (331410); Foundries (3315).
- Schedule 5 Target Sectors (with NAICS Code in brackets) are: Pulp, Paper and Paperboard Mills (3221); Other Petroleum and Coal Products Manufacturing (324190); Chemical Manufacturing (325); Urethane and Other Foam Product (except Polystyrene) Manufacturing (326150);

Other Non-Metallic Mineral Product Manufacturing (3279); Primary Metal Manufacturing (331); Fabricated Metal Product Manufacturing (332); Transportation Equipment Manufacturing (336); Waste Treatment and Disposal (5622).

4: The limiting effects for the MOE POI Limits, which include standards, guidelines and AAQCs, are identified in brackets beside the respective limits.

4a: Limiting effect is designated as 'interim' for these contaminants until standards in Schedule 2 and 3 are phased in.

5: Most of the standards in Schedules 2 and 3 are based on the most recent Ambient Air Quality Criteria (AAQCs) developed via the Ministry's standard setting process. Although O. Reg. 419 does not require facilities to meet standards in Schedule 2 or 3 until they are phased-in (i.e., Notes # 2 & 3), working towards meeting these standards and using these standards in making assessment decisions is advisable and strongly encouraged.

5a: This endnote pertains to the following substances, (CAS #s in brackets): Acrolein (107-02-8); Cyclohexane (110-82-7); HDI monomer (Hexamethylene diisocyanate monomer) (882-06-0); Isopropanol (67-63-0); MDI monomer (Methane diphenyl diisocyanate monomer) (101-68-8); Methylene chloride (75-09-2); n-Hexane (mixture) (110-54-3); n-Hexane (n-Hexane and Hexane isomers only) (110-54-3); and Perchloroethylene (127-18-4).

These chemicals were previously guidelines, and after consultation, have become standards in Schedules 2 and 3 under O. Reg. 419/05. However, these contaminants have no standard in Schedule 1 for use between November 30, 2005 and February 1, 2010. POI guidelines are listed in this document for some of these substances [i.e., for Isopropanol (67-63-0); MDI monomer (Methane diphenyl diisocyanate monomer) (101-68-8); Methylene chloride (75-09-2); and Perchloroethylene (127-18-4)]. These noted POI guidelines will be discontinued on February 1, 2010, when Schedules 2 and 3 get phased in.

However, for a subset of these substances [i.e., for Acrolein, Cyclohexane, HDI monomer (Hexamethylene diisocyanate monomer), n-Hexane (mixture), n-Hexane (n-Hexane and Hexane isomers only)] the POI guideline is not listed. This is because the Upper Risk Thresholds (URTs) in Schedule 6 of O. Reg. 419/05 are lower than the previously listed guidelines.

Until the standards for this subset become effective (i.e. when s.19 or s.20 of O. Reg 419/05 applies to a facility), applications for s.9 (of the EPA) Certificates of Approvals, and Emission Summary and Dispersion Modelling Reports prepared in accordance with O. Reg. 419/05, will be assessed using the concentrations set out in Schedule 6 of the O. Reg. 419/05.

Furthermore, the Ministry may use the principles in the *Guideline for Implementation of Air Standards in Ontario* (<http://www.ene.gov.on.ca/envision/gp/5166e.pdf>) to assess/impose an appropriate limit or appropriate action for these contaminants on a site-specific basis where warranted. It is important to note that all facilities must demonstrate compliance with the standards in Schedule 2 or 3 (depending on which Schedule applies to the facility) by February 1, 2010.

6: Half-hour standard for carbon monoxide is based on high background levels from automobiles (i.e., individual facilities are only allowed a small fraction of the total airshed).

7: See O. Reg. 717/94 "Solvents" under the Environmental Protection Act, which is based on the Montreal Protocol, for further restrictions on these, and several other ozone depleting substances.

8: Previously HDI Biuret (HDI-BT) had a 1/2 hr POI guideline of 3 µg/m³ and an AAQC of 1 µg/m³ (24-hour). These values have been changed to 9 µg/m³ and 3 µg/m³ respectively, effective November 30, 2005. This is to ensure that the HDI-BT guidelines, which will be in use until February 1, 2010, are identical to the Schedule 2 and Schedule 3 standards of O.Reg 419/05. Since the standard has become less stringent, no implementation difficulties are expected and the 5-year phase-in period is considered not applicable. Therefore, for persons held to Schedule 1, the compliance point for this substance will be 9 µg/m³ (unless a C of A imposes a more stringent standards).

9: Mineral spirits are petroleum distillate mixtures of C₇-C₁₂ alkanes (paraffins, cycloalkanes, naphthalenes) with 15-20% aromatic hydrocarbons, of which less than 0.1 % is benzene. The typical boiling points range from 130-220 °C and flash points range from 21-60 °C. Please see Rationale document: "Ontario Air Standards for Mineral Spirits" for further detail on the Ministry's website.

10: Nitrogen oxides (NO_x) are defined to be the sum of nitrogen dioxide (NO₂) and nitric oxide (NO). Emissions of NO_x consist mainly of NO, with some NO₂. In ambient air, NO converts to NO₂. NO₂ has adverse effects at much lower concentrations than NO. Recognizing these factors, the AAQCs, which are now Schedule 3 standards in O. Reg. 419/05, were based on the health effects of NO₂.

In assessing NO_x emissions for compliance purposes (e.g., source modelling, C of A) with respect to Schedules 1, 2 or 3 in O.Reg 419/05, the sum of NO and NO₂ emissions should be expressed collectively as **nitrogen dioxide (NO₂) equivalents**.

In general, air quality assessment (e.g., air quality reporting) the Schedule 3, 1 hr avg. or 24 hr avg. standards (previously AAQCs), should only be compared to monitored NO₂ data.

11: TBU =To Be Updated. These odour-based AAQCs (either 24 hr avg or 1 hr avg) are 'TBU' - flagged, since the Ministry plans to update them in the future to a more appropriate odour-based averaging time (i.e., 10 minutes). In addition, these contaminants may need the development of a health-based AAQC. At this point they provide the basis of the 1/2 hour MOE POI Limits.

12: Calculation of TEQ (Toxicity Equivalent):

International toxicity equivalency factors (I-TEFs) are applied to 17 dioxin and furan isomers of concern to convert them into 2,3,7,8-TCDD (tetrachlorodibenzo-p-dioxin) toxicity equivalents. The conversion involves multiplying the concentration of the isomer by the appropriate I-TEF to yield the TEQ for this isomer. Summing the individual TEQ values for each of the isomers of concern provides the total toxicity equivalent level for the sample mixture. A table, listing the 17 isomers of concern and their I-TEFs can be found in the MOEE publication titled: Environment Information - Dioxins & Furans; PIBS 681b, revised 08/91 or in the example Table 2 below.

13: For contaminants with AAQCs but no ½ hr POI limits (for example dibutyl amine, CAS #: 111-92-2), the current interim measure of using the AAQC concentration value as a half-hour POI limit (i.e., without time adjustment modification) is continued as a screening approach [e.g., in determining whether Maximum Concentration Level (MCL) Assessment Submissions from proponents or Acceptability of Maximum Ground Level Concentration (GLC) requests are required].

14: The standard for Hydrogen cyanide (74-90-8) was withdrawn from Schedule 1. In light of the new standards proposed in Schedule 2 and 3, the previous Schedule 1 standard was considered unacceptably high. Therefore (in analogy with guidance in Note 5a), until the standards for Hydrogen cyanide become effective (i.e. when s.19 or s.20 of O. Reg 419/05 applies to a facility), applications for s.9 (of the EPA) Certificates of Approvals, and Emission Summary and Dispersion Modelling Reports prepared in accordance with O. Reg. 419/05, will be assessed using the concentrations set out in Schedule 6 of the O.Reg. 419/05.

TERMS and SYMBOLS:

CARC: Carcinogen. This entry implies that there is no assigned standard or guideline at this time. Emissions to the environment are to be prevented or limited to the greatest extent possible

N/A: Not Available

UD: Under development

Growing Season: May 1 - September 30 - Northern Ontario, Northern Region
 April 1 - October 31 - Southern Ontario, SW, WC, E & C Regions

Non Growing Season: October 1 - April 30 - Northern Ontario, Northern Region
 November 1 - March 31 - Southern Ontario, SW, WC, E & C Regions

* average monthly results for growing season

** average results for any single month

*** average of 2 consecutive months

+ = arithmetic mean

++ = geometric mean

Table 2 - Sample Calculation for Toxicity Equivalent Values for Chlorinated Dioxin and Furan compounds

Dioxin/Furan Isomers of Concern	International Toxicity Equivalency Factors (I-TEFs)	Concentration pg/m ³ (Analytically measured)	Toxicity Equivalent (TEQ) pg TEQ/m ³
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1	0.01	0.01
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	0.5	0.011	0.0055
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.1	0.006	0.0006
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.1	0.01	0.001
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.1	0.019	0.0019
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.01	0.15	0.0015
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	0.001	-	-
2,3,7,8-Tetrachlorodibenzofuran	0.1	0.11	0.011
2,3,4,7,8-Pentachlorodibenzofuran	0.5	0.033	0.0165
1,2,3,7,8-Pentachlorodibenzofuran	0.05	0.024	0.0012
1,2,3,4,7,8-Hexachlorodibenzofuran	0.1	0.03	0.003
1,2,3,6,7,8-Hexachlorodibenzofuran	0.1	0.016	0.0016
1,2,3,7,8,9-Hexachlorodibenzofuran	0.1	0.016	0.0016
2,3,4,6,7,8-Hexachlorodibenzofuran	0.1	0.007	0.0007
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.01	0.047	0.00047
1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.01	0.008	0.00008
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	0.001	-	-
TOTAL TOXICITY EQUIVALENT			0.05665*

* Sum of toxicity equivalents of individual isomers.

The I-TEF scheme is intended to be used with isomer specific analytical results.