

**EMISSION SUMMARY AND  
DISPERSION MODELLING REPORT  
IMT INGERSOLL FACILITY**

**VERSION 2.4**

**IMT PARTNERSHIP  
347 KING STREET WEST  
INGERSOLL**

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**VERSION CONTROL**

<b>Rev.</b>	<b>Date</b>	<b>Revision Description</b>	<b>Reviewers Initials</b>
1.0	December 2004	Original ESDM – included in Comprehensive Certificate of Approval (CCofA) Application	GG
1.1	January 2008	Update to include changes in Facility in 2007.	PW
2.0	August 2011	Proposed CCofA Application	TB
2.1	September 2012	Dispersion Modeling conducted using AERMOD For ECA Application	TB
2.2	November 2018	Removal of Axles Emission Sources and Assessment of Same Structure Contamination and Fugitive Road Dust emissions	TB
2.3	March 2020	Revision of Tables	TB
2.4	January 2021	ESDM Update for 2020 with AERMOD 19191	TB

## EXECUTIVE SUMMARY AND EMISSION SUMMARY TABLE

This Emission Summary and Dispersion Modelling (ESDM) Report was prepared to update using AERMOD 19191 The ESDM report was prepared in accordance with s.26 of O.Reg 419/05 to support the Basic Comprehensive CofA Air & Noise application. In addition, guidance in the Ontario Ministry of the Environment (MECP) publication “*Procedure for Preparing an Emission Summary and Dispersion Modelling Report*” dated July 2016 (ESDM Procedure Document) was followed as appropriate.

IMT Partnership (IMT) operates a manufacturing facility located at 347 King Street West in Ingersoll (the Facility). The Facility is located in an area for industrial use.

IMT manufactures artillery projectiles at its facility in Ingersoll, with a current maximum Facility Production Limit of 1500 shells per day. A variety of other products such as locomotive and armored vehicle parts are manufactured at the Other Equipment Manufacturing (OEM) area of the facility. The OEM area is composed mostly of machining operations with minimal emissions to the atmosphere. The North American Industry Classification System (NAICS) codes that best apply to this facility are 33299 and 336990. This is part of NAICS code 336 – Other Transportation Equipment Manufacturing, which is listed in Schedule 5 of O.Reg. 419/05.

This application and supporting documentation were prepared in accordance with all applicable regulatory and Ministry requirements that were in effect at the time of application.

The Facility was constructed prior to November 30, 2005 and no speed-up notices under s.20(4) or s.20(5) have been requested or issued to the Facility. The NAICS code that applies to this facility is 336990 which is listed in Schedule 5 of O.Reg. 419/05. As such, s.20 of O.Reg. 419/05 applied on February 1<sup>st</sup>, 2013. Therefore, assessment of compliance was performed using AERMOD and the Standards listed in Air Contaminants Benchmark (ACB) List (April 2018).

The Facility is expected to emit volatile organic compounds, products of combustion and particulate matter. Some of the sources and contaminants were considered negligible in accordance with s.8 of O.Reg. 419/05.

The maximum POI concentrations were calculated based on the operating conditions where all significant sources are operating simultaneously at their individual maximum rates of production. The maximum emission rates for each significant contaminant emitted from the significant sources were calculated in accordance with s.11 of O.Reg. 419/05 and the data quality assessment follows the process outlined in the requirements of the ESDM Procedure Document.

A POI concentration for each significant contaminant emitted from the Facility was calculated based on the calculated emission rates and the output from the approved dispersion model. The results are presented in the following Emission Summary Table, in accordance with s.26 of O.Reg. 419/05.

Contaminants released by the Facility that are not found on the ACB List are considered to be ‘Contaminants with No MECP POI Limits’. There are no ‘Contaminants with No MECP’.

Of the forty-seven (47) contaminants assessed with MECP POI Limits, all the predicted POI concentrations are below the corresponding limits. At 85.38%, Talc has the highest concentration relative to the corresponding MECP POI Limit.



TABLE 11 - EMISSION SUMMARY TABLE

Contaminant Name	CAS Number	Total Facility Emission Rate g/s	Air Dispersion Model Used (v19191)	Max. POI Conc. ug/m3	Averaging Period (hours)	MEC P POI Limit Ug/m3	Limiting Effect	Regulation Schedule #	Percentage Of MECP POI Limit
Total Suspended Particulate	-	0.07914	AERMOD	88.94	24	120	Visibility	B1	74.12
Sulphur Dioxide	7446-09-5	4.421 E-04	AERMOD	0.219 0.447	24 1	275 690	Health & Vegetation	B1	0.08 0.06
Oxides of Nitrogen	10102-44-0	6.265 E-02	AERMOD	31.05 63.39	24 1	200 400	Health	B1	15.53 15.85
Polyalkylene Glycol	9038-95-3	0.011	AERMOD	5.45	24	50	Health	B2	10.90
Copper	7440-50-8	0.0069	AERMOD	8.466	24	50	Health	B1	16.93
2-butoxyethanol	111-76-2	0.0783	AERMOD	38.81 130.72	24 10 min	2400 500	Health Odour	B1	1.62 26.14
Talc	14807-96-6	0.00345	AERMOD	1.708	24	2	Health	B1	85.38
Carbon Black	1333-86-4	0.00009	AERMOD	0.0446	24	10	Soiling	B1	0.45
Titanium Dioxide	13463-67-7	0.00735	AERMOD	3.64	24	34	Health	B1	10.41
Methyl Ethyl Ketone	78-93-3	0.2343	AERMOD	116.13	24	1,000	Health	B1	11.61
Methyl n-propyl Ketone	107-87-9	0.9051	AERMOD	448.62	24	2650	Health	B2	16.93
Methyl isobutyl Ketone	108-10-1	0.3126	AERMOD	155.44	24	1,200	Odour	B1	12.95
Methyl n-amyl Ketone	110-43-0	1.0878	AERMOD	539.17	24	4,600	Health	B1	11.72
Ethyl benzene	100-41-4	0.0442	AERMOD	21.91 73.79	24 10 min	1,000 1900	Health Odour	B1 B1	2.19 3.88
Xylene	1330-20-7	0.2659	AERMOD	131.79 443.91	24 10 min	730 3000	Health Odour	B1 B1	18.05 14.80
VM&P naphtha	64742-89-8	1.8175	AERMOD						
Mineral Spirits		0.2659	AERMOD						
Light Aromatic hydrocarbons	Mineral Spirits	0.0442	AERMOD						
Medium Aromatic hydrocarbons	Mineral Spirits	0.2343	AERMOD						
Total Mineral Spirits	Mineral Spirits	2.362	AERMOD	1170.74	24	2,600	Health	B1	45.03
1,3,5-trimethylbenzene	108-67-8	0.0442	AERMOD	21.91	24	220	Health	B1	9.96
1,2,4-trimethylbenzene	95-63-6	0.0890	AERMOD	44.11	24	220	Health	B1	20.05
Nickel Antimony titrate (as Ni)	8007-18-9	0.000077	AERMOD	0.0066 0.004 0.035	Annual AAV 24 URT	0.04 0.4 2.0		B1	16.48 1.65 1.73
Heptane	142-82-5	0.1213	AERMOD	60.12	24	11,000	Health	B1	0.55
2-Methyl-1-propanol	78-83-1	0.030	AERMOD	14.87 50.08	24 10 min	4,600 2,340	Health Odour	B1 B1	0.32 2.14
1-Methoxy-2-propanol	107-98-2	0.0613	AERMOD	102.34	10 min	121000	Odour	B1	0.08
Isobutyl acetate	110-19-0	0.0375	AERMOD	62.61	10 min	1,660	Odour	B1	3.77
Amorphous precipitated silica	112926-00-8	0.0001	AERMOD	0.050	24	10	Health	B2	0.50
Toluene	108-88-3	0.8559	AERMOD	424.23	24	2,000	Odour	B1	21.21
Triethanolamine	102-71-6	0.0178	AERMOD	8.82	24	27	Health	B2	32.68
Phosphoric Acid	7664-38-2	0.0032	AERMOD	1.586	24	7	Health	B1	22.66
Potassium Hydroxide	1310-58-3	0.0046	AERMOD	2.28	24	14	Corrosion	B1	16.29
Tetrapotassium pyrophosphate	7320-34-5	0.0022	AERMOD	1.09	24	50	Health	B2	2.18
Calcium nitrate	10124-37-5	0.0018	AERMOD	0.892	24	15	Health	B2	5.95
Total Zinc	7440-66-6	0.0008	AERMOD	0.397	24	120	Part	B1	0.33
Chromium Oxide (Cr III compound)	1308-38-9	0.00001	AERMOD	0.005	24	0.5	Health	B1	0.99
Chromium in chromate	7440-47-3	0.000133	AERMOD	0.0659	24	0.5	Health	B1	13.18
Total Chromium	7440-47-3	0.000173	AERMOD	0.0857	24	0.5	Health	B1	17.15
Sodium hydroxide	1310-73-2	0.0013	AERMOD	0.644	24	10	Corrosion	B1	6.44
1,1,1-trichloroethane	71-55-6	4.3 E-06	AERMOD	0.120	24	115,000	Health	B1	0.0
1,1-dichloroethane	75-34-3	2.2 E-05	AERMOD	0.0615	24	165	Health	B1	0.04
Chloroethane	75-00-3	1.0 E-05	AERMOD	0.028	24	5,600	Health	B1	0.0
Trichloroethylene	79-01-6	2.7 E-04	AERMOD	0.7559	24	12	Health	B1	6.3
Cis-1,2-dichloroethylene	156-59-2	5.6 E-05	AERMOD	0.1568	24	105	Health	B1	0.15
Isopropanol	67-63-0	0.14	AERMOD	69.39	24	7,300	Health	B1	0.95
N-Methyl Pyrrolidone	872-50-4	0.00385	AERMOD	3.895	1	40,000	Health	B1	0.01
2-Amino-ethanol	141-43-5	0.00165	AERMOD	0.818	24	35	Health	B2	2.34