

**Appendix AA1 to Annex A**

**List of Chemicals**

**for the  
Area Detection and Identification System  
(ADIS)**

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**NOTICE**

This documentation has been reviewed by the technical authority and does not contain controlled goods.

**AVIS**

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**Table A: List of Mandatory Chemical Warfare Agents (CWAs):**

ID #:	Chemical Agent Name	CAS Number	Physiological Effect	Physical State	Requirement Type
1	Cyclo-sarin (GF)	329-99-7	Nerve	Liquid or Vapour	Mandatory
2	Sarin (GB)	107-44-8	Nerve	Liquid or Vapour	Mandatory
3	Soman (GD)	96-64-0	Nerve	Liquid or Vapour	Mandatory
4	Tabun (GA)	77-81-6	Nerve	Liquid or Vapour	Mandatory
5	VX	50782-69-9	Nerve	Liquid or Vapour	Mandatory
6	Distilled Mustard (HD)	505-60-2	Vesicant	Liquid or Vapour	Mandatory
7	Lewisite (L)	541-25-3	Vesicant	Liquid or Vapour	Mandatory
8	Mustard-Lewisite mixture (HL)	NA	Vesicant	Liquid or Vapour	Non-mandatory
9	Nitrogen Mustard (HN-1)	538-07-8	Vesicant	Liquid or Vapour	Non-mandatory
10	Phosgene oxime (dichloroformoxime) (CX)	1794-86-1	Vesicant	Liquid or Vapour	Non-mandatory
11	Methyldichlorarsine (MD)	593-89-5	Vesicant	Liquid or Vapour	Non-mandatory
12	Ethyldichlorarsine (ED)	598-14-1	Vesicant	Liquid or Vapour	Non-mandatory
13	Nitrogen Mustard, Mechlorethamine (HN-2)	51-75-2	Vesicant	Liquid or Vapour	Non-mandatory
14	Phenyldichlorarsine (PD)	696-28-6	Vesicant	Liquid or Vapour	Non-mandatory
15	Nitrogen Mustard, Nitrogen Lost (HN-3)	555-77-1	Vesicant	Liquid or Vapour	Non-mandatory
16	Arsine	7784-42-1	Blood	Gas	Non-mandatory
17	Cyanogen chloride (CK) [CNCl] (Chlorine cyanide)	506-77-4	Blood	Liquid or Vapour	Mandatory
18	Hydrogen cyanide (AC) [HCN] (Formonitrile, Hydrocyanic acid)	74-90-8	Blood	Liquid or Vapour	Mandatory

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<b>ID #:</b>	<b>Chemical Agent Name</b>	<b>CAS Number</b>	<b>Physiological Effect</b>	<b>Physical State</b>	<b>Requirement Type</b>
19	Chlorine (CL) [Cl <sub>2</sub> ]	7782-50-5	Choking	Gas	Non-mandatory
20	Diphosgene (DP)	503-38-8	Choking	Gas	Non-mandatory
21	Phosgene (CG) [CCl <sub>2</sub> O] (Carbonic dichloride, Carbonyl chloride, Chloroformyl chloride)	75-44-5	Choking	Gas	Non-mandatory

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**Table B: List of Toxic Industrial Chemicals (TICs):**

ID: #	Agent Class	CAS Number	Chemical Substance Name	ITF-40 Risk
1	Precursor	756-79-6	Dimethyl Methyl Phosphonate [C <sub>3</sub> H <sub>9</sub> O <sub>3</sub> P] (nerve precursor) (DMMP, Dimethyl phosphitel, Dimethoxy methyl phosphine oxide, Dimethyl methanephosphonate, Dimethyl methylphosphonate, Metaran, Methanephosphonic acid dimethyl ester, Methylphosphonic acid dimethyl ester, O,O-Dimethyl methylphosphonate) cr.	
2	Precursor	75-97-8	Pinacolyl alcohol (nerve precursor) [C <sub>6</sub> H <sub>12</sub> O]	
3	Precursor	111-48-8	Thiodiglycol (vesicant precursor) (TDG) [C <sub>4</sub> H <sub>10</sub> O <sub>2</sub> S] (2,2`-Thiodiethanol Di(2-hydroxyethyl) sulfide Diethanolsulfide Thiodiethylene glycol)	
4	Precursor	7719-09-7	Thionyl chloride [SOCl <sub>2</sub> ] (Sulfinyl chloride, Sulfur chloride oxide, Sulfurous dichloride, Sulfurous oxychloride, Thionyl dichloride)	
5	Riot Control	532-27-4	Chloroacetophenone (CN) [C <sub>8</sub> H <sub>7</sub> ClO] (Phenacyl chloride, Mace, Tear gas)	
6	Riot Control	2698-41-1	o-Chlorobenzylidene malononitrile (CS)	
7	Riot Control	8023-77-6	Pepper Spray (Oleoresin Capsicum) (OC)	
8	TIC	57-14-7	1,1-dimethyl hydrazine	
9	TIC	540-73-8	1.2-dimethyl hydrazine	
10	TIC	115-11-7	2-methylpropene (isobutylene)	Extreme
11	TIC	6581-06-2	3-Quinuclidinyl benzilate (BZ) [C <sub>21</sub> H <sub>23</sub> NO <sub>3</sub> ] (Agent Buzz, QNB)	
12	TIC	75-86-5	Acetone cyanohydrin [CH <sub>3</sub> C(OH)CNCH <sub>3</sub> ] (Cyanohydrin-2-propanone, 2-Cyano-2-propanol, alpha-Hydroxyisobutyronitrile, 2-Hydroxy-2-methyl-propionitrile, 2-Methylactonitrile)	High
13	TIC	74-86-2	Acetylene	Extreme
14	TIC	107-02-8	Acrolein [CH <sub>2</sub> =CHCHO] (Acraldehyde, Acrylaldehyde, Acrylic aldehyde, Allyl aldehyde, Propenal, 2-Propenal)	High
15	TIC	107-13-1	Acrylonitrile [CH <sub>2</sub> =CHCN] (Acrylonitrile monomer, AN, Cyanoethylene, Propenenitrile, 2-Propenenitrile, VCN, Vinyl cyanide)	Extreme

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ID: #	Agent Class	CAS Number	Chemical Substance Name	ITF-40 Risk
16	TIC	578-94-9	Adamsite (DM) (10-Chloro-5,10-dihydrophenarsazine, Diphenylamine chloroarsine, Phenarsazine chloride)	
17	TIC	107-18-6	Allyl alcohol [CH <sub>2</sub> =CHCH <sub>2</sub> OH] (AA, Allylic alcohol, Propenol, 1-Propen-3-ol, 2-Propenol, Vinyl carbinol)	High
18	TIC	2937-50-0	Allyl chlorocarbonate [C <sub>4</sub> H <sub>5</sub> ClO <sub>2</sub> ] (Allyl chloroformate, Chloroformic acid, allyl ester)	
19	TIC	107-11-9	Allylamine [CH <sub>2</sub> =CHCH <sub>2</sub> NH <sub>2</sub> ] (Propenamine; Aminopropylene; Aminopropene; Monoallylamine)	
20	TIC	7664-41-7	Ammonia [NH <sub>3</sub> ] (Anhydrous ammonia, Aqua ammonia, Aqueous ammonia)	
21	TIC	151-56-4	Aziridine (Ethylen imine)	High
22	TIC	71-43-2	Benzene [C <sub>6</sub> H <sub>6</sub> ] (Benzol, Phenyl hydride)	Extreme
23	TIC	10294-33-4	Boron tribromide [BBr <sub>3</sub> ]	
24	TIC	10294-34-5	Boron trichloride [BCl <sub>3</sub> ]	
25	TIC	7637-07-2	Boron trifluoride [BF <sub>3</sub> ]	High
26	TIC	7726-95-6	Bromine [Br]	High
27	TIC	106-97-8	Butane, pure	Extreme
28	TIC	106-98-9	But-1-ene	Extreme
29	TIC	106-99-0	Buta-1,3-diene	Extreme
30	TIC	75-15-0	Carbon disulfide [CS <sub>2</sub> ]	Extreme
31	TIC	630-08-0	Carbon monoxide [CO] (Carbon oxide, Flue gas, Monoxide)	Extreme
32	TIC	353-50-4	Carbonyl fluoride	
33	TIC	463-58-1	Carbonyl sulfide [COS]	
34	TIC	10049-04-4	Chlorine dioxide	High
35	TIC	7790-91-2	Chlorine trifluoride [ClF <sub>3</sub> ]	
36	TIC	107-20-0	Chloroacetaldehyde	
37	TIC	78-95-5	Chloroacetone [C <sub>3</sub> H <sub>5</sub> ClO / ClCH <sub>2</sub> COCH <sub>3</sub> ] (Acetonyl chloride Monochloroacetone)	High
38	TIC	107-14-2	Chloroacetonitrile [C <sub>2</sub> H <sub>2</sub> ClN] (Chloroethanenitrile)	
39	TIC	79-04-9	Chloroacetyl chloride	Extreme
40	TIC	75-01-4	Chloroethylene (vinyl chloride)	

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ID: #	Agent Class	CAS Number	Chemical Substance Name	ITF-40 Risk
41	TIC	67-66-3	Chloroform	
42	TIC	76-06-2	Chloropicrin (PS) [CCl <sub>3</sub> NO <sub>2</sub> ] (Trichloronitromethane)	High
43	TIC	7790-94-5	Chlorosulfonic acid [ClHO <sub>3</sub> S / SO <sub>2</sub> (OH)Cl] (Sulfuric chlorohydrin, Chlorosulfuric acid)	High
44	TIC	4170-30-3	Crotonaldehyde [C <sub>4</sub> H <sub>6</sub> O]	High
45	TIC	460-19-5	Cyanogen	
46	TIC	19287-45-7	Diborane [B <sub>2</sub> H <sub>6</sub> ]	
47	TIC	75-34-3	Dichloroethane (1,1-)	
48	TIC	60-57-1	Dieldrin	
49	TIC	674-82-8	Diketene [CH <sub>3</sub> COCHCO] (Acetyl ketene)	
50	TIC	77-78-1	Dimethyl sulphate [C <sub>2</sub> H <sub>6</sub> SO <sub>4</sub> ] (dimethyl ester, dimethylsulfate, dimethyl monosulfate)	High
51	TIC	23525-22-6	Diphenyl cyanoarsine (DC)	
52	TIC	712-48-1	Diphenylchloroarsine (DA)	
53	TIC	72-20-8	Endrin	
54	TIC	74-84-0	Ethane	Extreme
55	TIC	74-85-1	Ethylene	Extreme
56	TIC	100-41-4	Ethyl benzene	High
57	TIC	75-08-1	Ethyl mercaptan [CH <sub>3</sub> CH <sub>2</sub> SH] (Ethanethiol, Ethyl sulfhydrylate, Mercaptoethane)	High
58	TIC	106-93-4	Ethylene dibromide [BrCH <sub>2</sub> CH <sub>2</sub> Br] 1,2-Dibromoethane; Ethylene bromide; Glycol dibromide	
59	TIC	75-21-8	Ethylene oxide [C <sub>2</sub> H <sub>4</sub> O] (Dimethylene oxide; 1,2-Epoxy ethane; Oxirane)	Extreme
60	TIC	151-56-4	Ethylenimine [C <sub>2</sub> H <sub>5</sub> N] (Aminoethylene, Azirane, Aziridine, Dimethyleneimine, Dimethylenimine, Ethylenimine, Ethylimine)	High
61	TIC	7782-41-4	Fluorine [F <sub>2</sub> ] (Fluorine-19)	
62	TIC	50-00-0	Formaldehyde [HCHO] (Methanal, Methyl aldehyde, Methylene oxide)	High
63	TIC	87-68-3	Hexachloro-butadiene	High
64	TIC	77-47-4	Hexachloro-cyclopentadiene	High
65	TIC	67-72-1	Hexachloroethane (smoke)	
66	TIC	110-54-3	Hexane	High

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67	TIC	302-01-2	Hydrazine	High
68	TIC	10035-10-6	Hydrogen bromide [HBr] (Anhydrous hydrogen bromide)	
69	TIC	7647-01-0	Hydrogen chloride [HCl] (Anhydrous hydrogen chloride; Aqueous hydrogen chloride (i.e. Muriatic acid); hydrochloric acid)	Extreme
70	TIC	74-90-8	Hydrogen cyanide	Extreme
71	TIC	7664-39-3	Hydrogen fluoride [HF] (Anhydrous hydrogen fluoride; Aqueous hydrogen fluoride (i.e., Hydrofluoric acid); HF-A )	Extreme
72	TIC	7783-07-5	Hydrogen selenide [H <sub>2</sub> Se] (Selenium dihydride, Selenium hydride)	
73	TIC	7783-06-4	Hydrogen sulphide [H <sub>2</sub> S] (Hydrosulfuric acid, Sewer gas, Sulfuretted hydrogen)	Extreme
74	TIC	13463-40-6	Iron pentacarbonyl [Fe(CO) <sub>5</sub> ] (Iron carbonyl, Pentacarbonyl iron)	High
75	TIC	75-28-5	Isobutane	Extreme
76	TIC	58-89-9	Lindane	High
77	TIC	74-82-8	Methane	Extreme
78	TIC	124-63-0	Methanesulfonyl chloride [CH <sub>3</sub> ClO <sub>2</sub> S] (Mesyl chloride, Methylsulfonyl chloride, Methanesulfonic acid chloride)	High
79	TIC	74-89-5	Methylamine (anhydrous)	Extreme
80	TIC	74-83-9	Methyl bromide [CH <sub>3</sub> Br] Bromomethane, Monobromomethane	High
81	TIC	79-22-1	Methyl chloroformate [CH <sub>3</sub> OCOCl/C <sub>2</sub> H <sub>3</sub> ClO <sub>2</sub> ] (Methyl chlorocarbonate, Chloroformic acid methyl ester, Methoxycarbonyl chloride)	
82	TIC	933-00-0	Methyl chlorosilane [CH <sub>3</sub> ClSi]	
83	TIC	60-34-4	Methyl hydrazine [CH <sub>3</sub> NHNH <sub>2</sub> ] (MMH, Monomethylhydrazine)	
84	TIC	624-83-9	Methyl isocyanate [CH <sub>3</sub> NCO] (Methyl ester of isocyanic acid, MIC)	High
85	TIC	74-93-1	Methyl mercaptan [CH <sub>3</sub> SH] (Mercaptomethane, Methanethiol, Methyl sulfhydrate)	High
86	TIC	75-09-2	Methylene chloride	High
87	TIC	111-36-4	n-butyl isocyanate [C <sub>4</sub> H <sub>9</sub> NCO]	

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88	TIC	7697-37-2	Nitric acid	Extreme
89	TIC	10102-43-9	Nitric oxide [NO]	
90	TIC	10102-44-0	Nitrogen dioxide [NO <sub>2</sub> ] (Dinitrogen tetroxide (N <sub>2</sub> O <sub>4</sub> ), Nitrogen peroxide)	
91	TIC	56-38-2	Parathion, in compressed gas mixtures [(C <sub>2</sub> H <sub>5</sub> O) <sub>2</sub> P(S)OC <sub>6</sub> H <sub>4</sub> NO <sub>2</sub> ] (O,O-Diethyl-O(p-nitrophenyl) phosphorothioate; Diethyl parathion; Ethyl parathion; Parathion-ethyl)	Extreme
92	TIC	594-42-3	Perchloromethyl mercaptan [Cl <sub>3</sub> CSCI] (PCM, PMM, Trichloromethane sulfenyl chloride, Trichloromethyl sulfur chloride)	
93	TIC	108-95-2	Phenol [C <sub>6</sub> H <sub>5</sub> OH] (Carbolic acid, Hydroxybenzene, Monohydroxybenzene, Phenyl alcohol, Phenyl hydroxide)	Extreme
94	TIC	7803-51-2	Phosphine [PH <sub>3</sub> ] (Hydrogen phosphide, Phosphorated hydrogen, Phosphorus hydride, Phosphorus trihydride)	
95	TIC	10025-87-3	Phosphorus oxychloride [POCl <sub>3</sub> ] (Phosphorus chloride, Phosphorus oxytrichloride, Phosphoryl chloride, Phosphoryl trichloride)	Extreme
96	TIC	7647-19-0	Phosphorus pentafluoride [PF <sub>5</sub> ]	
97	TIC	7719-12-2	Phosphorus trichloride [PCl <sub>3</sub> ] (Phosphorus chloride)	Extreme
98	TIC	151-50-8	Potassium cyanide [KCN] (Potassium salt of hydrocyanic acid)	Extreme
99	TIC	74-98-6	Propane, liquefied	Extreme
100	TIC	115-07-1	Propene, pure	Extreme
101	TIC	7783-79-1	Selenium hexafluoride [SeF <sub>6</sub> ] (Selenium fluoride)	
102	TIC	7783-61-1	Silicon tetrafluoride [SiF <sub>4</sub> ]	
103	TIC	143-33-9	Sodium cyanide [NaCN] (Sodium salt of hydrocyanic acid)	Extreme
104	TIC	7803-52-3	Stibine [SbH <sub>3</sub> ] (Antimony hydride, Antimony trihydride, Hydrogen antimonide)	
105	TIC	7446-09-5	Sulfur dioxide [SO <sub>2</sub> ] (Sulfurous acid anhydride, Sulfurous oxide, Sulfur oxide)	
106	TIC	7446-11-9	Sulfur trioxide [SO <sub>3</sub> ] (sulfan, sulfuric anhydride, sulphuric anhydride)	



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107	TIC	7791-25-5	Sulfuryl chloride [SO <sub>2</sub> Cl <sub>2</sub> ] (Sulfuric oxychloride; sulfuryl dichloride; Chlorosulfuric acid; Sulfonyl chloride; Sulfuric chloride)	
108	TIC	2699-79-8	Sulfuryl fluoride [SO <sub>2</sub> F <sub>2</sub> ] (Sulfur difluoride dioxide, Vikane <sup>®</sup> )	
109	TIC	7664-93-9	Sulphuric acid [H <sub>2</sub> SO <sub>4</sub> ] (Battery acid, Hydrogen sulfate, Oil of vitriol, Sulfuric acid (aqueous))	Extreme
110	TIC	7783-80-4	Tellurium hexafluoride [TeF <sub>6</sub> ] (Tellurium fluoride)	
111	TIC	141-59-3	Tert-octyl mercaptan [C <sub>8</sub> H <sub>18</sub> S / (CH <sub>3</sub> ) <sub>2</sub> CSHCH <sub>2</sub> C (CH <sub>3</sub> ) <sub>3</sub> ]	
112	TIC	79-34-5	Tetrachloroethane (1,1,2,2-)	
113	TIC	127-18-4	Tetrachlorethylene	
114	TIC	78-00-2	Tetraethyl lead [Pb(C <sub>2</sub> H <sub>5</sub> ) <sub>4</sub> ] (Lead tetraethyl, TEL, Tetraethylplumbane)	High
115	TIC	107-49-3	Tetraethyl pyrophosphate [C <sub>8</sub> H <sub>20</sub> O <sub>7</sub> P <sub>2</sub> ] (TEPP) (ethyl pyrophosphate)	
116	TIC	75-74-1	Tetramethyl lead	
117	TIC	7550-45-0	Titanium tetrachloride [Cl <sub>4</sub> Ti]	
118	TIC	584-84-9	Toluene 2,4-diisocyanate [C <sub>9</sub> H <sub>6</sub> N <sub>2</sub> O <sub>2</sub> ]	
119	TIC	91-08-7	Toluene 2,6-diisocyanate [C <sub>9</sub> H <sub>6</sub> N <sub>2</sub> O <sub>2</sub> ]	
120	TIC	76-02-8	Trichloroacetyl chloride [C <sub>2</sub> Cl <sub>3</sub> O] (Trichloroacetic acid chloride)	
121	TIC	79-01-6	Trichloroethylene	
122	TIC	96-18-4	Trichloropropane (1,2,3-)	
123	TIC	354-32-5	Trifluoroacetyl chloride [C <sub>2</sub> ClF <sub>3</sub> O] (Acetyl chloride; Perfluoroacetyl chloride; Trifluoroacetyl chloride)	
124	TIC	75-50-3	Trimethylamine, anhydrous	Extreme
125	TIC	7783-82-6	Tungsten hexafluoride [WF <sub>6</sub> ]	
126	TIC	1330-20-7	Xylene (mixed)	High

**Note:** International Task Force (ITF)-40 Report: ITF-40: Was one of several International Task Force groups established under the provisions of the 1994 Canadian, United Kingdom, and United States (CANUKUS) Memorandum of Understanding on Chemical and Biological Defense.