1. What is the CWC & the NA(CWC)?

The Chemical Weapons Convention (CWC), also known as the Convention on the Prohibition of the development, production, stockpiling and use of Chemical Weapons and on its destruction, entered into force on 29 April 1997. Singapore ratified this convention in May 1997.

2. What is the NA(CWC) Licence?

The NA(CWC) Licence is a Licence that is issued by the Director, National Authority (Chemical Weapons Convention) in accordance with the Chemical Weapons (Prohibition) Act (Chapter 37B). This Licence authorises companies that are involved in activities pertaining to the chemicals, both Scheduled Chemicals and Unscheduled Discrete Organic Chemicals (DOCs), controlled under the Chemical Weapons Convention or CWC, to carry out their activities.

The Licence reflects the maximum quantity that is applied for the chemical and its relevant activities that the company is allowed to handle for the year until the Licence expires. The company shall not exceed the licenced threshold that is allowed for the year unless an amended Licence has been granted to the company upon application for the amendment of the existing Licence prior to the commencement of the activity or activities. Please refer to "6. Terms & Conditions of the NA(CWC) Licence".

3. Controlled Activities & Definitions

Controlled Activity	Definitions
Production (of a chemical)	Refers to its formation through chemical reaction; or by biochemical or biologically mediated reaction.
Processing (of a chemical)	Refers to a physical process, such as formulation, extraction and purification, in which a chemical is not converted into another chemical.
Consumption (of a chemical)	Refers to its conversion into another chemical via a chemical reaction.
Import / Export	Refers to the transfer of chemical(s) between a destination in the local territory and other destination(s) in another territory.
Local Sale / Distribution	Refers to the transfer of chemical(s) between two locations within Singapore.

4. When do you need a NA(CWC) Licence?

A NA(CWC) Licence is required if you are involved in one or more of the following activities with respect to Scheduled Chemicals:

Activity	Schedule 1	Schedule 2	Schedule 3
Production*	✓	✓	✓
Processing*	✓	✓	×
Consumption*	✓	✓	×
Storage	✓	×	×
Import / Export*	✓	✓	✓
Local sale / distribution*	✓	×	×

* Please refer to "3. Controlled Activities & Definitions"

You will also require a NA(CWC) Licence for the production of unscheduled DOCs that meets either one or both of the following conditions:

Types of Unscheduled Chemicals	Quantity Produced per Year
Total DOCs (including both PSF-containing & non-PSF containing)	More than 200 tonnes
Any one PSF-containing	More than 30 tonnes

Note: For cases where multistep processes are involved, the company would need to look into the individual reaction process to determine if any relevant DOC would be produced as intermediates.

Schedule 1A & 1B [1]

Chemical Name (Schedule 1A)	CAS Registry No	Product Code
1. O-Alkyl(≤C10, including cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonofluoridates		S1AN01
e.g. : *Sarin*	107-44-8	
Soman	96-64-0	
2. O-Alkyl (≤C10, including cycloalkyl) N, N-dialkyl (Me, Et, n-Pr or i-Pr)phosphoramidocyanidates		S1AN02
e.g.: *Tabun*	77-81-6	
3. O-Alkyl (H or ≤C10, including cycloalkyl) S-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonothiolates and corresponding alkylated or protonated salts		S1AN03
e.g.: *VX*	50782-69-9	
4. Sulphur mustards:		
2-Chloroethylchloromethylsulfide	2625-76-5	S1AB01
Mustard Gas: Bis(2-chloroethyl)sulfide	505-60-2	S1AB02
Bis(2-chloroethylthio)methane	63869-13-6	S1AB03
Sesquimustard: 1,2-Bis(2- chloroethylthio)ethane	3563-36-8	S1AB04
1,3-Bis(2-chloroethylthio)-n-propane	63905-10-2	S1AB05
1,4-Bis(2-chloroethylthio)-n-butane	142868-93-7	S1AB06
1,5-Bis(2-chloroethylthio)-n-pentane	142868-94-8	S1AB07
Bis(2-chloroethylthiomethyl)ether	63918-90-1	S1AB08
O-Mustard: Bis(2-chloroethylthioethyl)ether	63918-89-8	S1AB09
5. Lewisites:		
Lewisite 1: 2-Chlorovinyldichloroarsine	541-25-3	S1AB10
Lewisite 2: Bis(2-chlorovinyl)chloroarsine	40334-69-8	S1AB11
Lewisite 3: Tris(2-chlorovinyl)arsine	40334-70-1	S1AB12
6. Nitrogen mustards:		
HN1: Bis(2-chloroethyl)ethylamine	538-07-8	S1AB13
HN2: Bis(2-chloroethyl)methylamine	51-75-2	S1AB14
HN3: Tris(2-chloroethyl)amine	555-77-1	S1AB15
7. Saxitoxin	35523-89-8	S1AT01
8. Ricin	9009-86-3	S1AT02
13.P-alkyl (H or ≤C_{10}, incl. cycloalkyl) N-(1-(dialkyl(≤C_{10}, incl. cycloalkyl)amino))alkylidene(H or ≤C_{10}, incl. cycloalkyl) phosphonamidic fluorides and corresponding alkylated or protonated salts		S1AN04
e.g: N-(1-(di-n-decylamino)-n-decylidene)-P-decylphosphonamidic fluoride	2387495-99-8	
e.g: Methyl-(1-(diethylamino)ethylidene) phosphonamidofluoridate	2387496-12-8	
14.O-alkyl (H or ≤C_{10}, incl. cycloalkyl) N-(1-(dialkyl(≤C_{10}, incl. cycloalkyl)amino))alkylidene(H or ≤C_{10}, incl. cycloalkyl) phosphoramidofluoridates and corresponding alkylated or protonated salts		S1AN05
e.g: O-n-Decyl N-(1-(di-n-decylamino)-n-decylidene)phosphoramidofluoridate	2387496-00-4	
e.g: Methyl (1-(diethylamino)ethylidene) phosphoramidofluoridate	2387496-04-8	
e.g: Ethyl (1-(diethylamino)ethylidene) phosphoramidofluoridate	2387496-06-0	
15.Methyl-(bis(diethylamino)methylene) phosphonamidofluoridate	2387496-14-0	S1AN06
16. Carbamates (quaternaries and bisquaternaries of dimethylcarbamoyloxypyridines)		S1AN07
Quaternaries of dimethylcarbamoyloxypyridines: 1-[N,N-dialkyl(≤C10)-N-(n-(hydroxyl, cyano, acetoxy)alkyl(≤C10)) ammonio]-n-[N-(3-dimethylcarbamoxy-α-picolinyl)-N,N-dialkyl(≤C10) ammonio]decane dibromide (n=1-8)		
e.g: 1-[N,N-dimethyl-N-(2-hydroxy)ethylammonio]-10-[N- (3-dimethylcarbamoxy-α-picolinyl)-N,N-dimethylammonio]decane dibromide	77104-62-2	
Bisquaternaries of dimethylcarbamoyloxypyridines: 1,n-Bis[N-(3-dimethylcarbamoxy-α-picolyl)-N,N-dialkyl(≤C10) ammonio]-alkane-(2,(n-1)-dione) dibromide (n=2-12)		S1AN08
e.g: 1,10-Bis[N-(3-dimethylcarbamoxy-α-picolyl)-N-ethyl-N-methylammonio]decane-2,9-dione dibromide	77104-00-8	
Chemical Name (Schedule 1B)		
9. Alkyl (Me, Et, n-Pr or i-Pr) phosphonyl difluorides		S1BN01
e.g. : *DF*	676-99-3	
10.O-Alkyl (H or ≤C10, including cycloalkyl) O-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr)-phosphonites and corresponding alkylated or protonated salts		S1BN02
e.g.: *QL*	57856-11-8	
11.Chlorosarin: O-Isopropyl methylphosphonochloridate	1445-76-7	S1BN03
12.Chlorosoman: O-Pinacolyl methylphosphonochloridate	7040-57-5	S1BN04

Schedule 2A, 2A* & 2B

Chemical Name (Schedule 2A)	CAS Registry No	Product Code
1. Amiton: O,O-Diethyl S-[2-(diethylamino)ethyl] phosphorothiolate and corresponding alkylated or protonated salts	78-53-5	S2AN01
2. PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl) -1-propene	382-21-8	S2AT01
Schedule 2A*		
3. BZ: 3-Quinuclidinyl benzilate	6581-06-2	S2AT02
Schedule 2B		
4. Chemicals, except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal or iso) group but not further carbon atoms		S2BN01
e.g.: Methylphosphonyl dichloride	676-97-1	
Dimethyl methylphosphonate	756-79-6	
Exemption:		
Fonofos: O-Ethyl S-phenyl ethylphosphonothiolothionate	944-22-9	
5. N, N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic dihalides		S2BN02
6. Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates		S2BN03
7. Arsenic trichloride	7784-34-1	S2BB01
8. 2,2-Diphenyl-2-hydroxyacetic acid: Benzilic acid	76-93-7	S2BT01
9. Quinuclidin-3-ol	1619-34-7	S2BT02
10. N,N-Dialkyl (Me,Et,n-Pr or i-Pr) aminoethyl-2-chlorides and corresponding protonated salts		S2BB02
11. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding protonated salts		S2BB03
Exemptions:		
N,N-Dimethylaminoethanol and corresponding protonated salts	108-01-0	
N,N-Diethylaminoethanol and corresponding protonated salts	100-37-8	
12. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2- thiols and corresponding protonated salts		S2BN04
13. Thiodiglycol: Bis(2-hydroxyethyl)sulfide	111-48-8	S2BB05
14. Pinacolyl alcohol: 3,3-Dimethylbutan-2-ol	464-07-3	S2BN05

Schedule 2A, 2A* & 2B

- A total of 14 chemicals or groups of chemicals
- Type of chemicals: Chemicals that may be used as chemical weapons or as precursors in one of the chemical reactions at the final stage of formation of a chemical listed in Schedule 1.
- Have moderate number of commercial applications

Some possible product categories that may use Schedule 2 Chemicals:

i. Insecticides
ii. Flame retardant additive research (plastics, resins, fibres)
iii. Medical & pharmaceutical preparations
  a) *anticholinergics*
  b) *arsenicals*
  c) *tranquilliser preparations*
  d) *hypotensive agent preparations*
iv. Herbicides
v. Fungicides
vi. Defoliants
vii. Rodenticides
viii. General product additives, inter alia :
  a) *antioxidants (fuels, lubricats, etc.)*
  b) *colour stabilisers*
  c) *lubricant additives*
  d) *antistatic agents*
ix. Dyes, and photographic industries
  a) *printing ink*
  b) *ball point pen fluids*
  c) *copy mediums*
  d) *paints, coatings, etc.*
x. Metal plating preparations
xi. Toiletries including perfumes and scents
xii. Epoxy resins

Schedule 3A & 3B		
Chemical Name(Schedule 3A)	**CAS Registry No**	**Product Code**
1. Phosgene: Carbonyl dichloride	75-44-5	S3AC01
2. Cyanogen chloride	506-77-4	S3AT01
3. Hydrogen cyanide	74-90-8	S3AT02
4. Chloropicrin: Trichloronitromethane	76-06-2	S3AC02
Chemical Name (Schedule 3B)		
5. Phosphorus oxychloride	10025-87-3	S3BN01
6. Phosphorus trichloride	7719-12-2	S3BN02
7. Phosphorus pentachloride	10026-13-8	S3BN03
8. Trimethyl phosphite	121-45-9	S3BN04
9. Triethyl phosphite	122-52-1	S3BN05
10. Dimethyl phosphite	868-85-9	S3BN06
11. Diethyl phosphite	762-04-9	S3BN07
12. Sulfur monochloride	10025-67-9	S3BB01
13. Sulfur dichloride	10545-99-0	S3BB02
14. Thionyl chloride	7719-09-7	S3BB03
15. Ethyldiethanolamine	139-87-7	S3BB04
16. Methyldiethanolamine	105-59-9	S3BB05
17. Triethanolamine	102-71-6	S3BB06

Schedule 3A & 3B

- A total of 17 chemicals
- Type of chemicals: Chemicals that may be used as chemicals or is important in the production of one or more chemicals listed in Schedule 1 or Schedule 2.
- Have large number of commercial applications

Some possible product categories that may use Schedule 3 Chemicals:

i. Resin and plastic production
   a) *polycarbonates* c) *polyurethanes* e) *polysulfides*
   b) *polyestercarbonates* d) *polymethylmetacrylate*
ii. Isocyanates
iii. Toiletries
iv. Pharmaceuticals
v. Pesticides
vi. Herbicides
vii. Insecticides
viii. Amine manufacture
ix. Acrylonitrile manufacture
x. Cyanic acid manufacture
xi. Cyanogen manufacture
xii. Cyanogen chloride manufacture
xiii. Gold and other noble metal extraction solutions
xiv. Metal plating preparations
xv. Soil fumigants
xvi. Organic phosphate esters (hydraulic fluids, flame retardants, surfactants, sequestering agents)
xvii. Organic phosphates (stabilizers, antioxidants, flame retardants, lubricants, plasticizers)
xviii. Vulcanising agents for rubber
xix. Batteries
xx. Leather tannery and finishing supplies
xxi. Surfactants for detergents, oil drilling emulsions, cutting oils, soaps and toiletries
xxii. Corrosion inhibitors
xxiii. Cement manufacture supplies

[1] **Schedule 1A & 1B**

- A total of 16 chemicals or groups of chemicals
- Types of chemicals: Chemicals that may be used as chemical weapons or as precursors in the final single technological stage of production of a chemical weapon.
- Little or no commercial applications
- S/N 13 – 16 have been added to the list with effect from 7 June 2020

Some possible product categories that may use Schedule 1 Chemicals:

i. Pesticide development
ii. Insecticide development
iii. Medicinal & pharmaceutical preparations
   a) *antineoplastic agents* c) *monoclonal antibody preparations*
   b) *neuromuscular blocking agents* d) *intermediates for analgesics*
iv. Flame-retardant additive research (plastics, resins, fibres)

Unscheduled Discrete Organic Chemicals (DOCs)

Refers to any chemical belonging to the class of chemical compounds consisting of all compounds of carbon except for its oxides, sulfides and metal carbonates. They are identifiable by chemical name, structural formula (if known) and Chemical Abstracts Services (CAS) Registry Number (if assigned)

This term does not cover:

1. Oligomers & Polymers, whether or not containing Phosphorus, Sulfur or Fluorine.

2. Chemicals containing only carbon & metal.

3. Carbon monoxide & Carbon dioxide
   (as referred in the term "*oxides of carbon*" in the above definition)

4. Carbon disulfide or Carbonyl sulfide
   (as referred in the term "*sulfides of carbon*" in the above definition)

Note:
Plant sites that exclusively produce hydrocarbons and explosives are excluded from the purview of the NA(CWC), and do not require a NA(CWC) licence.

There are 2 types of unscheduled DOCs:

- PSF containing
  DOCs containing the elements Phosphorus, Sulfur and/or Fluorine

- Non-PSF containing
  DOCs that do not contain the elements Phosphorus, Sulfur and/or Fluorine

  E.g.: *Acetone is a non-PSF containing DOCs;*
  Carbon dioxide and Calcium carbonate are not DOCs;
  Fluoromethane is a PSF-containing DOCs.

For further queries, please contact NA(CWC) at:
Helpdesk: 6775 5137
Email: customs_nacwc@customs.gov.sg

Or you may wish to visit our website at:
www.customs.gov.sg/businesses/chemical-weapons-convention/introduction for more information.

A Guide to NA(CWC) Licence

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