



Global Chemical Industry Compliance Programme

GC-ICP

**Chemical Weapons
Convention**

December 2006

Version 1.0

GLOBAL CHEMICAL INDUSTRY COMPLIANCE PROGRAMME FOR IMPLEMENTING THE CHEMICAL WEAPONS CONVENTION

The purpose of the handbook is to provide guidance to chemical facilities, traders and trading companies in developing a Global Chemical Industry Compliance Programme (GC-ICP) to comply with the Chemical Weapons Convention (CWC). The GC-ICP focuses first on determining if there is a reporting requirement to your National Authority and second on collecting the relevant support data used to complete the required reports. The GC-ICP is designed to provide a methodology to comply with the CWC and establish systems that facilitate and demonstrate such compliance. Each facility/company should also ensure that it follows its country's CWC specific laws, regulations and reporting requirements.

- Sections 2, 3, and 4 guide you through the process of determining if chemicals at your facility/company should be reported to your National Authority for compliance with the CWC.
- Section 5 provides recommended guidance on information that you may use to determine your reporting requirements under the CWC and administrative tools that your facility/company may use to ensure compliance with the CWC.
- Section 6 provides a glossary of terms and associated acronyms.
- Section 7 provides a listing of all National Authorities by country.

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Section **1** OVERVIEW

➤ **What is the Chemical Weapons Convention?**

- The Chemical Weapons Convention (CWC) is an international treaty that *prohibits* the development, production, stockpiling, use, and transfer of chemicals that could be associated with chemical weapons.
 - The full text of the CWC can be found at <http://www.opcw.org>.
- The CWC *permits* toxic chemicals and their precursors to be researched, developed, produced, otherwise acquired, retained, transferred, or used within the territory of a State Party or any other place under the jurisdiction or control of a State Party for purposes not prohibited under the Convention. The purposes that are not prohibited include industrial, agricultural, research, medical, pharmaceutical, protective, law enforcement, or other peaceful purposes.
- A State Party to the CWC is a country that has ratified or acceded to the treaty. Your country has ratified the treaty and is, therefore, a State Party to the CWC.
 - There are currently 181 States Parties to the CWC.
 - A list of States Parties can be found at <http://www.opcw.org>.
- The CWC requires States Parties to implement the collection of data and on-site verification requirements related to the production, processing, consumption, importation, and exportation of certain toxic chemicals and their precursors as well as unscheduled discrete organic chemicals (DOCs).
- The CWC is internationally administered by the Organisation for the Prohibition of Chemical Weapons (OPCW), which is located in The Hague, the Netherlands.
- The CWC requires that States Parties establish a National Authority to serve as the national focal point for implementing the CWC and interfacing with the OPCW. Your point of contact on all CWC related matters is your country's National Authority.
 - A list of National Authorities, including points of contact, mailing addresses, and telephone numbers can be found at: <http://www.opcw.org/docs/NationalAuthorities.pdf> or <http://gc-icp.cwc.gov>.
- The OPCW reviews and verifies declarations submitted to it by States Parties for accuracy and completeness.

➤ **What is a Global Chemical Industry Compliance Program (GC-ICP)?**

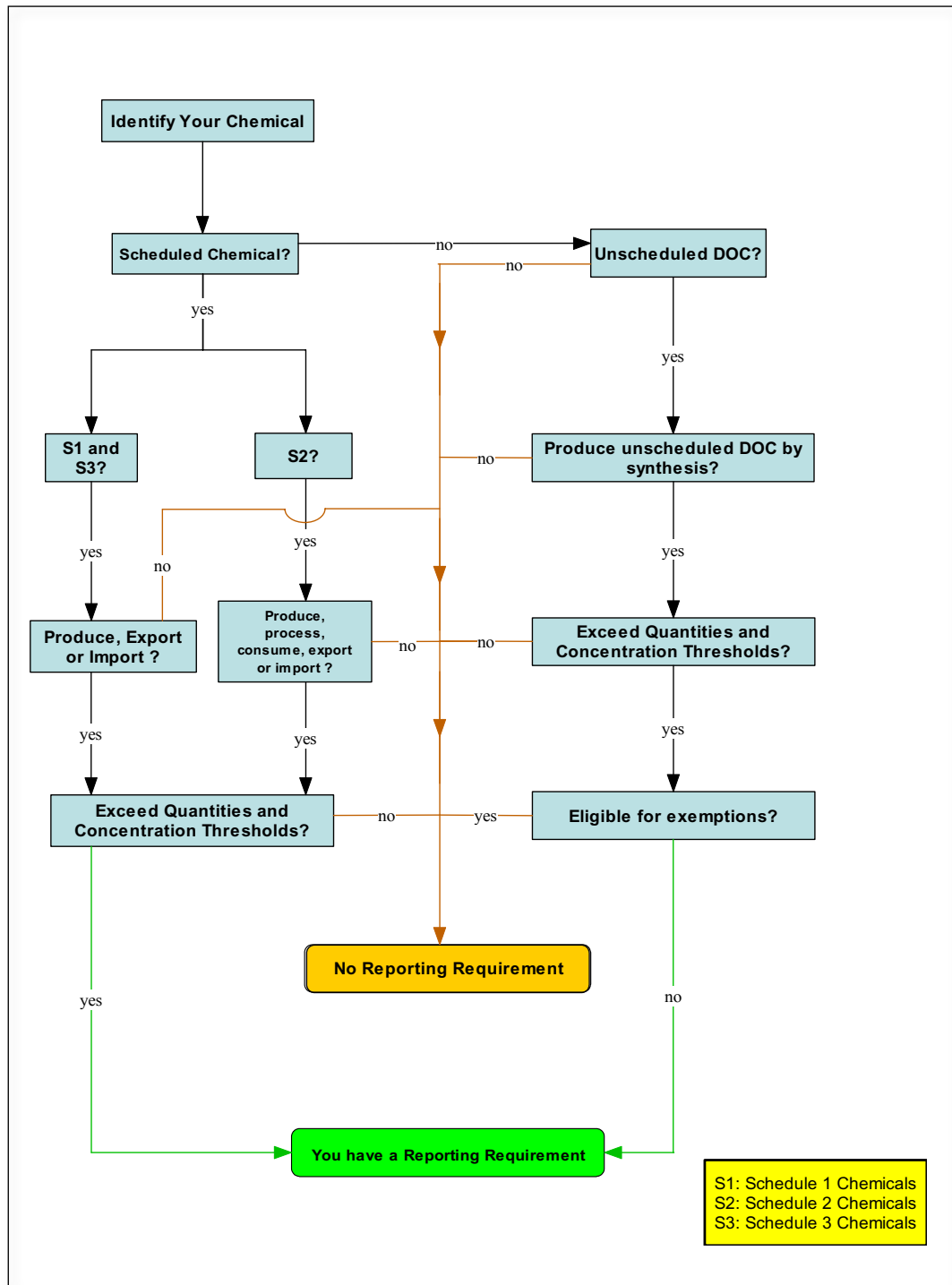
- A Global Chemical Industry Compliance Program (GC- ICP) is a handbook designed to assist the global chemical industry to comply with the CWC.
- The GI-CP provides a step-by-step methodology for determining if chemicals at your facility/company are subject to reporting requirements to your National Authority under the CWC.
- While the GC-ICP provides you assistance in complying with the CWC, you must consult with your country's National Authority concerning CWC regulations and reporting requirements specific to your country.
- The GC-ICP is intended to assist facilities in determining if any chemicals located at your facility/company are subject to the provisions of the CWC. The development of a GC-ICP will require someone at your facility/company to answer the following three questions:
 1. Is your facility/company involved with chemicals listed on the "Schedules of Chemicals" or identified as an unscheduled DOC, as defined by the CWC?
 - The Schedules of Chemicals are a list of chemicals and families of chemicals that are subject to reporting under the CWC. (See pages 7 - 9.)
 2. Does your facility/company produce, process, consume, import, or export one or more of the chemicals on the Schedules of Chemicals or unscheduled DOCs?

- Does the quantity and concentration threshold of each chemical produced, processed, consumed, imported, or exported by your facility/company exceed the applicable mixture and quantity thresholds set by the CWC or by your country's national rules and regulations?

Based on your answers to the above questions, you can determine whether your facility/company will benefit by establishing a GC-ICP.

Overview of the Steps for Determining your Reporting Requirements

This flow chart provides a brief overview of the decision process that you will encounter in Sections 2, 3 and 4 of the GC-ICP.



Section **2** CHEMICALS

➤ Introduction to Chemicals

Before determining if you have chemicals that are subject to reporting to your National Authority, it is important to first understand why certain chemicals are subject to data monitoring and verification under the CWC, including their capability for use for chemical weapons or non-prohibited purposes.

➤ Overview of CWC Chemicals

- The CWC specifically addresses chemicals listed in three Schedules and unscheduled “discrete organic chemicals” (DOCs).
- The Schedules of Chemicals are contained in the treaty’s Annex on Chemicals. (See pages 7 - 9.)
- Scheduled chemicals are grouped based on their industrial or commercial uses and the potential risk they pose to the object and purpose of the CWC.
- Unscheduled DOCs are monitored under the CWC due to the process equipment used to produce them and the potential applicability of such equipment for use in chemical agent production.

➤ Organisation of the Schedules of Chemicals

- Toxic chemicals are listed in the “A” part of the Schedules.
 - Defined as “any chemical which through its chemical action on life processes can cause death, temporary incapacitation, or permanent harm to humans or animals.”

Example:

Phosgene: Carbonyl dichloride, Schedule 3

- Precursor chemicals are listed in the “B” part of the Schedules, and have been used in the production of toxic chemicals.
 - Defined in the treaty as “any chemical reactant which takes part at any stage in the production by whatever means of a toxic chemical.”

Example:

Thiodiglycol, Schedule 2

Note: *Not all chemicals listed in the CWC’s Schedules of Chemicals are chemical weapon (CW) agents.*

➤ ANNEX ON CHEMICALS

A. Guidelines for Schedules of Chemicals

Schedule 1 Chemicals

1. The following criteria shall be taken into account in considering whether a toxic chemical or precursor should be included in Schedule 1:
 - (a) It has been developed, produced, stockpiled or used as a chemical weapon as defined in Article II;
 - (b) It poses otherwise a high risk to the object and purpose of this Convention by virtue of its high potential for use in activities prohibited under this Convention because one or more of the following conditions are met:
 - (i) It possesses a chemical structure closely related to that of other toxic chemicals listed in Schedule 1, and has, or can be expected to have, comparable properties;
 - (ii) It possesses such lethal or incapacitating toxicity as well as other properties that would enable it to be used as a chemical weapon;
 - (iii) It may be used as a precursor in the final single technological stage of production of a toxic chemical listed in Schedule 1, regardless of whether this stage takes place in facilities, in munitions or elsewhere;
 - (c) It has little or no use for purposes not prohibited under this Convention.

Schedule 2 Chemicals

2. The following criteria shall be taken into account in considering whether a toxic chemical not listed in Schedule 1 or a precursor to a Schedule 1 chemical or to a chemical listed in Schedule 2, part A, should be included in Schedule 2:
 - (a) It poses a significant risk to the object and purpose of this Convention because it possesses such lethal or incapacitating toxicity as well as other properties that could enable it to be used as a chemical weapon;
 - (b) It may be used as a precursor in one of the chemical reactions at the final stage of formation of a chemical listed in Schedule 1 or Schedule 2, part A;
 - (c) It poses a significant risk to the object and purpose of this Convention by virtue of its importance in the production of a chemical listed in Schedule 1 or Schedule 2, part A;
 - (d) It is not produced in large commercial quantities for purposes not prohibited under this Convention.

Schedule 3 Chemicals

3. The following criteria shall be taken into account in considering whether a toxic chemical or precursor, not listed in other Schedules, should be included in Schedule 3:
 - (a) It has been produced, stockpiled or used as a chemical weapon;
 - (b) It poses otherwise a risk to the object and purpose of this Convention because it possesses such lethal or incapacitating toxicity as well as other properties that might enable it to be used as a chemical weapon;
 - (c) It poses a risk to the object and purpose of this Convention by virtue of its importance in the production of one or more chemicals listed in Schedule 1 or Schedule 2, part B;
 - (d) It may be produced in large commercial quantities for purposes not prohibited under this Convention.

☞ Schedules of Chemicals

Schedule 1		CAS registry number	HS Code*
A. Toxic chemicals:			
(1)	O-Alkyl ($\leq C_{10}$, incl. cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonofluoridates e.g. Sarin: O-Isopropyl methylphosphonofluoridate Soman: O-Pinacolyl methylphosphonofluoridate	107-44-8 96-64-0	2931.00
(2)	O-Alkyl ($\leq C_{10}$, incl. cycloalkyl) N,N-dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidocyanidates e.g. Tabun: O-Ethyl N,N-dimethyl phosphoramidocyanidate	77-81-6	2931.00
(3)	O-Alkyl (H or $\leq C_{10}$, incl. 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 e.g. VX: O-Ethyl S-2-diisopropylaminoethyl methyl phosphonothiolate	50782-69-9	2930.90
(4)	Sulfur mustards: 2-Chloroethylchloromethylsulfide Mustard gas: Bis(2-chloroethyl)sulfide Bis(2-chloroethylthio)methane Sesquimustard: 1,2-Bis(2-chloroethylthio)ethane 1,3-Bis(2-chloroethylthio)-n-propane 1,4-Bis(2-chloroethylthio)-n-butane 1,5-Bis(2-chloroethylthio)-n-pentane Bis(2-chloroethylthiomethyl)ether O-Mustard: Bis(2-chloroethylthioethyl)ether	2625-76-5 505-60-2 63869-13-6 3563-36-8 63905-10-2 142868-93-7 142868-94-8 63918-90-1 63918-89-8	2930.90
(5)	Lewisites: Lewisite 1: 2-Chlorovinylchloroarsine Lewisite 2: Bis(2-chlorovinyl)chloroarsine Lewisite 3: Tris(2-chlorovinyl)arsine	541-25-3 40334-69-8 40334-70-1	2931.00
(6)	Nitrogen mustards: HN1: Bis(2-chloroethyl)ethylamine HN2: Bis(2-chloroethyl)methylamine HN3: Tris(2-chloroethyl)amine	538-07-8 51-75-2 555-77-1	2921.19 2930.90 2921.19
(7)	Saxitoxin	35523-89-8	3002.90
(8)	Ricin	9009-86-3	3002.90
B. Precursors:			
(9)	Alkyl (Me, Et, n-Pr or i-Pr) phosphonyldifluorides e.g. DF: Methylphosphonyldifluoride	676-99-3	
(10)	O-Alkyl (H or $\leq C_{10}$, incl. 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 e.g. QL: O-Ethyl O-2-diisopropylaminoethyl methylphosphonite	57856-11-8	2931.00
(11)	Chlorosarin: O-Isopropyl methylphosphonochloridate	1445-76-7	2931.00
(12)	Chlorosoman: O-Pinacolyl methylphosphonochloridate	7040-57-5	2931.00

* Harmonized System Code is a worldwide classification system in which the same 6-digit number is assigned to a commodity (e.g., chemical) regardless of its origin or the language in which it is described.

🔍 Schedules of Chemicals

Schedule 2		CAS registry number	HS Code*
A. Toxic chemicals:			
(1)	Amiton: O,O-Diethyl S-[2-(diethylamino)ethyl] phosphorothiolate and corresponding alkylated or protonated salts	75-53-5	2930.90
(2)	PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene	382-21-8	2903.30
(3)	BZ: 3-Quinuclidinyl benzilate (*)	6581-06-2	2933.90
B. Precursors:			
(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, e.g. Methylphosphonyl dichloride Dimethyl methylphosphonate Exemption: Fonofos: O-Ethyl S-phenyl Ethylphosphonothiolothionate	676-97-1 756-79-6 944-22-9	2931.00
(5)	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic dihalides		2929.90
(6)	Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl Me, Et, n-Pr or i-Pr)-phosphoramidates		2929.00
(7)	Arsenic trichloride	7784-34-1	2812.10
(8)	2,2-Diphenyl-2-hydroxyacetic acid	76-93-7	2918.19
(9)	Quinuclidin-3-ol	1619-34-7	2933.39
(10)	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2-chlorides and corresponding protonated salts		2921.19
(11)	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding protonated salts Exemptions: N,N-Dimethylaminoethanol and corresponding protonated salts N,N-Diethylaminoethanol and corresponding protonated salts	108-01-0 100-37-8	2922.19
(12)	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding protonated salts		2930.90
(13)	Thiodiglycol: Bis(2-hydroxyethyl)sulfide	111-48-8	2930.90
(14)	Pinacolyl alcohol: 3,3-Dimethylbutan-2-ol	464-07-3	2905.14

* Harmonized System Code is a worldwide classification system in which the same 6-digit number is assigned to a commodity (e.g., chemical) regardless of its origin or the language in which it is described.

🔍 Schedules of Chemicals

Schedule 3		CAS registry number	HS Code*
A. Toxic chemicals:			
(1)	Phosgene: Carbonyl dichloride	75-44-5	2812.10
(2)	Cyanogen chloride	506-77-4	2851.00
(3)	Hydrogen cyanide	74-90-8	2811.19
(4)	Chloropicrin: Trichloronitromethane	76-06-2	2904.90
B. Precursors:			
(5)	Phosphorus oxychloride	10025-87-3	2812.10
(6)	Phosphorus trichloride	7719-12-2	2812.10
(7)	Phosphorus pentachloride	10026-13-8	2812.10
(8)	Trimethyl phosphite	121-45-9	2920.90
(9)	Triethyl phosphite	122-52-1	2920.90
(10)	Dimethyl phosphite	868-85-9	2921.19
(11)	Diethyl phosphite	762-04-9	2920.90
(12)	Sulfur monochloride	10025-67-9	2812.10
(13)	Sulfur dichloride	10545-99-0	2812.10
(14)	Thionyl chloride	7719-09-7	2812.10
(15)	Ethyldiethanolamine	139-87-7	2922.19
(16)	Methyldiethanolamine	105-59-9	2922.19
(17)	Triethanolamine	102-71-6	2922.13

* Harmonized System Code is a worldwide classification system in which the same 6-digit number is assigned to a commodity (e.g., chemical) regardless of its origin or the language in which it is described.

➤ **Unscheduled Discrete Organic Chemicals**

Definition: Unscheduled discrete organic chemical (DOC) means any chemical belonging to the class of chemical compounds consisting of all compounds of carbon except for its oxides, sulfides and metal carbonates identifiable by chemical name, by structural formula, if known, and by Chemical Abstract Service (CAS) registry number, if assigned.

Exemptions: The following types of unscheduled DOCs are not subject to declaration:

- Oxides of carbon;
- Sulfides of carbon;
- Metal carbonates;
- Chemicals only containing carbon and metal; and
- Oligomers and polymers.

“Other chemical production facilities (OCPFs)” are not subject to declaration if they exclusively produce:

- Hydrocarbons (i.e., chemicals containing only carbon and hydrogen, irrespective of the number of carbon atoms in the compound); or
- Explosives (i.e., those chemicals listed in Class 1 of the United Nations Organisation Hazard Classification System).

Note: *The above exemption for OCPFs that “exclusively” produce hydrocarbons and explosives does not apply if any other type of unscheduled DOCs are produced at the OCPF. In that case, the quantity of hydrocarbons and explosives produced would be aggregated to determine the total quantity of produced unscheduled DOCs.*

➤ **Guidelines for Classifying Carbon Oxides, Carbon Sulfides, Metal Carbonates or Compounds of Metal and Carbon**

To determine whether an unscheduled DOC qualifies for exemption as a carbon oxide, carbon sulfide, metal carbonate or compound of metal and carbon, evaluate each chemical against the definitions below:

- Carbon oxides consist of chemical compounds that contain only the elements carbon and oxygen and have the chemical formula C_xO_y , where x and y denote integers. The two most common carbon oxides are carbon monoxide (CO) and carbon dioxide (CO₂). If a chemical produced at a plant site fits this definition, then it is classified as a carbon oxide.
- Carbon sulfides consist of chemical compounds that contain only the elements carbon and sulfur, and have the chemical formula C_aS_b , where a and b denote integers. The most common carbon sulfide is carbon disulfide (CS₂). If a chemical produced at a plant site fits this definition, then it is classified as a carbon sulfide.
- Metal carbonates consist of chemical compounds that contain a metal [i.e., the Group 1 Alkalis, Groups II Alkaline Earths, the Transition Metals, or the elements aluminum, gallium, indium, thallium, tin, lead, bismuth or polonium], and the elements carbon and oxygen. Metal carbonates have the chemical formula $M_d(CO_3)_e$, where d and e denote integers and M represents a metal. Common metal carbonates are sodium carbonate (Na₂CO₃) and calcium carbonate (CaCO₃). If a chemical produced at a plant site fits this definition then it is classified as a metal carbonate.
- Compounds of metal and carbon consist of those chemicals that contain only a metal (as described in the previous paragraph) and carbon, e.g., calcium carbide (CaC₂).

➤ **How do you Determine if your Chemical is Subject to the CWC?**

This section will guide you through a 5 step methodology for determining which, if any, of the chemicals located at your facility/company need to be reported to your National Authority.

5 Step Methodology

Step One:

Compile a list of all chemicals located on your facility/company with their corresponding International Union of Pure and Applied Chemistry (IUPAC) name, Chemical Abstract Service (CAS) registry number, and formula or structure.

This list of chemicals can often be compiled from information at your facility/company, such as central chemical database, warehouse receipts of chemicals, warehouse inventory, products produced on site, etc. Chemical synonyms and structures are also helpful in classifying compounds and may sometimes be found in Material Safety Data Sheets (MSDS).

Some useful guidelines to consider for evaluating your chemical are as follows:

- Determine the CAS registry number for your chemical. For comparison with a specific chemical, it is easiest to compare directly using the CAS registry number or chemical name. It is somewhat more difficult to search for chemicals which are scheduled generically; for example, compounds such as certain alkyl phosphonates, which are included in the Schedules because they contain direct carbon to phosphorus bonds, and dialkyl ethanol amines which contain the ethanol amine group. In these cases, the generic descriptor can be used as a starting point in the search for correlations -- moving beyond the generic to specific chemicals will be necessary.
- Determine the molecular formula, and/or the chemical structure. This will enable you to clearly ascertain which atoms make up this particular compound.
- Once you have collected information on all the chemicals at your facility/company, you should perform steps 2 to 5 for each chemical to determine if any should be reported to your National Authority. Generally, your analysis can focus on organic compounds. Certain basic inorganic compounds, such as sulfuric acid, phosphoric acid, ammonia will not be captured.
- An attempt is made to associate the Harmonized System of Tariffs Codes (HS Codes) to the Schedules of Chemicals using a 6-digit categorization. These codes are included in the Schedules of Chemicals (pages 7 – 9) to assist you in identifying exported or imported Scheduled chemicals. If more than one 6-digit code is noted for a chemical or family/group, you can search using the HS Code.

Note: *The individual performing the chemical determination should have a basic knowledge of chemistry (i.e., organic, analytical), or access to someone who does, in order to identify Scheduled chemicals or unscheduled DOCs, pursuant to the CWC.*

Helpful tools

There are several tools available to assist you in determining if your chemicals are subject to reporting to your National Authority. A few helpful websites and documents include:

Websites:

- <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>. This site allows you to search chemical names and CAS registry numbers for corresponding synonyms and chemical structures.
- <http://hazard.com/msds/>. This site allows you to locate a chemical's MSDS which may provide synonyms and structures for that chemical.
- <http://www.cas.org/EO/regsys.html>. This site allows you to search on chemical substance information from scientific literature.

Documents:

- OPCW documents, 2005 Drafts of the Handbook of Chemicals.
 - <http://www.opcw.org/docs/verification/ChemicalsOrderedByName.pdf>,
 - <http://www.opcw.org/docs/verification/ChemicalsOrderedByCASNumberOrKey.pdf>,
 - <http://www.opcw.org/docs/verification/ChemicalsOrderedBySchedule.pdf>

➤ **Table 1: Commonly Used or Traded Scheduled Chemicals***

CAS	IUPAC Name	Schedule**
35523-89-8	Saxitoxin	1A07
78-53-5	O,O-Diethyl S-2-diethylaminoethyl phosphorothiolate	2A01
382-21-8	PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene	2A02
6581-06-2	BZ: 3-Quinuclidinyl benzilate	2A03
170836-68-7	Mixture of CAS RN 41203-81-0 and CAS RN 42595-45-9	2B04
294675-51-7	Phosphonic acid, methyl-, polyglycol ester	2B04
41203-81-0	Phosphonic acid, methyl-, (5-ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphorinan-5-yl) methyl methyl ester	2B04
42595-45-9	Phosphonic acid, methyl-, bis[(5-ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphorinan-5-yl)methyl] ester	2B04
6172-80-1	Butyl methylphosphinate	2B04
676-83-5	Methylphosphonous dichloride	2B04
676-97-1	Methylphosphonic dichloride	2B04
68957-94-8	2,4,6-Tripropyl-1,3,5,2,4,6-trioxatriphosphinane 2,4,6-trioxide	2B04
70715-06-9	Mixture of Dimethyl methylphosphonate, Oxirane and Phosphorus oxide(P2O5)	2B04
756-79-6	Dimethyl methylphosphonate	2B04
78-38-6	Diethyl ethylphosphonate	2B04
84402-58-4	Mixture: 50% Methylphosphonic acid / 50% (Aminoiminomethyl)urea	2B04
84962-98-1	Sodium 3-(trihydroxysilyl)propyl methylphosphonate	2B04
76-93-7	2,2-Diphenyl-2-hydroxyacetic acid	2B08
4261-68-1	2-(N,N-Diisopropylamino)ethyl chloride hydrochloride	2B10
4584-46-7	2-(N,N-Dimethylamino)ethyl chloride hydrochloride	2B10
869-24-9	2-(N,N-Diethylamino)ethyl chloride hydrochloride	2B10
96-80-0	2-(N,N-Diisopropylamino)ethanol	2B11
100-38-9	2-(N,N-Diethylamino)ethanethiol	2B12
111-48-8	Thiodiglycol: Bis(2-hydroxyethyl)sulfide	2B13
75-44-5	Carbonyl dichloride	3A01
506-77-4	Cyanogen chloride	3A02
74-90-8	Hydrogen cyanide	3A03
76-06-2	Trichloronitromethane	3A04
10025-87-3	Phosphorous oxychloride	3B05
7719-12-2	Phosphorous trichloride	3B06
10026-13-8	Phosphorous pentachloride	3B07
121-45-9	Trimethyl phosphite	3B08
122-52-1	Triethyl phosphite	3B09
868-85-9	Dimethyl phosphite	3B10
762-04-9	Diethyl phosphite	3B11
10025-67-9	Sulfur monochloride	3B12

Step Two:
You can quickly determine if your chemical is on the Schedules of Chemicals by comparing the Chemical Abstract Service (CAS) registry number of your chemical to those listed in Tables 1 and 2

Table 1: Commonly Used or Traded Scheduled Chemicals* (con't)

10545-99-0	Sulfur dichloride	3B13
7719-09-7	Thionyl chloride	3B14
139-87-7	Ethyldiethanolamine	3B15
105-59-9	Methyldiethanolamine	3B16
102-71-6	Triethanolamine	3B17

* List is from OPCW document: <http://www.opcw.org/docs/publications/SelectedScheduledChemicals.pdf>, dated August 2005. ** The third column shows the CWC reference for the chemical or chemical family as listed in the CWC Schedules of Chemicals. The first number is the Schedule (1, 2, or 3), the letter is the category (A or B), and the last two numbers is the chemical or chemical family (01 – 17).

Table 2: Scheduled Chemicals Not Commonly Used or Traded

CAS	IUPAC Name	Schedule*
9009-86-3	Ricin	1A08
1445-76-7	Chlorosarin: O Isopropyl methylphosphonochloridate	1B11
7040-57-5	Chlorosoman: O Pinacolyl methylphosphonochloridate	1B12
7784-34-1	Arsenic trichloride	2B07
1619-34-7	Quinuclidin 3 ol	2B09
464-07-3	Pinacolyl alcohol: 3,3 Dimethylbutan 2 ol	2B14

* The third column shows the CWC reference for the chemical as listed in the CWC Schedules of Chemicals. The first number is the Schedule (1, 2, or 3), the letter is the category (A or B), and the last two numbers is the chemical or chemical family (01 – 17).

- If you were able to classify your chemical as a Schedule 1 chemical, contact your National Authority for further guidance.
- If you were able to classify your chemical as a Schedule 2 or 3 chemical, proceed to Section 3, Activities.
- If you were **not** able to classify your chemical as a Scheduled chemical from the lists above, proceed to Step Three.

Step Three:

Determine if your chemical contains one or more of the elements Phosphorus, Sulfur, Fluorine, Arsenic, and/or Nitrogen?

- If you determined that your chemical does contain any of these elements, proceed to Step Four.
- If your chemical does **not** contain any of these elements, proceed to Step Five.

Step Four:

Determine which family/group of Scheduled chemicals your chemical corresponds. Compare your chemical with the family/group of Scheduled chemicals in Tables 3 – 7 that correspond to the elements Phosphorus, Sulfur, Fluorine, Arsenic, and/or Nitrogen. The comparison can be made by using the name, formula, or in some cases, the CAS registry number.

Note 1: *It is helpful to determine the chemical formula and/or structure. This will clearly determine which atoms make up a particular compound. If you have trouble deriving the formula or structure, consult a chemist (i.e., analytical, organic).*

Note 2: *In Tables 3 -7 on the following pages, the third column shows the CWC reference for the chemical or chemical family as it is listed in the CWC Schedules of Chemicals. The first number is the Schedule (1, 2, or 3), the letter is the category (A or B), and the last two numbers are the chemical or chemical family (01 – 17).*

Table 3: Scheduled Chemical Family/Group containing Phosphorus

CAS	Family/IUPAC name	Schedule
(107 44 8) (96 64 0)	O Alkyl ($\leq C_{10}$, incl. cycloalkyl) alkyl, (Me, Et, n Pr or i Pr) phosphonofluoridates Examples: Sarin: O Isopropyl methylphosphonofluoridate Soman: O Pinacolyl methylphosphonofluoridate	1A01
(77-81-6)	O Alkyl ($\leq C_{10}$, incl. cycloalkyl) N,N dialkyl, (Me, Et, n Pr or i Pr) phosphoramididate organic chemicalyanidates Examples: Taban: O-Ethyl N,N-dimethyl phosphoramididate organic chemicalyanidates	1A02
(50782 69 9)	O Alkyl (H or $\leq C_{10}$, incl. 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 Example: VX:O Ethyl S 2 diisopropylaminoethyl methyl phosphonothiolate	1A03
(676 99 3)	Alkyl (Me, Et, n Pr or i Pr) phosphonyldifluorides Example: DF: Methylphosphonyldifluoride	1B09
(57856 11 8)	O Alkyl (H or $\leq C_{10}$, incl. 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 Example: QL:O Ethyl O 2 diisopropylaminoethyl methylphosphonite	1B10
(75-53-5)	Amiton: O,O Diethyl S [2 (diethylamino)ethyl] phosphorothiolate and corresponding alkylated or protonated salts	2A01
(676 97 1) (756 79 6) (944 22 9)	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. Examples: Methylphosphonyl dichloride Dimethyl methylphosphonate Exemption: Fonofos: O Ethyl S phenyl ethylphosphonothiolothionate	2B04
	N,N Dialkyl (Me, Et, n Pr or i Pr) phosphoramidic dihalides	2B05
	Dialkyl (Me, Et, n Pr or i Pr) N,N dialkyl Me, Et, n Pr or i Pr) phosphoramidates	2B06

☞ **Table 4: Scheduled Chemical Family/Group containing Sulfur**

CAS	Family/IUPAC name	Schedule
(50782 69 9)	O Alkyl (H or $\leq C_{10}$, incl. 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 Example: VX:O Ethyl S 2 diisopropylaminoethyl methyl phosphonothiolate	1A03
(2625 76 5) (505 60 2) (63869 13 6) (3563 36 8) (63905 10 2) (142868 93 7) (142868 94 8) (63918 90 1) (63918 89 8)	Sulfur mustards: Examples: 2 Chloroethylchloromethylsulfide Mustard gas: Bis(2 chloroethyl)sulfide Bis(2 chloroethylthio)methane Sesquimustard: 1,2 Bis(2 chloroethylthio)ethane 1,3 Bis(2 chloroethylthio) n propane 1,4 Bis(2 chloroethylthio) n butane 1,5 Bis(2 chloroethylthio) n pentane Bis(2 chloroethylthiomethyl)ether O Mustard: Bis(2 chloroethylthioethyl)ether	1A04
(75-53-5)	Amiton: O,O Diethyl S [2 (diethylamino)ethyl] phosphorothiolate and corresponding alkylated or protonated salts	2A01
	N,N Dialkyl (Me, Et, n Pr or i Pr) aminoethane 2 thiols and corresponding protonated salts	2B12

☞ **Table 5: Scheduled Chemical Family/Group containing Fluorine**

CAS	Family/IUPAC name	Schedule
(107 44 8) (96 64 0)	O Alkyl ($\leq C_{10}$, incl. cycloalkyl) alkyl, (Me, Et, n Pr or i Pr) phosphonofluoridates Examples: Sarin: O Isopropyl methylphosphonofluoridate Soman: O Pinacolyl methylphosphonofluoridate	1A01
(676 99 3)	Alkyl (Me, Et, n Pr or i Pr) phosphonyldifluorides Example: DF: Methylphosphonyldifluoride	1B09

Table 6: Scheduled Chemical Family/Group containing Arsenic

CAS	Family/IUPAC name	Schedule
(541 25 3) (40334 69 8) (40334 70 1)	Lewisites: Examples: Lewisite 1: 2 Chlorovinylchloroarsine Lewisite 2: Bis(2 chlorovinyl)chloroarsine Lewisite 3: Tris(2 chlorovinyl)arsine	1A05

Table 7, Scheduled Chemical Family/Group containing Nitrogen

CAS	Family/IUPAC name	Schedule
(50782 69 9)	O Alkyl (H or $\leq C_{10}$, incl. 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 Example: VX:O Ethyl S 2 diisopropylaminoethyl methyl phosphonothiolate	1A03
(538 07 8) (51 75 2) (555 77 1)	Nitrogen mustards: Examples: HN1: Bis(2 chloroethyl)ethylamine HN2: Bis(2 chloroethyl)methylamine HN3: Tris(2 chloroethyl)amine	1A06
(57856 11 8)	O Alkyl (H or $\leq C_{10}$, incl. 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 Example: QL: O Ethyl O 2 diisopropylaminoethyl methylphosphonite	1A10
(75-53-5)	Amiton: O,O Diethyl S [2 (diethylamino)ethyl] phosphorothiolate and corresponding alkylated or protonated salts	2A01
	N,N Dialkyl (Me, Et, n Pr or i Pr) aminoethyl 2 chlorides and corresponding protonated salts	2B10
(108-01-0) (100-37-8)	N,N Dialkyl (Me, Et, n Pr or i Pr) aminoethane 2 ols and corresponding protonated salts Exemptions: N,N Dimethylaminoethanol and corresponding protonated salts N,N Diethylaminoethanol and corresponding protonated salts	2B11
	N,N Dialkyl (Me, Et, n Pr or i Pr) aminoethane 2 thiols and corresponding protonated salts	2B12

- If you determined that your chemical is a Schedule 1 chemical, contact your National Authority for further guidance.
- If you were able to classify your chemical as a Schedule 2 chemical, proceed to Section 3, Activities.
- If you were **not** able to classify your chemical as a Scheduled chemical, proceed to Step Five.

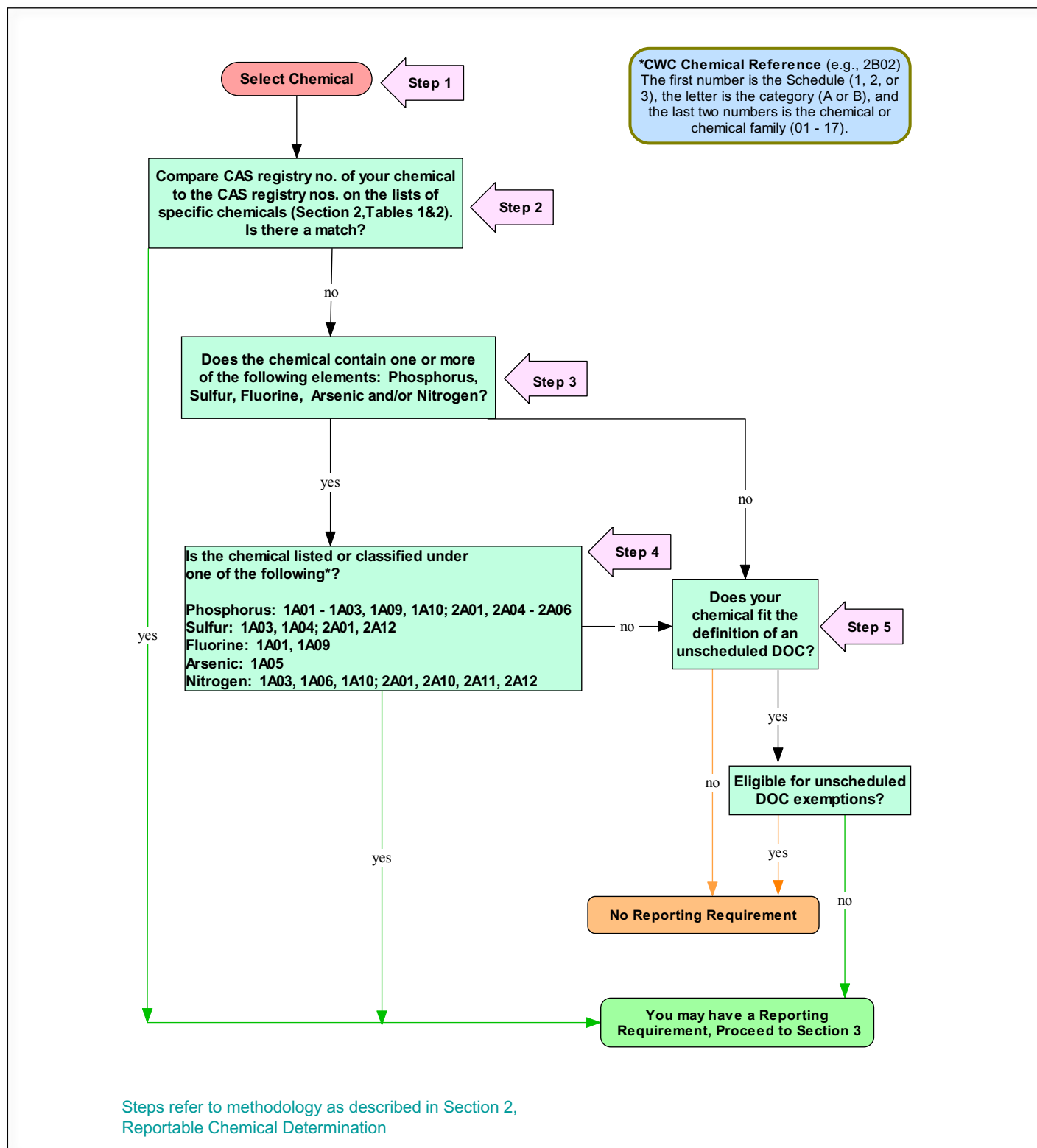
Step Five:

Compare your chemical with the CWC definition of unscheduled DOCs (see page 10) and related exemptions to determine whether an unscheduled DOC qualifies for exemption as a carbon oxide, carbon sulfide, metal carbonate or compound of metal and carbon.

- If you determined that your chemical does meet the definition of an unscheduled DOC, proceed to Section 3, Activities.
- If you determined that your chemical does **not** meet the definition of an unscheduled DOC, you do **not** have a CWC reporting requirement.
- If you are unsure of your analysis, contact your country's National Authority for assistance.

Overview of the Steps for Determining if your Chemical is Subject to Reporting Requirements

This flow chart provides a brief overview of the methodology that you may use to determine if your chemical is subject to CWC reporting requirements.



➤ Practical Examples

The following examples demonstrate how to use the chemical determination methodology described in Section 2. These examples are for a Schedule 2 chemical and two unscheduled DOCs.

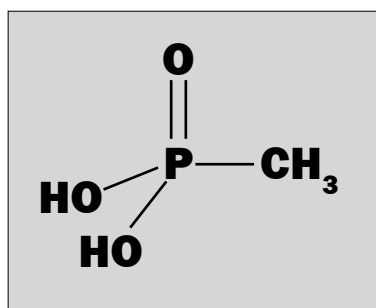
EXAMPLE 1. SCHEDULE 2 CHEMICAL

Step One:

The chemical for this example is methyl phosphonic acid.

Determine the chemical CAS registry number, formula, and/or structure. This will enable you to clearly determine which atoms make up this particular compound. If you have trouble deriving the formula or structure, consult a chemist (i.e., analytical, organic).

The structure of this chemical is:



The molecular formula is: $\text{CH}_3\text{O}_3\text{P}$

You may obtain your CAS registry number from the chemical MSDS or other open sources.

The CAS registry number for this chemical is 993-13-5.

Step Two:

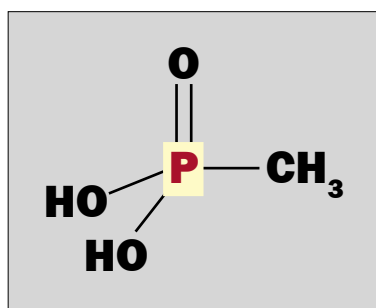
Compare your chemical CAS registry number to the individual chemicals listed on Table 1 and Table 2.

- The CAS registry number for methyl phosphonic acid is **not** listed on these tables.

You now need to consider whether the chemical belongs to one of the Schedule 1 families/groups or a Schedule 2 family/group; or is an unscheduled DOC. Proceed to Step Three.

Step Three:

Determine which of the following elements are present in this compound: Phosphorus, Sulfur, Fluorine, Arsenic, and/or Nitrogen.



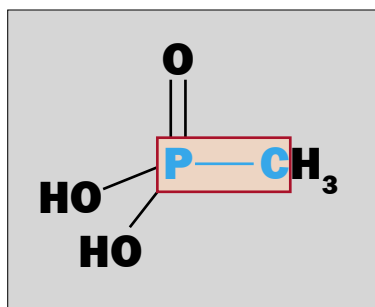
The answer is clearly visible from the structure: Phosphorus.
Proceed to Step Four.

Step Four:

Since the chemical contains the element phosphorus, you should compare your chemical with the Scheduled chemical families containing phosphorus in Table 3. Your comparison should provide you with the following answers:

- Schedule 1
 - A01 Can be eliminated as the chemical does not have a fluorine atom
 - A02 Can be eliminated as the chemical does not have a CN group
 - A03 Can be eliminated as the chemical does not have a sulfur atom
 - B09 Can be eliminated as the chemical does not have a fluorine atom
 - B10 Can be eliminated as the chemical does not have an amino group (contains a nitrogen atom)
- Schedule 2
 - A01 Can be eliminated as the CAS registry number does not match and is not a corresponding alkylated or protonated salt (Amiton)
 - B04 Description of the chemical family matches our chemical**
 - B05 Can be eliminated as the chemical does not have a halide (i.e., F, Cl)
 - B06 Can be eliminated as the chemical does not have a nitrogen atom (as indicated in term amidate)

Look more closely at the description of Schedule 2B04 chemicals. These chemicals contain a phosphorus atom which is bonded to one methyl, ethyl or propyl (normal or iso) group, but does not have a bond to additional carbon atoms. It is clear that this description is consistent with the structure of the chemical:



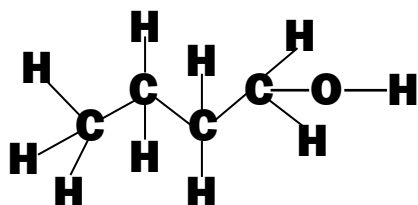
- The shaded red region shows the phosphorus-methyl backbone (with no other C atoms directly bonded to the P) that indicates that this is indeed a Schedule 2B04 chemical.

Since you determined your chemical as a Schedule 2 chemical, you now should determine if the chemical is involved in an activity required to be reported under the CWC (see Section 3, Activities).

EXAMPLE 2. UNSCHEDULED DISCRETE ORGANIC CHEMICAL (DOC)**Step One:**

The chemical for this example is 1-butanol. Assume that the facility does not exclusively produce hydrocarbons or explosives. Note that you will follow the same methodology as used in Example 1.

The structure of this chemical is:



The CAS registry number for this chemical is 71-36-3. The molecular formula is: $C_4H_{10}O$

Step Two:

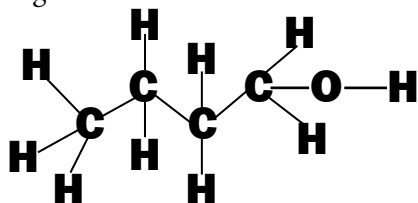
Compare your chemical CAS registry number to the individual chemicals listed in Tables 1 and 2.

- The CAS registry number for 1-butanol is not listed on these tables.

You should now consider whether the chemical belongs to a Schedule 1 family/group or a Schedule 2 family/group, or is an unscheduled DOC. Proceed to Step Three.

Step Three:

Determine which of the following elements are present in this compound: Phosphorus, Sulfur, Fluorine, Arsenic, and/or Nitrogen.



- The answer is **none** of the elements specified above are present in this chemical. Proceed to Step 5.

Step Four:

You should skip Step 4 because in Step 3 you determined that the chemical does not contain any of the listed elements. Proceed to Step Five.

Step Five:

Does your chemical meet the definition of an unscheduled DOC (see page 10)?

- Based on this answer, your chemical does meet the basic criteria of an unscheduled DOC.

Does your chemical qualify for any of the exemptions for an unscheduled DOC?

- Oxides of carbon: No.
 - The chemical does not contain an oxide, but rather a hydroxide (-OH) group.
- Sulfides of carbon: No.
 - The chemical does not have a sulfur atom.
- Metal carbonates: No.
 - The chemical does not have a metal or carbonate group.

- Chemicals only containing carbon and metal: No.
 - The chemical does not have a metal atom.
- Oligomers and polymers: No.
 - The chemical is neither an oligomer nor is it a polymer.
- Exclusive hydrocarbons production: No.
 - The facility does produce Hydrocarbons, but it also produces other types of chemicals in large quantities.
- Exclusive explosives production: No.
 - The facility does not produce explosives.

Since 1-butanol does not qualify for any of these exemptions, it is an unscheduled DOC.

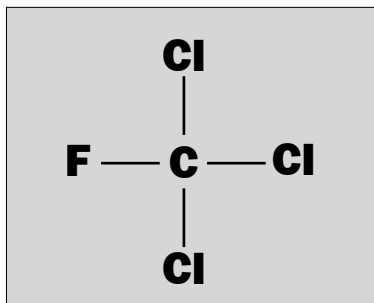
Since you determined that your chemical is an unscheduled DOC, you should now determine if the chemical is involved in an activity that is required to be reported under the CWC (see Section 3, Activities).

EXAMPLE 3. UNSCHEDULED DOC CONTAINING THE ELEMENTS PHOSPHORUS, SULFUR, OR FLUORINE (PSF)

Step One:

The chemical for this example is trichlorofluoromethane, which is from a class of compounds known as chlorofluorocarbons. Assume that the facility does not exclusively produce hydrocarbons or explosives. Once again, note that you will follow the same methodology as used in Examples 1 and 2.

The structure of this chemical is:



The CAS registry number for this chemical is 75-69-4. The molecular formula is: CCl_3F

Step Two:

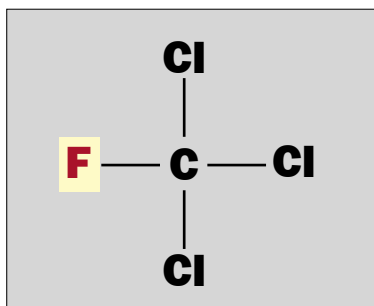
Compare your chemical CAS registry number to the individual chemicals listed in Tables 1 and 2.

The CAS registry number for trichlorofluoromethane is not listed on these tables.

You should now consider whether the chemical belongs to a Schedule 1 family/group, or a Schedule 2 family/group, or is an unscheduled DOC. Proceed to Step Three.

Step Three:

Determine which of the following elements are present in this compound: Phosphorus, Sulfur, Fluorine, Arsenic, and/or Nitrogen.



The answer is clearly visible from the structure: Fluorine.
Proceed to Step Four.

Step Four:

Since the chemical contains the element fluorine, you only need to compare your chemical with the Scheduled chemical families containing fluorine in Table 5. Your comparison will provide you with the following answers:

Schedule 1

A01 Can be eliminated as the chemical does not have an alkyl group

A09 Can be eliminated as the chemical does not have an alkyl group

Note: *An alkyl is a chemical group containing only carbon and hydrogen atoms arranged in a chain. The alkyls form a homologous series with the general formula C_nH_{2n+1} .*

We have eliminated the possibility that trichlorofluoromethane belongs to a Scheduled chemical family/group.
Proceed to Step Five.

Step Five:

Does your chemical meet the definition of an unscheduled DOC (see page 10)?

- Based on this answer, your chemical does meet the basic criteria of an unscheduled DOC.

Does your chemical qualify for any of the exemption for an unscheduled DOC?

- Oxides of carbon: No.
 - The chemical does not contain an oxide group.
- Sulfides of carbon: No.
 - The chemical does not have a sulfur atom.
- Metal carbonates: No.
 - The chemical does not have a metal or carbonate group.
- Chemicals only containing carbon and metal: No.
 - The chemical does not have a metal atom.
- Oligomers and polymers: No.
 - The chemical is neither an oligomer nor is it a polymer.
- Exclusive hydrocarbons production: No.
 - The facility does produce Hydrocarbons, but it also produces other types of chemicals in large quantities.
- Exclusive explosives production: No.
 - The facility does not produce explosives.

Since trichlorofluoromethane does not qualify for any of these exemptions, it is an unscheduled DOC. More specifically, trichlorofluoromethane contains a fluorine atom and is, therefore, defined as an unscheduled DOC containing any of the elements phosphorus, sulfur or fluorine (PSF).

Note: *Unscheduled DOCs containing PSF have a lower threshold for reporting to your National Authority. You should consider this when determining if your chemical exceeds the applicable quantity threshold for reporting (see Section 4, Chemical Mixtures and Quantity Thresholds).*

Since you classified your chemical as an unscheduled DOC, you now should determine if the chemical is involved in an activity required to be reported under the CWC (see Section 3, Activities).

Section 3 ACTIVITIES

☞ Determining if your Chemical Activity is Subject to Reporting to your National Authority

Overview

- The CWC recognizes that Scheduled chemicals and unscheduled discrete organic chemicals (DOCs) have peaceful and commercial uses. Therefore, not all chemical activities are subject to reporting to your National Authority.
- This section will assist you in determining if your Schedule 2 or Schedule 3 chemical, or unscheduled DOC involves an activity that may require reporting to your National Authority.

Note: *If you determined in Section 2 that your chemical is a Schedule 1 chemical, contact your National Authority for further guidance.*

Activities and Definitions

Now that you have determined your facility/company has a chemical that is subject to the CWC, you should determine if the chemical is used in an activity that is subject to reporting to your National Authority.

The activities and related definitions are described below.

- Production - The formulation of a chemical through chemical reaction.
Note 1: *Production of a Schedule 2 or Schedule 3 chemical means all steps in the production of a chemical in any units within the same plant through chemical reaction, including any associated processes (e.g., purification, separation, extraction, distillation, or refining) in which the chemical is not converted into another chemical. The exact nature of any associated process (e.g., purification, etc.) is not required to be declared.*
Note 2: *Production of a Schedule 2 or Schedule 3 chemical also includes intermediates, by-products, or waste products within a defined chemical manufacturing sequence, where the chemical is chemically stable and therefore exists for a sufficient time to make isolation possible.*
- Production by synthesis - The formulation of a chemical through chemical reaction.
Note: *Intermediates used in a single or multi-step process to produce another unscheduled DOC are not reportable.*
- Processing - The physical process, such as formulation, extraction, and purification in which the chemical is not converted to another chemical.
- Consumption - The chemical is converted into another chemical via a chemical reaction.
- Import - The receipt of a chemical transferred from another country.
- Export - The transfer of a chemical to another country.

Activities Subject to Reporting by Chemical Regime

- The CWC differentiates the types of activities that must be reported to your National Authority based on whether the chemical is a Schedule 2 or Schedule 3 chemical, or is an unscheduled DOC.
- The activities that must be reported for each chemical regime are listed on the following page.

Schedule 2 Chemicals

- Production, processing, consumption, import and export.

Schedule 3 Chemicals

- Production, import and export.

Unscheduled Discrete Organic Chemical(s) (DOCs)

- Production by synthesis.

- If your Schedule 2 or Schedule 3 chemical or unscheduled DOC is involved in an activity that is subject to the CWC, you may have a reporting requirement to your National Authority.
 - Proceed to Section 4 to determine if the mixture and quantity thresholds of the chemical needs to be reported to your National Authority.
- If your Schedule 2 or Schedule 3 chemical or unscheduled DOC is **not** involved in an activity that is subject to the CWC, you do **not** have a reporting requirement.
- Your National Authority can also assist you in determining if the chemical activity is subject to reporting requirements.

➤ Practical Examples

The following examples demonstrate the types of activities that may be present at your facility/company.

EXAMPLE 1: SCHEDULE 2 AND SCHEDULE 3 CHEMICAL ACTIVITIES

- Your facility/company produces a Schedule 2 chemical and consumes a Schedule 3 chemical that you purchased from another facility/company located in your country. What activity(ies) should be reported?
 - Only the production of the Schedule 2 chemical is potentially reportable. For Schedule 3 chemicals, domestic purchase and subsequent processing or consumption is not reportable. Only production and import and/or export of Schedule 3 chemicals may require reporting to your National Authority.

Note: *This example specifically relates to Section 3 which discusses reportable activities. The example should only be looked at in terms of whether the activity is reportable to a country's National Authority. Section 4 outlines the applicable quantity and concentration thresholds of chemicals.*

EXAMPLE 2: ACTIVITIES BY CHEMICAL REGIME

The schematic on the following page is an example of chemicals A, B, C and D and related activities that may occur at your facility/company.

The table indicates which activities are reportable for each chemical depending if the chemical is a Schedule 2 or Schedule 3 chemical or is an unscheduled DOC.

ACTIVITIES BY CHEMICAL REGIME



Chemical A is purchased from an overseas company and transported to the chemical facility via tanker truck.



Chemical A is stored in a warehouse along with other raw materials used in the production step



Chemical C is produced via reaction of Chemical A with Chemical B*



Chemical D is destroyed via thermal oxidation



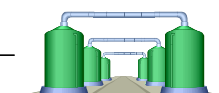
Chemical D is generated as an unwanted by-product.



Final product is sold on the foreign market.



Final product, Chemical C, is stored in tanks.



Chemical C is further purified via a series of distillation steps.

*Chemical B is a feed stock material purchased domestically.

Schedule	Chemical	Production	Processing	Consumption	Imports	Exports
2	A				x	
	B					
	C	x	x			x
	D	x		x		
3	A				x	
	B					
	C	x				x
	D	x				
DOC	A					
	B					
	C	x				
	D	x				

Section **4** CHEMICAL MIXTURES AND QUANTITY THRESHOLDS

➤ **Determining if the Mixture and Quantity Threshold of your Chemical is Subject to Reporting to your National Authority**

Overview

- There are different mixture and quantity thresholds for each chemical regime that may require reporting to your National Authority. This section will assist you in determining if your chemical or chemical mixture exceeds the applicable quantity thresholds.

STEP 1:

Mixtures containing Scheduled Chemicals

If your Scheduled chemical is part of a chemical mixture, you should determine if the concentration of the Scheduled chemical in the mixture exceeds the applicable quantity threshold, you may have a reporting requirement to your National Authority.

The Scheduled chemical concentration thresholds are as follows:

- **Schedule 2A chemicals -- 2A01 – 2A03:** Contact your National Authority for concentration threshold.
- **Schedule 2B chemicals -- 2B04 – 2B14:** The concentration of your Schedule 2B chemical in a mixture is more than 30 percent (by weight or volume).
- **Schedule 3 Chemicals – All chemicals:** The concentration of your Schedule 3 chemical in a mixture is more than 30 percent (by weight or volume).

Note: Unscheduled discrete organic chemicals (DOCs) do not have a minimum concentration threshold. Contact your National Authority for further guidance.

- If the concentration of your Scheduled chemical in a mixture exceeds the applicable threshold, proceed to Step 2.
- If the concentration of your Schedule 2B or Schedule 3 chemical in a mixture is 30 percent or less, the chemical is **not** reportable to your National Authority.

STEP 2:

Quantity Thresholds for Scheduled Chemicals, Unscheduled DOCs, or Mixtures Containing a Scheduled Chemical

If the quantity of your Scheduled chemical, unscheduled DOC, or mixture containing a Scheduled chemical exceeds the applicable quantity threshold, you have a reporting requirement to your National Authority.

The applicable threshold quantities are as follows:

- Schedule 2 chemicals that are produced, processed, or consumed in excess of the applicable threshold quantity at one or more plants at your facility/company:
 - 1 kg: Schedule 2A03 chemical
 - 100 kgs: Schedule 2A01 and 2A02 chemicals
 - 1 tonne: Schedule 2B04 – 2B14 chemicals
- Schedule 2 chemicals that are imported to or exported from your facility/company, contact your National Authority for specific guidance.

- Schedule 3 chemicals that are produced at one or more plants at your facility:
 - 30 tonnes: All Schedule 3 chemicals.
- Schedule 3 chemicals that are imported to or exported from your facility or trading company, contact your National Authority for specific guidance.
- Unscheduled DOCs produced at your facility/company:
 - 200 tonnes: aggregate from all plants at your facility.
 - 30 tonnes of an “individual” unscheduled DOC containing the elements of phosphorus, sulfur, and/or fluorine.

Section **5** ADMINISTRATIVE ELEMENTS

➤ **Overview**

An important aspect of successful Industry Compliance Programme (ICP) will ensure that the personnel responsible for CWC compliance at your facility/company are given authority commensurate with their responsibilities and that they receive necessary training.

This section will provide you the basic administrative elements that are recommended to be included in your ICP. These elements include collecting data to prepare your report, maintaining records, trading or transferring Scheduled chemicals, policy commitment statement, personnel assignments, and training.

➤ **Collecting Data to Prepare your CWC Report**

If your facility/company has determined that it has a CWC reporting requirement to your National Authority, you must determine the types of records you should collect when preparing your CWC report.

- The information you will collect to use in support of your report requirements to your National Authority will depend on your country's national regulatory requirements. As a general rule, this information will come from the records on the production, processing, consumption, import, or export of the Scheduled chemicals or unscheduled discrete organic chemicals (DOCs).
- This section will help you determine the types of records you should consider when collecting the relevant information for your report.
- When collecting information required by your National Authority, it is helpful to communicate with the operator involved in the production, processing, consumption, import or export of the reportable chemicals to understand how the information is calculated, tracked and recorded. Similarly, if the chemical is a Schedule 1, 2, or 3, it is helpful to communicate with the personnel responsible for tracking all transfers to and from your facility/company, including imports and exports. These personnel will be able to help you determine what records best represent the information you will need to prepare your report.

Some useful documents for collecting information on reportable activities:

- **Production:**
 - Batch records (batch process)
 - Flow meter or totalizer readings (continuous flow process)
 - Product MSDS/analysis
 - Product inventory logs and adjustments
 - Product shipping documents
 - Electronic database (e.g., Systems, Applications and Product in Data Processing (SAP), hard copy printouts)
- **Processing:**
 - Batch records (batch process)
 - Flow meter or totalizer readings (continuous flow process)
 - Product MSDS/analysis
 - Product inventory logs and adjustments
 - Product shipping documents
 - Electronic database (e.g., SAP, hard copy printouts)
- **Consumption:**
 - Chemical shipping receipts
 - Chemical inventory logs and adjustments

- Batch records (batch process)
- Flow meter or totalizer readings (continuous flow process)
- Product MSDS/analysis
- Electronic database information (e.g., SAP, hard copy printouts)
- Export/Import
 - Chemical shipping documents
 - Product MSDS/analysis
 - Electronic database (i.e., SAP, hard copy printouts)

Additional Considerations for Information Collection:

- If the data is available in an electronic database, ensure that it is related to the reportable activity (production, processing, consumption, import, or export) and not an unrelated activity (i.e., sales, utilities consumption, etc.).
- If the reported chemical is part of a mixture, ensure that you are only reporting the percentage of the Scheduled chemical in the mixture and **not** the total mixture.

Example:

- You have 400 tonnes of a mixture which includes 65 percent of a Scheduled chemical. You should report 260 tonnes and **not** 400 tonnes.
- If a chemical is reworked or reprocessed, for any reason, ensure it is accurately accounted for (e.g., chemicals that do not meet a customer's specification, the ratio of a chemical mixture is wrong, etc.). It is important to not double count your production or processing figures.

Example:

- 2 tonnes of a reportable chemical are produced, but the quality analysis of the chemical indicates that its characteristic is not acceptable. Therefore, the chemical can not be sold to your customers. Instead of destroying the 2 tonnes of the chemical, you rework or reprocess the chemical to adjust its characteristics to meet product specifications. Only 2 tonnes of production should be reported.
- Ensure that the data is for the relevant year for which you are submitting a report to your National Authority.
- If possible, all data should be supported by original hard copy documents.

➤ **Maintaining Records**

After you have determined that your facility or trading company has a CWC reporting requirement, you should establish a recordkeeping system to maintain the information you collected in support of the report you submitted to your National Authority.

- Your National Authority may have issued requirements on the retention time period for the records (e.g., five years). This section will provide you suggestions and examples for maintaining a recordkeeping system.
- Examples of the types of records you should maintain, include:
 - A current copy of all applicable governmental regulations and policies.
 - The facility/company's CWC GC-ICP and written Policy Statement.
 - A list of all CWC chemicals at your facility/company.

- All documents used to complete CWC reports, including for example:
 - Batch records or flow meter readings from continuous flow process
 - Summary production documents for reported chemicals on site
 - Inventory records
 - Shipping documents (export, import, domestic shipments)
 - Reports of internal reviews
 - Other additional country specific documentation requirements
- All communications (e.g., chemical classifications) to and from your National Authority and, if available, copies of your country's national declaration submitted by your National Authority to the OPCW regarding your facility/company.
- Physical records that are not stored at the facility/company should be readily accessible.
- Electronic records should also be readily accessible.

➤ **Trading or Transferring Scheduled Chemicals - Good Business Practices**

As a measure of good chemical stewardship, a chemical facility/company, trader or trading company that exports or transfers Scheduled chemicals should consider notifying their customers of possible CWC reporting obligations to their National Authority.

- It is recommended that when transferring Scheduled chemicals (internationally and domestically) you should notify your customer that their possible activities involving the Scheduled chemicals (i.e., processing, consumption, export, import) may trigger a requirement for them to report requirement to their National Authority.
- This notification may be accomplished by adding a statement to your invoices and/or shipping documents that indicate Schedule 1, 2, or 3 chemical requirements that are applicable.
- The following information should be provided to your customer when transferring Scheduled chemicals domestically or internationally:
 - A statement informing your customer that these chemicals may be subject to a CWC reporting requirement. It would be helpful to let them know the contact information for the National Authority, if they have further questions concerning the CWC.
 - Shipping documentation should alert the recipient of certain specific requirements and prohibitions, where applicable.
 - Specific prohibitions and requirements may include:
 - Schedule 1 Chemicals:
 - Exports to or imports from a State not Party to the CWC are prohibited.
 - Exports to or imports from a State Party requires advance notification to your National Authority.
 - Schedule 2 Chemicals:
 - Exports to or imports from a State not Party to the Convention are prohibited.
 - Processing, consumption, import and export activities with the Scheduled chemicals may require reporting to your National Authority.
 - Schedule 3 Chemicals:
 - Exports to a State not Party to the Convention are prohibited, unless you obtain from your customer

and submit to your National Authority an End-Use Certificate. Contact your National Authority for additional guidance on End-Use Certificates.

- Imports and exports may require reporting to your National Authority.
- The following are example notification statements for transfer of Scheduled chemicals:
 - Schedule 2 Chemical.
 - [Insert chemical name] is a Schedule 2 chemical that may be subject to reporting under the Chemical Weapons Convention (CWC), to which your country is a State Party. You may need to be report to your country's CWC National Authority if you process, consume, import or export the Scheduled chemical. Note that this Schedule 2 chemical is prohibited from export to a State not Party to the CWC, except in mixtures that contain less than 1 percent of a Schedule 2A chemical or 10 percent of a Schedule 2B chemical, and products identified as consumer goods packaged for retail sale for personal use or packaged for individual use. Contact your country's National Authority for additional restrictions and guidance.
 - Schedule 3 Chemical.
 - [Insert chemical name] is a Schedule 3 chemical that may be subject to reporting under the Chemical Weapons Convention (CWC), to which your country is a State Party. You may need to be report to your country's CWC National Authority if you export this chemical. Note that this Schedule 3 chemical is prohibited from export to a State not Party to the CWC unless you obtain from your customer and submit to your National Authority an End-Use Certificate. Chemical mixtures that contain less than 30 percent of a Schedule 3 chemical and products identified as consumer goods packaged for retail sale for personal use or packaged for individual use may be exported to a State not Party to the CWC. Contact your country's National Authority for additional restrictions and guidance.

➤ Policy Commitment Statement

The success of any facility/company compliance program depends on the guidance and direction that senior management provides to its employees. It is recommended that the senior management of your facility/company issue such a statement to employees.

- A Policy Commitment Statement by senior management of your facility/company to all employees will communicate a clear commitment to compliance with your country's CWC laws and regulations.
- A Policy Commitment Statement will also demonstrate that your management is aware of the CWC and how it affects your facility/company.
- A Policy Commitment Statement should include:
 - Explanation of the CWC.
 - Define, in relation to the facility/company, chemicals and activities that are covered by the CWC.
 - Name of the points of contact for CWC compliance.
 - Identification of the person responsible for issuing the facility/company policy statement
 - Contact information [issuer and contact for questions]
 - Date of issue: [date statement was last issued]
 - [Add any additional information here]

➤ Sample Facility/Company Policy Statement

To: All personnel
From: General Director
Subject: Chemical Weapons Convention
Date: January XX, 20XX

I am writing to inform you of our commitment to the Chemical Weapons Convention (CWC).

The CWC is the first multilateral arms control and nonproliferation treaty to widely affect non-government affiliated companies. As a State Party to the CWC, [Country Name] has established administrative measures [insert name of regulations] to compel companies to submit reports on relevant activities to the [National Authority] for CWC compliance.

[Facility/Company Name] [produces, processes, consumes, exports, and/or imports (select all that apply)] dual-use chemicals and precursors (including [applicable facility/company chemicals]) subject to the data monitoring and verification under the CWC and [name of regulations].

It is the intent of the [Facility/Company Name] to comply with all [Country Name] laws and regulations related to national compliance with the CWC, and related policies of [Country Name] CWC National Authority.

In order to meet this goal effectively, [CWC Point of Contact name] is the primary point of contact for all CWC related matters. Mr. /Ms [name] will establish an Industry Compliance Programme (ICP) to define procedures and responsibilities for CWC compliance.

If you have any more questions related to these CWC requirements and your related responsibilities contact [CWC Point of Contact, including phone number and/or email address].

Thank you for your attention and cooperation.

Sincerely,

➤ Personnel Assignments

To ensure that your facility/company is in compliance with national CWC laws and regulations, it is recommended that you should assign the various CWC-related activities to specific person responsible for implementing your CWC program.

- In the event that the primary point of contact is not available, it is also recommended that you identify alternate points of contact for all duties and responsibilities.
- This following provides a general list of possible areas of duties and responsibilities for personnel assignments to ensure that CWC functions are covered:
 - Duties and responsibilities:
 - Knowledge of CWC national laws and regulations
 - Responsible for your facility/company's ICP
 - Collect information for preparing reports that should be submitted to the National Authority
 - Responsible for reporting to your National Authority
 - Responsible for recordkeeping

Note: *You may also need to identify any corporate personnel involved in CWC compliance that are not located at the facility/company.*

➤ Training

In order to ensure your facility/company is in compliance with national CWC laws and regulations, you should have a CWC training program. This program should comprise basic and refresher training sessions for all personnel that have duties or responsibilities related to CWC implementation.

- The training should be performed by knowledgeable personnel with experience on related to the CWC. Where available, a representative of your country's National Authority may also participate in the training.
- The ICP that you develop will also be a useful training supplement.
- Personnel should participate in training sessions and conferences sponsored by your country's National Authority or in private seminars.
- Personnel should also receive literature on CWC policies and procedures that be issued by your country's National Authority or any available open sources.
- Recommended training programs may include:

Basic training:

Training should provide your personnel a basic overview of the CWC and your country's national CWC laws and regulations, an overview of the chemicals and activities at your facility/company that are subject to reporting requirements, as well as facility/company procedures and requirements. At a minimum, this training should be given to facility/company management and all CWC points of contact.

It is recommended that the CWC Points of Contact (trainers) be responsible for facilitating the training for your facility/company, which will allow the trainers to become familiar with personnel having a role in CWC compliance.

Refresher Training:

It is recommended that periodic refresher training be conducted, as appropriate, to ensure that relevant employees are informed, on a timely basis, of any changes to your national CWC regulations or procedures or to internal facility/company procedures.

Section **6** GLOSSARY OF TERMS

Applicable Threshold Quantity

Means the quantity of a Scheduled chemical/chemicals or an unscheduled discrete organic chemical/chemicals produced, processed, consumed, exported or imported above which a facility/company is subject to a reporting requirement.

By-product

Means any chemical substance or mixture produced without a separate commercial intent during the manufacture, processing, use or disposal of another chemical substance or mixture.

Chemical Abstracts Service (CAS) Registry Number

Means a unique numerical identifier for chemical compounds, polymers, biological sequences, mixtures and alloys. They are also referred to as CAS numbers, CAS RNs or CAS #s. The Chemical Abstracts Service (CAS), a division of the American Chemical Society, assigns these identifiers to every chemical that has been described in the literature. The intention is to make database searches more convenient, as chemicals often have many names. Almost all molecule databases today allow searching by CAS number.

Chemical Weapon (CW)

Means the following, together or separately:

- a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under the Chemical Weapons Convention, provided that the type and quantity are consistent with such purposes;
- b) Munitions or devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in paragraph (1) of this definition, which would be released as a result of the employment of such munitions or devices; or
- c) Any equipment specifically designed for use directly in connection with the employment of munitions or devices specified in paragraph (2) of this definition.

Chemical Weapons Convention (CWC)

Means the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, and its annexes opened for signature on January 13, 1993.

Consumption

Means the conversion of a chemical into another chemical via a chemical reaction. Unreacted material must be accounted for as either waste or as recycled starting material.

Discrete Organic Chemical (DOC)

Means any chemical belonging to the class of chemical compounds consisting of all compounds of carbon, except for its oxides, sulfides, and metal carbonates, identifiable by chemical name, by structural formula, if known, and by Chemical Abstract Service registry number, if assigned.

Export

Means the transfer of a chemical to another country.

Facility

Means a facility that may be required to report activities involving Schedule 1, Schedule 2, Schedule 3 chemicals or unscheduled discrete organic chemicals.

Harmonized System Code (HS Code)

Means a worldwide classification system in which the same 6-digit number is assigned to a commodity (e.g., chemical) regardless of its origin or the language in which it is described.

Import

Means the receipt of a chemical transferred from another country.

International Union of Pure and Applied Chemistry (IUPAC) name

Means a system of naming chemical compounds and of describing the science of chemistry in general. It is developed and kept up to date under the auspices of the International Union of Pure and Applied Chemistry (IUPAC).

Intermediate

Means a chemical formed through chemical reaction that is subsequently reacted to form another chemical.

Material Safety Data Sheet (MSDS)

Means a description of a chemical's properties along with important health and safety data. In addition, other important information about the chemical manufacturer, fire-fighting procedures, protective equipment requirements, and spill clean up procedures are provided.

Organisation for the Prohibition of Chemical Weapons (OPCW)

Means the international Organisation, located in The Hague, The Netherlands that administers the CWC.

Plant

Means a relatively self-contained area, structure or building containing one or more units with auxiliary and associated infrastructure, such as:

- (i) Small administrative area;
- (ii) Storage/handling areas for feedstock and products;
- (iii) Effluent/waste handling/treatment area;
- (iv) Control/analytical laboratory;
- (v) First aid service/related medical section; and
- (vi) Records associated with the movement into, around, and from the site of declared chemicals formed from them, as appropriate.

Precursor

Means any chemical reactant which takes part, at any stage, in the production by whatever method of a toxic chemical. The term includes any key component of a binary or multicomponent chemical system.

Processing

Means a physical process such as formulation, extraction and purification in which a chemical is not converted into another chemical.

Production

Means the formation of a chemical through chemical reaction.

Note 1: Production of a Schedule 1 chemical means formation through chemical synthesis as well as processing to extract and isolate Schedule 1 chemicals.

Note 2: Production of a Schedule 2 or Schedule 3 chemical means all steps in the production of a chemical in any units within the same plant through chemical reaction, including any associated processes (e.g., purification, separation, extraction, distillation, or refining) in which the chemical is not converted into another chemical. The exact nature of any associated process (e.g., purification, etc.) is not required to be declared.

Note 3: Production of a Schedule 2 or Schedule 3 chemical also includes intermediates, by-products, or waste products within a defined chemical manufacturing sequence, where the chemical is chemically stable and therefore exists for a sufficient time to make isolation possible.

PSF-chemical (PSF)

Means an unscheduled discrete organic chemical containing one of more elements of phosphorus, sulfur or fluorine.

Quantity

Means the actual quantity of a chemical. Where the product contains less than 100 percent of the chemical, only the quantity of the chemical in the product shall be declared.

Scheduled Chemical

Means a chemical that is contained in Schedule 1, Schedule 2, or Schedule 3.

State Party

Means a country that has ratified or acceded to the CWC through its standard national processes. Accordingly, it is obligated to fully implement and abide by the tenets of the Convention.

State not Party to the Convention

Means a country that has not ratified or acceded to the CWC, regardless of whether it is a signatory, thereby not entitling it to the benefits that accrue to States Parties under the Convention (e.g., international cooperation, trade in certain Scheduled chemicals).

Tonne

Means metric tonne, i.e. 1,000 kg.

Toxic Chemical

Means any chemical which, through its chemical action on life processes, can cause death, temporary incapacitation, or permanent harm to humans or animals. The term includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions, or elsewhere.

Trading Company/House/Trader

Means any person involved in the export and/or import of Scheduled chemicals in amounts greater than specified thresholds, but not in the production, processing or consumption of such chemicals in amounts greater than threshold quantities that require reporting. If such persons exclusively export or import scheduled chemicals in amounts greater than specified thresholds, they are subject to reporting requirements for aggregate national data purposes but are not subject to routine inspections.

Transient Intermediate

Means any chemical which is produced in a chemical process but, because it is in a transition state in terms of thermodynamics and kinetics, exists only for a very short period of time, and cannot be isolated, even by modifying or dismantling the plant, or altering process operating conditions, or by stopping the process altogether.

Unit

Means the combination of those items of equipment, including vessels and vessel set up, necessary for the production, processing or consumption of a chemical.

Unscheduled Chemical

Means a chemical that is not contained in Schedule 1, Schedule 2, or Schedule 3.

Unscheduled Discrete Organic Chemical (Unscheduled DOC)

Means any chemical belonging to the class of chemical compounds consisting of all compounds of carbon, except for its oxides, sulfides, and metal carbonates, identifiable by chemical name, by structural formula, if known, and by Chemical Abstract Service registry number, if assigned.

➤ Acronyms

CAS	Chemical Abstract Service
CW	Chemical Weapons
CWC	Chemical Weapons Convention
DOC	Discrete Organic Chemical
EUC	End-Use Certificate
GC-ICP	Global Chemical Industry Compliance Programme
IUPAC	International Union of Pure and Applied Chemistry
MSDS	Material Safety Data Sheet
OPCW	Organisation for the Prohibition of Chemical Weapons
POC	Point of Contact
PSF-Chemicals	Chemicals containing the elements Phosphorus, Sulfur or Fluorine
SAP	Systems, Applications and Product in Data Processing
SP	State Party



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