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## CHEMICAL SECURITY

1. Chemical Weapons Convention: Importing Chemicals Of Interest (COIs)
2. Chemical of Interest Usage Tracking
3. Emergency Response Procedures

Chemical of Interest (COIs) can be used directly, or as precursors in the manufacture of chemical weapons or illicit substances or could be used for suicide or homicide. It is important to both control access to these chemicals using chemical security measures such as administrative or physical controls, and in some cases, to monitor their use. Among other things, ensuring that these chemical security measures are present and functional in each laboratory will ensure COIs are kept safe from theft, diversion, or release.



### ***1. Purpose:***

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To provide step by step guidance on procedures associated with chemical security such as importing chemicals of interest (COI) included under the CWC, tracking of COIs, and emergency preparedness

### ***2. Scope:***

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Applies to all students, staff, faculty, and employees in Lash Miller Chemical Laboratories housing, working with, or ordering COIs. Individuals are responsible for knowing the details of this SOP.

### **3. Prerequisites:**

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LM-SST, EHS training and WHMIS training.

### **4. Responsibilities:**

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It is the responsibility of all Faculty, staff, and students to follow the procedures described in this SOP and sign the acknowledgement form (see [Appendix 1](#)) record of training. Faculty members are required to ensure compliance of laboratory personnel.

## **Section 1: Chemical Weapons Convention:**

### **Importing Chemicals of Interest (COIs)**

(CAS #: Included in [Appendix 2](#))

Refer to <a href="#">Appendix 1</a> for the Importing COI form Refer to <a href="#">Appendix 2</a> for a list of applicable chemicals
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Due to their potentially harmful properties, importing COIs will sometimes require a permit. The Chemical Weapons Convention (CWC), which Canada has signed and enforces through the Canadian National Authority (CAN), prescribes chemical substances that are prohibited, and substances that need an import permit if purchased abroad. University of Toronto does not store any Schedule 1 chemicals; however, this regulation applies to both Schedule 2 and Schedule 3 chemicals.

### **Step-by-step procedure for importing COI regulated under the CWC:**

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- 1) Familiarize yourself with the list of Schedule 2 and Schedule 3 chemicals included in [Appendix 2](#)
- 2) Choose to purchase from a Canadian supplier if possible.
- 3) If it is **absolutely necessary** to import a Schedule 2 or Schedule 3 chemicals or mixtures containing them from any country outside of Canada, answer these questions to ensure you correctly determine if you will need to alert the Environmental Health and Safety (EHS) Office before ordering:

**a. Are you ordering a schedule 2 or 3 chemical?**

If you answered **yes**, then continue to question b.

If you answered **no**, you do not need to contact the EHS office before ordering.

**b. Is it from a Canadian distributor such as:**

- ACP Chemicals
- Caledon Laboratories
- Canada wide Scientific
- Fisher Scientific
- Sigma-Aldrich
- Toronto Research Chemicals
- VWR

If you answered **no**, you must contact the EHS office before ordering.

If you answered **yes**, you do not need to contact the EHS office before ordering.

**Note:** This is not a comprehensive list of Canadian distributors. If you are not sure, please contact stores manager before ordering (raymond.akbar@utoronto.ca).

- 4) It is the responsibility of the EHS Office to complete the applicable general import permit if necessary.
- 5) Notify Chem Stores that you have ordered this chemical and completed the necessary import forms, and they will be receiving this COI

**Please refer to this resource for more information:**

<https://ehs.utoronto.ca/prevention-of-accidental-importation-of-chemical-weapons-convention-controlled-chemicals/>

## Section 2: Chemical of Interest Usage Tracking

Refer to [Appendix 3](#) for the Chemical of Interest Usage Tracking Acknowledgement form

Through tracking the usage of each poisonous material including user and quantity, potential security incidents such as theft will become evident

### Step-by-step procedure for tracking chemical of interest usage

- 1) Ensure all laboratory personnel are aware of the chemicals of interest in the laboratory and their locations
- 2) A [sign-in sheet](#) should be printed or filled out electronically for each applicable chemical.

- 3) Every four weeks the form should be reviewed to ensure there are no discrepancies between the amount remaining in the bottle and the expected amount remaining on the sign in sheet.
  - a. If a discrepancy arises, inform your supervisor and, if possible, discuss this with laboratory personnel to determine a potential accidental cause
  - b. If no accidental cause can be determined, contact [chem.safety@utoronto.ca](mailto:chem.safety@utoronto.ca)
- 4) Once the chemical has been depleted, ensure barcode is returned to chem stores and sign and date the bottom of the form.
- 5) Scan and keep electronic copies of each sign in sheet for at least two years.
  - a. Email a second copy to [chem.safety@utoronto.ca](mailto:chem.safety@utoronto.ca)

## Section 3: Emergency Response Procedures for Chemical Security Incidents

The University of Toronto encourages appropriate emergency response to maintain safety of students, staff, visitors, and university property within the campus building. Activities such as COI theft, diversion, or release from Lash Miller Chemical Laboratories could be performed by a suspicious person on site. It is important to both prevent these actions from occurring, but also protect students, staff, and employees in the building.

### ***Step-by-step Emergency Response Procedures for Chemical Security Incidents***

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- 1) Indications of a suspicious person or activity can include:
  - a. For Employees:
    - i. Frequent absenteeism
    - ii. Avoidance of peers and complaints from fellow employees
    - iii. Irritable, argumentative, or withdrawn
    - iv. Unusual exhaustion or untidiness
    - v. Inconsistency in quality of work, poor judgement, or a higher than normal accident on the job rate
  - b. For Non-Employees:
    - i. No valid reason for being in an area where COIs are stored
    - ii. Asking questions regarding COI
    - iii. Taking photos or casing the facility
- 2) If a suspicious person, activity, or behavior is sighted, do not approach the person. Contact campus police as soon as possible for assistance and to create a record of the incident.
  - a. If using a campus phone, dial:  
**8-2323** for non-emergencies

**8-2222** for emergencies

b. If using a non-campus phone, dial:

**416-978-2323** for non-emergencies

**416-978-2222** for emergencies

- 3) If any unexplainable losses of COIs occur, there are signs of a break-in in your laboratory, or it appears that's COIS have been tampered with please contact Grace Flock ([grace.flock@utoronto.ca](mailto:grace.flock@utoronto.ca)) followed by Campus Police.
- 4) For immediate police, fire, or medical response to preserve life or property call **911**.

## ***Appendix 1: Importing COI Form***

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**This form is to be completed by the employee/student intending to import COIs regulated under the CWC.**

### **Work Conditions**

I have read the “Importing COI Procedure”. I understand how to import these chemicals according to Canadian regulations.

- YES                       NO

After reviewing the applicated COI list included in [Appendix 2](#), please indicate which COIs you may need to import in the future.

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## Appendix 2: COIs Regulated Under the CWC

### Schedule 2

Chemical	Exemptions and Examples	Chemical Abstract Registry Number
<b>A. Toxic Chemicals</b>		
1) Amiton: O,O-Diethyl S-[2-(diethylamino)ethyl] phosphorothiolate, and corresponding alkylated or protonated salts	—	78-53-5
2) PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene	—	382-21-8
3) BZ: 3-Quinuclidinyl benzilate*	—	6581-06-2
<b>B. Precursors</b>		
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 and Dimethyl methylphosphonate	e.g. 676-97-1 and 756-79-6
	Exemption: Fonofos: O-Ethyl S-phenyl ethylphosphono-thiolothionate	944-22-9
5) N,N-Dialkyl (Me, Et, n-Pr, or i-Pr) phosphoramidic dihalides	—	—
6) Dialkyl (Me, Et, n-Pr, or i-Pr) N,N-dialkyl (Me, Et, n-Pr, or i-Pr)- phosphoramidates	—	—
7) Arsenic trichloride	—	7784-34-1
8) 2,2-Diphenyl-2-hydroxyacetic acid	—	76-93-7
9) Quinuclidin-3-ol	—	1619-34-7
10) N,N-Dialkyl (Me, Et, n-Pr, or i-Pr) aminoethyl-2-chlorides and corresponding protonates salts	—	—
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
12) N,N-Dialkyl (Me, Et, n-Pr, or i-Pr) aminoethane-2-thiols and corresponding protonated salts	—	—
13) Thiodiglycol: Bis(2-hydroxyethyl)sulfide	—	111-48-8
14) Pinacolyl alcohol: 3,3-Dimethylbutan-2-ol	—	464-07-3

### Schedule 3

Chemical	Chemical Abstract Registry Number
<b>A. Toxic Chemicals</b>	
1) Phosgene: Carbonyl dichloride	75-44-5
2) Cyanogen chloride	506-77-4
3) Hydrogen cyanide	74-90-8
4) Chloropicrin: Trichloronitromethane	76-06-2
<b>B. Precursors</b>	
5) Phosphorus oxychloride	10025-87-3
6) Phosphorus trichloride	7719-12-2
7) Phosphorus pentachloride	10026-13-8
8) Trimethyl phosphite	121-45-9
9) Triethyl phosphite	122-52-1
10) Dimethyl phosphite	868-85-9
11) Diethyl phosphite	762-04-9
12) Sulfur monochloride	10025-67-9
13) Sulfur dichloride	10545-99-0
14) Thionyl chloride	7719-09-7
15) Ethyldiethanolamine	139-87-7
16) Methyldiethanolamine	105-59-9
17) Triethanolamine	102-71-6



## ***Appendix 3: Chemicals of Interest Usage Tracking Acknowledgement Form***

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This form is to be completed by the employee/student intending to use and track chemicals of interest.

### **Work Conditions**

I have read the "Procedure for tracking chemicals interest usage". I understand how to track the usage of chemicals of interest.

YES       NO