

**Appendix E:** Standard Operating Procedure for Designated Substance Notice, Assessment and Control

**Schedule 1: Designated Substance Assessment Form**

Designated Substance: Choose an item.

Date: Department:

Location (Building and room number(s)):

Manager (Name): Signature:

Assessment Prepared by (Name): Date Prepared:

Project End Date:

Signature: Title:

**Section A. Worker Exposure**

1. In what form is the designated substance obtained?

Solid                      Liquid                      Gas

a. Chemical or product name:

b. CAS Registry Number:

c. Type of container (e.g. bottle, box, vial, etc.):

d. Is product in the original supplier bottle?:

Yes              No      If no, explain:

e. Size and quantity of container(s) (e.g. 5gx1 bottle):

f. Is the material volatile (can it evaporate into the air)?              Yes              No

g. Is the material of small enough particle size that it can be dispersed through the lab?              Yes              No

- h. Approximate timeline of project using the Designated Substance (e.g. Jan. 2023- Dec. 2025):
- i. What PPE and engineering controls are necessary to protect workers from exposure to the Designated Substance?

2. Is the form of the designated substance altered as it is used?

No

Yes If yes, provide the name of the altered form:

3. Is there a possibility of the substance being released into the work environment during normal use:

No If no, explain:

Yes If yes:

a. Describe the stage of the operation and/or areas where this can occur:

b. Specify the job functions and the approximate number of employees who might be exposed:

c. Indicate how people could be exposed:

Inhalation

Ingestion

Skin absorption

4. Is there a likelihood of escape of the designated substance due to leaks, accidents etc.?

No

Yes

5. Are people (e.g. staff, students, faculty, contractors, etc.) likely to be exposed?

No

Yes

## **Worker Exposure Conclusions**

6. Are there any activities or situations where exposure by any route is possible?  
(If you answered yes to any questions above then the answer is 'yes' here.)

No

Yes

7. Is protection against exposure dependent on some level of engineering control (e.g. a fume hood), operating procedures and/or personal protective equipment that can fail or deteriorate?

No

Yes

### **If the answer to both questions 6 and 7 is No:**

Place and maintain a copy of this assessment in a location that is readily accessible to workers in your work area. In laboratories, it is strongly suggested that a copy is posted inside the lab next to the door. A copy may also be placed in the WHMIS / SDS binder alongside the SDS for the chemical which contains a Designated Substance. Place a completed copy of the sign template in Section D in a conspicuous location outside the lab, such as on the lab door or wall beside the lab door, where individuals will see it before entering the lab.

Provide a copy of this assessment and a current Safety Data Sheet for the chemical to the Human Resources Department for review by the Joint Health and Safety committee.

No further action is necessary.

### **If the answer to either question 6 or 7 is Yes:**

Complete Section B (Worker Health Impact Assessment)

## **Section B. Worker Health Impact Assessment**

This section will assess the worker health impact due to exposures identified above in Section A.

1. Is worker exposure possible during normal operating or use conditions?

No, continue to 2.

Yes, If yes, complete the following:

- a. How might that exposure occur (list all possibilities)?

b. Would the exposure exceed the Time Weighted Average Limit (TWA), the Short-Term Exposure Limit (STEL), or the Ceiling Limit (CL) as defined in the Regulation 490/09 for this chemical (see Appendix A)?

No, continue to 2.

Yes, If yes, what would the estimated concentration or quantity be (include unit)?

2. Is worker exposure possible during emergency situations (such as spills or containment failure)?

No, If no continue to 3.

Yes, If yes, complete the following:

a. How might that exposure occur? (list all possibilities)

b. Would the exposure exceed the TWA, STEL, or CL? (See Appendix A)

No

Yes

If exposure may occur but would be below the TWA, STEL or CL then you do not need a control program. Place a copy of this assessment with the SDS in you SDS binder and forward this assessment and a current SDS to Human Resources for review by the JHSC. You may be contacted for additional information. No further action is required.

If you answered Yes to any of the questions above and the exposure would exceed any of the TWA, STEL or CL then a formal Control Program is required. For each exposure incidence listed above, describe the Controls (engineering, operational, PPE) which would ensure that no worker will be exposed to the material in concentrations or amounts greater than the TWA, STEL or the CL. The Table below can be used to develop this program. For assistance contact Science Facilities or Human Resources.

Once completed forward this assessment, your control program (Section C), and a current version of the SDS to the Human Resources Office for review by the JHSC. You may be contacted for additional information. Ensure your laboratory personnel are aware of and follow the procedures for the Control Program Place and maintain a copy of this assessment in a location that is readily accessible to workers in your work area. In laboratories, it is strongly suggested that a copy is posted inside the lab next to the door. A copy may also be placed in the WHMIS / SDS binder alongside the SDS for the chemical which contains a Designated Substance.

## Schedule 2: Exposure Limits of Designated Substances (from O. Reg. 490/09)

Designated Substance [CAS No.]	Time-Weighted Average Limit (TWA), Short-Term Exposure Limit (STEL), Ceiling Limit (C) and Notations		
	TWA	STEL/C	Notations
Acrylonitrile [107-13-1]	2 ppm	C 10 ppm	Skin
Arsenic, elemental arsenic and inorganic compounds [7440-38-2], and organic compounds (only where both inorganic and organic compounds are present), as As.	0.01 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	
Asbestos – All forms [1332-21-4]	0.1 f/cc (a)		
Actinolite [77536-66-4]	0.1 f/cc (a)		
Amosite [12172-73-5]	0.1 f/cc (a)		
Anthophyllite [77536-67-5]	0.1 f/cc (a)		
Chrysotile [132207-32-0]	0.1 f/cc (a)		
Crocidolite [12001-28-4]	0.1 f/cc (a)		
Tremolite [77536-68-6]	0.1 f/cc (a)		
Benzene [71-43-2]	0.5 ppm	2.5 ppm	Skin
Coke Oven Emissions <sup>1</sup>	0.15 mg/m <sup>3</sup>		
Ethylene oxide [75-21-8]	1 ppm	10 ppm	
	1.8 mg/m <sup>3</sup>	18 mg/m <sup>3</sup>	
Isocyanates, organic compounds			
Toluene diisocyanate (TDI) [584-84-9] [91-08-7]	0.005 ppm	C 0.02 ppm	
Methylene bisphenyl isocyanate (MDI) [101-68-8]	0.005 ppm	C 0.02 ppm	

Hexamethylene diisocyanate (HDI) [822-06-0]	0.005 ppm	C 0.02 ppm	
Isophorone diisocyanate (IPDI) [4098-71-9]	0.005 ppm	C 0.02 ppm	
Methylene bis (4-cyclohexylisocyanate)	0.005 ppm	C 0.02 ppm	
[5124-30-1]			
Lead [7439-92-1] elemental lead, inorganic and organic compounds of lead, as Pb			
Elemental lead, inorganic and organic compounds of lead, as Pb except tetraethyl lead [78-00-2]	0.05 mg/m <sup>3</sup>		Skin (organic compounds)
Tetraethyl lead, as Pb [78-00-2]	0.10 mg/m <sup>3</sup>	0.30 mg/m <sup>3</sup>	
Mercury [7439-97-6], elemental mercury, inorganic and organic compounds of mercury, as Hg			
All forms of except alkyl, as Hg	0.025 mg/m <sup>3</sup>		Skin
Alkyl compounds of, as Hg	0.01 mg/m <sup>3</sup>	0.03 mg/m <sup>3</sup>	Skin
Silica, Crystalline			
Quartz/Tripoli [14808-60-7; 1317-95-9]	0.10 mg/m <sup>3</sup> (R)		
Cristobalite [14464-46-1]	0.05 mg/m <sup>3</sup> (R)		
Vinyl chloride [75-01-04]	1 ppm		

#### Endnotes and Abbreviations:

<sup>1</sup> Means the benzene soluble fraction of total particulate matter of the substances emitted into the atmosphere from metallurgical coke ovens including condensed vapours and solid particulates.

[CAS No.] - CAS Registry Number.

f/cc - Fibres per cubic centimetre of air.

mg/m<sup>3</sup> - Milligrams of the agent per cubic metre of air.

ppm - Parts of the agent per million parts of air by volume.

Skin - Danger of cutaneous absorption.

(R) Respirable fraction: means that size fraction of the airborne particulate deposited in the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the ACGIH particle size-selective sampling criteria for airborne particulate matter; and (b) has the cut point of 4 µm at 50 per cent collection efficiency.

(a) Asbestos fibres longer than 5 µm in length and less than 3 µm in width and that have a length to width ratio not less than 3:1 as viewed in a phase contrast optical microscope at 400-450 times magnification.

**Schedule 3:** Designated Substances at Trent University: Current as of February 2022 and to be reviewed regularly.

Acrylonitrile

Asbestos

Arsenic

Benzene

Isocyanates

Lead

Mercury

Silica