Standard Operating Procedure (SOP) for
ASSESSING AND CONTROLLING DESIGNATED SUBSTANCES
SOP# FSE-04-08

Creation Date: December 2008
Next Review: December 2010
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Reviewed By: DOHS
YUSA JHSC
YUFA JHSC
1. **Introduction/Purpose**

There are a number of substances that the Ministry of Labour has designated as requiring an assessment of exposure or likelihood of exposure to a worker through inhalation, ingestion, absorption or contact. The followings procedures have been established to facilitate an assessment of designated substances, ensuring it has been completed in writing, and determine if there is a need for a control program.

2. **Scope**

These guidelines are for all faculty, staff and students within the Faculty of Science and Engineering that handle, use or store one of the following designated substances: Acrylonitrile, Arsenic, Asbestos, Benzene, Ethylene Oxide, Isocyanate, Lead, Mercury, Silica or Vinyl Chloride.

3. **Definitions, Abbreviations**

**Assessment:** An evaluation of a worker’s exposure to a designated substance that must take into account: i) the methods and procedures used in the production, processing, use, handling or storage of the substance, ii) the exposure and potential exposure of a worker to the substance, and iii) measures and procedures necessary to control exposure.

**Control Program:** A program to control exposure to a designated substance that may include some or all of the following: i) engineering controls, work practices and hygiene practices to control exposures, ii) monitoring of concentrations in the air, iii) medical examinations and clinical test for workers, or iv) training programs.

**Designated Substance:** A chemical agent to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled by regulation.

**DOHS:** Department of Occupational Health and Safety

**FSE:** Faculty of Science and Engineering

**Monitoring:** Air emission and medical testing as prescribed in the designated substance regulation.

**PPE:** Personal protective equipment

**PI:** Principal Investigator

**TWAEV:** Time Weighted Average Exposure Value – the allowable average of the airborne concentrations to which a worker is exposed in an 8 hour work day or a work week. The designated substance regulations outline the TWAEV that shall not be exceeded by a worker for each substance.

**WHMIS:** Workplace Hazardous Materials Information System
4. Responsibilities and Training

- The Principal Investigator and/or lab supervisor play a key role in the health and safety of staff and students working in their research or teaching facilities. Laboratory training (including orientation, familiarity with lab rules and lab protocols) may be delegated by the PI to other experienced staff members. Supervisors, lab staff and students must attend relevant DOHS safety training (i.e. WHMIS II), and all such training must be documented.
- The responsible supervisor shall be familiar with and have access to the current list of designated substances and the prescribed regulation, as well as conduct an audit of any designated substances.
- When exposure is likely, based on the findings of the assessment, the Principal Investigator and/or lab supervisor must put into practice the Control Program for that designated substance, as prescribed under the specific designated substance regulation.

5. Handling, Using and Storing Designated Substances

- Ensure that all individuals required to use, handle or store designated substances have access to the specific regulation and are trained in the safe handling, storage and disposal, as well as all aspects of any control program implemented.
- Designated substances must be stored safely and disposed of in the appropriate manner.

6. Assessment of Exposure

- The assessment will consider all possible means of substituting the designated substance with a less hazardous substance.
- The assessment must ensure that the TWAEV of persons working in the area does not exceed the limit specified in the specific designated substance regulation.
- The assessment shall be documented (See Appendix A) and take into account:
  (i) the methods and procedures used in the production, processing, use, handling or storage of the substance,
  (ii) the extent and potential extent of the exposure of a worker to the inhalation, absorption or contact with the substance,
  (iii) measures and procedures necessary to control exposure by means of engineering controls, work practices and hygiene practices.
- If you need assistance with your assessment, contact the HSO for FSE (ext. 20770).

7. Control Program

- If the assessment discloses a potential exposure, the Principal Investigator and/or lab supervisor, in consultation with the involved individual(s) shall implement procedures outlined in the designated substance control program developed by the DOHS.
- The control program is developed in consultation with the JHSC before implementation.
- Depending on the designated substance, the control program may specify some, or all, of the following provisions:
  (i) engineering controls, work practices and hygiene practices to control exposures
  (ii) monitoring of concentrations in the air and individual exposure
  (iii) medical examinations and clinical test for workers
  (iv) training programs for supervisors and workers
8. **Records**

- Principal Investigators and/or lab supervisors are responsible for the maintenance of designated substance inventory and monitoring records.
- Copies of the designated substance control program(s) and environmental monitoring records shall be provided to the Department of Occupational Health and Safety and the appropriate JHSC.
- Copies of the medical monitoring records shall remain with the physician conducting the examination.

9. **Related References, Standards, Guidelines**

i) [Occupational Health and Safety Act, R.S.O. 1990, c. O.1](#)

ii) [Regulation 833: Control of Exposure to Biological or Chemical Agents](#)

iii) [Regulation 835: Designated Substance – Acrylonitrile](#)

iv) [Regulation 836: Designated Substance – Arsenic](#)

v) [Regulation 837: Designated Substance – Asbestos](#)

vi) [Regulation 839: Designated Substance – Benzene](#)

vii) [Regulation 841: Designated Substance – Ethylene Oxide](#)

viii) [Regulation 842: Designated Substance – Isocyanates](#)

ix) [Regulation 843: Designated Substance – Lead](#)

x) [Regulation 844: Designated Substance – Mercury](#)

xi) [Regulation 845: Designated Substance – Silica](#)

xii) [Regulation 846: Designated Substance – Vinyl Chloride](#)

xiii) [Regulation 851: Industrial Establishments](#)
RECORD OF DESIGNATED SUBSTANCE ASSESSMENT

<table>
<thead>
<tr>
<th>SUBSTANCE:</th>
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<td>DATE:</td>
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DEPARTMENT:

LOCATION OF SUBSTANCE:

ASSESSMENT PREPARED BY:

POSITION/TITLE:

Section I: Information on Designated Substance

1. List all product names for a designated substance received in the workplace. Indicate where it is used, how it is used (if it is stored for future usage or needs to be disposed, indicate this) and the quantity used per month or year:

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Department</th>
<th>How Used</th>
<th>Quantity (per month/year)</th>
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</thead>
</table>
2. In what form is the substance received (solid, liquid, salt complex in aqueous solution, etc)?

Type of Container:  
Size of Container:  

3. Is this form altered during use or in the operation?  YES ☐  NO ☐

   If YES, indicate the altered form:  

4. Is there a possibility of the substance being released into the workplace environment during normal use?  YES ☐  NO ☐

   If YES, indicate the area(s) where this can occur:  

   If YES, specify the job function(s) and approximate number of employees that might be exposed:  

5. Are workers likely to be exposed?  YES ☐  NO ☐

   If YES, an assessment is necessary.  Proceed to Section II.

   If NO, then no further assessment is necessary. Send a copy of pages 1 & 2 from Appendix A to the HSO for FSE (Rm. 317 Lumbers).

   SIGNED: ___________________________  DATE: ________________
### Section II: Processes and Exposures

**Name of Process:** ____________________________________________

<table>
<thead>
<tr>
<th>Process Flow Stages</th>
<th>Description</th>
<th>Total Number of Employees</th>
<th>Likely Exposure (Yes/No)</th>
<th>Duration of Exposure (Hrs per week)</th>
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For each ‘Process Flow Stage’ with a ‘Likely Exposure’, complete Section III.
### Section III: Existing Controls

**Process Flow Stage:**

**Method of Exposure:**
- Inhalation [ ]
- Ingestion [ ]
- Skin Absorption [ ]
- Skin Contact [ ]

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<thead>
<tr>
<th>Control Description</th>
<th>Problems/Improvements</th>
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<td><strong>Engineering Controls:</strong></td>
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<td><strong>Work Practices:</strong></td>
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<tr>
<td><strong>Hygiene Facilities and Practices:</strong></td>
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<td>Training/Information:</td>
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<th>Emergency Procedures/Equipment:</th>
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<th>Personal Protective Equipment:</th>
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Proceed to Section IV.
Section IV: Health Effects

1. Are there any reported health effects? If so, describe.

2. Are there any current Medical Programs? If so, describe.

3. Any previous exposure monitoring results? If so, describe.

______________________________________________________________________

SIGNED:________________________________  DATE:________________

Once completed, send a copy of Appendix A to the HSO for FSE (Rm. 317 Lumbers). In consultation with DOHS, a determination will be made for the need to follow a control program and what components are required.