



SARNIA REFINERY
MERCURY CONTROL

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STANDARD

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Document Owner: Manager, EH&S

Document Contact: Hygienist

SCOPE AND PURPOSE

This Standard identifies controls required to reduce the risk of exposure to mercury.

This Standard applies to the handling of:

- Mercury thermometers
- Magnetrol and Mercoid level switches
- Mercuric nitrate
- Fluorescent light bulbs and tubes

ROLES & RESPONSIBILITIES

Occupational Hygienist is accountable to provide support, as necessary, to ensure appropriate control of worker exposure to mercury and conformance to this Standard.

Lab and SIM Personnel are accountable to maintain the mercury spill kit in their respective areas.

RISK CONTROLS

Engineering and Administrative Controls

Mercury inside thermometers, level switches and fluorescent light bulbs/tubes is contained within sealed glass and is not intended to be released during normal use.

MERCURY CONTROL

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Mercuric nitrate must be handled inside a fume hood which is tested at least annually to ensure adequate capture velocity and is equipped with a manometer to provide real-time flow indication. The maximum sash height that allows for minimum average capture velocity of 100fpm across the entire open face must be identified on the fume hood. Maintenance must be performed on the fume hood immediately when issues are discovered and at least annually.

Only the smallest quantity of mercuric nitrate necessary should be kept on-site.

Work and Hygiene Practices

Care must be taken when performing the following activities to prevent personnel exposure to mercury:

- Handling mercury thermometers;
- Using mercuric nitrate to perform chlorides analysis;
 - This activity must be conducted inside a fumehood.
- Removing a mercury-containing level switch from service;
- Transporting a mercury-containing level switch between its service location and the SIM Shop;
 - If a mercury ampoule inside a level switch is discovered to be broken while the level switch is still in place, the mercury shall be cleaned up on-site before the level switch is transported to the SIM Shop.
- Performing maintenance on a mercury-containing level switch;
 - Switches must be opened carefully to avoid spilling mercury from a potentially broken glass ampoule;
- Transporting and replacing fluorescent light bulbs and tubes.
 - Fluorescent light bulbs and tubes should only be replaced when personnel are not present in the immediate area.

Personal Protective Equipment

In addition to standard Lab and general refinery PPE, additional PPE must be worn in accordance with the table below:

	Impervious gloves ¹	Goggles	Respirator ²
Handling liquid mercury-containing substances and equipment	✓		
Cleaning spilled liquid mercury inside a fume hood or outdoors	✓	✓	
Cleaning spilled liquid mercury indoors, outside of a fume hood	✓	✓	✓

¹Nitrile or neoprene gloves

²Half-facepiece air-purifying respirator equipped with mercury vapour (3M 6009) cartridges mm#1000257996.

Loss of Containment

If a new fluorescent light bulb or tube is broken, the area should be vacated and ventilated to allow dissipation of mercury vapour prior to re-entry.

Any releases of liquid mercury and/or mercuric nitrate must be cleaned up immediately using the contents of the Spilfyter® #520250 MERCSORB® Mercury Spill Kits, which are maintained in the following locations:

- Laboratory – hanging on the wall in the North hallway
- SIM Shop – hanging on the South wall in the SIM clean shop

A safe and thorough clean-up shall be performed in accordance with the procedure located inside the spill kit.

The spill area should be vacated of all people who are not directly involved in the clean-up until the clean-up is complete.

Contaminated materials are to be placed in appropriate waste disposal containers. The Sarnia Refinery's Waste Management representative must be contacted to arrange for proper disposal.


Upon completion of the clean-up, the mercury spill kit must be restocked, as appropriate, to ensure it is in proper condition for future use.

REFERENCES

Designated Substance Assessment - Mercury

[Respiratory Protection Standard](#)

END OF STANDARD

		<u>REVISION LOG</u>	
Date	Revision	Section	Comment
MM/DD/YYYY			
08/28/2009	Original		Transferred into "Standard" template. Revision #Original. Replaces S.O. #2.050.
11/29/2011	1	All	Complete reformatting and revision of information.
		Scope and Purpose	Mercury sources on-site identified.
		Roles and Responsibilities	Responsibilities identified for: Occupational Hygienist – support in the control of worker exposure; and SIM & Lab Personnel – maintenance of mercury spill kits.
		Risk Controls	Engineering & administrative controls and work & hygiene practices prescribed. Mercury-specific PPE, including an air-purifying respirator equipped with mercury vapour cartridges, prescribed.
06/27/2012	2	All	Updated format, but content NOT altered.
07/24/2013	-	Header	Document Owner & Contact Updated. NO content change. (L. Lebert)
12/04/2014	2		Changed review date
06/20/2019	3	All	Removed all references to mercuric iodide and Nessler's Reagent Added information & precautions relating to mercuric nitrate

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The following individuals have approved and signed this document.

UserName: Todd Murray (toddmurray)

Title: Mgr EH&S Sarnia Refinery

Date: Wednesday, 10 July 2019, 07:58 AM Mountain Time

Meaning:

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