

Principal Investigator: _____

Date Approved: _____


This document covers basic chemical safety information for dimethylcadmium. The use of dimethylcadmium is subject to pre-approval by the Principal Investigator (PI) and/or Supervisor. PI and/or Supervisor may use the sheet attached to this SOP to document any lab specific training for Dimethylcadmium. **DO NOT USE DIMETHYLCADMIUM UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.**

Dimethylcadmium

Dimethylcadmium ($\text{Cd}(\text{CH}_3)_2$) is a toxic, colorless, foul-smelling liquid that fumes in air due to its relatively high vapor pressure (33 mm Hg at 25 °C). This highly flammable substance (flash point = -18 °C) is also water reactive, producing the flammable gas methane and toxic cadmium oxide vapors upon contact with water or moist air. It can form explosive metal peroxides upon exposure to air. It can be fatal in small doses when ingested or inhaled. Dimethylcadmium also has the potential to cause cancer and interfere with fertility, fetal development, and/or lactation.



Dimethylcadmium is typically used in organic chemical synthesis and metal-organic chemical vapor deposition (MOCVD).

Personal Protective Equipment & Personnel Monitoring		
 Lab Coat	 Gloves	 Eye Protection
Traditional white lab coat and chemical-resistant apron when working with large volumes.	Nitrile or neoprene gloves. Consult glove selection chart for heavy handling of corrosives. DO NOT WEAR LATEX GLOVES	ANSI Z87.1-compliant safety glasses or safety goggles, or face shield if a splash hazard is present.

Labeling & Storage

Store in a glove box whenever possible. Otherwise keep container tightly closed in a cool, dry, and well-ventilated place. Store away from water and aqueous solutions. Isolate from incompatible materials such as strong oxidizers, strong acids, and strong bases. Store away from heat sources and in a flame proof area. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep contact with air or oxygen limited to prevent formation of cadmium oxide vapors or dimethylcadmium peroxide – a friction-sensitive explosive. Primary containers should be labeled according to the UNC Charlotte Chemical Hygiene Plan. The secondary container's label must contain the chemical name and corresponding hazards. Containers of these materials must be stored in leak-proof secondary containment within a designated area. Also, if not plainly visible (e.g. through a cabinet window), labelling must be applied to storage locations where dimethylcadmium is stored to avoid an inadvertent encounter.

Engineering Controls, Equipment & Materials

Glove Box

Work under an inert atmosphere (e.g. argon, nitrogen) in a glove box.

Fume Hood

If a glove box can't be used, work in a chemical fume hood away from any water or ignition sources. If your protocol does not permit the handling of dimethylcadmium in a fume hood, contact EHS to determine whether additional respiratory protection is warranted.

Housekeeping

Spills

Notify others in the area of the spill, including your supervisor. Evacuate the location where the spill occurred. Call 911 from any campus phone (or 704-687-2200 from a cell phone). Report any exposure to EHS at 704-687-1111. Remain on-site (at a safe distance) to provide detailed information to first responders.

Decontamination

Wearing proper PPE, wipe up any residue with absorbent pads and clean the area with an alcohol solvent. Dispose of the contaminated disposables as hazardous waste following the UNC Charlotte guidelines.

Waste

Dimethylcadmium should be collected in a sealed container free from water and disposed of as hazardous waste.

First Aid & Emergencies

Fire

DO NOT use water to put out fire, instead use a Class B fire extinguisher.

Skin Contact

Immediately remove contaminated clothing and shoes; flush skin with water for at least 15 minutes. Get medical attention immediately.

Eye Contact

Check for and remove contact lenses. Immediately flush eyes with water for at least 15 minutes. Get medical attention immediately.

Inhalation

Move person into fresh air. If symptoms persist, get medical attention.

Ingestion

Do not induce vomiting. Get medical attention immediately.

Name	Signature	Date