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Current Version: 1.0
Revision Date: Apr 19, 2016

Material Safety Data Sheet

Identity: Cadmium Sulfide

Formula: CdS

SECTION I - GENERAL INFORMATION

Manufacturer: Advanced Engineering Materials Limited (AEM)

The information below is believed to be accurate and represents the best information available to AEM. However, AEM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

CAS #	OSHA PEL	ACGIH TLV	%
1306-23 -6	5ug(Cd)/m3	.01(Cd)/m3	0.0-100.0%

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: N/A

Vapor Pressure (vs. air or mmHg): N/A

Melting Point: 980°C

Specific Gravity(H₂O=1): 4.82 at 20.0°C

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Insoluble

Appearance and odor: Light yellow or yellow orange crystals, no odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: Unknown

Explosive Limits: LEL: N/A

UEL: N/A

Extinguishing Media: Use class D or other extinguishing agent for metal fires.

Special Fire Fighting Procedures:

Firefighters must wear full face, self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire and Explosion Hazards:

–When heated to decomposition, cadmium sulfide may emit toxic fumes of cadmium and oxides of sulfur.

- May react with acids to form toxic hydrogen sulfide gas.
- May ignite violently on contact with strong oxidizers.

SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (instability): None

Incompatibility: Strong oxidizing agents, iodine monochloride, acids

Hazardous Decomposition or Byproducts: Airborne cadmium fumes, cadmium oxide, oxides of sulfur and hydrogen gas.

Hazardous Polymerization: Will not occur.

Conditions to avoid (hazardous polymerization): None.

SECTION VI - HEALTH HAZARD DATA

Routes of entry: Inhalation? Yes Skin? No Eyes? No

Ingestion? Yes Other? N/A

Cadmium compounds are confirmed carcinogens producing lung tumors. Poison by ingestion. Inhalation of fumes or dusts affects the respiratory tract and the kidneys. Brief exposure to high concentrations may result in pulmonary edema and death. Fatal concentrations may be breathed without sufficient discomfort to warn a worker to leave the exposure. Cadmium oxide fumes can cause metal fume fever. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Sulfides have variable toxicity. They cause softening and irritation of the skin. If taken by mouth they are corrosive and irritating through the liberation of hydrogen sulfide and free alkali. Hydrogen sulfide is especially toxic. Sulfides of the heavy metals are generally insoluble and hence have little toxic action except through the liberation of hydrogen sulfide. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Signs and Symptoms of Overexposure:

Inhalation: Throat dryness, cough, headache, vomiting, chest pain, extreme restlessness and irritability, pneumonitis, possibly bronchiopneumonia.

Ingestion: Increased salivation, choking, vomiting, abdominal pain, anemia, renal dysfunction, diarrhea, tenesmus.

Skin: Redness, itching and burning.

Eye: Redness, itching, burning and watering.

Health Hazards (Acute and Chronic):

Inhalation:

Acute: May cause irritation of the upper respiratory system, vertigo, constriction of the throat, metallic taste in the mouth and cough, dyspnea, cyanosis, chest pain, flu-like symptoms and pulmonary edema. More severe exposure may cause pulmonary fibrosis/hypertrophy of bronchial vessels and renal necrosis and/or liver damage.

Chronic: May cause irreversible lung injury, pulmonary fibrosis, damage to the olfactory nerve. All routes of entry may cause kidney damage, osteomalacia, osteoporosis, spontaneous fractures, hemolytic and iron



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deficiency anemia, weight loss, irritability, renal tubular necrosis, cardiovascular effects, liver damage and prostatic and respiratory cancers.

Ingestion:

Acute: May cause irritation of mouth and throat, increased salivation, burning sensation and cramps in stomach, nausea, headache and vomiting, weakness, dizziness, diarrhea, shock, convulsions, coma and death.

Chronic: May cause irreversible renal tubular dysfunction, functional changes in the liver, pancreas and adrenal glands.

Skin:

Acute: May cause irritation.

Chronic: Repeated or prolonged exposure may result in dermatitis.

Eye:

Acute: Direct contact may cause irritation, redness, pain and smarting.

Chronic: Repeated or prolonged exposure may cause conjunctivitis.

Target Organs: May affect the respiratory system, kidneys, prostate and blood.

Carcinogenicity: NTP? Yes IARC Monographs? Yes OSHA Regulated? Yes

Medical Conditions Aggravated by Exposure: Kidney or respiratory dysfunction, blood or bone disorders.

Emergency and First Aid Procedures:

Inhalation: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

Ingestion: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

Skin: Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist.

Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Waste disposal method:

Dispose of in accordance with state, local, and federal regulations.



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Hazard Label Information:

DANGER: CONTAINS CADMIUM. Avoid creating dust

Precautions to be taken in storing:

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

Ventilation:

Local Exhaust: To maintain concentration at or below PEL, TLV

Special: Enclose process if possible

Mechanical (General): Not recommended

Other: Engineering and work practices

Work/Hygienic/Maintenance Practices:

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Handle in a controlled, inert atmosphere. Minimize exposure of cadmium by local exhaust and enclosing process if/when possible. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Shower and change clothes at the end of work shift (DO NOT wear contaminated clothing at home). Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established
