

Material Safety Data Sheet

Company Information: Crystalplex
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Section 1 - Chemical Product

Product Family #: CdSe

Substance: CdSe crystals in water

Synonyms: Semiconductor nanocrystals, quantum dots

Solvent: Water

Chemical Family

Crystal: II-VI semiconductor compound

Section 2 - Composition, Information on Ingredients

Component:	CAS#	% by Weight
Cadmium Selenide nanocrystal compound	1306-24-7	<5
Water		>95

Section 3 - Hazards Identification

Hazard Description: Xn Harmful

Color: Red-brown

Physical Form: Nanocrystals suspended in water

Odor: None

Major Health Hazards: Carcinogen. Harmful if inhaled, ingested, or contacted with skin

Physical Hazards: None

Potential Health Effects:

Inhalation: None

Skin Contact: Irritation, dermatitis

Eye Contact: Irritation

Ingestion: Vomiting, nausea, organ damage

Carcinogen Status (cadmium containing substances)

OSHA: No

NTP: No

IARC: No

Section 4 - First Aid Measures

Inhalation: N/A

Skin Contact: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention if needed.

Eye Contact: Irrigate eyes for at least 15 minutes. Seek medical attention.

Ingestion: If ingested, seek medical attention immediately.

Section 5 - Firefighting Measures

Flash Point: N/A

Autoignition Temp: N/A

Temp:

Flammability: Non-flammable

Extinguishing Media: Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting: Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Exercise appropriate precautions to minimize direct contact with skin or eyes.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.

Section 8 - Engineering Controls & Personal Protective Equipment

Suitable: Lab coats and goggles

OSHA Permissible Exposure Limits (PEL)

Cadmium
containing
compounds: 0.005 mg/m³ 8hr TWA

ACGIH Threshold Limit Value (TLV)

Cadmium
containing
compounds: 0.002 mg/m³ 8hr TWA

Eye Protection: Wear chemical/splash resistant safety goggles. Emergency eye wash fountain and quick drench shower should be provided in the immediate work area.

Ventilation: Provide local ventilation or work in fume hood.

Respirator: Wear respirator when high concentrations are present.

Clothing: Wear appropriate chemical resistant clothing.

Gloves: Wear appropriate chemical resistant gloves for type of exposure.

Section 9 - Physical & Chemical Properties

Cd/Se Crystals

No data available

Section 10 - Reactivity

Stability: Stable at standard temperatures and pressure.

Conditions to avoid: Avoid heat, flame, and oxidizers.

Hazardous Decomposition: Carbon monoxide, Carbon dioxide, toxic biproducts

Section 11 - Toxicological Information

Cadmium Selenide Nanocrystals

Acute toxicity:

Primary irritant effects

on the skin: Irritant to skin and mucous membranes.

on the eyes: Irritating effect.

Sensitization: No sensitizing effects known.

Subacute to chronic toxicity: Cadmium and cadmium compounds are toxic and experimental carcinogens. Exposure affects the respiratory tract, kidneys, and liver.

Ingestion may cause nausea, salivation, vomiting and diarrhea. Ingestion or inhalation of cadmium compounds may be fatal.

Selenium may cause bronchial irritation, gastrointestinal distress, vasopharyngeal irritation, garlic odor on breath and sweat, metallic taste, pallor, irritability, excessive fatigue, loss of fingernails and hair, pulmonary edema, anemia and weight loss.

Danger through skin absorption. To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies. IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity. NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

Additional toxicological information:

Carcinogen as defined by OSHA. ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

Section 12 - Ecological Information

Do not allow material to be released to the environment without proper governmental permits.

Section 13 - Transportation Information

U.S. DOT 49 CFR 172.101		
Proper Shipping Name:	Cadmium Selenide	
DOT hazard:	Toxic 6.1	
UA/NA ID	2570	
Packing Group:	III	
Exceptions:	49 CFR 172.150	

Section 14 - Disposal

Dispose in accordance with all applicable regulations. Dispose of solid and liquid waste with registered waste hauler. Do not discharge to sewer.