

Material Safety Data Sheet

Company: Crystalplex (412) 246-2044
Address: 2403 Sidney St. Suite 280, Pittsburgh, PA 15203

Section 1 - Chemical Product

Polystyrene-divinylbenzene beads that encapsulate semiconductor nanocrystals, are stored in tris-buffered saline, and have -COOH groups or avidin on its surface.

Section 2 - Composition, Information on Ingredients

Name	CAS #	% by weight
Water	7732-18-5	97.0-98.5
Polystyrene	9003-70-7	0.5-2.0
Sodium Chloride	7647-14-5	0.8
Tris (Hydroxymethyl) Aminomethane Free Base	77-86-1	.11
Tris (Hydroxymethyl) Aminomethane Hydrochloride Salt	1185-53-1	.02
Potassium chloride	7447-40-7	.02
Divinyl benzene	1321-74-0	.01
Sodium Azide	26628-22-8	0.01
BSA	9048-46-8	0-1
Avidin	1405-69-2	0-0.01
CdSe	1306-24-7	<0.001

Section 3 - Hazards Identification

Appearance: Opaque liquid. CAUTION! The toxicological properties of this material have not been fully investigated. May cause eye and skin irritation. May cause respiratory and digestive tract irritation.

Target Organs: None known.

Potential Health Effects

Eye: May cause eye irritation. The toxicological properties of this material have not been fully investigated.

Skin: May cause skin irritation. The toxicological properties of this material have not been fully investigated.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Physician: Treat symptomatically and supportively.

Section 5 - Firefighting Measures

Not a fire hazard.

Section 6 - Accidental Release Measures

Wear NIOSH approved chemical safety gloves, goggles, and rubber boots. Sweep up product and place in a sealed bag. Hold for disposal. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Store in a dark, cool (2 - 25 °C) place. Gentle sonication to disperse beads in solution is recommended prior to use. Beads may be centrifuged to change solvent if desired.

Section 8 - Engineering Controls & Personal Protective Equipment

Engineering Controls

Use adequate ventilation to keep airborne concentrations low.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical & Chemical Properties

Physical State: Solution / suspension

Appearance: white

Odor: None reported.

pH: 7.4.

Vapor Pressure: 17 mm Hg @20C

Vapor Density: <1

Evaporation Rate: Not available.

Viscosity: Not available.

Section 10 – Reactivity

Stability: Stable, std temp & pressure

Conditions to avoid: Incompatible materials

Incompatible Materials: Oxidizing agents

Section 11 - Toxicological Information

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Neurotoxicity: No information available.

Mutagenicity: No information available.

Other Studies: No data available.

Special notes about cadmium selenide

Cadmium selenide exists in trace quantities in this product. The following information is provided for reference.

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 compounds are highly 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/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.

Additional toxicological information

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. 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: no shipping name provided

Section 14 - Disposal

Dispose in accordance with all applicable regulations.

Section 15 - Other Regulatory Information

The above information is believed to be correct but is not all inclusive and shall be used only as a guide. Crystalplex shall not be held liable for any damage resulting from handling or from contact with the above product.

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