

I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product/Trade Name: LaserForm™ ST-200 Powder
Chemical Family: Metal mixture
Product Use: Stainless-steel-based powder for SLS® system laser sintering applications

Manufacturer:



	In the U.S./Canada	In Europe
Manufacturer Contact	3D Systems, Inc. 333 Three D Systems Circle Rock Hill, SC 29730 U.S.A.	3D Systems GmbH Guerickeweg 9 D-64291 Darmstadt, Germany
For Information:	Phone: 803.326.4080 or Toll-free Phone: 800.889.2964	Phone: +49 (0) 6151 357-357 Fax: +49 (0) 6151 357-111
Emergency:	800.424.9300 - Chemtrec	703.527.3887 - Chemtrec (U.S.)

Hazardous Materials Identification System

(HMIS):

(Degree of hazard: 0 = low, 4 = extreme);

Health **1**
 Flammability **0**
 Physical Hazards **0** (None)

National Fire Protection Association (NFPA):

Mixture, Not Rated

II. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Chemical Name	Percent	EINECS/ ELINCS #	EU Classification	
				Symbol	R-Phrase
7439-89-6	Iron	30 - 60	231-096-4	None	None
7440-47-3	Chromium	10 - 30	231-157-5	Xi	R37
Mixture	Organic Binder	1 - 5	N.A.	None	None

N.A. – Not applicable

OSHA Classification: Irritant

III. HAZARDS IDENTIFICATION

WARNING! MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION. DUST OR POWDER CAN CAUSE RESPIRATORY SYSTEM DAMAGE. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. KEEP CONTAINER CLOSED. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING.

FOR INDUSTRIAL USE ONLY.

Potential Health Effects

EYE: May cause irritation consisting of redness, swelling and pain due to mechanical irritation.
SKIN: Material not expected to be absorbed through the skin. May cause slight irritation consisting of redness and/or swelling due to mechanical irritation.
INHALATION: Harmful if inhaled. Exposure to high concentrations of chromium dusts or fumes can cause severe respiratory and nasal irritation.
INGESTION: Ingestion of large amounts may cause nausea, diarrhea and/or stomach pain.
CHRONIC: Prolonged or repeated inhalation of powder, dust or fume may cause more severe irritation and possibly lung damage. Prolonged or repeated exposures to chromium dusts or fumes may cause perforation of the nasal septum, bloody nose and other symptoms of severe nasal irritation.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:



May aggravate existing asthma, emphysema, or other respiratory disease.
 POTENTIAL ENVIRONMENTAL EFFECTS: None known or expected.

IV. FIRST AID MEASURES

Skin contact: Wipe with absorbent paper or textile towels. Wash with plenty of soap and water. Do not use organic solvents. In case of dermatitis, seek medical attention.
 Eye contact: Rinse immediately with water for at least 15 minutes. Seek medical attention immediately.
 Inhalation: Move affected person to fresh air. In case of unconsciousness, rest in stable lateral position (recovery position). In case of asphyxia, initiate artificial respiration immediately. Seek medical attention immediately.
 Ingestion: Affected person should drink 500 - 800 ml water, if possible with suspended activated carbon for medical use. In case of spontaneous vomiting, be sure that vomitus can freely drain because of danger of suffocation. Give water repeatedly. Artificial induction of vomiting should be restricted to first aid staff. Give nothing by mouth in case of unconsciousness or convulsions. Seek medical attention.

Notes to Physician: Treat symptomatically and supportively.

V. FIRE FIGHTING MEASURES

Flashpoint: LaserForm ST-200 steel metal powder is not a flammable solid as tested by the U.S. DOT standard flammability screening procedures (49CFR 173, Appendix E).
 Extinguishing Media: Dry sand or NFPA-approved Class D extinguisher. Without disturbing the burning mass, smother the fire and allow the fire to burn itself out. DO NOT USE CO₂ extinguishers or water on metal powder fire.
 Unusual Fire or Explosion Hazard: None. Fire or explosion may result by exposing any concentrated dust suspensions to a spark or flame.
 Protective Equipment: Self-contained breathing apparatus (SCBA) and protective clothing.

VI. ACCIDENTAL RELEASE MEASURES

Carefully collect all material, place in a suitable labeled container and dispose of according to local and national regulations. Clean-up personnel should wear protective clothing to prevent skin contact, goggles and NIOSH-approved respirators. Use non-sparking equipment to vacuum up the spilled powder and avoid formation of dust clouds. A substantial slipping hazard exists when these small spherical particles are spilled.

VII. HANDLING AND STORAGE

Handling: Avoid spilling powders to prevent slip hazards. Clean spills immediately. Wash after use and before eating, drinking, or smoking.
 Storage: Keep containers tightly closed, away from moisture and in a well-ventilated space. Store away from any incompatible materials. Keep away from food and drink. Store in the original container securely closed and at room temperature.

VIII. EXPOSURE CONTROLS, PERSONAL PROTECTION

CAS #	Chemical Name	ACGIH TLV	OSHA PEL	International OELs
7439-89-6	Iron	None established	None established	None established
7440-47-3	Chromium metal	0.5 mg/m ³	1 mg/m ³	Finland: 0.01 mg/m ³ Australia: 0.05 mg/m ³ Belgium, Denmark, France, Netherlands, Norway, Poland, Sweden, Japan, U.K (MEL): 0.5 mg/m ³ Philippines: 1 mg/m ³
Mixture	Organic Binder	None established	Not hazardous	None established

Personal Protective



Equipment: Wear gloves and eye protection when handling. Provide local exhaust ventilation or general dilution ventilation to maintain exposure levels below the PEL, TLV, or TWA. If exposures above the PEL/TLV/TWA are possible, use a NIOSH-approved dust mask or respirator.

Ventilation: General and local exhaust ventilation, engineering controls and good housekeeping practices are recommended to keep dust concentrations below the permissible exposure limits.

Other Protective Equipment: Eye wash should be available in the immediate work area.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Silver/gray powder
 Boiling point: Not available
 Solubility in water: Insoluble
 Vapor pressure: Not applicable
 Partition Coefficient: Not applicable
 Explosive Properties: Not explosive
 Odor: Odorless
 Specific Gravity: Not available
 Flashpoint: Not flammable
 Ignition: Not applicable
 pH-Value: Not applicable
 Viscosity: Not applicable

X. STABILITY AND REACTIVITY

Stability: Stable in dry air at room temperature (20°C).

Conditions or materials to avoid: Contact with moist air or humid conditions, or generation of airborne dust. Incompatible with moisture, acids, oxidizers and bases.

Hazardous decomposition products: Thermal decomposition or burning may release oxides of carbon and other toxic or irritating gases or vapors.

Hazardous Polymerization: Will not occur.

XI. TOXICOLOGICAL INFORMATION

For Product:		For Components:		
		Iron	Chromium	Organic Binder
Oral LD ₅₀	Believed to be > 5 g/kg	30 g/kg (rat)	27.5 mg/kg (rat)	No data
Dermal LD ₅₀	Believed to be > 2 g/kg	No data	No data	No data
Inhalation LC ₅₀	Believed to be slightly toxic	No data	86 mg/m ³ (4 hours, rat)	No data
Irritation	Believed to be a mild eye and respiratory irritant	Eye irritant	Respiratory tract and nasal irritant	No data
Sensitization	Not anticipated to be a sensitizer	No data	No data	No data

Subchronic/Chronic Toxicity Data: No information

Mutagenicity: No information for product.

Carcinogenicity: This product or its components are not known to be carcinogenic. Chromium metal is listed by IARC as Group 3 (not classifiable).

Reproductive, Teratogenicity, Or Developmental Effects: The product is not known or reported to cause reproductive or developmental effects.

Neurological Effects: This product is not known or reported to cause neurological effects.

Interactions With Other Chemicals



MSDS Revision Date: 8/6/03
Reason for Revision: To update trademark information.
For more information: www.3dsystems.com
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