

I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**Product/Trade Name: IF-1 Infiltrant**

Chemical Family: Metal Alloy

Product Use: Infiltrant for use with steel alloy

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

Manufacturer:



	In the U.S./Canada	In Europe
Manufacturer Contact	3D Systems, Inc. 26081 Avenue Hall Valencia, CA 91355 U.S.A.	3D Systems GmbH Guerickeweg 9 D-64291 Darmstadt, Germany
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Emergency:	800.424.9300 - Chemtrec	703.527.3887 - Chemtrec (U.S.)

II. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Chemical Name	Percent	EINECS/ ELINCS #	EU Classification	
				Symbol	R-Phrase
7440-50-8	Copper	80 - 90	231-141-8	None	None
7440-31-5	Tin	10 - 20	231-159-6	None	None

In solid form, this material is not hazardous. Dust and fumes are hazardous materials.

OSHA Classification: For dust or fume, Irritant

III. HAZARDS IDENTIFICATION***WARNING! EXPOSURE TO DUST OR FUMES MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION. USE ONLY WITH ADEQUATE VENTILATION. AVOID CONTACT WITH EYES. WASH THOROUGHLY AFTER HANDLING.*****FOR INDUSTRIAL USE ONLY.****Potential Health Effects**

EYE: Dust or fume can cause irritation consisting of redness, swelling, and pain. May cause conjunctivitis with repeated exposures.

SKIN: Material not expected to be absorbed through the skin. Contact with dust may cause mild irritation consisting of redness and/or swelling.

INHALATION: Harmful if inhaled. Inhalation of high concentrations of dust, or fume may cause respiratory and nasal irritation, coughing, and difficulty breathing. Inhalation of high concentrations of metallic copper dusts or fumes may cause nasal irritation and/or nausea, vomiting and stomach pain. The metal fume may also produce influenza-like symptoms, known as metal fume fever. Symptoms of this reaction may include metallic taste, runny nose, nausea, fever and chills. These effects usually disappear within 24 hours.

INGESTION: Ingestion of large amounts may cause nausea, diarrhea and/or stomach pain.

CHRONIC: Prolonged or repeated skin contact with dust may cause more severe irritation or dermatitis. Prolonged or repeated inhalation of dust or fume may cause more severe irritation and possibly lung damage.

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: If skin contact with dust or fumes occurs, wash with plenty of soap and water. If irritation or dermatitis develops, seek medical attention.

Eye contact: Immediately flush out fume and dust particles with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If eye irritation develops, call a physician at once.

Inhalation: If symptoms of lung irritation occur (coughing, wheezing or breathing difficulty), 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: Not a likely route of exposure for finished metal alloy. If dust is ingested, immediately drink water to dilute. Consult a physician if symptoms develop.

Notes to Physician: There is no specific antidote to the ingredients in this product. Treat symptomatically and supportively.

V. FIRE FIGHTING MEASURES

Flashpoint: Not applicable

Extinguishing Media: For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash. Use fire-extinguishing media appropriate to fight surrounding fire.

Unusual Fire or Explosion Hazard: None.

Hazard: None.

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.

VII. HANDLING AND STORAGE

Handling: Clean spills immediately. Wash after use and before eating, drinking, or smoking.

Storage: No special requirements. 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
7440-50-8	Copper	0.2 mg/m ³ (fume), 1 mg/m ³ (dusts and mists)	0.1 mg/m ³ (fume) 1 mg/m ³ (dusts and mists)	Austria, Belgium, Canada: 0.2 mg/m ³ (fumes), 1 mg/m ³ (dusts) Denmark: 1.0 mg/m ³ (dust and powder) Germany (MAK): 0.1 mg/m ³ (fume), 1 mg/m ³ (dusts and mists)
7440-31-5	Tin	2 mg/m ³	2 mg/m ³	U.K. (LTEL): 5 mg/m ³ Austria & Germany (MAK), Belgium, Finland, Denmark, The Netherlands, Poland, Switzerland: 2 mg/m ³ Hungary, Norway: 1 mg/m ³



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. Respiratory protection not normally needed. If dusting occurs or fumes are generated above the PEL/TLV, use a NIOSH-approved half-face or full-face respirator equipped with High Efficiency Particulate (HEPA) filter cartridges.

Ventilation: Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation.

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

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Red metallic cubes
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 at normal temperatures and pressures.

Conditions or materials to avoid: Acetylene, chlorine

Hazardous decomposition products: When heated to decomposition, may produce metal oxides and fumes. Inhalation of high concentrations of metal fumes may cause a condition known as “metal fume fever” which is characterized by flu-like symptoms.

Hazardous Polymerization: Will not occur.

XI. TOXICOLOGICAL INFORMATION

For Product:		For Components:	
		Copper	Tin
Oral LD ₅₀	Believed to be > 5 g/kg	3.5 mg/kg (mouse, intraperitoneal)	No data
Dermal LD ₅₀	Believed to be > 2 g/kg	375 mg/kg (rabbit, subcutaneous)	No data
Inhalation LC ₅₀	Believed to be slightly toxic	No data	No data
Irritation	Believed to be a mild eye and respiratory irritant	Respiratory irritant	No data
Sensitization	Not anticipated to be a sensitizer		

Subchronic/Chronic Toxicity Data: No information

Mutagenicity: No information for product.

Carcinogenicity: This product or its components are not known to be carcinogenic.

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

Which Enhance Toxicity: None known or reported.

XII. ECOLOGICAL INFORMATION

The aquatic toxicity of the product is unknown, however, based on components, it is not predicted that this material would be toxic to aquatic organisms or cause long-term adverse effects in the aquatic environment.

Copper: The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with the physical and chemical characteristics of the water, such as its temperature, hardness, turbidity and carbon dioxide content. Copper concentrations varying from 0.1 to 1.0 mg/l have been found by various investigators to be not toxic for most fish. However, concentrations of 0.015 to 3.0 mg/l have been reported as toxic, particularly in soft water to many kinds of fish, crustaceans, mollusks, insects, and plankton.

XIII. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D. Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant EU, national, or local regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes. This product may be a candidate for metal reclamation.

XIV. TRANSPORT INFORMATION

	US DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
Shipping Name	Not regulated					
Hazard Class:						
UN Number:						
Packing Group:						

XV. REGULATORY INFORMATION

US FEDERAL

TSCA: All materials are listed on the TSCA Inventory
 CERCLA: Copper, R.Q.= 5000 lbs (No reporting is required if diameter of the pieces of metal is equal to or exceeds 100 micrometers (0.004 inches).
 SARA 313: Copper
 SARA 312 Hazard Class: Health: Acute – Yes
 Chronic - No
Fire No
Sudden Release of Pressure: No
 SARA 302 EHS List: None of the components are listed
 *R.Q. – Reportable Quantity

STATE RIGHT-TO-KNOW STATUS

Component	CA Prop. 65	Michigan	New Jersey	Pennsylvania	Massachusetts
Copper	Not listed	X	X	X	X
Tin	Not listed	Not listed	X	X	Not listed

EUROPEAN/INTERNATIONAL REGULATIONS

Hazard Classification: This material in its massive solid form is not required to be labeled under EC regulations.

Canadian DSL List: The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.



Canadian IDL: Copper, Tin
WHMIS: This product is considered to be a manufactured article and therefore not subject to WHMIS requirements.

German WGK Classification: Not hazardous to waters.

XVI. ADDITIONAL INFORMATION

MSDS Creation Date: 4/16/03
MSDS Revision #: original
MSDS Revision Date: n/a
Reason for Revision: n/a
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