I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product/Trade Name: **DuraForm™ 316 L (Stainless Steel Powder)**

Chemical Family: Metal Powder

Product Use: For use with the Sinterstation™ DM100 and DM250 Systems

Hazardous Materials Identification System (HMIS):

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

Health	**0***
Flammability	**0**
Physical Hazards	**0**

Personal Protection:

Skin, eye protection

Manufacturer:

Manufacturer Contact	3D Systems, Inc. 333 Three D Systems Circle Rock Hill, SC 29730 U.S.A.
For Information	Phone: 803.326.3900
Emergency	800.424.9300 - Chemtrec

II. COMPOSITION INFORMATION

CAS #	Component	Percent
7440-47-3	Chromium	7 – 12
7440-50-8	Copper	3 – 7
7440-21-3	Silicon	1 – 5
7440-02-0	Nickle	1 – 3
7439-98-7	Molybdenum	1 – 3
7439-96-5	Manganese	1 – 3
7429-90-5	Aluminum powder (pyrophoric)	0.5 – 1.5

OSHA Classification: Irritant, Sensitizer (29 CFR 1910.1200 Appendix A)

III. HAZARDS IDENTIFICATION

Emergency Overview

Can cause sensitization by skin contact. Limited evidence of a carcinogenic effect.

Potential Health Effects:

Eyes: Can cause irritation consisting of redness, swelling and pain.

Skin: Can cause irritation or other allergic reactions, including redness and/or swelling.

Inhalation: Can cause respiratory irritation.

Ingestion: Not an expected route of entry.

Chronic: Can cause an allergic skin reaction with repeated or prolonged exposure consisting of redness, swelling and/or rash (urticaria).

Medical Conditions Aggravated by Exposure

Could irritate an existing dermatitis or respiratory condition.

IV. FIRST AID MEASURES

Skin contact: Immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

Inhalation: Move affected person to fresh air. In case of asphyxia, initiate artificial respiration immediately. If breathing is difficult, give oxygen. Get medical attention immediately.

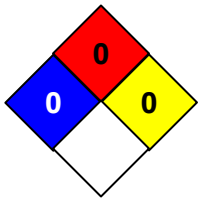
Ingestion: Ingestion is unlikely. However, if large quantities are swallowed, get medical attention.

V. FIRE FIGHTING MEASURES

Flash Point: NA | Method Used: NA

Upper Flammable Limit (UFL): NA | Lower Flammable Limit (LFL): NA

Auto Ignition: Not self-igniting | Rate of Burning: NA



NFPA Ratings
0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

General Fire Hazards: .

Hazardous Combustion Products: Thermal decomposition products can include CO, CO_2, organometalic compounds, and smoke.

Extinguishing Media: Use water mist, dry chemical, carbon dioxide, or chemical foam. Avoid the use of a stream of water to control fire since dusting can occur.

Fire Fighting Equipment/Instructions: Wear full protective clothing, including helmet, self-contained positive-pressure or pressure-demand breathing apparatus, protective clothing and facemask. Move container from area if it can be done without risk. Do not use high-volume water jet or high-pressure inert gas since pressure may cause dusting. Avoid inhalation of material or combustion by-products.

VI. ACCIDENTAL RELEASE MEASURES

Containment Procedures: Ensure adequate ventilation. Avoid formation of dust. Do not release material or contaminated water into drains, soil or surface waters.

Clean-Up Procedures: Wear appropriate protective equipment and clothing. Avoid the generation of dusts during clean up. Clean mechanically with non-sparking tools. Place material in an appropriate container for disposal.

Evacuation Procedures: Keep unnecessary personnel away.

Special Procedures: A slipping hazard exists when small particles are spilled.

VII. HANDLING AND STORAGE

Handling Procedures: Avoid spilling powders to prevent slip hazards. Avoid dust accumulation of this material.

Storage Procedures: Keep this material in a cool, dry place. Eliminate all sources of ignition.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

General Product Information:

CAS #	Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
7440-47-3	Chromium	0.5 mg/m^3	1 mg/m^3	0.5 mg/m^3
7440-50-8	Copper	short-term 0.1 mg/m3 as Cu long-term 1 mg/m3, as Cu (dusts and mists) long-term 0.2 mg/m^3 as Cu (fume)	1 mg/m^3 as Cu (dusts and mists) 0.1 mg/m^3 as Cu (fume)	1 mg/m^3 as Cu (dusts and mists) 0.1 mg/m^3 as Cu (fume)
7440-21-3	Silicon	withdrawn	15 mg/m^3 total dust 5 mg/m^3 respirable fraction	15 mg/m^3 total dust 5 mg/m^3 respirable fraction
7440-02-0	Nickel	1.5 **I** mg/m^3 as elemental Ni	1 mg/m^3	0.015 mg/m^3 as elemental Ni
7439-98-7	Molybdenum	10 **I** (3 **R**) mg/m^3 as Mo (insoluble compounds)	5 mg/m^3 as Mo (soluble compounds)	--

		0.5 **R** mg/m^3 as Mo (soluble compounds)		
7439-96-5	Manganese	0.2 mg/m^3 as Mn, inorganic compounds, and fume	C 5 mg/m^3 short-term as Mn, inorganic compounds, and fume	3 mg/m^3 short-term 3 mg/m^3 long-term as Mn, inorganic compounds, and fume
7429-90-5	Aluminum powder	(10) NIC-1**R** mg/m^3 Metal dust; NIC-A3	15 mg/m^3 total dust 5 mg/m^3 respirable fraction	15 mg/m^3 total dust 5 mg/m^3 respirable fraction

Engineering Controls
Ventilation must effectively control dusts.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face: Wear tightly sealed goggles.

Skin: Use impervious gloves, an apron, and closed shoes.

Respiratory: If ventilation cannot effectively keep dust concentrations below established limits, appropriate certified respiratory protection must be provided.

General: An eye wash fountain and safety shower are recommended.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance ..... Dark grey
Physical State..... Powder
Vapour Pressure ..... NA
Melting Point..... Undetermined
Solubility (H_2O) ..... Insoluble
Percent Volatile ..... NA
Odor ..... Oderless
PH ..... NA
Flash Point ..... NA
Viscosity ..... NA
Density ..... Undetermined
Molecular Weight..... NA

X. CHEMICAL STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions of handling, use and transportation.
Incompatibility: None known.
Hazardous Decomposition: Thermal decomposition products can include CO, CO_2, organometalic compounds, and smoke.
Hazardous Polymerization: Will not occur.

XI. TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity

A: General Product Information:

Irritant to skin and mucous membranes.

Sensitization possible through skin contact.

B: Component Analysis:

Carcinogenicity

A: General Product Information: None.

B: Component Carcinogenicity:

Component	EPA	IARC	NTP	ACGIH TLV	NIOSH	OSHA
Chromium		3		A4		
Copper	D					
Nickle		2B	R	A5	Ca	
Manganese	D					

XII. ECOLOGICAL INFORMATION

Ecotoxicity

A: General Product Information: The aquatic toxicity of the product is unknown; however based on components, it is predicted that this material may be harmful to aquatic organisms or cause long-term adverse effects in the aquatic environment. Prevent contamination of soil drains and surface waters.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity:

Environmental Fate: No information available for product.

XIII. DISPOSAL CONSIDERATIONS

Waste Disposal Instructions

Do not contaminate drains, soil or surface waters with the material or its container. Avoid disposal. Attempt to utilize product completely. Dispose of in compliance with all local, state, and federal regulations. Prior to disposal of unused material, 3D Systems Inc., recommends consulting and using an approved waste disposal operative to ensure regulatory compliance.

XIV.TRANSPORT INFORMATION

	US DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
Shipping Name	Not Regulated					

XV. REGULATORY INFORMATION

US FEDERAL

TSCA:.....All materials are listed on the TSCA Inventory or are not subject to TSCA requirements

SARA 302 EHS List (40 CFR 355 Appendix A):.....None listed

SARA 313 (40 CFR 372.65):.....7440-47-3 Chromium (7 – 12%), 744-50-8 Copper (3 – 7%), 7440-02-0 Nickle (1 – 3%), 7439-96-5 Manganese (1 – 3%), 7429-90-5 Aluminum powder (pyrophoric) (0.5 – 1.5%)

CERCLA (40 CFR 302.4):.....Chromium, Copper, Nickle (Stat Code 2) no reporting required if the particles released are greater than 100 micrometers in diameter.

STATE RIGHT-TO-KNOW STATUS

Component	CA Prop. 65	MI	NJ	PA	MA
Nickle	X				

Component Analysis - Inventory

Component/CAS	EC #	EEC	CAN	TSCA	NLP
Chromium (CAS#7440-47-3)	231-157-5	EINECS	DSL	Yes	No
Copper (CAS#7440-50-8)	231-159-6	EINECS	DSL	Yes	No
Silicon (CAS#7440-21-3)	231-130-8	EINECS	DSL	Yes	No
Nickle (CAS#7440-02-0)	231-111-4	EINECS	DSL	Yes	No
Molybdenum (CAS#7439-98-7)	231-107-2	EINECS	DSL	Yes	No
Manganese (CAS#7439-96-5)	231-105-1	EINECS	DSL	Yes	No
Aluminum powder (pyrophoric) (CAS#7429-90-5)	231-072-3	EINECS	DSL	Yes	No

XVI. ADDITIONAL INFORMATION

MSDS Creation Date: .... July 2, 2008
MSDS Revision #: ..... A
MSDS Revision Date: ....
Reason for Revision: ..... Updated
For more information: www.3dsystems.com
800.793.3669 (Toll-free in the US GMT-07:00; N. America, Mon – Fri, 6:00 a.m. to 6 p.m.)
803.326.3900 (Outside the U.S. GMT-07:00; N. America, Mon – Fri, 6:00 a.m. to 6 p.m.)
+44 144-2282600 (Europe GMT+01:00; Mon – Fri, 08:00 a.m. - 17:00 p.m. MEZ)

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Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists
CAS = Chemical Abstracts Service
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CPR = Controlled Products Regulations
DOT = Department of Transportation
DSL = Domestic Substances List
EINECS = European Inventory of Existing Commercial Chemical Substances
EPA = Environmental Protection Agency
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IDL = Ingredients Disclosure List
mg/Kg = milligrams per Kilogram
mg/L = milligrams per Liter
mg/m3 = milligrams per Cubic Meter
MSHA = Mine Safety and Health Administration
NA = Not Applicable or Not Available
NIOSH = National Institute for Occupational Safety and Health
NJTSR = New Jersey Trade Secret Registry
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Administration
SARA = Superfund Amendments and Reauthorization Act
STEL = Short Term Exposure Limit
TDG = Transport Dangerous Goods
TSCA = Toxic Substances Control Act
WHMIS = Workplace Hazardous Materials Information System.