

Material Safety Data Sheet

Material Name: DuraForm™ H13

Page 1 of 5

I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product/Trade Name: DuraForm™ H13 (Tool Steel)
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	3 – 7
7439-98-7	Molybdenum	1 – 2
7440-21-3	Silicon	1 – 2

OSHA Classification: Irritant (29 CFR 1910.1200 Appendix A)

III. HAZARDS IDENTIFICATION

Emergency Overview

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.

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.



Material Safety Data Sheet

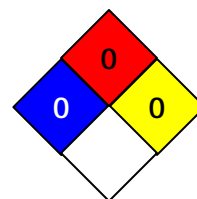
Material Name: DuraForm™ H13

Page 2 of 5

V. FIRE FIGHTING MEASURES

Flash Point: NA
Upper Flammable Limit (UFL): NA
Auto Ignition: Not self-igniting

Method Used: NA
Lower Flammable Limit (LFL): NA
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, CO₂, organometallic 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
7439-98-7	Molybdenum	10 I (3 R) mg/m ³ as Mo (insoluble compounds) 0.5 R mg/m ³ as Mo (soluble compounds)	5 mg/m ³ as Mo (soluble compounds)	--
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

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



Material Safety Data Sheet

Material Name: DuraForm™ H13

Appearance	Dark grey	Odor	Oderless
Physical State.....	Powder	PH	NA
Vapour Pressure	NA	Flash Point	NA
Melting Point.....	NA	Viscosity	NA
Solubility (H ₂ O)	Insoluble	Density	Undetermined
Percent Volatile	NA	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 , organometallic compounds, and smoke.
Hazardous Polymerization:	Will not occur.

XI. TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity

A: General Product Information:
Irritant to skin, mucous membranes, and eyes.

B: Component Analysis:

Carcinogenicity

A: General Product Information: None.

B: Component Carcinogenicity:

Component	EPA	IARC	NTP	ACGIH TLV	NIOSH	OSHA
Chromium		3		A4		
Manganese	D					
Carbon Black		2B		A4	Ca	

XII. ECOLOGICAL INFORMATION

Ecotoxicity

A: General Product Information: The aquatic toxicity of the product is unknown; however based on components, it is not predicted that this material is harmful to aquatic organisms or causes 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 (1 – 7%), 7439-96-5 Manganese (trace)



Material Safety Data Sheet

Page 4 of 5

Material Name: DuraForm™ H13

CERCLA (40 CFR 302.4):Chromium (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
Carbon Black	X				

Component Analysis - Inventory

Component/CAS	EC #	EEC	CAN	TSCA	NLP
Chromium (CAS#7440-47-3)	231-157-5	EINECS	DSL	Yes	No
Molybdenum (CAS#7439-98-7)	231-107-2	EINECS	DSL	Yes	No
Silicon (CAS##7440-21-3)	231-130-8	EINECS	DSL	Yes	No

XVI. ADDITIONAL INFORMATION

MSDS Creation Date: July 2, 2008

MSDS Revision #:

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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Material Safety Data Sheet

Material Name: DuraForm™ H13

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.