

Material Name: Cube Tough™ filament

I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product/Trade Name: **Cube Tough™ filament**
Chemical Family: Acrylonitrile, 1,3 Butadiene, and Styrene Co-polymer
Product Use: For use with the Cube® 3D Printer

Manufacturer:



	In the U.S./Canada
Manufacturer Contact	3D Systems, Inc. 333 Three D Systems Circle Rock Hill, SC 29730 U.S.A.
For Information	Toll-free Phone: 800.793.3669
Emergency	800.424.9300 - Chemtrec

Hazardous Materials Identification System (HMIS):

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

Health **0**
 Flammability **1**
 Physical Hazards **0**

Personal Protection:

Skin and eye protection

II. COMPOSITION INFORMATION

CAS #	Component	Percent
9003-56-9	ABS (Acrylonitrile-butadiene-styrene-copolymer)	95 – 100%

III. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye Contact: Fumes released from heated material may cause irritation or corneal injury due to mechanical action.

Skin Contact: Heated or molten material will produce thermal burns.

Inhalation: Fumes released from heated material may cause irritation to respiratory system.

Acute Effects of Exposure due to High Temperature and Thermal Decomposition: At Thermal Decomposition, very small amounts (within permissible exposure limits) decomposition products including but not limited to Carbon monoxide, Carbon dioxide, Hydrogen Cyanide, Styrene, Ethylbenzene and Acrylonitrile may be emitted. Exposure to high concentrations of these vapours and fumes could cause nausea, drowsiness and headache.

Medical Conditions Aggravated by Exposure

None known.

IV. FIRST AID MEASURES

Inhalation: Fumes released from heated material may cause respiratory irritation. In case of inhaling dense smoke, move affected person to fresh air. If respiratory irritation occurs or breathing becomes difficult seek medical attention immediately.

Skin: If molten material gets on skin, cool rapidly with cold water. Do not attempt to peel material from skin. Use mineral oil to loosen the material. Seek medical attention for burns.

Eye contact: Flush eyes with plenty of water for at least 15 minutes. Get medical attention if symptoms persist.

Ingestion: Ingestion is unlikely. If ingested, drink plenty of water and seek immediate medical attention. Do not induce vomiting.

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V. FIRE FIGHTING MEASURES

Flash Point: None

Method Used: NA

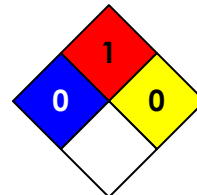
Upper Flammable Limit (UFL): NA

Lower Flammable Limit (LFL): NA

Auto Ignition: NA

Flammability Classification: NA

Rate of burning: NA



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

Extinguishing Media: Use water and any other extinguishing media appropriate to surrounding conditions.

Special Fire Fighting Procedures: Provide fire fighter with self-contained breathing apparatus in positive pressure mode.

Hazardous Combustion Products: During a fire, combustion products including but not limited to Carbon monoxide, Carbon dioxide, Hydrogen Cyanide, Styrene, Ethylbenzene and Acrylonitrile may be emitted.

VI. ACCIDENTAL RELEASE MEASURES

Environmental precautions: Keep out of irrigation ditches, sewers and water supplies.

Clean-Up Procedures: Sweep up and dispose of properly.

VII. HANDLING AND STORAGE

Handling Procedures: Keep material dry, avoid it from getting wet. Proper protection should be taken while handling molten resin during fabrication in order to avoid possible direct contact.

Storage Procedures: Keep this material in a cool (<35 °C (95 °F)), dry, well-ventilated place.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Although some of the additives used in this product may have exposure guidelines, these additives are encapsulated in the product and no exposure would be expected under normal handling conditions.

No occupational exposure limits (PEL/TWA) have been established for this product.

Engineering Controls

Good general ventilation should be sufficient for most conditions, Local exhaust ventilation may be necessary for some operations.

PERSONAL PROTECTIVE EQUIPMENT

If product is used as intended, no personal protective equipment is required.

Eyes/Face: NA

Skin: NA

Respiratory: NA

General: NA

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Black, Blue, Green, Magenta, Neon Green, Neon Orange, Red, Tan, Yellow	Odor	None
Physical State	Solid Filament	PH	NA
Vapor Pressure	NA	Vapor Density	NA
Boiling Point	NA	Vicat Softening Point.....	105°C
Solubility (H ₂ O)	insoluble @ 20°C	Specific Gravity	1.05
Percent Volatile	0%	Molecular Weight	1000

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X. CHEMICAL STABILITY AND REACTIVITY

Chemical Stability: Stable.

Conditions to Avoid: Temperatures over the decomposition temperature of 300° C.

Hazardous Decomposition: At high temperatures or upon burning, thermal decomposition products including but not limited to Carbon monoxide, Carbon dioxide, Hydrogen Cyanide, Styrene, Ethylbenzene and Acrylonitrile may be emitted.

Hazardous Polymerization: Will not occur.

XI. TOXICOLOGICAL INFORMATION

Product is safe when used as intended.

XII. ECOLOGICAL INFORMATION

Ecotoxicity

General Product Information: Not expected to be acutely toxic, but if ingested by waterfowl or aquatic life, may mechanically cause adverse effects.

Environmental Fate: No bioconcentration is expected because of the high molecular weight (MW>1000). In the terrestrial environment, material is expected to remain in the soil. In the aquatic environment, material will sink and remain in the sediment. This water insoluble polymeric solid is expected to be inert in the environment. Surface degradation is expected with exposure to sunlight. No appreciable biodegradation is expected.

XIII. DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A: General Product Information: This product is not a hazardous waste as specified in 40CFR 261. Dispose in accordance with all Federal, State, Provincial and Local regulations.

B: Component Waste Numbers: No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions: Avoid disposal. If possible, completely utilize product. Dispose of unused product in accordance with applicable Federal, State, Provincial and Local regulations.

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

SARA 302 EHS List (40 CFR 355 Appendix A):.....Not listed

SARA 313 (40 CFR 372.65):.....Not listed

CERCLA (40 CFR 302.4):.....Not listed

SARA 312 Hazard Class: Health:.....Acute – Not listed
Chronic – Not listed

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STATE RIGHT-TO-KNOW STATUS

The following components appear on one or more of the following state hazardous substances lists:

Component	CA Prop. 65	MA	MN	NJ	PA	RI
None listed						

Component Analysis - WHMIS

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: None of the components are on this list

WHMIS: Not classified

Component Analysis - Inventory

All components are listed on the TSCA and EINECS inventories or are exempt from listing requirements.

XVI. ADDITIONAL INFORMATION

MSDS Creation Date:..... May 13, 2012

MSDS Revision #: 00-B

MSDS Revision Date:..... November 30, 2012

Reason for Revision:..... Disclaimer Change

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.)

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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.