

1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

PARAMOUNT 3D ABS 3D Printer Filament

Synonyms

Acrylonitrile-Butadiene-Styrene Copolymer

Chemical Family

Polymer, Copolymer

Product Use

3D Printing

Restrictions on Use

Do not use where temperatures exceed 250°C.

Details of Supplier of MSDS

PARAMOUNT 3D

907 N Central Avenue

Wood Dale, IL 60191

USA

Phone No: +1 (630) 594-1840 (8-5 CST)

E-mail: msds@paramount-usa.com

Emergency Poison Control (24-hr hotline): +1 (800) 222-1222

2 - HAZARDS IDENTIFICATION

Classification of the substance

Not a hazardous substance.

GHS Label elements, including precautionary statements

Not a hazardous substance.

Hazards not otherwise classified (HNOC) or not covered by GHS

None.

Disposal

Dispose in accordance with local/regional/national/international regulations.

3 - COMPOSITION

CAS Component Name Percent

Acrylonitrile-Butadiene-Styrene > 98 (9003-56-9)

Styrene < 0.1 (100-42-5)

4 - FIRST AID MEASURES

Inhalation

Heating causes irritating vapors. If breathed in, move person into fresh air. If not breathing, give artificial respiration.

Skin

Wash off with soap and plenty of water.

Eyes

Flush eyes with water as a precaution.

Ingestion

Rinse mouth with water.

Indication of any immediate medical attention and special treatment needed

First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.

Most Important Symptoms/Effects

Acute

Molten material may cause thermal burns.

Delayed

No information on significant adverse effects.

Note to Physicians

Treat symptomatically.

Antidote

None known. Treat symptomatically.

5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Water, alcohol-resistant foam, dry chemical or CO₂.

Unsuitable Extinguishing Media

None known.

Special Hazards Arising from the Chemical

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

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Hazardous Combustion Products

Oxides of carbon, aldehydes. May decompose upon heating to produce corrosive and/or toxic fumes.

Fire Fighting Measures

Wear full protective fire-fighting gear including self-contained breathing apparatus for protection against possible exposure.

Special Protective Equipment and Precautions for Firefighters

Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6 - ACCIDENTAL RELEASE MEASURES**Personal Precautions, Protective Equipment and Emergency Procedures**

No measures required.

Methods and Materials for Containment and Cleaning Up

Collect spilled material in appropriate container for reuse or disposal. Dispose in accordance with all applicable regulations.

Environmental Precautions

Avoid release to the environment. Comply with all applicable regulations on spill and release reporting. Prevent entry into waterways, sewers, basements, or confined areas.

7 - HANDLING AND STORAGE**Precautions for Safe Handling**

Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges.

Conditions for Safe Storage, Including any Incompatibilities

None needed according to classification criteria. Store in a cool dry place. Store below 50 °C. Avoid heat, flames, sparks and other sources of ignition.

Incompatible Materials

Oxidizing agents.

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**Component Exposure Limits**

Styrene (100-42-5)

ACGIH:

20 ppm TWA; 40 ppm STEL

OSHA (US):

100 ppm TWA; 200 ppm Ceiling

EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures

There are no biological limit values for any of this product's components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

Styrene (100-42-5) 400 mg/g creatinine Medium: urine Time: end of shift Parameter: Mandelic acid plus phenylglyoxylic acid (nonspecific); 40 µg/L Medium: urine Time: end of shift Parameter: Styrene

Engineering Controls

Provide local exhaust ventilation system. Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.

Individual Protection Measures, such as Personal Protective Equipment**Eye/face protection**

None during normal use. Protect against molten solid.

Skin Protection

None during normal use. Protect against molten solid.

Respiratory Protection

No respirator is required under normal conditions of use. If respirable dusts are generated, respiratory protection may be needed.

Glove Recommendations

Protect against molten solid. In the molten form, wear protective gloves.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance Monofilament

Physical State Solid

Odor None

Color Opaque

Odor Threshold Varies

pH Not available

Melting Point Softening above 100 °C

Boiling Point Not available

Freezing point Not available

Evaporation Rate Not available

Boiling Point Range Not available

Flammability (solid, gas) Not available

Auto-Ignition 466 °C

Flash Point 404 °C

Lower Explosive Limit 45 g/m

Decomposition >250 °C

Upper Explosive Limit Not applicable

Vapor Pressure Not available

Vapor Density (Air=1) Not available

Specific Gravity (H₂O=1) 1.02

Water Solubility Insoluble**Partition Coefficient** Not available**Viscosity** Not available**Solubility (Other)** Not available**Density** 1.04 g/cc**Molecular Weight** Not available

10 - STABILITY AND REACTIVITY

Reactivity

The product is chemically stable under recommended conditions of storage, use and temperature.

Chemical Stability

Stable under normal conditions of use.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid contact with temperatures above 250 °C.

Incompatible Materials

Oxidizing agents.

Hazardous decomposition products

Oxides of carbon, oxides of nitrogen, HCN, acrylonitrile, styrene monomer.

Thermal decomposition products

May decompose upon heating to produce corrosive and/or toxic fumes.

11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation

No hazard is expected from the normal use of this product. Dust may cause irritation of the nose, throat and upper respiratory tract.

Skin Contact

Molten material may cause burns.

Eye Contact

Molten material may cause burns.

Ingestion

No information on significant adverse effects.

Acute and Chronic Toxicity**Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected end-points are published:

Styrene (100-42-5)

Oral LD50 Rat >1000 mg/kg

Inhalation LD50 Rat >11.7 mg/L (4 hr)

Immediate Effects

Molten material may cause thermal burns.

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

No data available.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Component Carcinogenicity

ABS resin (9003-56-9)

ACGIH: A4 Not Classifiable as a Human Carcinogen

Germ Cell Mutagenicity

No data available.

Tumorigenic Data

No data available.

Reproductive Toxicity

No data available.

Specific Target Organ Toxicity - Single Exposure

No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure

No target organs identified.

Aspiration hazard

No data available.

Medical Conditions Aggravated by Exposure

No data available.

12 - ECOLOGICAL INFORMATION

Toxicity

Styrene 100-42-5

Fish: LC50 96 h Pimephales promelas 3.24 - 4.99 mg/L [flow-through]; LC50 96 h Lepomis macrochirus 19.03 - 33.53 mg/L [static]; LC50 96 h Pimephales promelas 6.75 - 14.5 mg/L [static]; LC50 96 h Poecilia reticulata 58.75 - 95.32 mg/L [static]

Algae: EC50 72 h Pseudokirchneriella subcapitata 1.4 mg/L IUCLID; EC50 96 h Pseudokirchneriella subcapitata 0.72 mg/L IUCLID; EC50 72 h Pseudokirchneriella subcapitata 0.46 - 4.3 mg/L [static] EPA; EC50 96 h Pseudokirchneriella subcapitata 0.15 - 3.2 mg/L [static] EPA

Invertebrate: EC50 48 h Daphnia magna 3.3 - 7.4 mg/L EPA

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility in Soil

No data available.

13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of contents/container in accordance with local/regional/national/international regulations. Avoid release to the environment. Incineration should be done in accordance with prevailing municipal, state, and federal laws and standards from local environmental agencies.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

14 - TRANSPORT INFORMATION

DOT (US) Not dangerous goods.

IMDG Not dangerous goods.

IATA Not dangerous goods.

International Bulk Chemical Code Styrene (100-42-5) Category Y.

15 - REGULATORY INFORMATION

SARA 302/313 Components

This material contains a chemical component with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 302 and 313.

Styrene CAS-No. 100-42-5.
SARA 313 0.1% De Minis Concentration.

SARA 311/312 Hazards

No SARA Hazards.

Massachusetts Right To Know Components

Styrene CAS-No. 100-42-5

Pennsylvania Right To Know Components

Styrene CAS-No. 100-42-5

New Jersey Right To Know Components

Styrene CAS-No. 100-42-5

California Prop. 65 Components

Not listed.

16 - OTHER INFORMATION

NFPA Ratings

Health: 0 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National

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Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Disclaimer

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. PARAMOUNT 3D shall not be held liable for any damage resulting from handling or from contact with the above product.