1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
PARAMOUNT 3D Standard PLA 3D Printer Filament

Synonyms
Polyactide resin

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
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)-, polymer with (3S-cis)-3,6-dimethyl-1,4-dioxane-2,5-dione and trans-3,6-dimethyl-1,4-dioxane-2,5-dione > 95 (9051-89-2)

4 - FIRST AID MEASURES

Inhalation
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 CO_2.

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.

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, strong bases.

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3Rcis)-,polymer with (3S-cis)-3,6-dimethyl-1,4-dioxane-2,5-dione and trans-3,6-dimethyl-1,4-dioxane-2,5-dione (9051-89-2)

ACGIH:
10 mg/m3 TWA inhalable particles, recommended; 3 mg/m3 TWA respirable particles, recommended (related to particulates not otherwise classified (PNOC))

OSHA (US):
15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction (related to particulates not otherwise classified (PNOC))

15 mppcf TWA respirable fraction; 5 mg/m3 TWA respirable fraction; 50 mppcf TWA total dust; 15 mg/m3 TWA total dust (related to particulates not otherwise classified (PNOC))

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

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 Sweet

Color Opaque

Odor Threshold Varies

pH Not available

Melting Point 155 - 170 °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 388 °C

Flash Point Not available

Lower Explosive Limit Not applicable

Decomposition >250 °C

Upper Explosive Limit Not applicable

Vapor Pressure Not available

Vapor Density (Air=1) Not available

Specific Gravity (H_2O=1) Not available

Water Solubility Insoluble

Partition Coefficient Not available

Viscosity Not available

Solubility (Other) Not available

Density 1.24 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, strong bases.

Hazardous decomposition products
Oxides of carbon, aldehydes.

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:

1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)-, polymer with (3S-cis)-3,6-dimethyl-1,4-dioxane-2,5-dione and trans-3,6-dimethyl-1,4-dioxane-2,5-dione (9051-89-2)

Oral LD50 Rat >5000 mg/kg

Dermal LD50 Rabbit >2000 mg/kg

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
Found to be non-sensitizing when tested on guinea pigs.

Component Carcinogenicity
None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

Germ Cell Mutagenicity
Negative in the Ames test for mutagenicity.

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
No data available

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

15 - REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components
Polylactide resin CAS-No. 9051-89-2

New Jersey Right To Know Components
Polylactide resin CAS-No. 9051-89-2

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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 Llsts™ - 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 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.