

Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance or preparation: DuraForm PA

1.2 Use of the substance / preparation: For use with SLS® (selective laser sintering) systems

1.3 Company/undertaking identification:

3D Systems Asia-Pacific
30-32 Ceylon St
Nunawading VIC 3131
Australia
+61 3 9819 4422
e-mail: moreinfo@3dsystems.com

1.4. Emergency telephone number:

Australia:
Chemical Emergency:
+(61) 29037.2994 – Aus Chemtrec

2. HAZARDS IDENTIFICATION

2.1 Classification of the hazardous chemical

Physical Hazard: Not Classified

Health Hazard: Not Classified

Environmental Hazard: Not Classified

2.2 Label elements, including precautionary statements

Hazard Symbol : None

Signal word: None

Hazard Statements: Not available

Precautionary Statements:

Prevention: Not available

Response: Not available

Storage: Not available

Disposal: Not available

Other hazards which do not result in classification:

Dusts might form explosive mixtures with air. Risk of skin burns caused by hot melt.

Supplemental information

Safety : Risk of skin burns caused by hot melt.

Do not handle until all safety precautions have been read and understood, see section 5 for details.

If exposed: Get medical advice/attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization:

Description: Polymer Powder

3.2 Mixtures:

Chemical name	CAS-No	%
Polyamide Powder	25038-74-8	80-100

Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

4. FIRST AID MEASURES

4.1 In case of inhalation: In case of symptoms of irritation caused by vapors in thermal processing: provide fresh air, seek medical advice if necessary.

Following inhalation of product dust: provide fresh air.

4.2 In case of skin contact: Flush skin with plenty of soap and water. Cool melted product on skin with plenty of water. Do not remove solidified product. In case of burns by molten product, medical treatment is necessary

4.3 In case of eye contact: Flush eyes with plenty of water.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media: Water mist, dry chemical, carbon dioxide, or appropriate foam.

5.2 Extinguishing media which must not be used for safety reasons: High volume water jet.

5.3 Special hazards arising from the substance or mixture

Refer to 1995 edition of NFPA 33 Appendix A. Dust control and good housekeeping are required. Dust may also carry a static charge. Make sure equipment and personnel are grounded to avoid static discharge.

Hazardous decomposition products in a fire: carbon monoxide, carbon dioxide, nitric oxides, organic products of decomposition. Under certain fire conditions, traces of other toxic products may occur.

5.4 Special protective equipment for fire-fighters:

Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire will produce dense black smoke containing hazardous combustion products (see heading 10). Wear self-contained breathing apparatus for firefighting if necessary. Cool containers / tanks with water spray.

5.5 Additional information: Move container from area if it can be done without risk. Cool containers with water spray. Avoid inhalation of material or combustion by-products.

DuraForm PA- Power testing results

Explosion Severity	
Maximum Explosion Pressure Pm (bar)	7.1
Maximum rate of explosion pressure rise dP/dt (bar/s)	251
Dust deflagration index Kst (bar.m/s)	68
Minimum Ignition Energy M.I.E. (Cloud) (mJ)	500-1,000
Limiting Oxygen Concentration (%)	10-11
Minimum Explosive Concentration M.E.C. (g/m ³)	60-70
Moisture content	0.43%
Particle Size distribution	Average 75µm – 80% (Range 7.6 - 111 µm)

Dust Hazard	
Minimum Ignition Temperature	
Dust Cloud (°C):	410-420
Dust Layer - 12.7mm or 5mm (°C):	>450

Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

Electrostatics Testing	
Volume Resistivity (Ω.m)	
Ambient Relative Humidity (R.H.60% at 23 °C):	8.7 x 10¹²
Low Relative Humidity(R.H.20% at 24 °C):	7.5 x 10¹³
Charge Decay/Relaxation Time (min:sec)	
Ambient Relative Humidity (R.H.60% at 23 °C):	07:14
Low Relative Humidity(R.H.20% at 24 °C)::	11.40
Chargeability - Ambient Relative Humidity (C/kg) (R.H.60% at 23 °C):	
Stainless Steel Tube:	+2.5 x 10⁻⁴
Plastic Tube:	+3.1 x 10⁻⁴
Glass Tube:	+2.4 x 10⁻⁴
Chargeability - Low Relative Humidity (C/kg) (R.H.20% at 25 °C)::	
Stainless Steel Tube:	+6.5 x 10⁻⁵
Plastic Tube:	+6.8 x 10⁻⁵
Glass Tube:	+6.6 x 10⁻⁵

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Exclude non-essential personnel. Remove all sources of ignition. Ensure adequate ventilation. Do not breathe dust.

6.2 Environmental precautions

Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Use wet wipes to clean up smaller spills. For larger spills, use approved industrial vacuum cleaner is recommended. Do not create a powder cloud by using a brush or compressed air. (Example: Use of an X-839 Series ULPA Critical Filter Dry Canister Vacuum is recommended).

6.4 Reference to other sections

See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Provide adequate ventilation. Keep container tightly closed. Keep away from open flames, hot surfaces and sources of ignition. Avoid contact with skin and eyes. When using, do not eat, drink or smoke. Store in original container. Avoid dust formation. Dust may form explosive mixture in air. Do not breathe dust

7.2 Conditions for safe storage

Keep in a dry, cool and well-ventilated place. Keep away from direct sunlight. See section 5 for details.

Storage temperature (°C): 10 - 30

Minimum ignition temperature : 410-420°C.

Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:

Occupational exposure limits: There are no PEL stabled for this product. Limit for nuisance dust is 10 mg/m³ (total dust), 4 mg/m³ (respirable dust). Check local regulations in case different limits apply. During normal use, these concentrations are not expected to be reached.

8.2 Exposure controls

Technical measures to prevent exposure: Provide adequate ventilation. When ventilation is not adequate, use of a NIOSH approved N95 rated dusk mask is recommended (Example: 3M 8200, 3M8210,3M8110s).

Instructual measures to prevent exposure: When using, do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the day.

Personal protection equipment:

Hand protection: Use impervious nitrile gloves.

Eye protection: Wear safety glasses or chemical goggles.

Body protection: Wear appropriate protective clothing and shoes (e.g., lab coat, sleeve protectors, smock, etc.).

Environmental exposure controls

The product should not be allowed to enter drains, watercourses or the soil.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	-
Physical state	Solid
Form	Powder
Color	White
Odor	No distinct odor
Odor threshold	Not available
pH	Not available
Melting point/freezing point (°C)	>80
Initial boiling point and boiling range (°C)	Not available
Flash point (°C)	200°C (closed cup)
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Relative density (g/cm³)	1.09
Upper/lower flammability or explosive limits	-
Flammability limit - lower (%)	Not available
Flammability limit - upper (%)	Not available
Explosive limit - lower (%)	Not available
Explosive limit - upper (%)	Not available
Vapor pressure	Not available
Vapor density	Not available
Solubility(ies)	-
Solubility (water)	insoluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	>350
Decomposition temperature (°C)	>300
Viscosity (cPs)	Not available
Other information	-
Oxidizing properties	Not available
Dust deflagration index Kst (bar.m/s)	68
VOC (g/L)	0.8±0.2 (CARB Method 310)

Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

10. STABILITY AND REACTIVITY

10.1 Conditions to avoid: Avoid wet/humid environment. Avoid dust formation.

10.2 Materials to avoid: Oxidizing materials, acids, strong bases, water, high humidity.

10.3 Hazardous decomposition products: Carbon dioxide, carbon monoxide, NOx can be released at high temperatures or upon burning.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism and distribution: NA

11.2 General remarks: Carcinogenicity: None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity: The aquatic toxicity of the product is unknown. No data are available for the components of this product.

12.2 Mobility: No information available for product.

12.3 Persistence and degradability: No information available for product.

12.4 Results of PBT assessment: PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

12.5 Other adverse effects: No information available for product

13. DISPOSAL CONSIDERATIONS

Do not let product enter drains. Do not contaminate ponds, waterways or ditches with chemical or used container. Where possible recycling is preferred to disposal or incineration. Dispose of as special waste in compliance with local and national regulations.

European Waste Catalogue: 08 02 01

14. TRANSPORT INFORMATION

14.1 DOT:

UN-No.: Not Regulated
UN Proper Shipping Name:
Transport hazard class(es)
Class: Not Available
Subsidiary risk: -
Packing group: Not available
Environmental Hazard:
Marine pollutant: no
Special Precautions for user: Not Available

14.3 IATA:

UN-No.: Not Regulated
UN Proper Shipping Name:
Transport hazard class(es)
Class: Not Available
Subsidiary risk: -
Packing group: Not available
Environmental Hazard: No
Special Precautions for user: Not Available

Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

14.2 IMDG:

UN-No.: Not Regulated
UN Proper Shipping Name:
Transport hazard class(es)
Class: Not Available
Subsidiary risk: -
Packing group: Not available
Environmental Hazard:
Marine pollutant: No
EmS : Not Available

14.1 ADR:

UN-No.: Not Regulated
UN Proper Shipping Name:
Transport hazard class(es)
Class: Not Available
Subsidiary risk: -
Hazard No (ADR): Not available
Tunnel restriction code : Not available
Packing group: Not available
Environmental Hazard: No
Special Precautions for user: Not available

Further information: Not a dangerous good under DOT, IATA, ADR, IMDG, or RID.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC code: Not applicable.

15. REGULATORY INFORMATION

Safety, health and environmental regulations

National regulations

- Australia Medicines & Poisons Appendix A**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix B**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix D**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix E**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix F**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix G**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix H**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix I**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix J**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Appendix K**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Schedule 10**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Schedule 2**
Poisons schedule number not allocated.
- Australia Medicines & Poisons Schedule 3**
Poisons schedule number not allocated.

Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

Australia Medicines & Poisons Schedule 4

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 5

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 6

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 7

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 8

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 9

Poisons schedule number not allocated.

High Volume Industrial Chemicals (HVIC):

None

Importation of Ozone Depleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10): Not listed.

National Pollutant Inventory (NPI) substance reporting list: Not listed.

Prohibited Carcinogenic Substances: Not regulated.

Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended): Not listed.

Restricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9): Not listed.

Restricted Carcinogenic Substances: Not regulated.

International regulations: All components of this product are registered or exempt from registration according to chemical regulations in Australia, Canada, China, European Union, Japan, New Zealand, Philippines, South Korea, Switzerland, Taiwan and United States.

International regulations:

Stockholm Convention: Not applicable.

Rotterdam Convention: Not applicable.

Kyoto protocol: Not applicable.

Montreal Protocol: Not applicable.

Basel Convention: Not applicable.

16. OTHER INFORMATION

16.1 Relevant Hazard Statements (number and full text) referred to in sections 2 and 3 (according to (EC) No. 1272/2008):

None

16.2 Further information:

SDS Creation Date:November 25, 2013

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Safety Data Sheet

DuraForm® PA

Revision Date: February 17, 2021

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