

Safety Data Sheet

DuraForm® ProX® PA

Revision Date: September 28, 2021

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

1.1 Identification of the substance or preparation: DuraForm ProX PA

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

1.3 Company/undertaking identification:

3D Systems, Inc.
333 Three D Systems Circle
Rock Hill, South Carolina U.S.A.
Phone: 803.326.3900 or
Toll-free Phone: 800.793.3669
e-mail: moreinfo@3dsystems.com

3D Systems Europe Ltd.
200 Maylands Avenue
Hemel Hempstead
Herts, HP2 7TG United Kingdom
Phone: +44 144-2282600
e-mail: moreinfo@3dsystems.com

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:

U.S.A.:
Chemical Emergency:
800.424.9300 – Chemtrec

Europe:
Chemical Emergency:
+1 703.527.3887 - Chemtrec

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

2. HAZARDS IDENTIFICATION

2.1 Classification:

GHS: Regulation (EC) No, 1272/2008:

Not a hazardous substance or mixture.

2.2 Label Elements

Regulation (EC) No, 1272/2008:

Not a hazardous substance or mixture.

Supplemental information:

Other hazards:

Dusts might form explosive mixtures with air.

Risk of skin burns caused by hot melt.

A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

Safety information:

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	EC-No	%	Classification
				Regulation (EC) 1272/2008
Polyamide Powder	25038-74-8	607-508-7	80-100	Not Classified

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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/m³)	60-70
Moisture content	0.43%
Particle Size distribution :	80% < 75µm (Range 7.6 - 111 µm)

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

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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 of an 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 and shelf-life: Inside the original and undamaged packaging, the product has a shelf life of at least 2 years when stored in dry rooms at temperatures not exceeding 30°C.

Minimum ignition temperature: 410-420°C.

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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)

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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 Land transport (ADR/RID/GGVSE): Not Regulated

14.2 Sea transport (IMDG-Code/GGVSee): Not Regulated

14.3 Air transport (ICAO-IATA/DGR): Not Regulated

14.4 US DOT: Not Regulated

15. REGULATORY INFORMATION

15.1. European Union Regulation:

Safety, health and environmental regulations/legislation specific for the substance or mixture

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

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Authorisations and/or restrictions on use:

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended.

Not listed

National regulations:

German Water Hazard Class (WGK): WGK2 (hazard to waters)

15.2. Chemical safety assessment

Chemical Safety Report - No information available

15.3 US FEDERAL

TSCA: All components listed on ACTIVE TSCA Inventory or exempt from listing.

TSCA - 5(a) Significant New Use Rule List of Chemicals: None

US. Toxic Substances Control Act (TSCA) Section 12(b): None

SARA 302 EHS List (40 CFR 355 Appendix A): None listed

SARA 313 (40 CFR 372.65): None listed

CERCLA (40 CFR 302.4): None listed

SARA 302 EHS List (40 CFR 355 Appendix A): None listed

SARA 313 (40 CFR 372.65): None listed

CERCLA (40 CFR 302.4): None listed

California Prop. 65 Components: Does not contain listed ingredients

15.4 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.

15.5 Switzerland Regulations:

Switzerland. Schedules 1A-3B on Substances Subject to ChKV, Regulation on the Control of Chemicals with Civilian and Military Use (ChKV):

Not listed

SR814.018 Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) of 12 November 1997:

Switzerland VOC incentive tax – DuraForm ProX PA does not contain VOCs which are subject for taxation.

15.6 Japanese regulations

Chemical Risk Information platform (CHRIP):

Listed

Industrial Health and Safety Law

not applicable

Hazardous material

not applicable

Organic solvent poison prevention rule

not applicable

Ordinance on prevention of hazard due to specified chemical substances

not applicable

Lead Poisoning Prevention Rule

not applicable

Poison and Deleterious Substance Control law

not applicable

PRTR and Promotion of Chemical Management law (PRTR Law)

No listed components

Fire Services Act

not applicable

Explosives Law

not applicable

High pressure gas safety law

not applicable

Export Trade Control Order

not applicable

Waste Disposal and Public Cleaning Law

applicable. Before disposal, consult an approved waste disposal operative to ensure regulatory compliance.

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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

SDS Creation Date: January 27, 2015

SDS Revision #: -07-A

SDS Revision Date: September 28, 2021

Reason for Revision: Update section 15.

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