

Polyimide Pellets / Filament

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012.
Issue date: 11/17/2021 Revision date: 11/17/21

Version: 2.0

SECTION 1: Identification

1.1. Identification

Product form	: Pellets / Filament
Product name	: Polyimide Pellets / Polyimide Filament
Product code	: FXG-1201 (Pellets) / FXF-1201 (Filament)

1.2. Recommended use and restrictions on use

Use of the substance/mixture	: For use in 3D printing, extrusion, compression, or injection moulding. Not to be used in a medical or food environment. NOTE: The pharmacological, toxicological, and ecological properties of this substance have not been fully characterized. This SDS will be updated as more data becomes available.
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1.3. Supplier

Manufacturer

Zymergen
5980 Horton Street #105
Emeryville CA, 94608 - USA
T +1 (415) 801-8073 (Monday - Friday 8 am - 5 pm PT)
info@zymergen.com

1.4. Emergency telephone number

Emergency number Chemtrec (24-hour availability)	: +1 (800) 424-9300 (USA and Canada); +1 (703) 527-3887 (International; collect calls accepted)
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS classification and labeling are not applicable to this product in its current unmodified form. The hazards indicated in this document apply only when this product is heated to a molten state, or modified in such a way that dust particles or fumes are released. Dust generated or fumes from molten product may cause eye, skin, and respiratory tract irritation. Avoid touching hot or molten product. Hot or molten product may cause burns.

This product is exempt from classification and labelling as per C.F.R. 1910.1200(b)(6)(v).

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%
Polyimide	CAS-No.: 649559-13-7	~100

3.2. Mixtures

This product does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012.

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Adverse effects not expected from this product. If experiencing respiratory symptoms immediately move subject to fresh air: Call a poison center or a doctor.
First-aid measures after skin contact	: If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists. Burns may occur from contact with hot or molten product. Apply copious amounts of cold water and seek medical attention immediately. Do not attempt to remove cooled product from skin.

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First-aid measures after eye contact	: Not a normal route of exposure. IF IN EYES: Remove contact lenses, if present and easy to do. Rinse cautiously with water for at least 15 minutes. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Not a normal route of exposure. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation	: None anticipated under normal use. If dust or fumes are generated, may cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: None anticipated under normal use. If dust is generated, may cause skin irritation. Repeated exposure may cause skin dryness or cracking.
Symptoms/effects after eye contact	: None anticipated under normal use. If dust or fumes are generated, may cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/effects after ingestion	: None under normal use. May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Immediate medical attention and special treatment, if necessary

Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately and provide this safety data sheet.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Carbon dioxide (CO ₂), dry chemical powder, water spray, or foam.
Unsuitable extinguishing media	: None known.

5.2. Specific hazards arising from the chemical

Fire hazard	: Products of combustion may include, and are not limited to: oxides of carbon. Oxides of nitrogen or other nitrogen-containing compounds.
Explosion hazard	: None anticipated under normal use. Avoid powder generation from pellets and filament. High concentrations of finely divided particles can explode if ignited.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting	: Keep upwind of fire. Wear full protective clothing and an approved, positive pressure, self-contained breathing apparatus (SCBA). Decontaminate all equipment after use.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: If product is spilled, clean up promptly by scoop or shovel. Take proper precautions and use personal protection recommended in Section 8. Area should be adequately ventilated. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
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6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Contain spill, then place spill clean-up materials in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
Methods for cleaning up	: Pick up large pieces, then place in a suitable container. If powder is spilled, place a damp cloth or towel over the area to minimize entry of powder into the air. Place spill materials into a leak-proof container for disposal in accordance with applicable local, state, national and international regulations. See section 13.

6.4. Reference to other sections

For further information, refer to section 8: "Exposure controls/personal protection"

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Use personal protective equipment. See section 8. Avoid contact with skin and eyes. Do not swallow. Protect from the possibility of contact with hot or molten material during printing, extrusion or injection moulding. Avoid dust formation and accumulation. Mechanical handling can cause the formation of dusts. If small particles are generated during further processing, handling, or by other means, combustible dust concentrations may form in the air. Follow recommendations for handling chemicals of unknown toxicity or potency (i.e, use of engineering controls and/or other personal protective equipment if needed). Handle and open container with care. When using do not eat, drink or smoke. Use only in a well-ventilated area or outdoors. Good housekeeping is important to prevent accumulation of dust.
Hygiene measures	: Take off contaminated clothing and wash it before reuse. Wash hands, forearms and face thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Keep out of the reach of children. Store in a dry, cool and well-ventilated environment. Store in tightly closed containers. Keep away from heat and direct sunlight. Avoid extreme temperatures.
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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Polyimide Film

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station. Selection and use of containment devices and personal protective equipment should be based on a risk assessment of exposure potential. It is possible dust may be generated during use. Use local exhaust and/or enclosure at dust-generating points. Use specifically designed and engineered local exhaust ventilation (LEV) and/or enclosure at dust-generating points and for high dust-generating operations.
Environmental exposure controls	: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Wear suitable gloves. When handling hot material, use appropriate heat resistant gloves.

Eye protection:

Safety glasses or goggles are recommended when using product. Wear a face shield when working with molten product.

Skin and body protection:

Wear suitable protective clothing. Wear appropriate heat resistant protective clothing when working with molten product

Respiratory protection:

None necessary under normal conditions of use. In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Pellets (FXG-1201) / Filament (FXF-1201)
Color	: Clear to pale yellow (Pellets) / Transparent amber gold (Filament)
Odor	: Slight (Pellets) / None at room temperature (Filament)
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available

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Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Water : ≈ Insoluble
Partition coefficient n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available for product in its pellet or filament form. In powder form : Minimum Ignition Energy - Dust Cloud: >1000 mJ (MIKE 3 Apparatus) (Polyimide powder) Minimum Explosible Concentration: 191 g/cm ³ (Polyimide powder) Kst: 59±20% (weak to moderate explosion) (Polyimide powder) Pmax: 6.6 ±10% (Polyimide powder)
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Heat. Direct sunlight. Avoid extreme temperatures. Incompatible materials.

10.5. Incompatible materials

Oxidizing agents.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon. Oxides of nitrogen and other nitrogen-containing compounds.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: No data available.
Acute toxicity (dermal)	: No data available.
Acute toxicity (inhalation)	: No data available.
Skin corrosion/irritation	: No data available.
Serious eye damage/irritation	: No data available.
Respiratory or skin sensitization	: No data available.
Germ cell mutagenicity	: No data available.
Carcinogenicity	: No data available. This substance is not listed by NTP, IARC, ACGIH, or OSHA as a carcinogen.
Reproductive toxicity	: No data available.
STOT-single exposure	: No data available.
STOT-repeated exposure	: No data available.
Aspiration hazard	: No data available.
Viscosity, kinematic	: No data available.
Symptoms/effects after inhalation	: None anticipated under normal use. Product dust may cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: None anticipated under normal use. Product dust may cause skin irritation. Repeated exposure may cause skin dryness or cracking. Hot or molten product may cause burns.

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Symptoms/effects after eye contact	: None anticipated under normal use. Product dust may cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/effects after ingestion	: None under normal use. May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

SECTION 12: Ecological information

12.1. Toxicity

Ecology	: No data available.
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12.2. Persistence and degradability

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Persistence and degradability	Not established.

12.3. Bioaccumulative potential

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Bioaccumulative potential	Not established.

12.4. Mobility in soil

No data available

12.5. Other adverse effects

Other information	: No data available. The environmental characteristics of this substance have not been fully investigated. Releases to the environment should be avoided.
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SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations	: Used product should be disposed of according to local, state, national and international regulations. All wastes containing the material should be properly labeled. Dispose of wastes in accordance to prescribed international, national, state, and local guidelines, e.g, appropriately permitted chemical waste incinerator. Rinse waters resulting from spill cleanups should be discharged in an environmentally safe manner, e.g, appropriately permitted municipal or on-site wastewater treatment facility.
Additional information	: Recycle the material as far as possible.

SECTION 14: Transport information

Department of Transportation (DOT)

Based on the available data, this substance is not regulated as a hazardous material/dangerous good under EU ADR/RID, US DOT, Canada TDG, IATA, or IMDG.

UN Number	: None assigned.
UN Proper Shipping Name	: None assigned.
Transport hazard class(es) DOT	: None assigned.
Packing Group	: None assigned.
Marine Pollutant	: Based on the available data, this substance is not regulated as an environmental hazard or a marine pollutant.
Special transport precautions	: Avoid release to the environment.
Transport in bulk according to Annex II of Marpol and the IBC Code	: Not applicable.

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

15.2. International regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm.

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SECTION 16: Other information

Issue date	:	11/17/2021
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Other information	:	None.
Prepared by	:	Zymergen EHS

SDS US (GHS HazCom 2012)

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