



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of: US - OSHA Hazard Communication Standard (29 CFR 1910.1200)

Issuing Date 13-March-2023

Version 1.0

## 1. Identification

### Product Identifier

Product Name FL645PA, GR645PA

### Other means of identification

### Recommended use of the chemical and restrictions on use

Recommended use 3-D printing applications

Restrictions on use No Information Available

### Details of the supplier of the safety data sheet

#### Supplier Address

Braskem America, Inc.  
1735 Market Street  
Philadelphia, PA 19103-7583  
TEL: (800) 396 - 5252

### Emergency telephone number

Emergency Telephone CHEMTREC: +1-703-527-3887 (INTERNATIONAL)  
1-800-424-9300 (NORTH AMERICA)

## 2. Hazard(s) identification

### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Combustible dust	Yes
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### Hazards not otherwise classified (HNOC)

Not applicable

### Label elements

#### Warning

#### Hazard statements

May form combustible dust concentrations in air

**Other information**

Special danger of slipping by leaking/spilling product. Electrostatic charges may be generated during handling. If small particles are generated during processing or handling, this product may form combustible dust concentrations in air.

**3. Composition/information on ingredients****Substance**

Not applicable.

**Mixture**

Chemical name	CAS No	Weight-%	Trade secret
Proprietary Nylon		90 - 100	*
Caprolactam	105-60-2	≤10	*

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

**4. First-aid measures****Description of first aid measures**

<b>Inhalation</b>	Move victim to fresh air. Medical aid is necessary if symptoms appear to be an obvious consequence of inhalation.
<b>Eye contact</b>	Rinse thoroughly with plenty of water, also under the eyelids. Get medical attention if irritation develops and persists.
<b>Skin contact</b>	After contact with product or dust: Wash skin with soap and water. Get medical attention if irritation develops and persists. After contact with molten product, cool skin area rapidly with cold water. Removal of solidified molten material from skin requires medical assistance.
<b>Ingestion</b>	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Product dust may be irritating to eyes, skin and respiratory system.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

**5. Fire-fighting measures**

**Suitable Extinguishing Media** CO<sub>2</sub>, dry chemical, foam. Water spray or fog.

**Unsuitable extinguishing media** Do not use a solid water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical** Avoid generation of dust. Fine dust dispersed in air may ignite. Powders, dusts, shavings, borings, turnings or cuttings may explode or burn with explosive violence.

**Explosion data**

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** Yes.

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**Personal precautions** Ensure adequate ventilation. Avoid generation of dust. Avoid contact with eyes. Use personal protective equipment as required. Do not breathe dust. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharges.

**Other information** Refer to protective measures listed in Sections 7 and 8.

### Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so. Prevent dust cloud.

**Methods for cleaning up** Take up with inert, damp, non-combustible material using clean non-sparking tools and place into loosely covered plastic containers for later disposal. Pick up and transfer to properly labeled containers.

## 7. Handling and storage

### Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation. Avoid generation of dust. Do not breathe dust. Avoid contact with eyes. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. Airborne dusts are potentially explosive. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Handling and processing operations should be conducted in accordance with 'best practices' (e.g. NFPA-654).

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Keep container closed when not in use. Keep in an area equipped with sprinklers.

**Incompatible materials** Fluorine, strong acids, strong oxidizing agents, chlorinated solvents, and aromatic compounds.

## 8. Exposure controls/personal protection

### Control parameters

#### Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Proprietary Nylon	Not applicable	Not applicable	Not applicable
Caprolactum 105-60-2	TWA: 5mg/m <sup>3</sup>	Not applicable	Not applicable

### Appropriate engineering controls

#### Engineering controls

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Wear safety glasses with side shields (or goggles). During hot processing: Tight sealing safety goggles. If there is a risk of contact: Face protection shield.

#### Hand protection

Wear suitable gloves. Heat resistant gloves are recommended when handling molten materials.

#### Skin and body protection

Wear suitable protective clothing. During hot processing: Long sleeved clothing, Protective shoes or boots.

#### Respiratory protection

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. Consult with an industrial hygienist to determine the appropriate respiratory protection for your specific use of this material. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator.

#### General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Regular cleaning of equipment, work area and clothing is recommended.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

Appearance	Pellets, filaments
Physical state	Solid
Color	Natural

**Odor** Odorless or slight odor  
**Odor threshold** No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	207 °C / 404 °F	None known
Boiling point / boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	1.13 – 1.14	None known
Water solubility	negligible	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	>290.5°C/ >555°F	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

#### Other information

**Explosive properties** No information available.  
**Oxidizing properties** No information available.  
**Softening point** No information available  
**Molecular weight** No information available  
**VOC Content (%)** No information available  
**Liquid Density** No information available  
**Bulk density** No information available

## 10. Stability and reactivity

**Reactivity** None under normal use conditions.

**Chemical stability** Stable under normal conditions.

**Possibility of hazardous reactions** None under normal processing.

**Conditions to avoid** Temperatures over 555°F may result in thermal decomposition. Dust formation.

**Incompatible materials** No additional information available.

**Hazardous decomposition products** Decomposition products depend on temperature, exposure to air, and the presence of other substances. Processing may release irritating fumes, carbon monoxide, and carbon dioxide. Potential thermal decomposition products include: caprolactam; trace imines, amines, organic acids, and hydrocarbons.

## 11. Toxicological information

### Information on likely routes of exposure

**Product Information**

<b>Inhalation</b>	May cause irritation of respiratory tract.
<b>Eye contact</b>	Dust contact with the eyes can lead to mechanical irritation.
<b>Skin contact</b>	Contact with dust can cause mechanical irritation or drying of the skin.
<b>Ingestion</b>	May cause irritation of the mouth, throat and stomach.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** No information available.

**Acute toxicity****Numerical measures of toxicity**

Based on available data, the classification criteria are not met

Chemical name	LD50 Oral	LD50 Dermal	Inhalation LC50
Caprolactam 105-60-2	1210 mg/kg (Rat)	1438 mg/kg (Rabbit)	8.16 mg/L 4 h (Rat)

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitization** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Proprietary Nylon	-	Group 3	-	-
Caprolactam 105-60-2	-	Group 3	-	-

**IARC (International Agency for Research on Cancer)**

Group 3 - Not Classifiable as to Carcinogenicity in Humans

**Reproductive toxicity** This product does not contain any known or suspected reproductive hazards.

**STOT - single exposure** None of the ingredients are known to cause specific target organ effects from a single exposure.

**STOT - repeated exposure** None of the ingredients are known to cause specific target organ effects through prolonged or repeated exposure.

**Target organ effects** Respiratory system, Eyes, Skin.

**Aspiration hazard** None of the ingredients are known to be an aspiration hazard.

**Other adverse effects** No information available.

**Interactive effects** No information available.

## 12. Ecological information

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

Chemical name	LC50 Fish	EC50 Crustacea	LOEC (chronic)	NOEC (chronic)
Caprolactam 105-60-2	> 100 mg/l 96 h Oryzias latipes	>1000 mg/l 48 h Daphnia magna	> 100 mg/l 21 days Daphnia magna	100 mg/l 21 days Daphnia magna

**Persistence and degradability** No information available.

**Bioaccumulation** There is no data for this product.

**Other adverse effects** No information available.

## 13. Disposal considerations

### Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. Do not release into the environment. Recover or recycle if possible.

**Additional Information** Do not reuse empty containers. Do not dispose of waste into sewer. Do not dispose of with household waste. Do not allow to enter drains.

## 14. Transport information

**DOT** Not regulated

**TDG** Not regulated

**MEX** Not regulated

**IATA** Not regulated

**IMDG** Not regulated

## 15. Regulatory information

NOTE: Please contact supplier for regulatory information.

#### TSCA

All known components of this product are listed on the active portion of the TSCA Inventory or are exempt from the need for such listing.

#### International Inventories

Contact supplier for inventory compliance status.

#### US Federal Regulations

##### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains no known chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

##### SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

##### CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

##### CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

#### US State Regulations

##### California Proposition 65

See NOTE at top of Section 15 of SDS.

##### U.S. State Right-to-Know Regulations

See NOTE at top of Section 15 of SDS

##### U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

## 16. Other information

<b><u>NFPA</u></b>	<b>Health hazards</b>	<b>1</b>	<b>Flammability</b>	<b>1</b>	<b>Instability</b>	<b>0</b>	<b>Physical and Chemical Properties –</b>
<b><u>HMIS</u></b>	<b>Health hazards</b>	<b>1</b>	<b>Flammability</b>	<b>1</b>	<b>Physical Hazards</b>	<b>0</b>	<b>Personal Protection</b> X

Chronic Hazard Star Legend \* = Chronic Health Hazard

#### Key or legend to abbreviations and acronyms used in the safety data sheet

##### **Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

#### **Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 EPA (Environmental Protection Agency)  
 Acute Exposure Guideline Level(s) (AEGl(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal



Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**Issuing Date** 13-March-2023

**Revision Date** N/A

**Revision Note** Initial Release

**Disclaimer**

**The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.**

**End of Safety Data Sheet**

US OSHA LABEL per 29 CFR § 1910.1200(f)

## Nylon

### Warning

**BEFORE USING, READ THE SAFETY DATA SHEET. Slipping hazard. May form combustible dust concentrations in air if small particles are generated during further processing, handling, machining, or by other means.**

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Philadelphia, PA 19103-7583  
TEL: (800) 396-5251

EMERGENCY PHONE NUMBER  
CHEMTREC: 800-424-9300

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