

# SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Chopped Carbon Filament  
**Chemical Family:** Thermoplastic Polymer Composite  
**Chemical Name:** Nylon Copolymer

**Markforged, Inc**  
**10 Fawcett St**  
**Cambridge, MA 02143**

Transportation Emergency  
Company: +1 (617) 666-1935

**Creation Date:** 5/4/2016

## 2. HAZARDS IDENTIFICATION

No GHS classification.

### Emergency Overview

**Form:** solid pellets **Odor:** slight  
Melted product is flammable and produces intense heat and dense smoke during burning. Irritating gases/fumes may be given off during burning or thermal decomposition. May cause mechanical irritation (abrasion). Causes a slipping hazard if spilled. Contact with hot material will cause thermal burns.

### Potential Health Effects

**Primary Routes of Entry:** Inhalation, Skin Contact, Eye Contact

**Medical Conditions Aggravated by Exposure:** Respiratory disorders

### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

#### Skin

##### **Acute Skin**

Contact with heated material can cause thermal burns.

#### Eye

##### **Acute Eye**

May cause mechanical irritation.

#### Inhalation

By products of processing may irritate the respiratory track.

#### General Effects of Exposure

**Acute Effects of Exposure**

Gases and fumes evolved during the thermal processing or decomposition of this material may irritate the eyes, skin or respiratory tract.

**Chronic Effects of Exposure**

Not expected to cause any adverse chronic health effects.

**Carcinogenicity**

Not a known carcinogen

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

**Hazardous Components**

As supplied, all ingredients are bound in the polymer matrix. Because they are bound in the matrix, they are not expected to create any unusual hazards when handled and processed according to good manufacturing and industrial hygiene practices and the guidelines provided in this SDS.

Name	CAS-No.	%	GHS-US classification
Nylon		Proprietary	Not classified
Carbon Fiber	Proprietary	Proprietary	Not classified
Caprolactam	Proprietary	Proprietary	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

### 4. FIRST AID MEASURES

**Eye Contact:** In case of emergency, flush eyes with plenty of lukewarm water.

**Skin Contact:** In case of skin contact, wash affected areas with soap and water. Get medical attention if thermal burn occurs.

**Inhalation:** Not probable, Get medical attention.

**Ingestion:** Get medical attention.

### 5. FIRE FIGHTING MEASURES

**Suitable Extinguishing Media:** water, foam, dry chemical, carbon dioxide (CO<sub>2</sub>)

**Special Fire Fighting Procedures:** Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**Unusual Fire/Explosive Hazards:** Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Dust may form explosive mixtures with air.

## 6. ACCIDENTAL RELEASE MEASURES

### **Spill and Leak Procedures**

Spilled pellets may cause a slipping hazard. Clean work areas as needed

## 7. HANDLING AND STORAGE

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Store in a cool dry place.

## 8. PERSONAL PROTECTION/EXPOSURE CONTROL

### Industrial Hygiene/Ventilation Measures

General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines.

### Hand Protection

Wear heat resistant gloves when handling molten material.

### Eye Protection

Use safety glasses with side-shields.

### Skin and Body Protection

Protective clothing such as coveralls or lab coats should be worn. Launder or dry-clean when soiled. Gloves and boots resistant to chemicals and petroleum distillates also recommended. Heat protective clothing should be worn when handling heated materials.

### Respiratory Protection

Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant

### Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes to allow for rapid cooling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Form:</b>	Solid
<b>Appearance:</b>	Pellets
<b>Color:</b>	Black
<b>Odor:</b>	Slight
<b>Melting Point:</b>	215-218°C
<b>Specific Gravity:</b>	>1.0
<b>Solubility in Water:</b>	Insoluble
<b>Bulk Density:</b>	35-45 lbs/ft <sup>3</sup>

## 10. STABILITY AND REACTIVITY

**Stability**

Stable under normal processing conditions

**Materials to Avoid**

Strong acids, strong oxidizing agents.

**Conditions to Avoid**

Processing temperature above 650°F

**Hazardous Decomposition Products**

Carbon monoxide, carbon dioxide, hydrocarbons, nitriles, hydrogen cyanide, amines, ammonia, ketone, amides

**11. TOXICOLOGICAL INFORMATION**

No specific information available

**12. BIOLOGICAL INFORMATION**

Material is not biodegradable

**13. DISPOSAL CONSIDERATIONS****Waste Disposal Method**

The pellets, regrind and purge of this material are non hazardous and should be discarded in accordance with existing federal, state, and local environmental control laws.

**14. TRANSPORTATION INFORMATION****Land Transport (DOT)**

Non-Regulated

**Sea Transport (IMDG)**

Non-Regulated

**Air Transport (ICAO/IATA)**

Non-Regulated

**15. REGULATORY INFORMATION****SARA Title III:**

**Section 313 Toxic Chemicals:** None

## 16. OTHER INFORMATION

### HMIS Rating

<b>Health</b>	1
<b>Flammability</b>	1
<b>Physical Hazard</b>	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe  
\*=Chronic Health Hazard

Markforged's method of hazard communications is comprised of Product Labels and Safety Data Sheets. HMIS and NFPA ratings are provided by Markforged as a customer service.

Contact Person: Product Safety Department  
Telephone: (856) 467-3030

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