Mosaic Matrix (CF Nylon)

Technical Data Sheet

Compatible with Element, Element HT & Array

Description

Matrix is a proprietary blend of carbon fiber nylon that is optimized for printing on Element. This material has a high strength-to-weight ratio and excellent wear resistance. The addition of carbon fiber makes layer lines almost indistinguishable, yielding parts with high aesthetic quality.

Key Features

- ✓ Stiff
- ✓ Strong
- ✓ High thermal resistance
- ✓ High strength-to-weight ratio
- ✓ Excellent surface quality

Sample Applications

- ✓ Aerospace components
- ✓ Structural parts
- ✓ Automotive parts
- ✓ Protective casings
- ✓ Robotic components

Available Colours

Black

Filament Specifications

Diameter	Tolerance
1.75 mm	+/- 0.05 mm

Printing Guidelines

Slicer Profile	Coming soon to canvas3d.io
Nozzle Temperature	280°C
Heated Chamber	Recommended
Build Surface	Element Bed Type I with glue stick
Special Considerations	N/A

Storage/Handling Considerations

Hygroscopicity	High
Drying Temperature	100°C
Drying Time	8 Hours

Note: When not in use, spool should be stored in a Mosaic Material Pod or inside a vacuum sealed container.

Material Properties

Property	Standard	Typical Value
Density	ISO 1183	1.03 g/cc
Tensile Strength, Break	ISO 527	80.43 MPa
Tensile Modulus	ISO 527	4634 MPa
Elongation at Break	ISO 527	7.01%
Heat Deflection Temp.	ISO 75 1.8MPa	101.6°C

Multi-Material Compatibility

Automation

Same-material Automated Changeover	With Material Pod

Supports

Same-material support	Yes
Compatible Soluble Materials	Dissolve LT (Water-soluble)
Compatible Breakaway Materials	None

Note: Matrix has a high tendency to absorb moisture so if it is used with soluble support and dissolved in water, it is recommended to dry the part for at least 8 hours at 100C afterwards to maintain desired properties. Submerging Matrix in water may result in a deformed part.

Mosaic Matrix

Safety Data Sheet

Section 1: Identification

Product Identification:

Product Name: Mosaic Matrix

Chemical Name: Carbon Fibre Filled Polyamide (PA)

Recommended Use: Additive manufacturing

Supplier Information:

Mosaic Manufacturing
403-111 Peter Street, Toronto, Ontario, Canada M5V 2H1
Phone 647-570-0375
Email: info@mosaicmfg.com

Section 2: Hazard(s) Identification

Regulation (EC) NO 1272/2008: Not classified as a dangerous product

Physical Hazards: None

OSHA Regulatory Status: This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Section 3: Composition/Information on Ingredients

Components	CAS No.	Concentration Range (%)
Polyamide Resin	25038-54-4	>80
Carbon Fiber	7440-44-0	<20

Section 4: First-Aid Measures

Eyes: Flush with water. Consult a physician if symptoms persist.

Skin Contact: Wash with soap and water. For thermal burns from molten polymer, immediately flush with cold water. Do not attempt to remove cooled polymer from the skin. Obtain medical attention.

Inhalation: Leave exposed area and seek fresh air. If irritation persists seek medical attention.

Ingestion: Not likely due to the nature of the product. If ingested, drink plenty of water. Do not induce vomiting. Consult a physician if symptoms persist.

Section 5: Fire-Fighting Measures

Extinguishing Media: Water spray, dry powder, and foam. Carbon dioxide (CO_2)

Safety Precautions for Persons exposed to products of combustion should wear NIOSH approved self contained breathing apparatus and full protective equipment.

Section 6: Accidental Release Measures

Spill or release: Clean up by vacuuming or sweeping to prevent falls. If molten, allow material to cool and place into an appropriate container for disposal.

Section 7: Handling and Storage

Precautions to be taken in handling and storage: Store in a dry, sprinkler equipped warehouse. Product as shipped is not a combustible dust. Mechanical handling can cause the formation of dusts. To reduce the risk for dust explosion, avoid dust accumulation.

Waste Disposal: Dispose in accordance with applicable federal, state and local regulations.

Section 8: Exposure Controls/Personal Protection

Exposure Limits: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Respiratory Protection: A NIOSH approved respirator is recommended for protection against processing polymeric fumes, or from dust generated from grinding, sanding, or sawing operations.

Ventilation: Local exhaust is preferred.

Protection Gloves: Canvas or cotton gloves are recommended.

Eye Protection: Safety glasses with side shields are recommended. Other: No protective equipment is needed under normal use conditions.

Section 9: Physical and Chemical Properties

State:	Solid
Form:	Filament
Color:	Black
Odor:	None
Freezing Point:	N/A
Solubility in Water:	Insoluble
Specific Gravity:	>1
% Volatile:	N/A
Boiling Range:	N/A
Vapor Pressure (MM HG):	Negligible

Melting Point: This product does not possess a specific melting point. It softens gradually over a wide temperature range.

Note: Those physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Section 10: Stability and Reactivity

Polymerization conditions to avoid: None

Chemical Stability: Stable under normal conditions

Conditions to avoid: Incompatible materials, including strong oxidizing agents

Hazardous decomposition byproducts: Thermal decomposition can yield intense heat, dense smoke, phenols, hydrogen cyanide, carbon dioxide, and carbon monoxide.

Section 11: Toxicological Information

No specific toxicological information is available.

Section 12: Ecological Information

No specific ecological information is available.

Section 13: Disposal Considerations

Waste Disposal: Waste or unused product may be discarded in accordance with state, federal, and local regulations.

Section 14: Transport Information

Land Transport (DOT): Non-Regulated
Sea Transport (IMDG): Non-Regulated
Air Transport (ICAO/IATA): Non-Regulated

Section 15: Regulatory Information

TSCA:	Complies
EINECS/ELINCS:	N/A
DSL/NDSL:	Complies
PICCS:	N/A
ENCS:	Complies
IECSC:	Complies
AICS:	Complies
KECL:	Complies

Section 16: Other Information

Prepared by: Mosaic Manufacturing

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