

GRANULAR POLYTETRAFLUOROETHYLENE

TECHNICAL DATA SHEET

Product Description

Flonio™ S-120 is a virgin granular polytetrafluoroethylene, commonly recognized for its general-purpose molding applications. It is typically white in color and is utilized for creating compression molded products, including stocks and shaped items. Its exceptional properties and characteristics make it the ideal choice for a wide range of applications.

Product Highlights

The superior quality of flonio™ S-120 is confirmed by its exceptional combination of properties and processing capabilities, including:

- High thermal stability
- Chemical inertness
- Excellent surface finish
- Easy processability

- Optimal mechanical and electrical properties
- Low coefficient of friction

Product Applications

- A wide array of end products can be made from compression-molded billets, and sheets including skived films. These versatile materials find applications in various industries, including but not limited to:
 - Electrical insulators
 - Seals and gaskets
 - Packings and separators
 - Bearing pads
 - Spacers and bushes
 - Stocks and shaped semifinished items

Typical Product Properties

Properties	Test Method	Unit	Typical values*
Bulk density	ASTM D4894	g/l	500
Avg. particle size (d50)	ISO 13320	µm	200
Mould shrinkage	ASTM D4894	%	3.25
Std. specific gravity (SSG)	ASTM D4894	--	2.1400
Melting point (initial)	ASTM D4894	°C	342
Melting point (final)	ASTM D4894	°C	327
Tensile strength	ASTM D4894	MPa	30
Elongation at break	ASTM D4894	%	270
Moisture	Internal	%	0.03

* Values given above are just typical test properties for reference only, should not be considered as material quality specifications.

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Processing Recommendations

The molding process for flonio™ S-120 involves critical steps to ensure optimal results. The molding powder needs to be conditioned above 19°C (with an acceptable range of 23±2°C) and sieved if any agglomeration is observed during storage.

Processing flonio™ S-120 occurs in two main stages: preforming and sintering. In the preforming stage, the molding powder is cold compressed to create a billet (preform) or a sheet. Subsequently, the preform undergoes sintering, following a specific sintering cycle designed to melt it above its crystalline melting point, resulting in the final shaped product.

Several factors, such as molding pressure, sintering temperature, sintering time, rate of heating, and cooling, depend significantly on the size and shape of the final item. The recommended preforming pressure for flonio™ S-120 molding powder falls between 18 – 26 MPa.

Sintering temperatures must exceed the melting point of PTFE (342°C) and typically range from 370°C to 380°C. The total duration of the sintering cycle varies based on the shapes and dimensions of the target item. Additionally, the ramp-up time, dwell time, and ramp-down time can be adjusted by the processor according to the thickness or wall thickness of the preform. These precise parameters are crucial in achieving the desired outcome during the molding process.

Storage and Handling

Proper storage and handling of flonio™ S-120 molding powder are essential to ensure the integrity

of the final products. The powder must be stored in a clean, dry area and handled with care to prevent any irregularities in the end results. To avoid lump formation, it should be stored at temperatures of 20°C or lower, as higher temperatures can lead to issues during the molding process.

The work area and facilities where the powder is used should be kept immaculate and free from contaminants. Maintaining good housekeeping practices is highly recommended. Additionally, it is crucial to securely close the containers when not in use to preserve the quality of the molding powder.

Safety Precautions

It is crucial to thoroughly review the Material Safety Data Sheet before handling flonio™ S-120 and adhere to all labeled instructions and precautions. The material should be handled and processed in a well-ventilated area to prevent inhalation and contact of fumes with the eyes and skin.

In case of skin contact, wash the affected area with mild soap and water, and if the fumes come into contact with the eyes, immediately flush them with water and seek medical assistance if necessary. Smoking is strictly prohibited in both storage and processing areas. Additionally, it is recommended to position vapor extractor units above processing equipment to ensure the safety of the working environment.

Packaging

The flonio™ S-120 powder is packaged in a 35Kg plastic drum enclosed with two layers of liner bags.

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