

# PTFE FLUOROPLAST-4 grade TG



**Manufacturer:**  
"HaloPolymer Kirovo-Chepetsk", LLC

QMS for production is certified:  
ISO 9001:2015, EN 9100:2016, IATF 16949:2016

**Chemical name:** Poly(tetrafluoroethylene) (IUPAC)  
**Structural formula:**  $(C_2F_4)_n$   
**CAS No.** 9002-84-0  
**HS code** 39 0461 0000

Fluoroplast-4 grade TG (F-4 TG) is a granulated product designed for manufacturing of articles by ram extrusion. This perfluorinated resin has excellent chemical and mechanical properties. Fluoroplast-4TG does not get caked during transportation, offering improved handling properties and better productivity.



PROPERTIES	UNITS	TYPICAL VALUE	TEST METHOD
Appearance	Free-flowing white powder		Visual (internal method <sup>1</sup> )
Particle size, average diameter (d <sub>50</sub> )	µm	600-800	Laser-diffraction analyses (internal method <sup>1</sup> )
Water content, max	% wt	0,02	internal method <sup>1</sup>
Bulk density	g/l	600-800	internal method <sup>1</sup>
Flowability	s/100g	12-16	internal method <sup>1</sup>
Melting point	°C	327±5	ASTM D4894

Note:

<sup>1</sup>) The parameters are indicated according to the Technical Specifications (TU), because the manufactured products are analyzed in accordance with the TU (internal company standard). The procedure of sample preparation differs from that in ASTM, ISO, DIN.



## Main application:

- applicable for ram extrusion method for manufacturing of small rods and thin wall tubes;
- ram extrusion of pipes, tubes, rods of simple shape.



## Package:

30 kg (net) card boxes with 2x15 kg polyethylene inserts on wooden pallet boards.  
30 boxes on one pallet. Gross weight per pallet is 968 kg.



## Guarantee storage life:

24 months from the date of manufacture.

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## Processing:

Ram extrusion is a continuous process which combines the preforming and sintering of PTFE into a single operation. The feed resin is forced to move down by a reciprocating ram through the heated section of the extruder die which is followed by a cooling zone. Compaction, heating and cooling are carried out in series within a single extruder die. The temperature of the heated section of the die is above the crystalline melting point of the resin to weld the successive charges of the powder. The advantage of ram extrusion, over compression molding is the possibility of obtaining very long parts suitable for automatic machining. The design of extruder, extrusion rate, back pressure generated by the resin itself and the temperature must be carefully controlled.



## Storage and handling:

Storage and handling preforming is the easiest when the resin is uniformly between 21–27°C (70–80°F). As the temperature declines below this range, the resin will be increasingly difficult to mold without cracks and problems with condensed moisture. Higher temperatures inhibit flow and promote lumping. Storage conditions should be set accordingly.

F-4 TG tends to form agglomerates easily; therefore, do not store large quantities of powder in deep containers; avoid strong vibrations and shock. Storage at temperatures above 19°C tends to promote agglomerate formation. Should agglomerates form, keep the powder at less than 19°C (ideally 15°C or below) for two days then sift through a coarse screen and allow to come to room temperature before molding.



## Quality data:

Fluoroplast-4 TG can be classified as type V, ASTM D 4894 standard. Typical properties are not suitable for specification purposes. For the detailed specification please contact the commercial department.

**HaloPolymer does not use PFOA/APFO or its salts/LCPFAC in the process of polymerization of TFE.**

HaloPolymer PTFE is compliant with RoHS Directive 2011/65/EU

FDA 21 CFR 177.1380 & FDA 21 CFR 177.1550

Class VI acc. USP 35 <88>

3-A Sanitary Standard for Multiple-Use Plastic Materials 20-27



## Safety Precautions:

**WARNING! VAPORS CAN BE LIBERATED THAT MAYBE HAZARDOUS IF INHALED.**

Before using Halopolymer Fluoroplast-4 (PTFE) read the Material Safety Data Sheet.

Open and use containers only in well-ventilated areas using local exhaust ventilation. Vapors and fumes liberated during hot processing or from smoking tobacco or cigarettes contaminated with Halopolymer Fluoroplast may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and that typically pass within about 24 hours. Vapors and fumes liberated during hot processing should be exhausted completely from the work area; contamination of tobacco with polymers should be avoided. Mixtures with some finely divided metals, such as magnesium or aluminum, can be flammable or explosive under some conditions.