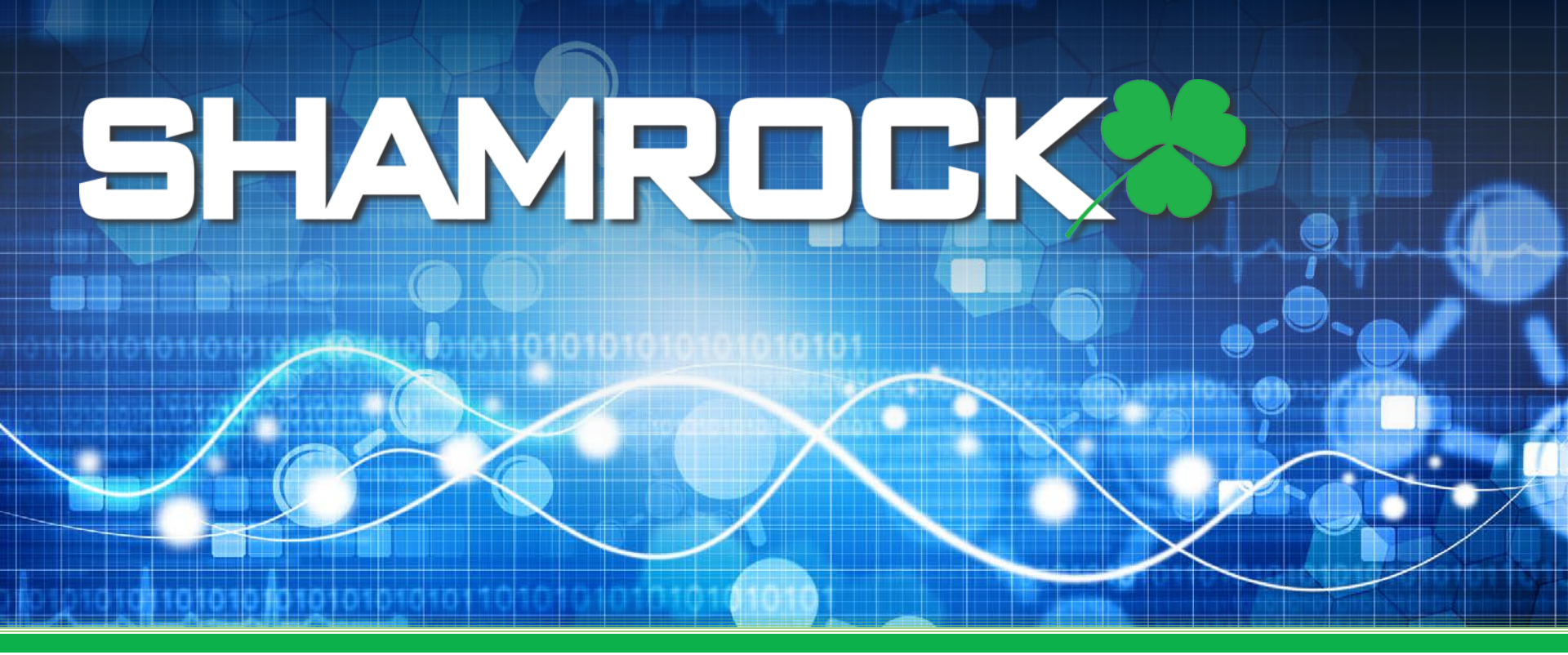

REACH COMPLIANT (RC) PTFE

for Thermoplastics, Elastomers, and Thermosets

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REACH COMPLIANT (RC) PTFE

for Thermoplastics, Elastomers, and Thermosets

Shamrock offers a range of REACH COMPLIANT (RC) PTFE micropowders made from Natural prime and Recycled raw materials.

Shamrock's RC PTFE products are produced to be in compliance with Commission Regulation (EU) 2017/1000 amending Annex XVII of REACH and European Council Regulation (EU) 2019/1021 amending Part A of Annex I pertaining to PFOA levels (Shamrock QSOP-202E).

Shamrock RC PTFE products are used to reduce friction and wear between contacting surfaces and are available in a range of particle sizes, molecular weights, and thermal stability which can be used in engineering plastics, elastomers, and thermosets.

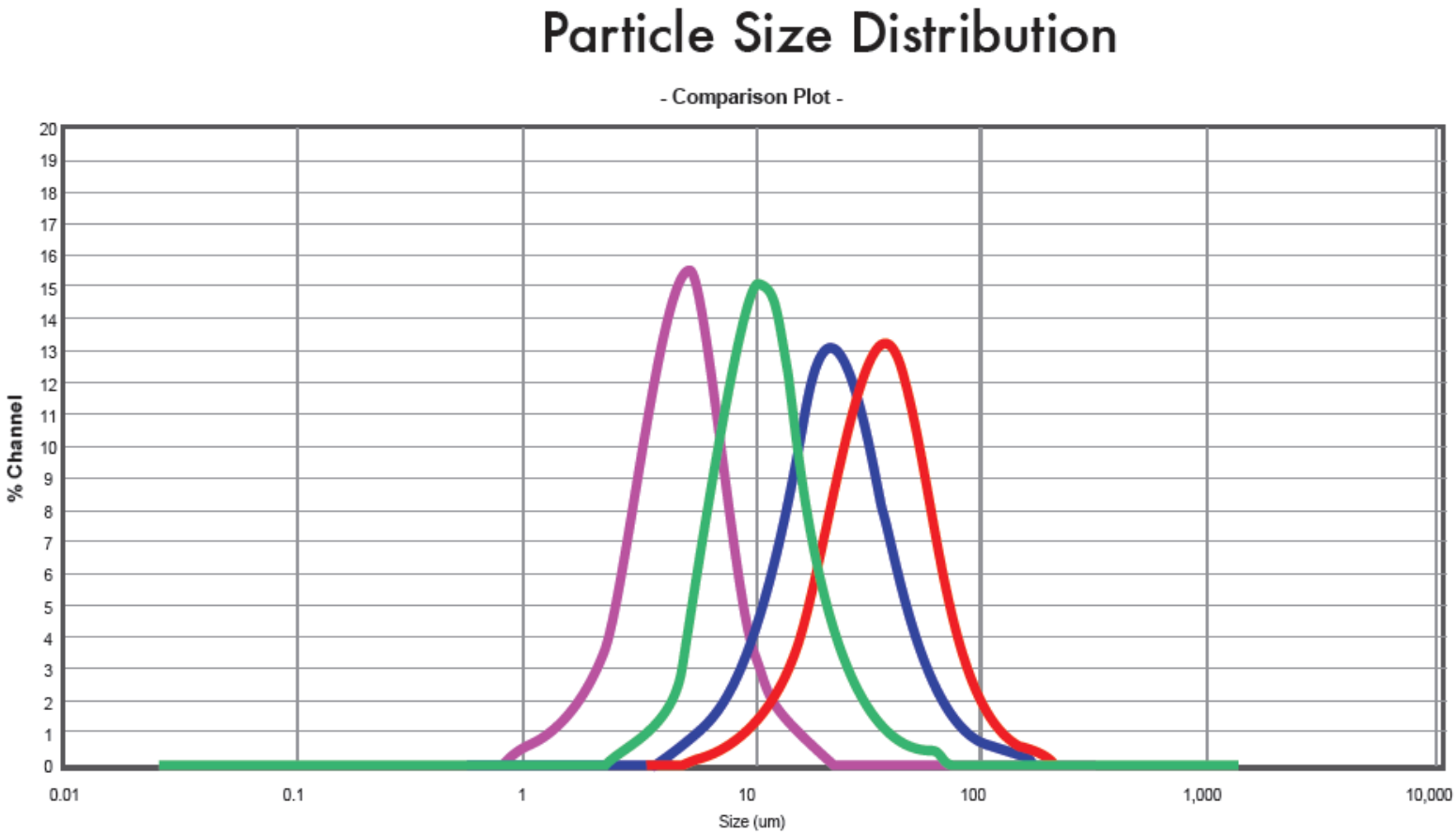
Benefits of PTFE Additives in Engineering Plastics

- Elimination of the need for external lubrication
- Lower and more consistent frictional responses
- Reduced wear rates & Increases product lifespan
- Elimination of ‘stick-slip’ across a large temperature range
- Elimination of chatter and other motion-induced noise
- Enables light-weighting

Typical Properties of Shamrock RC PTFE Micropowders	
Specific Gravity	2.20-2.30
Heat Stability	Decomposition Starts Above 400ºC
Surface Energy (dyne/cm)	19-20
Coefficient of Friction	0.05-0.10
Concentration of PFOA*	< 25 ppb

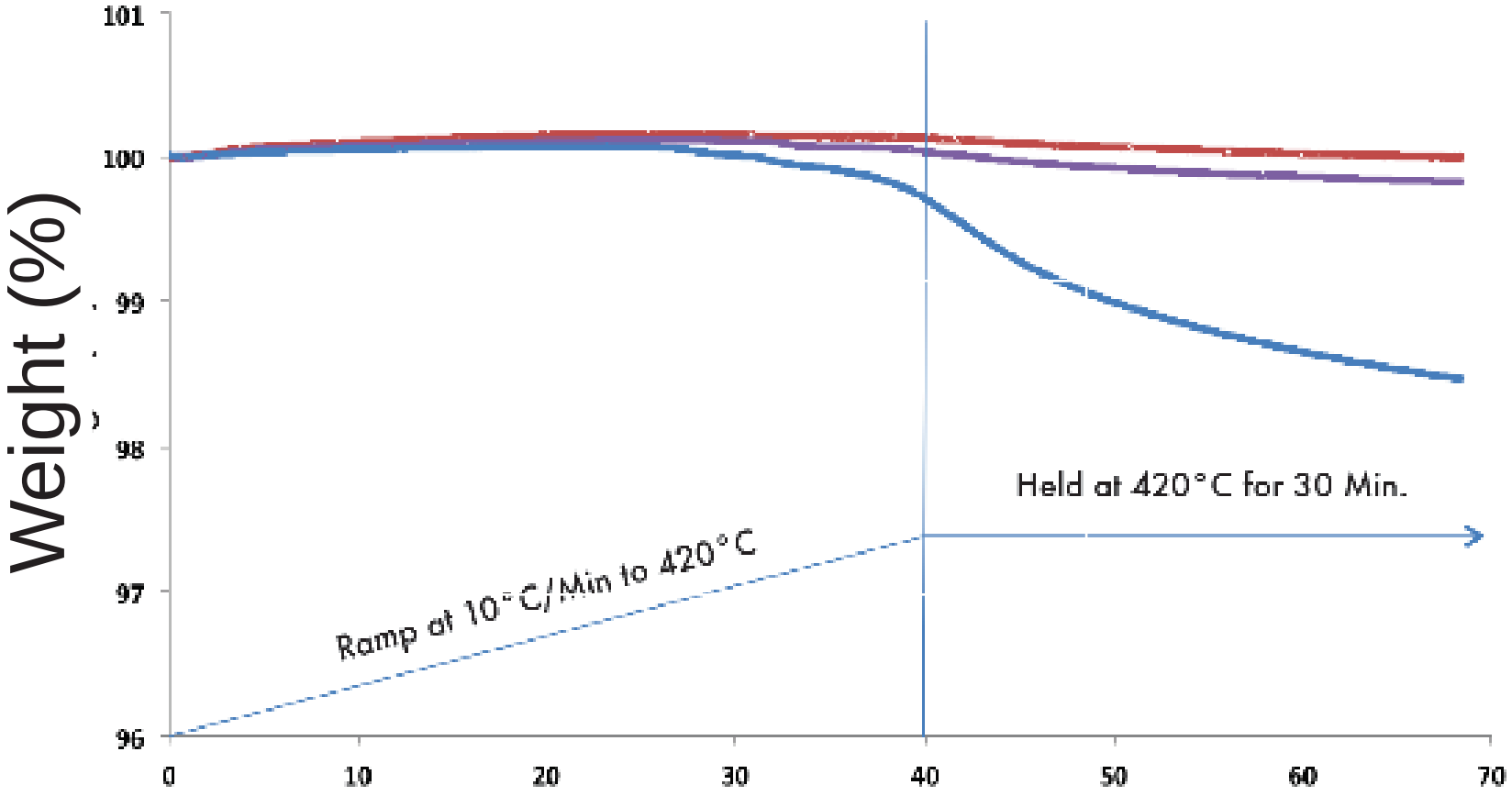
* Compliance with Commission Regulation (EU) 2017/1000 amending Annex XVII of REACH pertaining to PFOA level of less than 25 ppb

Particle size distribution



MicroFLON® S-205-RC MicroFLON® S-211-RC MicroFLON® T-801-RC MicroFLON® T-803HT-RC

Thermal Stability of MicroFLON® PTFE (TGA)

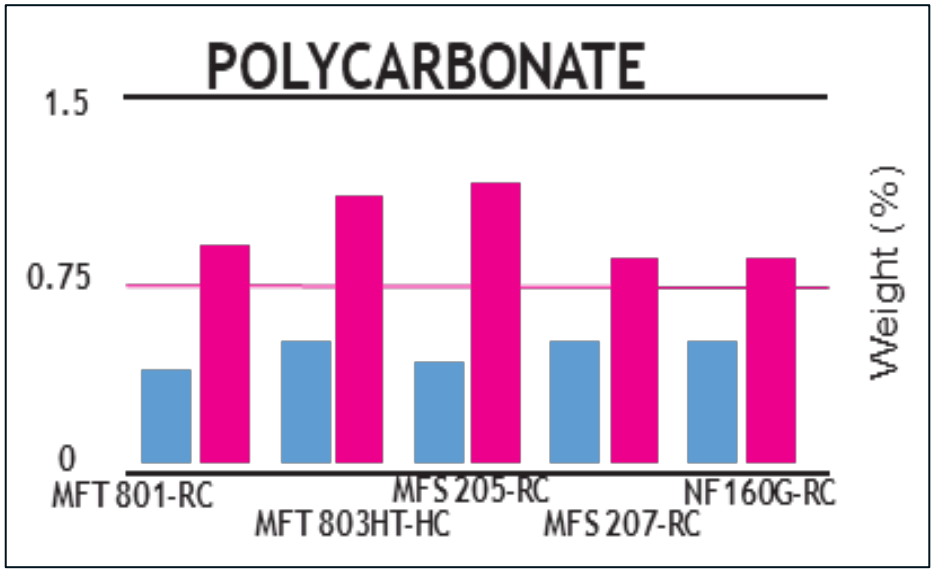


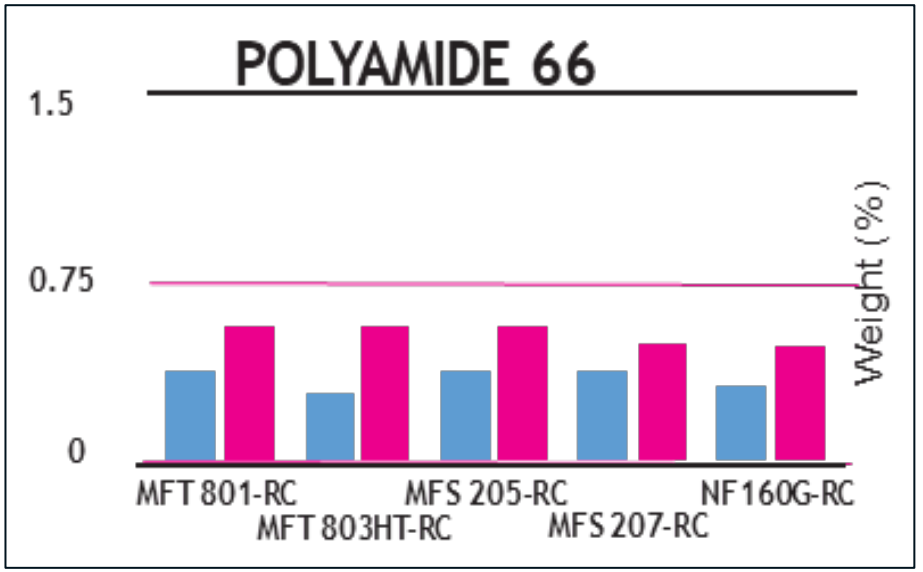
MicroFLON® S-203-RC
MicroFLON® T-801-RC/T-803HT-RC
MicroFLON® T-803-RC

Tribology - Block on Ring test

- Testing parameters
  - Normal load: 30N
  - Velocity: 1.0 m/s
  - Testing time: 20 hours
  - Ring: CS Ra = 13 μ surface roughness
- Measurement results
  - Wear rate: g/min
  - Coefficient of Friction

Block on Ring Tribology Test





COF Wear rate, x10^{-5} g/hr

*10% PTFE Loading, Normal load = 30 N, Speed = 1 m/s, CS Ring Ra~13 µm

Our Products

MicroFLON® T

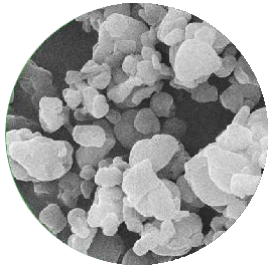
Sintered Recycled Powder

These powders are designed to be used in thermoplastic compounds of PA, POM, PC, PP, ABS, blends, as well as a variety of elastomers and thermosets.

Product	Mean Value (µm)	< 90% (µm)	Melting Point (°C)
MicroFLON® T-801-RC	35-55	70	> 327
MicroFLON® T-803HT-RC	20-25	50	> 327
MicroFLON® T-807-RC	10-14	25	> 325
MicroFLON® T-815-RC	4-6	10	> 315

Carbon Footprint for PTFE polymerization is about 9.6 kg CO_{2eq} /kg PTFE ……

1 kg of Recycled PTFE will reduce about 10 kg of CO_2 emission !



NanoFLON®

Sub-micron Natural Prime PTFE Powders

These powders are offered as agglomerated particles with free flow and ease of incorporation, and the primary particle size as low as 200 nanometers. It can be compounded into a variety of elastomers, fluorinated polymers, PP, and PS for specialty films to improve the surface lubricity and wear resistance.

Product	Particle Size Mean Value (µm)	< 90% (µm)	Melting Point (°C)
NanoFLON® 102-RC	< 20	35	> 330
NanoFLON® 114T-RC	< 10	30	> 327
NanoFLON® 119N-RC	< 10	20	> 320
NanoFLON® 160G-RC	< 10	30	> 327

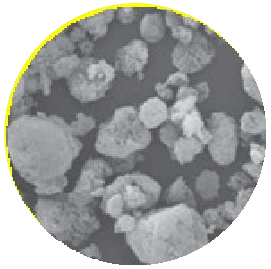
SHAMROCK

MicroFLON® S

Suspension Grade Prime PTFE Powders

These powders are designed for high purity applications. It can be easily compounded for use in PA, PC, POM, ABS, PBT, blends, and suitable for high temperature engineering plastics such as PPS, PEEK, and PEI.

Product	Mean Value (µm)	< 90% (µm)	Melting Point (°C)
MicroFLON® S-203-RC	15-25	40	> 328
MicroFLON® S-205-RC	12-22	35	> 328
MicroFLON® S-207-RC	10-13	25	> 328
MicroFLON® S-211-RC	4-6	10	> 328

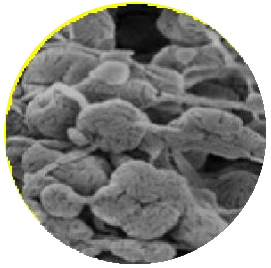


PTFE for Food Contact application

PTFE for the requirements of 21 CFR 177.1550.

These powders are natural prime grade micronized PTFE designed for food contact applications. These PTFE additives are are recommended for thermoplastics and elastomers to reduce friction and enhance anti-wear properties.

Product	Particle Size Mean Value (µm)	Melting Point (°C)	Bulk Density (g/l)
MicroFLON® 1433 FG-RC	4-6	> 328	300-500
MicroFLON® 1437 FG-RC	10-12	> 328	300-550
MicroFLON® S-205 FG-RC	12-22	> 328	300-550
NanoFLON® 101T-RC	6-9	> 327	200-500



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