PTFE/PEK Blend

(Improved Performance of PTFE with addition of PEK)

Improved Performance of PTFE with addition of PEK

PTFE/PEK is a PEK filled with PTFE, which offers the improved Hardness, Dimensional Stability and Wear Resistance at Elevated Temperature compared to Virgin PTFE.

Advantages of PTFE/PEK Blends

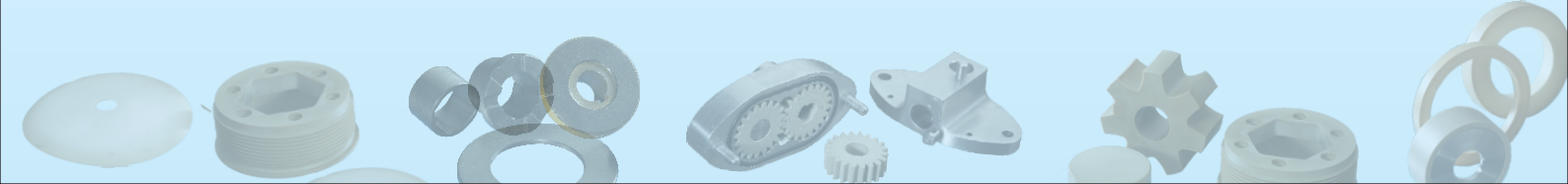
- ✓ Improved Hardness at Elevated Temperature
- ✓ Low coefficient of friction (CoF) similar to virgin PTFE
- ✓ Operates well against soft matting surfaces like Aluminum, Mild Steel, Brass and Plastics
- ✓ Excellent Dimensional Stability than PTFE
- ✓ High Continuous Use Temperature (up to 260°C)
- ✓ Excellent Chemical Resistance
- ✓ Ideal for stop-start applications to eliminate stick-slip

Grades of PTFE/PEK Blends

GRADE	COMPOSITION
G-PAEK™ 1215TFP	15% PEK filled PTFE
G-PAEK™ 1220TFP	20% PEK filled PTFE
G-PAEK™ 1232TFP	32% PEK filled PTFE

Properties Comparison of PTFE/PEK Blends with PTFE Compound

Properties	Unit	Standard	G-PAEK™ 1215TFP	Virgin PTFE	15% Glass Fiber Filled PTFE	5% Glass +5%MoS_2 Filled PTFE	25% Carbon Fiber Filled PTFE	35% Carbon Fiber Filled PTFE	15% Graphite Filled PTFE	40% Bronze Filled PTFE
Density	g/cc	ASTM D 792	1.9-2.0	2.1-2.2	2.15-2.22	2.20-2.24	2.12-2.14	2.0-2.14	2.10-216	3.0-3.2
Hardness	Shore D	ASTM D 2240	59	52	55	60	60	60	60	63
Water Absorption 24Hrs	%	ASTM D 570	0.015	0	0.015	0.020	0	0	0	0
Tensile Strength	MPa	ASTM D 638	17-24	21-37	18-26	17.5-25.0	12.5-20	10-17	15-20	12.5-30
Elongation at break	%	ASTM D 638	200	300	200	200	125	100	150	225
Compressive Strength	MPa	ASTM D 695	20	4.0	6.5	6.0	6.5	8.0	6.5	8.5
Compressive Modulus	MPa	ASTM D 695	1020	350	550	500	800	825	750	800
Flexural Strength	MPa	ASTM D 790	10.0	5.0	4.5	4.5	9.0	8.5	5.5	8.0
Flexural Modulus	MPa	ASTM D 790	750	700	2000	2000	1190	1050	1100	1400
Impact Strength at -20°C	cm Kg f/cm^2	ASTM D 256	10	9	9.25	9	8	9.5	10	11
Impact Strength at 20°C	cm Kg f/cm^2	ASTM D 256	15	15	5	12	10	12	14	9



GHARDA PLASTICS
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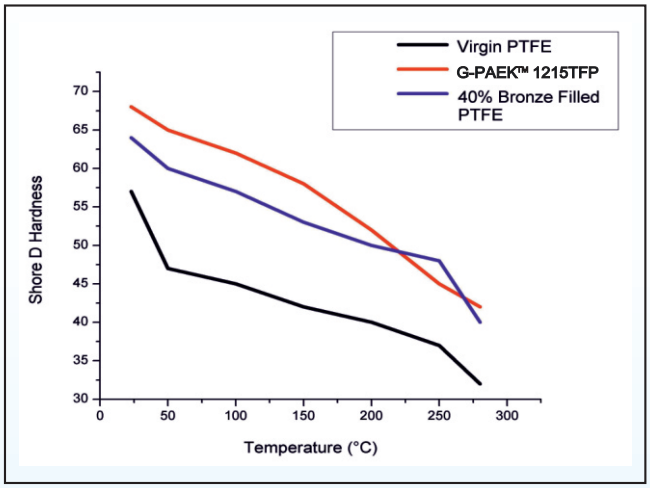
G-PAEK TFP

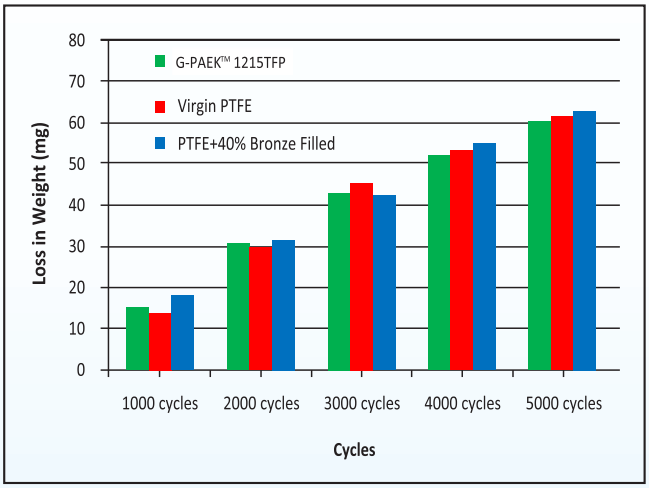
Typical Sintering 14 Steps Cycle for PTFE/PEK Blend

Steps	Initial Temp.	Target Temp.	Rate of Increase	Total Time
1	100°C	200°C	10°C/ 15 min	2 Hrs 30 min.
2	200°C	300°C	5°C/ 15 min	5 Hrs.
3	300°C	HOLD	-	1 hr 10 min.
4	300°C	340°C	10°C / 15 min	1 hr
5	340°C	HOLD	-	1 hr
6	340°C	370°C	5°C/ 45 min.	4 hrs 30 Min
7	370°C	390°C	1°C/ 1 min.	60 min.
8	370°C	390°C	1°C/ 1 min.	60 min.
9	390°C	370°C	(-) 1°C/ 1 min.	20 min.
10	370°C	340°C	(-) 10°C/ 15 min	45 min.
11	340°C	HOLD	-	3 hrs.
12	340°C	325°C	(-) 5°C/ 20 min	60 min
13	325°C	HOLD	-	50 min
14	325°C	40°C	(-) 15°C/ 10 Min	3 hrs 10 min.

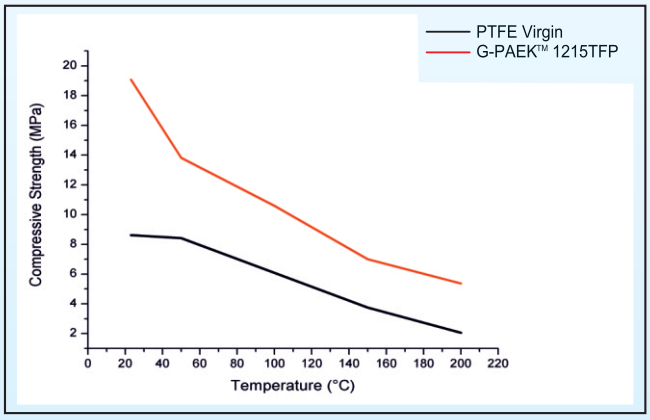
Shore D Hardness at different Temperature for G-PAEK™ 1215TFP against Virgin PTFE & 40% Bronze Filled PTFE



Taber Abrasion Study of G-PAEK™ 1215TFP against Virgin PTFE & 40% Bronze Filled PTFE



Compressive Strength at different Temperature for G-PAEK™ 1215TFP against Virgin PTFE



Application of PTFE/PEK Blend

- Compressor seals
- Valve components
- Poppets
- Pump components
- Gaskets and Sealants
- Parts of Hydraulic System

India (Head Office)
Jaimin Zaveri
Gharda Chemicals Limited
Gharda House, 48, Hill Road,
Bandra (West) Mumbai 400050
Mobile - +91 7045993147
Email – jczaveri@gharda.com
www.ghardaplastics.com