UTEC 5040

Ultra High Molecular Weight Polyethylene

Braskem America Inc.

Message:

Description:
UTEC5040 is an Ultra High Molecular Weight Polyethylene with a molecular weight about 10 times higher than High Density Polyethylene (HDPE) resins. This extremely high molecular weight yields several unique properties to this polymer such as high abrasion resistance and impact strength and low coefficient of friction, what makes it a self-lubricating material.
Applications:
Applications which require high wear resistance - technical parts RAM extruded and compression molded sheets, rods and profiles.

General Information	
Features	Good Abrasion Resistance Good Impact Resistance Good Wear Resistance Low Friction Self Lubricating Ultra High Molecular Weight
Uses	Engineering Parts Profiles Rods Sheet
Agency Ratings	FDA 21 CFR 177.1520
Processing Method	Compression Molding Ram Extrusion

Physical	Nominal Value	Unit	Test Method
Specific Gravity	0.925	g/cm³	ASTM D792
Apparent Density	0.45	g/cm³	ASTM D1895
Water Absorption (24 hr)	0.010	%	ASTM D570
Average Molecular Weight	6000000	g/mol	Internal Method
Average Particle Size [1]	190	µm	ASTM D1921
Intrinsic Viscosity	24	dl/g	ASTM D4020
Specific Melt Enthalpy	34.0	cal/g	ASTM D3418
Abrasion Index			Internal Method
-- [2]	21		
-- [3]	82		

Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240, ISO 868
Shore D	64		

Shore D, 15 sec	59		
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength			ASTM D638, ISO 527-2
Yield	> 17.0	MPa	
Break	> 30.0	MPa	
Tensile Elongation			
Break	> 300	%	ASTM D638
Break	> 350	%	ISO 527-2
Coefficient of Friction			ASTM D1894
Dynamic	0.090		
Static	0.10		
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength [4]	> 100	kJ/m^2	ISO 11542-2
Notched Izod Impact	No Break		ASTM D256
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed	79.0	°C	
1.8 MPa, Unannealed	48.0	°C	
Vicat Softening Temperature	128	°C	ISO 306/A, ASTM D1525 [5]
Peak Melting Temperature	133	°C	ASTM D3418
CLTE - Flow (-30 to 100°C)	1.5E-4	cm/cm/°C	ASTM D696
Specific Heat	2010	J/kg/°C	ASTM E1269
Thermal Conductivity (23°C)	0.40	W/m/K	ASTM C177
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	> 1.0E+12	ohms	ASTM D257
Volume Resistivity	> 1.0E+14	ohms·cm	ASTM D257
Dielectric Strength	90	kV/mm	ASTM D149
Dielectric Constant (1 kHz)	2.30		ASTM D150

NOTE	
1.	Dp50
2.	reference Stainless Steel SAE1020 = 100
3.	reference ISO 15527 = 100
4.	Determined with double-notched specimens (14° v-notch on both sides) in accordance with ISO 11542-2.
5.	Loading 1 (10 N)

Recommended distributors for this material

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