

UTEC 3041

Ultra High Molecular Weight Polyethylene

Braskem

Message:

UTEC3041 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 impact resistance and use of pigments and/or additives - technical and porous parts, filters, compression molded sheets.

General Information			
UL YellowCard	E120161-100045083		
Features	Food Contact Acceptable		
	Good Abrasion Resistance		
	Good Impact Resistance		
	High Molecular Weight		
	Low Friction		
	Self Lubricating		
Uses	Filters		
	Sheet		
Agency Ratings	FDA 21 CFR 177.1520		
Forms	Pellets		
Processing Method	Compression Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	0.925	g/cm ³	ASTM D792
Apparent Density	0.45	g/cm ³	ASTM D1895
Water Absorption (Saturation)	0.010	%	ASTM D570
Intrinsic Viscosity	14	dl/g	ASTM D4020
Molecular Weight - Average	3000000	g/mol	Internal Method
Particle Size - Average	130	µm	ASTM D1921
Abrasion			Internal Method
-- 1	25		
-- 2	100		
Specific Heat Enthalpy	34.0	Btu/lb	ASTM D3418
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240, ISO 868
Shore D	64		
Shore D, 15 sec	57		
Mechanical	Nominal Value	Unit	Test Method

Tensile Strength			ASTM D638, ISO 527-2
Yield	> 17.0	MPa	
Break	> 30.0	MPa	
Tensile Elongation			
Break	> 350	%	ASTM D638
Break	> 400	%	ISO 527-2
Coefficient of Friction			ASTM D1894
vs. Itself - Dynamic	0.090		
vs. Itself - Static	0.10		
Impact	Nominal Value	Unit	Test Method
Charpy Unnotched Impact Strength	> 180	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 ³
Peak Melting Temperature	133	°C	ASTM D3418
CLTE - Flow (-30 to 100°C)	1.5E-4	cm/cm/°C	ASTM D696
Specific Heat (23°C)	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.	Reference Stainless Steel SAE1020 = 100		
2.	Reference ISO 15527 = 100		
3.	Loading 1 (10 N)		

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