Braskem

UTEC®

Data Sheet

Review 6 (Mar/14)

Ultra High Molecular Weight Polyethylene (UHMWPE) UTEC6541

Description:

UTEC6541 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 highest wear resistance and the use of pigments and/or additives – technical parts RAM extruded and compression molded sheets, rods and profiles.

Physical Properties:

	Method	Units	Values
Intrinsic Viscosity	ASTM D 4020	dL/g	28
Average Molecular Weight	Internal	g/mol	8.0x106
Density	ASTM D 792	g/cm3	0.925
Bulk Density	ASTM D 1895	g/cm3	0.45
Average Particle Size Dp50	ASTM D 1921	µm	150

Mechanical Properties:

	Method	Units	Values
Tensile Strength at Yield	ASTM D 638 ISO 527	MPa	≥ 17
Tensile Strength at Break	ASTM D 638 ISO 527	MPa	> 30
Ultimate Elongation	ASTM D 638 ISO 527	%	> 300 > 350
Notched Izod Impact Strength	ASTM D 256	J/m	No break
Charpy Impact Strength*	ISO 11542-2	KJ/m2	> 100
Abrasion Index (reference ISO 15527 = 100)	Sand slurry – Internal	-	76
Abrasion Index (reference Stainless Steel SAE1020 = 100)	Sand slurry - Internal	-	20
Static Friction Coefficient	ASTM D 1894	-	0.10
Kinetic Friction Coefficient	ASTM D 1894	-	0.09
Shore D Hardness	ASTM D 2240 ISO 868	-	64
Shore D Hardness (15 sec)	ASTM D 2240 ISO 868	-	59

* Determined with double-notched specimens (14º v-notch on both sides) in accordance with ISO 11542-2.

Thermal Properties:

	Method	Units	Values
Melt Temperature	ASTM D 3418	ºC	133
Vicat Softening Temperature at 1Kg	ASTM D 1525 ISO 306	ºC	128
Heat Deflection Temperature	ASTM D 648	-	-
-- @ 0.45 N/mm²	-	ºC	79
-- @ 1.81 N/mm²	-	ºC	48
Thermal Conductivity @ 23ºC	ASTM D 177	W/m.K	0.4
Coefficient of Linear Expansion (between – 30ºC and 100ºC)	ASTM D 696	10 -4 /ºC	1.5
Specific Heat @ 23ºC	ASTM E 1269	cal/gºC	0.48
Specific Melt Enthalpy	ASTM D 3418	cal/g	34

Electrical Properties:

	Method	Units	Typical Values
Volume Resistivity	ASTM D 257	ohm.cm	> 1014
Surface Resistivity	ASTM D 257	ohm	> 1012
Dielectric Strength	ASTM D 149	kV/cm	900
Dielectric Constant @ 1KHz	ASTM D 150	-	2.3

Other Properties:

	Method	Units	Typical Values
Water Absorption	ASTM D 570	%	0.01

Final Remarks:

1. This resin meets the requirements for olefin polymers as defined in 21 CFR, section 177.1520 issued by FDA – Food and Drug Administration in force on the date of publication of this specification. The additives present are covered in appropriate regulation by FDA
2. The information presented in this Data Sheet reflects typical values obtained in our laboratories, but should not be considered as absolute or as warranted values. Only the properties and values mentioned on the Certificate of Quality are considered as guarantee of the product.
3. In some applications, Braskem has developed tailor-made resins to reach specific requirements.
4. In case of doubt regarding utilization, or for other applications, please contact our Technical Assistance.
5. For information about safety, handling, individual protection, first aids and waste disposal, please see MSDS. CAS Registry number: 9002-88-4.
6. The mentioned values in this report can be changed at any moment without Braskem previous communication.
7. Braskem does not recommend this grade for packages, parts or any kind of product manufacture that will be used for storage or contact with solution that will have internal contact with human body.
8. The content of this Data Sheet replaces previous revisions published for this product.
9. This resin does not contain the substance Bisphenol A (BPA, CAS # No. 80-05-7) in its composition.