INEOS STYROLUTION

Novodur HH-112

Acrylonitrile Butadiene Styrene (ABS)

TECHNICAL DATASHEET

DESCRIPTION

Novodur® HH-112 is a high heat injection molding grade. It provides extraordinary heat resistance combined with enhanced stiffness.

FEATURES

- Very high heat resistance
- High stiffness

APPLICATIONS

- Automotive rear lamp housings
- Glove box caps

Property, Test Condition	Standard	Unit	Values
Rheological Properties			
Melt Volume Rate 220 °C/10 kg	ISO 1133	cm³/10 min	5.5
Mechanical Properties			
Charpy Notched Impact Strength, 23° C	ISO 179/1eA	kJ/m²	11
Charpy Notched Impact Strength, -30 °C	ISO 179/1eA	kJ/m²	6
Charpy Unnotched, 23 °C	ISO 179/1eU	kJ/m²	140
Charpy Unnotched, -30 °C	ISO 179/1eU	kJ/m²	80
Tensile Stress at Yield, 23 °C	ISO 527	MPa	58
Tensile Strain at Yield, 23 °C	ISO 527	%	3.1
Tensile Modulus	ISO 527	MPa	2700
Nominal Strain at Break, 23 °C	ISO 527	%	8
Flexural Strength, 23 °C	ISO 178	MPa	81
Flexural Modulus, 23 °C	ISO 178	MPa	2700
Hardness, Ball Indentation	ISO 2039-1	MPa	114
Thermal Properties			
Vicat Softening Temperature, VST/B/120 (50N, 120 °C/h)	ISO 306	°C	113
Vicat Softening Temperature VST/B/50 (50N, 50 °C/h)	ISO 306	°C	111
Vicat Softening Temperature, VST/A/50 (10N, 50 °C/h)	ISO 306	°C	118
Heat Deflection Temperature A; (annealed 4 h/80 °C; 1.8 MPa)	ISO 75	°C	102
Heat Deflection Temperature B; (annealed 4 h/80 °C; 0.45 MPa)	ISO 75	°C	110

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Property, Test Condition	Standard	Unit	Values
Coefficient of Linear Thermal Expansion	ISO 11359	10^{-6}/°C	90
Thermal Conductivity	DIN 52612-1	W/(m K)	0.17
Electrical Properties			
Dielectric Strength, Short Time, 1.5 mm	IEC 60243-1	kV/mm	41
Comparative Tracking Index	IEC 60112	V	600
Volume Resistivity	IEC 62631-3-1	Ohm*m	$>10^{13}$
Other Properties			
Density	ISO 1183	kg/m³	1050
Moisture Absorption, Equilibrium 23 °C/50% RH	ISO 62	%	0.25
UL94 rating at 1.5 mm thickness	IEC 60695-11-10	-	HB
Processing			
Linear Mold Shrinkage	ISO 294-4	%	0.4 - 0.7
Melt Temperature Range	ISO 294	°C	230 - 260
Mold Temperature Range	ISO 294	°C	60 - 80
Injection Velocity	ISO 294	mm/s	200
Drying Temperature	-	°C	80
Drying Time	-	h	2 - 4
Max Service Temperature	-	°C	90

Typical values for uncolored products

SUPPLY FORM

Novodur® is delivered in the form of cylindrical, spherical, or cubical pellets. The bulk density of the pellets is from 0.55 to 0.65 g/cm³. Values may differ for special grades. Standard Packaging unit: 25 kg PE-bag on palette, shrunk or wrapped with PE film. In addition, delivery in larger units of up to 1000 kg (IBC = Intermediate Bulk Container) or silo trucks can be arranged. In dry areas with normal temperature control, Novodur pellets can be stored for relatively long periods of time without any change in mechanical properties. With unstable colors, however, storage over a number of years can give rise to some change in color. Under poor storage conditions, Novodur absorbs moisture, but this can be removed by drying.

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PRODUCT SAFETY

No adverse effects on the health of processing personnel have been observed where the products are correctly processed and the production areas are suitably ventilated. For styrene, alpha-methylstyrene, acrylonitrile, and butyl acrylate the maximum allowable workplace concentrations must be observed according to the pertaining national regulations. In Germany, the following limit values are valid TRGS 900 (Aug. 2004): styrene, MAK-value: 20 ml/m³; alpha-methylstyrene, MAK-value: 100 ml/m³; acrylonitrile, TRK-value: 3 ml/m³, and butyl acrylate, MAK-value: 2 ml/m³ (1.7.2004). According to EU directive 67/548/EEC, Annex I (2001), acrylonitrile is classified as carcinogenic, category 2 (´substances which should be regarded as if they are carcinogenic to man´). Experience has shown that when Novodur® is processed correctly with appropriate ventilation, the levels are far below the limits mentioned above. Inhalation of the vapors of degradation products which can arise on severe overheating of the materials or during purging out should be avoided. Further information can be found in the Novodur safety data sheets.

DISCLAIMER

The aforementioned data shall constitute the agreed contractual quality of the product sold by INEOS Styrolution at the time of passing of risk. INEOS Styrolution does not make any further warranty, representation or guarantee of any kind, express or implied, regarding the suitability of the product for any particular purpose or application and INEOS Styrolution disclaims all liability in connection therewith. The customer himself is required to verify whether or not the product is suitable for the further processing or application intended and whether or not the product complies with the relevant statutory requirements. Unless explicitly and individually otherwise agreed in writing, INEOS Styrolution's sole and exclusive liability with respect to its products is set forth in INEOS Styrolution's General Terms and Conditions for Sale.

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