

## DESCRIPTION

Novodur® HD 348 is an injection molding mass/emulsion ABS grade specifically designed for medical devices. It provides a combination of high gloss, stiffness and impact strength.

## FEATURES

- High gloss surface finish
- Broad processing window
- Excellent balance of impact and stiffness

## APPLICATIONS

- Components of intravenous (IV) systems
- Surgical instruments
- Diagnostic test kits

| Property, Test Condition                                   | Standard    | Unit                    | Values   |
|--|-------------|-------------------------|----------|
| <b>Rheological Properties</b>                              |             |                         |          |
| Melt Volume Rate 220 °C/10 kg                              | ISO 1133    | cm <sup>3</sup> /10 min | 18       |
| <b>Mechanical Properties</b>                               |             |                         |          |
| Charpy Notched Impact Strength, 23°C                       | ISO 179/1eA | kJ/m <sup>2</sup>       | 20       |
| Charpy Notched Impact Strength, -30°C                      | ISO 179/1eA | kJ/m <sup>2</sup>       | 7        |
| Tensile Stress at Yield, 23°C                              | ISO 527     | MPa                     | 49       |
| Tensile Stress at Break, 23°C                              | ISO 527     | MPa                     | 35       |
| Tensile Strain at Break, 23°C                              | ISO 527     | %                       | 25       |
| Tensile Modulus  | ISO 527     | MPa                     | 2,500    |
| <b>Thermal Properties</b>                                  |             |                         |          |
| Vicat Softening Temperature VST/B/50 (50N, 50°C/h)         | ISO 306     | °C                      | 97       |
| Heat Deflection Temperature, (annealed 4h/80°C; 1.8 MPa)   | ISO 75-2/Af | °C                      | 97       |
| Heat Deflection Temperature, (annealed 4h/80°C; 0.455 MPa) | ISO 75-2/Bf | °C                      | 100      |
| Coefficient of Linear Thermal Expansion                    | ISO 11359   | 10 <sup>-6</sup> /°C    | 80 - 110 |
| <b>Other Properties</b>                                    |             |                         |          |
| Specular Gloss (60°)                                       | ASTM D523   | %                       | 97       |
| Specular Gloss (20°)                                       | ASTM D523   | %                       | 88       |
| Density  | ISO 1183    | kg/m <sup>3</sup>       | 1,040    |
| Moisture Absorption, Equilibrium 23 °C/50% RH              | ISO 62      | %                       | 0.22     |

The nominal properties listed are typical of the natural color product but should not be used for specification purposes.

## SUPPLY FORM

Novodur® ABS is delivered in the form of cylindrical or spherical pellets. The bulk density of the pellets is from 0.55 to 0.65 g/cm<sup>3</sup>. 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® ABS 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® ABS absorbs moisture, but this can be removed by drying.

## 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/m<sup>3</sup>; alpha-methylstyrene, MAK-value: 100 ml/m<sup>3</sup>; acrylonitrile, TRK-value: 3 ml/m<sup>3</sup>, and butyl acrylate, MAK-value: 2 ml/m<sup>3</sup> (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 above-mentioned data are accurate to the best of our knowledge. They are based upon reputable labs and industry standard testing methods. These are only typical values and actual product specification may deviate at industrial range. Therefore, no data in this technical data sheet shall constitute a warranty or representation regarding product features, fitness of the product for a specific purpose or application or its processability. 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.