

# Novodur ECO P2H-AT MR50

Acrylonitrile Butadiene Styrene (ABS)

## TECHNICAL DATASHEET

### DESCRIPTION

Novodur® ECO P2H-AT MR50 is a general purpose injection molding grade providing high flowability available in black and anthracite colour. It is designed for best aesthetics: stable high gloss and smooth finish. The product contains 50% post-consumer mechanically recycled ABS and has received RecyClass certification.

### FEATURES

- Balanced properties
- Easy processing
- Good paintability
- High gloss

### APPLICATIONS

- Housings for electrical & electronic devices
- Electrical and electronic components, switches, house automation
- Coffee machines
- Vacuum cleaner housings
- Cosmetic packaging

| Property, Test Condition                                         | Standard    | Unit       | Values |
|------------------------------------------------------------------|-------------|------------|--------|
| <b>Sustainability Properties</b>                                 |             |            |        |
| Carbon Footprint Reduction vs Fossil-Based (3rd party validated) | ISO 14044   | %          | 38     |
| Post-Consumer Recycled ABS Content (RecyClass-certified)         | -           | %          | 50     |
| <b>Rheological Properties</b>                                    |             |            |        |
| Melt Volume Rate 220 °C/10 kg                                    | ISO 1133    | cm³/10 min | 33     |
| <b>Mechanical Properties</b>                                     |             |            |        |
| Charpy Notched Impact Strength, 23° C                            | ISO 179/1eA | kJ/m²      | 18     |
| Charpy Notched Impact Strength, -30 °C                           | ISO 179/1eA | kJ/m²      | 8      |
| Charpy Unnotched, 23 °C                                          | ISO 179/1eU | kJ/m²      | 80     |
| Charpy Unnotched, -30 °C                                         | ISO 179/1eU | kJ/m²      | 70     |
| Tensile Modulus                                                  | ISO 527     | MPa        | 2500   |
| Tensile Stress at Yield, 23 °C                                   | ISO 527     | MPa        | 45     |
| Tensile Strain at Yield, 23 °C                                   | ISO 527     | %          | 2.2    |
| Tensile Stress at Break, 23 °C                                   | ISO 527     | MPa        | 38     |
| Nominal Strain at Break, 23 °C                                   | ISO 527     | %          | 6      |
| Flexural Modulus, 23 °C                                          | ISO 178     | MPa        | 2400   |

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| Property, Test Condition                                      | Standard   | Unit              | Values    |
|---------------------------------------------------------------|------------|-------------------|-----------|
| Flexural Strength, 23 °C                                      | ISO 178    | MPa               | 70        |
| Hardness, Ball Indentation                                    | ISO 2039-1 | MPa               | 85        |
| <b>Thermal Properties</b>                                     |            |                   |           |
| Vicat Softening Temperature, VST/B/120 (50N, 120 °C/h)        | ISO 306    | °C                | 98        |
| Vicat Softening Temperature VST/B/50 (50N, 50 °C/h)           | ISO 306    | °C                | 96        |
| Heat Deflection Temperature A; (annealed 4 h/80 °C; 1.8 MPa)  | ISO 75     | °C                | 91        |
| Heat Deflection Temperature B; (annealed 4 h/80 °C; 0.45 MPa) | ISO 75     | °C                | 95        |
| <b>Other Properties</b>                                       |            |                   |           |
| Density                                                       | ISO 1183   | kg/m <sup>3</sup> | 1050      |
| <b>Processing</b>                                             |            |                   |           |
| 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   |
| Drying Temperature                                            | -          | °C                | 80        |
| Drying Time                                                   | -          | h                 | 2 - 4     |

Typical values for uncolored products

Please note that all processing data stated are only indicative and may vary depending on the individual processing complexities. Please consult our local sales or technical representatives for details.

## SUPPLY FORM

Novodur® ECO 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 ECO 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 ECO 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

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(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® ECO 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 ECO 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.