

## Luran HD 20

Styrene Acrylonitrile (SAN)

## TECHNICAL DATASHEET

### DESCRIPTION

Luran® HD 20 is an easy-flow grade of SAN especially designed for the medical market. It is suitable for moldings with very thin walls and / or adverse flow length to wall ratio. It features very good transparency and a light intrinsic color.

### FEATURES

- Full HD Service Package
- Easy flow
- Excellent transparency
- Good chemical resistance
- Resistant to beta and gamma sterilization
- Very good dimensional stability

### APPLICATIONS

- Sample holders
- Inhalator housings
- Vakuum vials

| 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 | 22     |
| <b>Mechanical Properties</b>          |             |                         |        |
| Izod Notched Impact Strength, 23 °C   | ISO 180/A   | kJ/m <sup>2</sup>       | 2      |
| Izod Notched Impact Strength, -30 °C  | ISO 180/A   | kJ/m <sup>2</sup>       | 2      |
| Charpy Notched Impact Strength, 23° C | ISO 179/1eA | kJ/m <sup>2</sup>       | 2      |
| Charpy Unnotched, 23 °C               | ISO 179/1eU | kJ/m <sup>2</sup>       | 16     |
| Charpy Unnotched, -30 °C              | ISO 179/1eU | kJ/m <sup>2</sup>       | 16     |
| Tensile Stress at Yield, 23 °C        | ISO 527     | MPa                     | 72     |
| Tensile Strain at Break, 23 °C        | ISO 527     | %                       | 3      |
| Tensile Modulus                       | ISO 527     | MPa                     | 3700   |
| Tensile Creep Modulus (1000h)         | ISO 899     | MPa                     | 2800   |
| Tensile Creep Modulus (1h)            | ISO 899     | MPa                     | 3500   |
| Flexural Strength, 23 °C              | ISO 178     | MPa                     | 120    |
| Hardness, Ball Indentation            | ISO 2039-1  | MPa                     | 165    |
| <b>Thermal Properties</b>             |             |                         |        |

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|---------------------------------------------------------------|---------------|----------------------|------------------|
| Vicat Softening Temperature VST/B/50 (50N, 50 °C/h)           | ISO 306       | °C                   | 106              |
| Heat Deflection Temperature A; (annealed 4 h/80 °C; 1.8 MPa)  | ISO 75        | °C                   | 86               |
| Heat Deflection Temperature B; (annealed 4 h/80 °C; 0.45 MPa) | ISO 75        | °C                   | 99               |
| Coefficient of Linear Thermal Expansion                       | ISO 11359     | 10 <sup>-6</sup> /°C | 70               |
| Thermal Conductivity                                          | DIN 52612-1   | W/(m K)              | 0.17             |
| <b>Electrical Properties</b>                                  |               |                      |                  |
| Dielectric Constant (100 Hz)                                  | IEC 62631-2-1 | -                    | 3                |
| Dissipation Factor (100 Hz)                                   | IEC 62631-2-1 | 10 <sup>-4</sup>     | 40               |
| Dissipation Factor (1 MHz)                                    | IEC 62631-2-1 | 10 <sup>-4</sup>     | 70               |
| Volume Resistivity                                            | IEC 62631-3-1 | Ohm*m                | 10 <sup>14</sup> |
| <b>Optical Properties</b>                                     |               |                      |                  |
| Refractive Index, Sodium D Line                               | ISO 489       | -                    | 1.569            |
| <b>Other Properties</b>                                       |               |                      |                  |
| Density                                                       | ISO 1183      | kg/m <sup>3</sup>    | 1080             |
| Bulk Density (with external lubricant)                        | -             | kg/m <sup>3</sup>    | 650              |
| Moisture Absorption, Equilibrium 23 °C/50% RH                 | ISO 62        | %                    | 0.2              |
| <b>Processing</b>                                             |               |                      |                  |
| Linear Mold Shrinkage                                         | ISO 294-4     | %                    | 0.3 - 0.7        |
| Melt Temperature Range                                        | ISO 294       | °C                   | 220 - 260        |
| Mold Temperature Range                                        | ISO 294       | °C                   | 40 - 80          |
| Injection Velocity                                            | ISO 294       | mm/s                 | 200              |
| 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.

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### SUPPLY FORM

Luran® HH is supplied as cylindrical or lenticular pellets. The bulk density is approx. 0.55-0.65 g/cm<sup>3</sup>. Standard pack: 25 kg PE sack, palletized and film-secured. PE bags should not be stored outside. Subject to agreement, other means of packing are possible, e.g. 1000 kg bulk containers (flexible IBCs or intermediate bulk big bag containers); shipping by road tanker can be arranged. Luran® pellets can be stored for prolonged periods in dry areas subject to normal temperature control without any changes in mechanical properties. However, for sensitive colors storage over some years can cause some color change. Under poor storage conditions, Luran absorbs moisture, which can be removed again by drying. Packs stored in cold areas should be brought to ambient temperature before opening, to prevent condensation on the pellets.

### PROCESSING

Luran HD 20 is primarily processed through injection molding but any process suitable for thermoplastic molding compositions may also be used.

### PRODUCT SAFETY

Given appropriate processing of the products and suitable ventilation measures in production areas, no adverse effects on the health of process operators have been found. Workplace limits for styrene and acrylonitrile, as given in the national listings applicable, must be adhered to. The values currently applicable in Germany under TRGS 900 (issue of October, 2002) for maximum workplace concentrations are as follows. Styrene: 20 ml/m<sup>3</sup> = 86 mg/m<sup>3</sup>; acrylonitrile: 3 ml/m<sup>3</sup> = 7 mg/m<sup>3</sup>. Appendix I of Directive 67/548/EWG and TRGS 905 (issue of October, 2002) classify acrylonitrile in carcinogenic category II (substances which should be regarded as carcinogenic in humans). Experience has shown that during appropriate processing of Luran with suitable ventilation the values obtained are well below the limits mentioned above. TRGS 402 (Germany) can be used for determining and assessing the concentrations of hazardous substances in the air within working areas. Inhalation of gaseous degradation products, such as those which may arise on severe overheating of the material or during pumped evacuation, must be avoided. Further information can be found in our Luran 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.