

## Technical Data Sheet

### Polyflam SDR 5000 NAT



Polystyrene, High Impact

#### Product Description

Flame-retardant high impact polystyrene (HIPS) without PBDE; without HBCD.

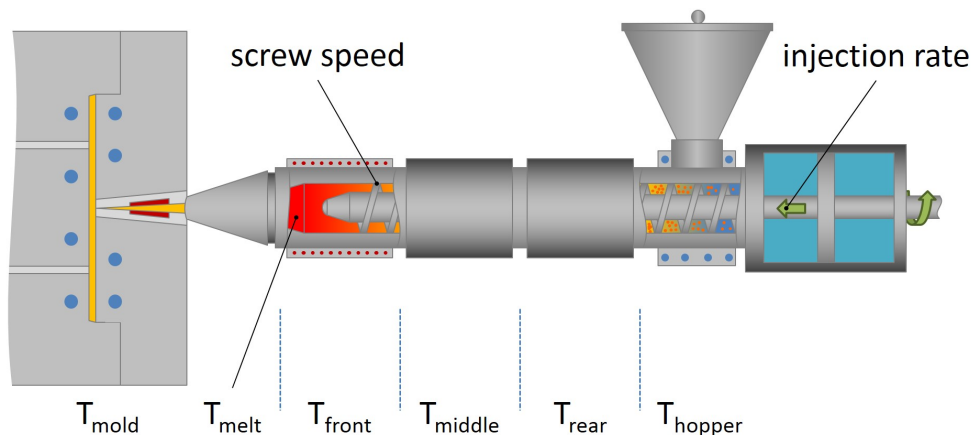
#### Regulatory Status

For regulatory compliance information, see *Polyflam SDR 5000 NAT* [Product Stewardship Bulletin \(PSB\)](#) and [Safety Data Sheet \(SDS\)](#).

|                          |                                                                        |
|--------------------------|------------------------------------------------------------------------|
| <b>Status</b>            | Commercial: Active                                                     |
| <b>Availability</b>      | Africa-Middle East; Asia-Pacific; Europe; Latin America; North America |
| <b>Processing Method</b> | Injection Molding                                                      |
| <b>Attribute</b>         | Good Flow; Good Processability; High Impact Resistance                 |
| <b>Additive</b>          | Flame Retardant                                                        |

| Typical Properties                                                  | Nominal Value | Units                   | Test Method    |
|---------------------------------------------------------------------|---------------|-------------------------|----------------|
| <b>Physical</b>                                                     |               |                         |                |
| Melt Volume Flow Rate, (200 °C/5.0 kg)                              | 13            | cm <sup>3</sup> /10 min | ISO 1133       |
| Density, (Method A)                                                 | 1.08          | g/cm <sup>3</sup>       | ISO 1183       |
| <b>Mechanical</b>                                                   |               |                         |                |
| Tensile Stress at Yield, (Type 1A, 50 mm/min)                       | 28.0          | MPa                     | ISO 527-2      |
| Tensile Strain at Yield, (Type 1A, 50 mm/min)                       | 1.7           | %                       | ISO 527-2      |
| Tensile Modulus, (1 mm/min, Type 1A)                                | 2400          | MPa                     | ISO 527-1      |
| <b>Impact</b>                                                       |               |                         |                |
| Charpy Impact Strength - Notched                                    |               |                         |                |
| (23 °C, Type 1, Edgewise, Notch A)                                  | 5.0           | kJ/m <sup>2</sup>       | ISO 179        |
| (-30 °C, Type 1, Edgewise, Notch A)                                 | 3.0           | kJ/m <sup>2</sup>       | ISO 179        |
| Charpy Impact Strength - Unnotched                                  |               |                         |                |
| (23 °C, Type 1, Edgewise)                                           | 60            | kJ/m <sup>2</sup>       | ISO 179        |
| (-30 °C, Type 1, Edgewise)                                          | 41            | kJ/m <sup>2</sup>       | ISO 179        |
| <b>Hardness</b>                                                     |               |                         |                |
| Ball Pressure Test, (80 °C)                                         | Pass          |                         | IEC 60695-10-2 |
| <b>Thermal</b>                                                      |               |                         |                |
| Vicat Softening Temperature                                         |               |                         |                |
| (B (50N), 50 °C/h)                                                  | 85.0          | °C                      | ISO 306        |
| (A (10N), 50 °C/h)                                                  | 92.0          | °C                      | ISO 306        |
| Deflection Temperature Under Load Unannealed (0.45 MPa), (Flatwise) | 78.0          | °C                      | ISO 75-2/B     |
| Deflection Temperature Under Load Unannealed (1.80 MPa), (Flatwise) | 70.0          | °C                      | ISO 75-2/A     |
| RTI Elec                                                            |               |                         |                |
| (1.5 mm)                                                            | 50.0          | °C                      | UL 746B        |
| (3.0 mm)                                                            | 50.0          | °C                      | UL 746B        |

|                                  |          |        |                      |
|----------------------------------|----------|--------|----------------------|
| RTI Imp                          |          |        |                      |
| (1.5 mm)                         | 50.0     | °C     | UL 746B              |
| (3.0 mm)                         | 50.0     | °C     | UL 746B              |
| RTI Str                          |          |        |                      |
| (1.5 mm)                         | 50.0     | °C     | UL 746B              |
| (3.0 mm)                         | 50.0     | °C     | UL 746B              |
| <b>Electrical</b>                |          |        |                      |
| Volume Resistivity               | >1.0E+13 | ohm*m  | IEC 62631-3-1        |
| Comparative Tracking Index (CTI) | 375      | V      | IEC 60112            |
| High Amp Arc Ignition            |          |        | UL 746A              |
| Surface Resistivity              | >1.0E+15 | ohm    | IEC 60093            |
| <b>Flammable</b>                 |          |        |                      |
| Hot-wire Ignition (HWI)          |          |        | UL 746A              |
| Burning Rate                     |          |        |                      |
| (2.00 mm, Self-Extinguishing)    | 0.0      | mm/min | FMVSS 302            |
| (2.00 mm, Self-Extinguishing)    | 0.0      | mm/min | ISO 3795             |
| Glow Wire Flammability Index     |          |        |                      |
| (1.5 mm)                         | 960      | °C     | IEC 60695-2-12       |
| (3.0 mm)                         | 960      | °C     | IEC 60695-2-12       |
| Glow Wire Ignition Temperature   |          |        |                      |
| (1.5 mm)                         | 650      | °C     | IEC 60695-2-13       |
| (3.0 mm)                         | 650      | °C     | IEC 60695-2-13       |
| Oxygen Index                     | 24       | %      | ISO 4589-2           |
| <b>UL Information</b>            |          |        |                      |
| Flame Rating                     |          |        |                      |
| (1.5 mm)                         | V-2      |        | UL 94                |
| (3.0 mm)                         | V-2      |        | UL 94                |
| Flammability Classification      |          |        |                      |
| (1.5 mm)                         | V-2      |        | IEC 60695-11-10, -20 |
| (3.0 mm)                         | V-2      |        | IEC 60695-11-10, -20 |
| UL File Number                   | E86615   |        |                      |



| Injection Parameters | Nominal |       |
|----------------------|---------|-------|
|                      | Value   | Units |

|                        |                   |        |
|------------------------|-------------------|--------|
| Drying Time            | 2.0 to 4.0        | hr     |
| Drying Temperature     | 70 to 80          | °C     |
| Screw Speed            | <250              | mm/sec |
| Processing (Melt) Temp | 180 to 210        | °C     |
| Injection Rate         | Slow-<br>Moderate |        |
| Back Pressure          | 5.00 to 10.0      | MPa    |
| Mold Temperature       | 30 to 60          | °C     |

## Notes

These are typical property values not to be construed as specification limits.

## Processing notes

Melt contacting surfaces should be made of a high quality, corrosive resistant steel. Positive experiences have been made with steel qualities containing > 12% chromium.

Avoid processing at very barrel high temperatures or above the recommended melt temperature range as this can increase risk of deposit onto the tool surfaces. Avoid long residence times. At start and end of production, it is recommended to purge clean with non-flame retardant polymer or a polyolefin.

## Processing Techniques

Specific recommendations for resin type and processing conditions can only be made when the end use, required properties and fabrication equipment are known.

## Company Information

For further information regarding the LyondellBasell company, please visit <http://www.lyb.com/>.

© LyondellBasell Industries Holdings, B.V. 2018

## Disclaimer

Information in this document is accurate to the best of our knowledge at the date of publication. The document is designed to provide users general information for safe handling, use, processing, storage, transportation, disposal and release and does not constitute any warranty or quality specification, either express or implied, including any warranty of merchantability or fitness for any particular purpose. Users shall determine whether the product is suitable for their use and can be used safely and legally.

In addition to any prohibitions of use specifically noted in this document, LyondellBasell may further prohibit or restrict the sale of its products into certain applications. For further information, please contact a LyondellBasell representative.

## Trademarks

The Trademark referenced within the product name is owned or used by the LyondellBasell family of companies.