

## Technical Data Sheet



# Polyflam SDR 5005

General Purpose Polystyrene  
LyondellBasell Industries  
Engineering Plastics

### Product Description

Flame retardant PS standard grade, without PBDE and HBCD, free of antimony

### General

|                   |                                          |                             |                 |
|-------------------|------------------------------------------|-----------------------------|-----------------|
| Material Status   | • Commercial: Active                     |                             |                 |
| Availability      | • Africa & Middle East<br>• Asia Pacific | • Europe<br>• Latin America | • North America |
| Features          | • Antimony Free<br>• Flame Retardant     |                             |                 |
| UL File Number    | • E86615                                 |                             |                 |
| Processing Method | • Injection Molding                      |                             |                 |

| Physical                                   | Nominal Value (English)   | Nominal Value (SI)        | Test Method     |
|--------------------------------------------|---------------------------|---------------------------|-----------------|
| Density                                    | 1.06 g/cm <sup>3</sup>    | 1.06 g/cm <sup>3</sup>    | ISO 1183/A      |
| Melt Volume-Flow Rate (MVR) (200°C/5.0 kg) | 13 cm <sup>3</sup> /10min | 13 cm <sup>3</sup> /10min | ISO 1133        |
| Mechanical                                 | Nominal Value (English)   | Nominal Value (SI)        | Test Method     |
| Tensile Modulus                            | 370000 psi                | 2550 MPa                  | ISO 527-1/1A/1  |
| Tensile Stress                             |                           |                           |                 |
| Yield                                      | 4790 psi                  | 33.0 MPa                  | ISO 527-2/1A/50 |
| Break                                      | 3920 psi                  | 27.0 MPa                  | ISO 527-2/50    |
| Tensile Strain (Yield)                     | 1.6 %                     | 1.6 %                     | ISO 527-2/1A/50 |
| Nominal Tensile Strain at Break            | 35 %                      | 35 %                      | ISO 527-2/50    |
| Flexural Modulus <sup>1</sup>              | 392000 psi                | 2700 MPa                  | ISO 178         |
| Flexural Stress <sup>1</sup>               |                           |                           | ISO 178         |
| 5.3% Strain                                | 7250 psi                  | 50.0 MPa                  |                 |
| 3.5% Strain                                | 7110 psi                  | 49.0 MPa                  |                 |
| Impact                                     | Nominal Value (English)   | Nominal Value (SI)        | Test Method     |
| Charpy Notched Impact Strength             |                           |                           | ISO 179/1eA     |
| -22°F (-30°C)                              | 2.4 ft·lb/in <sup>2</sup> | 5.0 kJ/m <sup>2</sup>     |                 |
| 73°F (23°C)                                | 3.3 ft·lb/in <sup>2</sup> | 7.0 kJ/m <sup>2</sup>     |                 |
| Charpy Unnotched Impact Strength           |                           |                           | ISO 179/1eU     |
| -22°F (-30°C)                              | 29 ft·lb/in <sup>2</sup>  | 60 kJ/m <sup>2</sup>      |                 |
| 73°F (23°C)                                | 33 ft·lb/in <sup>2</sup>  | 70 kJ/m <sup>2</sup>      |                 |
| Thermal                                    | Nominal Value (English)   | Nominal Value (SI)        | Test Method     |
| Deflection Temperature Under Load          |                           |                           |                 |
| 66 psi (0.45 MPa), Unannealed              | 174 °F                    | 79.0 °C                   | ISO 75-2/Bf     |
| 264 psi (1.8 MPa), Unannealed              | 163 °F                    | 73.0 °C                   | ISO 75-2/Af     |
| Vicat Softening Temperature                |                           |                           |                 |
| --                                         | 185 °F                    | 85.0 °C                   | ISO 306/B50     |
| --                                         | 198 °F                    | 92.0 °C                   | ISO 306/A50     |
| RTI Elec                                   |                           |                           | UL 746B         |
| 0.06 in (1.5 mm)                           | 122 °F                    | 50.0 °C                   |                 |
| 0.12 in (3.0 mm)                           | 122 °F                    | 50.0 °C                   |                 |
| RTI Imp                                    |                           |                           | UL 746B         |
| 0.06 in (1.5 mm)                           | 122 °F                    | 50.0 °C                   |                 |
| 0.12 in (3.0 mm)                           | 122 °F                    | 50.0 °C                   |                 |
| RTI Str                                    |                           |                           | UL 746B         |
| 0.06 in (1.5 mm)                           | 122 °F                    | 50.0 °C                   |                 |
| 0.12 in (3.0 mm)                           | 122 °F                    | 50.0 °C                   |                 |

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| Electrical                              | Nominal Value (English) | Nominal Value (SI) | Test Method          |
|-----------------------------------------|-------------------------|--------------------|----------------------|
| Surface Resistivity                     | > 1.0E+15 ohms          | > 1.0E+15 ohms     | IEC 60093            |
| Volume Resistivity                      | > 1.0E+13 ohms·m        | > 1.0E+13 ohms·m   | IEC 62631-3-1        |
| Comparative Tracking Index              | 375 V                   | 375 V              | IEC 60112            |
| High Amp Arc Ignition (HAI)             |                         |                    | UL 746A              |
| 0.06 in (1.5 mm)                        | PLC 1                   | PLC 1              |                      |
| 0.12 in (3.0 mm)                        | PLC 1                   | PLC 1              |                      |
| Hot-wire Ignition (HWI)                 |                         |                    | UL 746A              |
| 0.06 in (1.5 mm)                        | PLC 3                   | PLC 3              |                      |
| 0.12 in (3.0 mm)                        | PLC 2                   | PLC 2              |                      |
| Flammability                            | Nominal Value (English) | Nominal Value (SI) | Test Method          |
| Burning Rate                            |                         |                    |                      |
| 0.0787 in (2.00 mm), Self-Extinguishing | 0.0 in/min              | 0.0 mm/min         | ISO 3795             |
| 0.0787 in (2.00 mm), Self-Extinguishing | 0.0 in/min              | 0.0 mm/min         | FMVSS 302            |
| Flame Rating                            |                         |                    | UL 94                |
| 0.06 in (1.5 mm)                        | V-2                     | V-2                | IEC 60695-11-10, -20 |
| 0.12 in (3.0 mm)                        | V-2                     | V-2                |                      |
| Glow Wire Flammability Index            |                         |                    | IEC 60695-2-12       |
| 0.06 in (1.5 mm)                        | 1760 °F                 | 960 °C             |                      |
| 0.12 in (3.0 mm)                        | 1760 °F                 | 960 °C             |                      |
| Glow Wire Ignition Temperature          |                         |                    | IEC 60695-2-13       |
| 0.06 in (1.5 mm)                        | 1560 °F                 | 850 °C             |                      |
| 0.12 in (3.0 mm)                        | 1250 °F                 | 675 °C             |                      |
| Oxygen Index                            | 25 %                    | 25 %               | ISO 4589-2           |

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| Injection              | Nominal Value (English) | Nominal Value (SI) |
|------------------------|-------------------------|--------------------|
| Drying Temperature     | 158 to 176 °F           | 70 to 80 °C        |
| Drying Time            | 2.0 to 4.0 hr           | 2.0 to 4.0 hr      |
| Processing (Melt) Temp | 356 to 410 °F           | 180 to 210 °C      |
| Mold Temperature       | 86 to 140 °F            | 30 to 60 °C        |
| Injection Rate         | Slow-Moderate           | Slow-Moderate      |
| Back Pressure          | 725 to 1450 psi         | 5.00 to 10.0 MPa   |
| Screw Speed            | < 591 in/min            | < 15 m/min         |

### Injection Notes

Mould surface contacting melt should  
be of non-corrosive steel (content of chrome > 12%)

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### Notes

<sup>1</sup> 0.079 in/min (2.0 mm/min)

### Notes

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

### 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.

### Product Storage and Handling

- Product should be stored in dry conditions at temperatures below 50°C and protected from UV-light
- Improper storage may bring damage to the packaging and can negatively affects on the quality of this product
- Keep material completely dry for good processing

### Company Information

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

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