# Radiflam® S FR 309 M BK

## Radici Group High Performance Polymers - Polyamide 6

### General Information

**Product Description**

PA6 flame retardant injection moulding grade. Halogen and phosphorus free. Deep Black colour.

Suitable for parts where fire retardancy is required. Typical applications include cable conduits and cable jacketings for transportation sector. Rated V-0 at 0.4 mm according to UL-94.

| General | | | |
|---|---|---|---|
| Additive | • Flame Retardant | | |
| Features | • Flame Retardant | • Halogen Free | • Low (to None) Phosphorus Content |
| Uses | • Conduit | • Jacketing | |
| Agency Ratings | • EN 45545 HL1-HL2-HL3-R22-R23 | • EU 2011/65/EC | • NF F 16-101 I2/F2 |
| RoHS Compliance | • RoHS Compliant | | |
| Appearance | • Black | | |
| Processing Method | • Extrusion | • Injection Molding | |
| Resin ID (ISO 1043) | • PA6 FR(30) | | |

### Properties [1]

| Physical | Dry | Conditioned | Unit | Test Method |
|---|---|---|---|---|
| Density | 1.16 | -- | g/cm³ | ISO 1183 |
| Molding Shrinkage | | | | ISO 294-4 |
| Across Flow | 1.0 | -- | % | |
| Flow | 1.0 | -- | % | |
| Water Absorption | | | | ISO 62 |
| Saturation, 73°F, 0.0787 in | 8.0 | -- | % | |
| Water Absorption | | | | ISO 62 |
| Equilibrium, 73°F, 0.0787 in, 50% RH | 2.0 | -- | % | |
| **Mechanical** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Tensile Modulus | 508000 | -- | psi | ISO 527-1/1A/1 |
| Tensile Stress (Yield) | 10900 | -- | psi | ISO 527-2/1A/50 |
| Tensile Strain (Yield) | 3.0 | -- | % | ISO 527-2/1A/50 |
| Nominal Tensile Strain at Break | 14 | -- | % | ISO 527-2/1A/50 |
| Flexural Modulus [2] | 479000 | -- | psi | ISO 178 |
| Flexural Stress [2] | 16000 | -- | psi | ISO 178 |
| **Impact** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength | | | | ISO 179/1eA |
| 73°F | 2.4 | -- | ft·lb/in² | |
| **Thermal** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Deflection Temperature Under Load | | | | ISO 75-2/Bf |
| 66 psi, Unannealed | 320 | -- | °F | |
| Deflection Temperature Under Load | | | | ISO 75-2/Af |
| 264 psi, Unannealed | 167 | -- | °F | |
| Vicat Softening Temperature | 383 | -- | °F | ISO 306/B50 |

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| Thermal | Dry | Conditioned | Unit | Test Method |
|---|---|---|---|---|
| Melting Temperature [3] | 428 | -- | °F | ISO 11357-3 |
| **Electrical** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Surface Resistivity (500 V) | 1.0E+12 | 1.0E+10 | ohms | IEC 62631-3-2 |
| Volume Resistivity (500 V) | 1.0E+13 | 1.0E+11 | ohms·m | IEC 62631-3-1 |
| **Flammability** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Burning Rate (0.118 in) | 0.0 | -- | in/min | ISO 3795 |
| Flame Rating | | | | UL 94 |
| 0.016 in | V-0 | -- | | |
| 0.031 in | V-0 | -- | | |
| Glow Wire Flammability Index | | | | IEC 60695-2-12 |
| 0.04 in | 1760 | -- | °F | |
| 0.08 in | 1760 | -- | °F | |
| Glow Wire Ignition Temperature | | | | IEC 60695-2-13 |
| 0.04 in | 1470 | -- | °F | |
| 0.08 in | 1470 | -- | °F | |
| Oxygen Index | 35 | -- | % | ISO 4589-2 |

## Processing Information

| Injection | Dry | Unit |
|---|---|---|
| Drying Temperature - Desiccant Dryer | 176 | °F |
| Drying Time - Desiccant Dryer | 2.0 to 4.0 | hr |
| Dew Point - Desiccant Dryer | < -4 | °F |
| Suggested Max Moisture | 0.10 | % |
| Processing (Melt) Temp | 464 to 536 | °F |
| Mold Temperature | 158 to 176 | °F |
| Injection Rate | Moderate | |
| **Extrusion** | **Dry** | **Unit** |
| Melt Temperature | 464 to 500 | °F |

### Notes

[1] Typical properties: these are not to be construed as specifications.

[2] 0.079 in/min

[3] 10°C/min