# Crastin® FR685NH1 OR162

## THERMOPLASTIC POLYESTER RESIN

Crastin® FR685NH1 OR162 is a 30% Glass Reinforced, Flame Retardant, Non-Halogenated, Polybutylene Terephthalate

## Product information

| | | |
|---|---|---|
| Resin Identification | PBT-GF30 FR(40+30) | ISO 1043 |
| Part Marking Code | >PBT-GF30 FR(40+30)< | ISO 11469 |
| Infrared spectrum | available | |

## Rheological properties

| | | | |
|---|---|---|---|
| Molding shrinkage, parallel | 0.5 | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | 1.3 | % | ISO 294-4, 2577 |

## Typical mechanical properties

| | | | |
|---|---|---|---|
| Tensile modulus | 1.68E6 | psi | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 14800 | psi | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 2.1 | % | ISO 527-1/-2 |
| Flexural modulus | 1.62E6 | psi | ISO 178 |
| Flexural strength | 23200 | psi | ISO 178 |
| Charpy impact strength, 23°C | 17.1 | ftlb/in² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 3.33 | ftlb/in² | ISO 179/1eA |
| Izod notched impact strength, 23°C | 3.33 | ftlb/in² | ISO 180/1A |
| Izod notched impact strength, -30°C | 3.33 | ftlb/in² | ISO 180/1A |

## Thermal properties

| | | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 433 | °F | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min | 131 | °F | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa | 401 | °F | ISO 75-1/-2 |
| Temperature of deflection under load, 0.45 MPa | 432 | °F | ISO 75-1/-2 |

## Flammability

| | | | |
|---|---|---|---|
| Burning Behav. at thickness h | V-0 | class | IEC 60695-11-10 |
| Thickness tested | 0.0157 | in | IEC 60695-11-10 |
| UL recognition | yes | | UL 94 |
| Glow Wire Flammability Index, 0.4mm | 1760 | °F | IEC 60695-2-12 |
| Glow Wire Flammability Index, 0.75mm | 1760 | °F | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.5mm | 1760 | °F | IEC 60695-2-12 |
| Glow Wire Flammability Index, 3.0mm | 1760 | °F | IEC 60695-2-12 |
| Glow Wire Ignition Temperature, 0.75mm | 1380 | °F | IEC 60695-2-13 |
| Glow Wire Ignition Temperature, 0.4mm | 1380 | °F | IEC 60695-2-12 |
| Glow Wire Ignition Temperature, 1.5mm | 1380 | °F | IEC 60695-2-13 |
| Glow Wire Ignition Temperature, 3.0mm | 1520 | °F | IEC 60695-2-13 |
| FMVSS Class | SE | | ISO 3795 (FMVSS 302) |

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## Electrical properties

| | | | |
|---|---|---|---|
| Comparative tracking index | 600 | | IEC 60112 |

## Physical/Other properties

| | | | |
|---|---|---|---|
| Humidity absorption, 2mm | 0.1[DS] | % | Sim. to ISO 62 |
| Water absorption, 2mm | 0.25[DS] | % | Sim. to ISO 62 |
| Density | 0.0567 | lb/in³ | ISO 1183 |

[DS]: Derived from similar grade

## Injection

| | | |
|---|---|---|
| Drying Recommended | yes | |
| Drying Temperature | 248 | °F |
| Drying Time, Dehumidified Dryer | 2 - 4 | h |
| Processing Moisture Content | ≤0.02 | % |
| Melt Temperature Optimum | 482 | °F |
| Min. melt temperature | 464 | °F |
| Max. melt temperature | 500 | °F |
| Mold Temperature Optimum | 176 | °F |
| Min. mold temperature | 140 | °F |
| Max. mold temperature | 266 | °F |
| Hold pressure range | ≥8700 | psi |
| Hold pressure time | 0.0762 | s/mil |
| Hold Pressure Time<br>(h is the max. wall thickness of the part in mm) | $h^2$+2 | s |
| Back pressure | as low as possible | psi |
| Ejection temperature | 338 | °F |

## Automotive

| OEM | STANDARD |
|---|---|
| Hyundai | MS941-03 Type F-5 FRV0 CTI0 |

## Characteristics

| | |
|---|---|
| Processing | Injection Molding |
| Additives | Release agent, Flame retardant, Non-halogenated/Red phosphorus free flame retardant |
| Special characteristics | Flame retardant |

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