SOLUTION SHOWCASE

Celanese

NEW GRADES OF CRASTIN® PBT FOR HIGH-VOLTAGE ELECTRIC AND HYBRID-ELECTRIC VEHICLE CONNECTORS

FULLY-COLOR-COMPOUNDED, UV LASER-MARKING-ENABLED CRASTIN® PBT GRADES MEET REQUIREMENTS FOR HIGH-VOLTAGE EV/HEV CONNECTOR APPLICATIONS

The newly introduced Crastin® PBT polyester resins from Celanese are fully-color-compounded products that meet automotive OEM safety requirements to clearly indicate high-voltage components in orange for use in hybrid, plug-in, and battery (HV, PEV, BEV) electric vehicles.

CRASTIN® PBT RESINS FOR EV/HEV CONNECTORS OFFER LONG-TERM RELIABILITY AND STRONG MECHANICAL PROPERTIES

Crastin® PBT FR684NH1 OR162 and Crastin® PBT HR5330HFS OR516 both offer best-in-class Comparative Tracking Index (CTI) performance of 600V for these demanding parts. They also provide increased productivity and long-term reliability.

Crastin® PBT FR684NH1 OR162 – 25% glass-reinforced, flame-retardant, non-halogenated, high-flow PBT in laser markable orange – benefits include:

- LONG-TERM RELIABILITY – component and orange color stability at elevated temperatures
- INCREASED SAFETY – stable dielectric strength over temperature and meets UL-94 V-0 flame-retardance standard
- MINIATURIZATION – enabled by maximum CTI (600V)
- COMPLEX SHAPES – high-flow capability allowing thinner walls, design flexibility, and size reduction (miniaturization)
- DESIGN FLEXIBILITY – demonstrates high elongation at break and good balance of mechanical properties
- INCREASED PRODUCTIVITY of fully-compounded orange components made possible by robust processing with minimum outgassing and corrosion through wider processing window versus competitive
  non-halogenated, flame-retardant PBT resins
- Easy part traceability – UV laser marking (355nm)

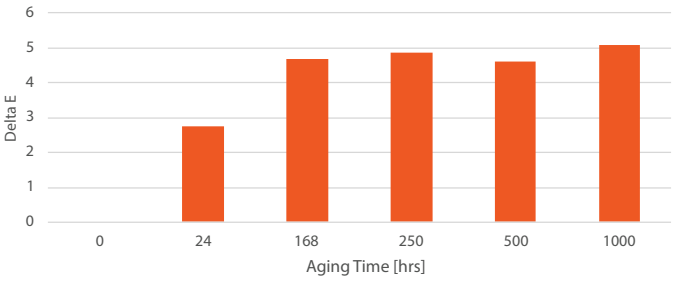
CRASTIN® PBT FR684NH1 OR162 / BK591 / NC010 PROPERTY

Property	Method	Crastin® PBT FR684NH1 OR162	Crastin® PBT FR684NH1 BK591	Crastin® PBT FR684NH1 NC010
Density	ISO 1183	1520kg/m3	1520kg/m3	1520kg/m3
Comparative Tracking Index	IEC 60112	600 V	600 V	600 V
Tensile Modulus	ISO 527	9500 Mpa	9200 Mpa	9400 Mpa
Stress at Break	ISO 527	96 Mpa	91 Mpa	95 Mpa
Strain at Break	ISO 527	2.5%	2.3%	2.5%
Impact Notched Charpy	ISO 179	7.4 KJ/m²	7 KJ/m²	7.5 KJ/m²
Burning Behavior Thickness Tested	IEC6095	V-0 0.75mm	V-0 0.8mm	V-0 0.8mm
Humidity Absorption, 2mm	ISO 62	0.1%	0.1%	0.1%
Water Absorption, 2mm	ISO 62	0.25%	0.25%	0.25%

Source: Celanese Lab

CRASTIN® PBT FR684NH1 OR162 - COLOR STABILITY AT 140°C (DRY)

Color Data: Thermal aging at 140°C Crastin® PBT FR684NH OR162



Less color change even after heat aging at 140°C for 1,000 hrs

Source: Celanese Lab

CRASTIN® PBT HR5330HFS OR516 – 30% GLASS-REINFORCED, HYDROLYSIS-RESISTANT, HIGH-FLOW PBT IN LASER-MARKABLE ORANGE – BENEFITS INCLUDE:

- LONG-TERM RELIABILITY – component and orange color stability at elevated temperatures
- PERFORMANCE IN HARSH ENVIRONMENTS enabled by best-in-class hydrolysis resistance (HR)
- INCREASED SAFETY – exhibits stable dielectric strength over temperature
- MINIATURIZATION AND DESIGN FLEXIBILITY – due to maximum CTI (600V) and high flow
- INCREASED PRODUCTIVITY of fully-compounded orange components made possible by robust processing with wider processing window and minimum outgassing versus competitive PBT HR resins, and best-in-class melt stability suitable for hot runner systems
- EASY PART TRACEABILITY – UV laser marking (355nm)

BROAD PRODUCT PORTFOLIO FOR EV CONNECTOR APPLICATIONS

THE CELANESE PRODUCT PORTFOLIO INCLUDES MATERIALS FOR NUMEROUS EV CONNECTOR APPLICATIONS:

TERMINAL CONNECTORS
- Zytel® HTN51G35EF
- Zytel® HTN51G35HSL

MOTOR CONNECTORS
- Zytel® HTN51G35EF

POWER CABLE CONNECTORS
- Zytel® HTN51G35EF
- Crastin® PBT HR5330HFS
- Crastin® PBT HR5315HFS

EV CONNECTORS
- Crastin® PBT FR684NH1
- Crastin® PBT T843FR
- Crastin® PBT SK695FR
- Zytel® PA FR50

BATTERY CONNECTORS
- Zytel® HTNFR42G30NH
- Zytel® HTNFR52G30NH
- Zytel® PA FR50

CHARGER HOUSING
- Zytel® PA FR50
- Zytel® 80G33L

HIGH TEMP / FLEX COATING
- Vamac® AEM Grades

Form No. 001-20212-HMC0123