SOLUTIONS FOR AUTOMOTIVE TANK FLAPS

NORYL GTX™ RESINS

NORYL GTX™ conductive resins consist of blends of modified polyphenylene ether polymer (PPE) and polyamide (PA).

These blends combine the long-term dimensional stability, low water absorption, low specific gravity and heat resistance of PPE with the chemical resistance and flow of PA polymer.

The result is an extremely chemically resistant material with the stiffness, impact resistance and heat performance required for on-line painting.

VALUE PROPOSITION

- System cost reduction vs. metal solutions
- Opportunity to paint within OEM paint-line
- Widely used solution (currently in production on more than 60 different platforms)

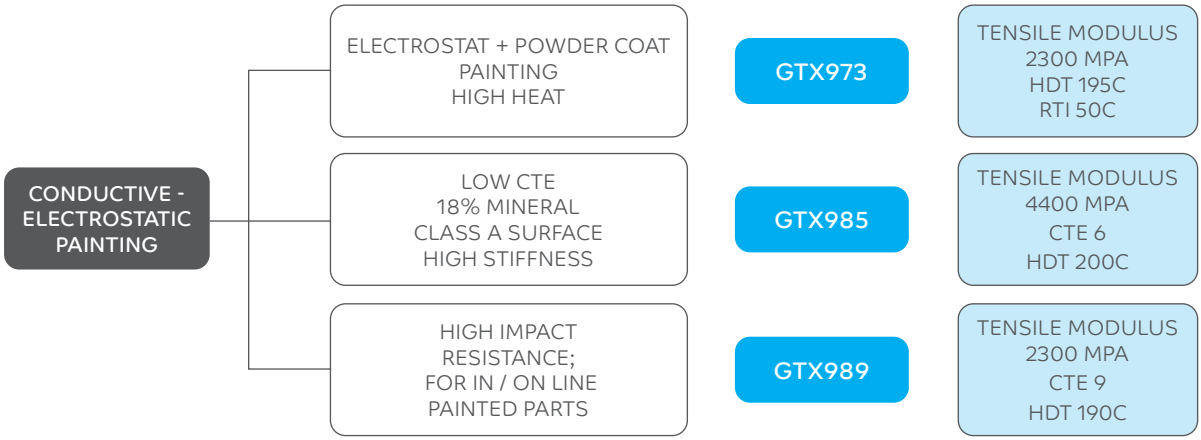
APPLICATION REQUIREMENTS

- Class A surface appearance
- Modulus (stiffness) over a range of temperatures: -40°C – 200°C
- Dimensional stability
- Chemical resistance
- Online painting: conductive for electrostatic painting
- Online painting: High HDT for e-coat and paint bake

KEY ATTRIBUTES

- Low temperature impact strength
- High heat resistance
- Chemical resistance
  - Broad chemical resistance to commonly used automotive fuels, greases, and oils
- On-line paint ability
  - Heat performance enables on-line painting
- Good long-term dimensional stability
- Class A surface appearance
- Very low water absorption
- Low creep behavior
  - Even in high-temperature environments

NORYL GTX™ RESIN - GRADE OFFERINGS



PROPERTY COMPARISON

KEY PROPERTIES	NORYL GTX973 Resin	NORYL GTX985 Resin	NORYL GTX989 Resin
MECHANICAL			
Tensile Modulus, 1 mm/min (ISO 527)	2300 MPa	4400 MPa	2300 MPa
IMPACT			
Izod Impact, notched, 23°C (ASTM D 256)	130 J/m	45 J/m	240 J/m
Izod Impact, notched, -30°C (ASTM D 256)	80 J/m	40 J/m	180 J/m
THERMAL			
HDT, 0.45 MPa, 3.2 mm, unannealed (ASTM D 648)	195 °C	200 °C	190 °C
Vicat Softening Temp, Rate B/120 (ISO 306)	200 °C	200 °C	200 °C
CTE, 23°C to 60°C, xflow (ISO 11359-2)	9.5E-05 1/°C	6.5E-05 1/°C	9.E-05 1/°C
CTE, 23°C to 60°C, flow (ISO 11359-2)	9.2E-05 1/°C	6.E-05 1/°C	9.E-05 1/°C
Ball Pressure Test, 125°C +/- 2°C (IEC 60695-10-2)	PASSES -	-	-
PHYSICAL			
Specific Gravity (ASTM D 792)	1.09 -	1.25 -	1.08 -
Melt Volume Rate, MVR at 280°C/5.0 kg (ISO 1133)	12 cm^3/10 min	15 cm^3/10 min	19 cm^3/10 min
Moisture Absorption (23°C / 50% RH) (ISO 62)	0,61%	1,10%	1,20%
Melt Flow Rate, 280°C/5.0 kgf (ASTM D 1238)	20 g/10 min	16 g/10 min	16 g/10 min

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