This grade has been developed to fulfil the requirements as set in the test program conducted on plastic materials to measure flammability characteristics. It determines the material’s tendency either to extinguish or to spread the flame once the specimen has been ignited. This program is described in UL 94 and this grade fulfills the V-0 criteria as from 1 mm thickness. Also this product fulfills the requirements as set out in the EN 45545-2 regulation- a standard specific applicable for railway applications - fire protection on railway vehicles.

**Physical properties (indicative values *)**

**PROPERTIES**

- Colour: Black
- Density: ISO 1183-1 g/cm³ 1.16
- Water absorption:
  - after 24 immersion in water of 23 ºC (1): ISO 62 % 0.44
  - at saturation in water of 23 ºC % 6.58
- Thermal Properties (2):
  - Melting point (DSC, 10 ºC/min): ISO 11357-1/3 ºC 264
  - Glass transition temperature (DSC, 20 ºC/min) : (3) ISO 11357-1/-2 ºC
  - Thermal conductivity at 23 ºC: W/(K-m) 0.37
  - Coefficient of linear thermal expansion:
    - average value between 23 and 60 ºC - m/(m.K) 80 ± 10-6
    - average value between 23 and 100 ºC - m/(m.K)
- Temperature of deflection under load:
  - method A: 1.8 MPa ISO 75-1/2 ºC 100
- Max. allowable service temperature in air:
  - continuously - for min. 20,000 h (4) ºC 80
  - Min. service temperature (5) ºC -30
- Flammability (6):
  - according to UL 94 (1 mm thickness) V-0

**Mechanical Properties at 23 ºC (7)**

- Tensile test (8):
  - tensile strength (9) ISO 527-1/2 MPa 79
  - tensile strain at yield(9) ISO 527-1/2 % 6.6
  - tensile strain at break (9) ISO 527-1/2 % 9
  - tensile modulus of elasticity (10) ISO 527-1/2 GPa 2980
- Compression test (11):
  - compressive stress at 1 / 2.5 % nominal strain (10) ISO 604 MPa 35 / 65 / 98
- Flexural test (12):
  - flexural strength ISO 178 MPa
  - flexural modulus of elasticity ISO 178 MPa
- Charpy impact strength - unnotched (13) ISO 179-1/14J kJ/m² 50
- Charpy impact strength - notched ISO 179-1/14A kJ/m²
- Rockwell hardness (14) ISO 2039-2 87
- Dynamic Coefficient of Friction (15)
- Wear rate ISO 7148-2 (15) mm³/kg

**Electrical Properties at 23 ºC (9)**

- Electric strength (16) IEC 60243-1 kV/mm 18
- Volume resistivity IEC 60093 Ohm.cm
- Surface resistivity ANSI/ESD STM 11.11 Ohm/sq > 10 E14
- Relative permittivity ε - at 1 MHz IEC 60250
- Dielectric dissipation factor tan δ - at 1 MHz IEC 60250

Note: 1 g/cm³ = 1.000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m.

**Mitsubishi Chemical Advanced Materials**