Physical properties (indication values *)

**PROPERTIES**

**Density**
- ISO 1183-1: g/cm³ 1.2

**Water absorption:**
- 24 hours in water at 23 °C: %
- 24 hours at 23 °C: % 0.65

**Thermal Properties:**

- **Coefficient of linear thermal expansion:**
  - ISO 11357-1/-3 °C: 1.2 x 10^-5

- **Thermal conductivity:**
  - 23 °C: W/(K.m) 0.19

- **Max. allowable service temperature in air:**
  - Continuously: for min. 20,000 h (4) °C 170

- **Min. service temperature (5):**
  - °C 40

- **Flammability:**
  - According to UL 94 (3 mm thickness) -

- **Mechanical Properties at 23 °C (7):**

  - **Torsion test (8);**
    - Torsional strength (1) ISO 527-1/2 MPa 20

  - **Compression test (11):**
    - Compressive stress at 1/2 % nominal strain (10) ISO 604 MPa 4.14/20

  - **Flexural test (12):**
    - Flexural strength ISO 178 MPa
    - Flexural modulus of elasticity ISO 178 MPa

  - **Impact strength,** unnotched (13)
    - ISO 179-1/4KJ m²/m²: no break
    - ISO 179-1/4KJ m²/m²: 90°

  - **Rockwell Hardness (14):**
    - ISO 2019-2

  - **Dynamic Coefficient of Friction (1):**
    - ISO 7148-2 (15)

- **Electrical Properties at 23 °C:**

  - **Electric strength (16)) IEC 60243-1 kV/mm 20**

  - **Volume resistivity EIC 60493 Ohm.cm x10^14**

  - **Surface resistivity ANSI/ESD STM 11.11 Ohm/ sq. x10^13**

  - **Relative permittivity:**
    - at 1 kHz IEC 60250:
    - 4.00

  - **Dielectric dissipation factor tan δ:**
    - at 1 MHz IEC 60250:
    - 0.04

- **LEGEND:**
  - According to method 1 of ISO 62 and done on discs Ø 50 mm x 3 mm.
  - The figures given for these properties are for the most part derived from raw material supplier data and other publications.
  - Values for this property are only given here for amorphous materials and for materials that do not show a melting temperature (PBI, PAI, PI).
  - Temperature resistance over a period of min. 20,000 hours. After this period of time, there is a decrease in tensile strength – measured at 23 °C – of about 50 % as compared with the original value.
  - Temperature values given in this text are based on the thermal-oxidative degradation which takes place and causes a reduction in properties. Note, however, that the maximum allowable service temperature depends on many factors essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected. Impact strength decreases with decreasing temperature, the minimum allowable service temperature is practically mainly determined by the extent to which the material is subjected to impact. The value given here is based on unfavorable impact conditions and may consequently not be considered as being the absolute practical limit.
  - These estimated ratings, derived from raw material supplier data and other publications, are not intended to reflect hazards presented by the material under actual fire conditions. There is no "UL File Number" available for these stock shapes.
  - Most of the figures given for these mechanical properties of the materials are average values of tests run on dry test specimens machined either out of plate 15-20 mm thick or rod diameter 40-50 mm, the test specimens were then taken from the stock shape with their length in longitudinal direction (parallel to the extrusion direction).
  - Test speed: either 4 or 50 mm/min (chosen acc. to ISO 10350-1) as a function of the ductile behaviour of the material (tough or brittle)
  - Test specimens: cylinders Ø 8 mm x 16 mm
  - Test specimens: bars 4 mm (thickness) x 10 mm x 80 mm; test speed: 2 mm/min; span: 64 mm.
  - Pendulum used: 4 J.
  - Measured on 10 mm thick test specimens.
  - Test procedure similar to Test Method A: "Pin-on-disk" as described in ISO 7148-6, Load 3MP, sliding velocity= 0.35 m/s, mating steel plate Ra= 0.7-0.9 μm, tested at 23 °C, 50%RH.
  - Electrode configuration: Ø 25 mm / Ø 75 mm coaxial cylinders, in transformer oil according to IEC 60296; 1 mm thick test specimens.

- **Note:** 1 g/cm³ = 1,000 kg/m³; 1 MPa = 1 N/mm²; 1 kV/mm = 1 MV/m.

**PRODUCT DATA SHEET**

**TPE 1055**

**MITSUBISHI CHEMICAL ADVANCED MATERIALS**

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