



# Makroblend® UT4045 G

/ (PC+PBT)-blend, 20% Glass fiber reinforced, easy release, injection molding. Makroblend UT4045G offers a high stiffness, excellent chemical resistance, good flowability and exceptional dimensional stability.

## ISO Shortname

| Property                           | Test Condition                                               | Unit                    | Standard      | typical Value |
|------------------------------------|--------------------------------------------------------------|-------------------------|---------------|---------------|
| <b>Rheological properties</b>      |                                                              |                         |               |               |
| C Melt volume-flow rate            | 260 °C; 5 kg                                                 | cm <sup>3</sup> /10 min | ISO 1133      | 30            |
| Molding shrinkage, parallel        | 150x105x3 mm; 260 °C / MT 80 °C; 600 bar                     | %                       | b.o. ISO 2577 | 0.2 - 0.4     |
| Molding shrinkage, normal          | 150x105x3 mm; 260 °C / MT 80 °C; 600 bar                     | %                       | b.o. ISO 2577 | 0.5 - 0.7     |
| Molding shrinkage, parallel/normal | Value range based on general practical experience (600bar)   | %                       | b.o. ISO 2577 | 0.2 - 0.6     |
| Post- shrinkage, parallel/normal   | Value range based on general practical experience (1h; 90°C) | %                       | b.o. ISO 2577 | <0.1          |

## Mechanical properties (23 °C/50 % r. h.)

|                                      |          |                   |              |      |
|--------------------------------------|----------|-------------------|--------------|------|
| C Tensile modulus                    | 1 mm/min | MPa               | ISO 527-1,-2 | 6500 |
| Yield stress                         | 5 mm/min | MPa               | ISO 527-1,-2 | 100  |
| Yield strain                         | 5 mm/min | %                 | ISO 527-1,-2 | 3    |
| Nominal strain at break              | 5 mm/min | %                 | ISO 527-1,-2 | 3    |
| C Stress at break                    | 5 mm/min | MPa               | ISO 527-1,-2 | 100  |
| C Strain at break                    | 5 mm/min | %                 | ISO 527-1,-2 | 3    |
| Flexural modulus                     | 2 mm/min | MPa               | ISO 178      | 6100 |
| Flexural strain at flexural strength | 2 mm/min | %                 | ISO 178      | 3    |
| Flexural strength                    | 2 mm/min | MPa               | ISO 178      | 160  |
| C Charpy impact strength             | 23 °C    | kJ/m <sup>2</sup> | ISO 179-1eU  | 45   |
| C Charpy impact strength             | -30 °C   | kJ/m <sup>2</sup> | ISO 179-1eU  | 40   |
| Izod impact strength                 | 23 °C    | kJ/m <sup>2</sup> | ISO 180-U    | 40   |
| Izod impact strength                 | -30 °C   | kJ/m <sup>2</sup> | ISO 180-U    | 35   |
| Izod notched impact strength         | 23 °C    | kJ/m <sup>2</sup> | ISO 180-A    | 6    |
| Izod notched impact strength         | -30 °C   | kJ/m <sup>2</sup> | ISO 180-A    | 6    |
| Ball indentation hardness            |          | N/mm <sup>2</sup> | ISO 2039-1   | 90   |

## Thermal properties

|                                                       |                |                     |                |      |
|-------------------------------------------------------|----------------|---------------------|----------------|------|
| C Temperature of deflection under load                | 1.80 MPa       | °C                  | ISO 75-1,-2    | 110  |
| C Temperature of deflection under load                | 0.45 MPa       | °C                  | ISO 75-1,-2    | 130  |
| Vicat softening temperature                           | 50 N; 120 °C/h | °C                  | ISO 306        | 140  |
| C Coefficient of linear thermal expansion, parallel   | 23 to 55 °C    | 10 <sup>-4</sup> /K | ISO 11359-1,-2 | 0.7  |
| C Coefficient of linear thermal expansion, transverse | 23 to 55 °C    | 10 <sup>-4</sup> /K | ISO 11359-1,-2 | 0.35 |

## Electrical properties (23 °C/50 % r. h.)

|                                  |            |                  |             |       |
|----------------------------------|------------|------------------|-------------|-------|
| C Relative permittivity          | 100 Hz     | -                | IEC 60250   | 3.6   |
| C Relative permittivity          | 1 MHz      | -                | IEC 60250   | 0.15  |
| C Dissipation factor             | 100 Hz     | 10 <sup>-4</sup> | IEC 60250   | 13    |
| C Dissipation factor             | 1 MHz      | 10 <sup>-4</sup> | IEC 60250   | 144   |
| C Volume resistivity             |            | Ohm·m            | IEC 60093   | >1E15 |
| C Surface resistivity            |            | Ohm              | IEC 60093   | >1E17 |
| C Electrical strength            | 1 mm       | kV/mm            | IEC 60243-1 | 33    |
| C Comparative tracking index CTI | Solution A | Rating           | IEC 60112   | 175   |

## Other properties (23 °C)

|                                        |                   |                   |                 |      |
|----------------------------------------|-------------------|-------------------|-----------------|------|
| C Water absorption (saturation value)  | Water at 23 °C    | %                 | ISO 62          | 0.3  |
| C Water absorption (equilibrium value) | 23 °C; 50 % r. h. | %                 | ISO 62          | 0.15 |
| C Density                              |                   | kg/m <sup>3</sup> | ISO 1183-1      | 1400 |
| Filler content                         | Method A          | %                 | b.o. ISO 3451-1 | 20   |





# Makroblend® UT4045 G

| Property                                 | Test Condition | Unit | Standard | typical Value |
|------------------------------------------|----------------|------|----------|---------------|
| Processing conditions for test specimens |                |      |          |               |
| C Injection molding-Melt temperature     |                | °C   | ISO 294  | 260           |
| C Injection molding-Mold temperature     |                | °C   | ISO 294  | 70            |
| C Injection molding-Injection velocity   |                | mm/s | ISO 294  | 200           |

C These property characteristics are taken from the CAMPUS plastics data bank and are based on the international catalogue of basic data for plastics according to ISO 10350.

Impact properties: N = non-break, P = partial break, C = complete break

