



# Makroblend® UT235 M

/ (PC+PET)-blend, 15% mineral filled, easy flow, low coefficient of linear thermal expansion, easy release, injection molding. Molded parts from UT235M having exceptional dimensional stability.

## ISO Shortname

| Property                                              | Test Condition                          | Unit                | Standard        | typical Value |
|-------------------------------------------------------|-----------------------------------------|---------------------|-----------------|---------------|
| <b>Rheological properties</b>                         |                                         |                     |                 |               |
| Melt volume-flow rate                                 | 270 °C; 5 kg                            | cm³/10 min          | ISO 1133        | 43            |
| Molding shrinkage, parallel                           | 150x105x3 mm; 270 °C / MT 70°C; 600 bar | %                   | b.o. ISO 2577   | 0.5 - 0.6     |
| Molding shrinkage, normal                             | 150x105x3 mm; 270 °C / MT 70°C; 600 bar | %                   | b.o. ISO 2577   | 0.5 - 0.6     |
| <b>Mechanical properties (23 °C/50 % r. h.)</b>       |                                         |                     |                 |               |
| C Tensile modulus                                     | 1 mm/min                                | MPa                 | ISO 527-1,-2    | 4500          |
| Yield stress                                          | 5 mm/min                                | MPa                 | ISO 527-1,-2    | 68            |
| Yield strain                                          | 5 mm/min                                | %                   | ISO 527-1,-2    | 3.5           |
| C Stress at break                                     | 5 mm/min                                | MPa                 | ISO 527-1,-2    | 67            |
| C Strain at break                                     | 5 mm/min                                | %                   | ISO 527-1,-2    | 4.0           |
| Flexural modulus                                      | 2 mm/min                                | MPa                 | ISO 178         | 4650          |
| Flexural strain at flexural strength                  | 2 mm/min                                | %                   | ISO 178         | 5.0           |
| Flexural stress at 3.5 % strain                       | 2 mm/min                                | MPa                 | ISO 178         | 110           |
| Flexural strength                                     | 2 mm/min                                | MPa                 | ISO 178         | 115           |
| C Charpy impact strength                              | 23 °C                                   | kJ/m²               | ISO 179-1eU     | 85            |
| C Charpy impact strength                              | -30 °C                                  | kJ/m²               | ISO 179-1eU     | 85            |
| C Puncture maximum force                              | 23 °C                                   | N                   | ISO 6603-2      | 4500          |
| C Puncture energy                                     | 23 °C                                   | J                   | ISO 6603-2      | 36            |
| Izod impact strength                                  | 23 °C                                   | kJ/m²               | ISO 180-U       | 85            |
| Izod impact strength                                  | -30 °C                                  | kJ/m²               | ISO 180-U       | 85            |
| <b>Thermal properties</b>                             |                                         |                     |                 |               |
| C Temperature of deflection under load                | 1.80 MPa                                | °C                  | ISO 75-1,-2     | 114           |
| C Temperature of deflection under load                | 0.45 MPa                                | °C                  | ISO 75-1,-2     | 128           |
| Vicat softening temperature                           | 50 N; 120 °C/h                          | °C                  | ISO 306         | 139           |
| C Coefficient of linear thermal expansion, parallel   | 23 to 55 °C                             | 10 <sup>-4</sup> /K | ISO 11359-1,-2  | 0.45          |
| C Coefficient of linear thermal expansion, transverse | 23 to 55 °C                             | 10 <sup>-4</sup> /K | ISO 11359-1,-2  | 0.45          |
| Coefficient of linear thermal expansion, parallel     | 23 to 85 °C                             | 10 <sup>-4</sup> /K | ISO 11359-1,-2  | 0.45          |
| Coefficient of linear thermal expansion, transverse   | 23 to 85 °C                             | 10 <sup>-4</sup> /K | ISO 11359-1,-2  | 0.48          |
| <b>Other properties (23 °C)</b>                       |                                         |                     |                 |               |
| C Water absorption (saturation value)                 | Water at 23 °C                          | %                   | ISO 62          | 0.4           |
| C Water absorption (equilibrium value)                | 23 °C; 50 % r. h.                       | %                   | ISO 62          | 0.2           |
| C Density                                             |                                         | kg/m³               | ISO 1183-1      | 1340          |
| Filler content                                        | Method A                                | %                   | b.o. ISO 3451-1 | 15            |
| <b>Processing conditions for test specimens</b>       |                                         |                     |                 |               |
| C Injection molding-Melt temperature                  |                                         | °C                  | ISO 294         | 270           |
| 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

