

PRODUCT RANGE OVERVIEW

•STANDARD GRADES

7233, 7033, 6333, 5533, MX 1940, 4033, MX 1205, 3533, 2533

•REINFORCED GRADES

RDG 314, RDG 277

•BREATHABLE AND ANTISTATIC GRADES

MV 1041, MV 1074, MV 3000, MV 6100, MH 1657, INIT 1100

•SOFTENING ADDITIVE FOR PA 6

MP 1878

•STABILIZATION

- SA grades: no additive for medical and food uses
- SN grades: UV stabilized
- SP grades: new generation UV stabilized

GENERAL CHARACTERISTICS

THERMOPLASTIC GRADES

| CHARACTERISTICS | CONDITIONS | STANDARD | UNITS | RDG 314 | RDG 277 | 7233 | 7033 | 6333 | 5533 | MX 1940 | 4033 | MX 1205 | 3533 | 2533 |
|---|-----------------------|------------------------|----------------------|---------|---------|------------------|------|------|------|---------|------|---------|-------|-------|
| SHORE HARDNESS | instantaneous | ISO 868/ ASTM D 2240 | Shore D | 75 | 71 | 69 | 69 | 64 | 54 | 55 | 42 | 46 | 33 | 27 |
| | | | Shore A | - | - | - | - | - | - | - | - | 90 | 92 | 82 |
| | after 15 seconds | ISO 868/ ASTM D 2240 | Shore D | 71 | 68 | 61 | 61 | 58 | 50 | 48 | 35 | 41 | 25 | 22 |
| | | | Shore A | - | - | - | - | - | - | - | - | 89 | 90 | 80 |
| DENSITY | | ISO 1183 | g/cm ³ | 1.12 | 1.12 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.00 | 1.00 |
| MELTING POINT | | ISO 11357/ ASTM D 3418 | °C | 175 | 174 | 174 | 172 | 169 | 159 | 154 | 160 | 147 | 143.5 | 133.5 |
| VICAT SOFTENING POINT | under 10 N | ISO 306/ ASTM D 1525 | °C | 173 | 170 | 164 | 164 | 157 | 142 | 127 | 131 | 111 | 77 | 58 |
| WATER ABSORPTION AT EQUILIBRIUM | at 23°C and 50% RH | ISO 62/ ASTM D 570 | % | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.6 | 0.7 | 0.5 | 0.4 | 0.4 | 0.4 |
| WATER ABSORPTION SATURATION | 24h in water at 23°C | ISO 62/ ASTM D 570 | % | 0.9 | 1.0 | 0.9 | 0.9 | 1.1 | 1.2 | 1.7 | 1.2 | 1.2 | 1.2 | 1.2 |
| MELT INDEX | 235°C / 1kg | ISO 1133/ ASTM D 1238 | g/10 mn | - | - | 4 | 6 | 5 | 7 | - | 5 | 9 | 8 | 10 |
| LINEAR COEFFICIENT OF THERMAL EXPANSION | from - 40°C to +140°C | ASTM D 696 | 10 ⁻⁵ /°C | - | - | 12 | 16 | 14 | 17 | - | 19.5 | 20 | 21 | 20 |
| SURFACE RESISTIVITY | | IEC 60093/ ASTM D 257 | Ohm/sq | - | - | 10 ¹² | | | | | | | | |
| VOLUMIC RESISTIVITY | | | Ohm.cm | - | - | | | | | | | | | |
| FILLER | | | Glass fiber | - | - | - | - | - | - | - | - | - | - | - |

PROPERTIES (RUBBER MATERIALS TESTS)

| CHARACTERISTICS | CONDITIONS | STANDARD | EQUIVALENT | UNITS | 7233 | 7033 | 6333 | 5533 | 4033 | MX 1205 | 3533 | 2533 | | |
|--|---------------------------------|----------------|-----------------------|-----------------------|------|------|------|------|------|---------|------|------|-----|-----|
| TENSILE STRESS | to obtain extension of | v = 500 mm/min | ASTM D 638 | MPa | 10% | 28.7 | 21.6 | 14.2 | 10 | 5.1 | 5.5 | 1.6 | 1.1 | |
| | | | | | 50% | 25 | 21.8 | 16.6 | 13.2 | 8.9 | 9.1 | 4.6 | 3.2 | |
| | | | | | 100% | 24.8 | 21.1 | 16.9 | 13.6 | 10.5 | 9.1 | 5.8 | 4.2 | |
| TENSION SET | under | v = 500 mm/min | ISO 2285 | ASTM D 412 (method A) | % | 5% | 0.8 | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 |
| | | | | | | 10% | 2.4 | 1.9 | 1.5 | 1.5 | 1.2 | 1.2 | 0.7 | 0.5 |
| | | | | | | 15% | 4.2 | 3.8 | 3.3 | 2.9 | 2.1 | 2.3 | 0.9 | 0.8 |
| | | | | | | 20% | 6.6 | 5.8 | 5.1 | 4.6 | 3.1 | 3.3 | 1.4 | 0.9 |
| TEAR RESISTANCE | unnotched | ISO 34-1 | ASTM D 624 | kN/m | 194 | 177 | 147 | 135 | 116 | 115 | 78 | 66 | | |
| | notched | | | | 166 | 149 | 127 | 106 | 85 | 77 | 50 | 44 | | |
| TABER ABRASION RESISTANCE | H18 / load 1kg / 1000 rotations | ISO 9352 | | mm | 54 | 59 | 60 | 62 | 62 | 60 | 77 | 99 | | |
| ABRASION RESISTANCE | 10 N / 40 m | ISO 4649 | DIN 53516 | mm ³ | - | - | 55 | 47 | 48 | 40 | 64 | 130 | | |
| RESILIENCE | | ISO 4662 | DIN 53512 | | - | - | 53 | 57 | 66 | 58 | 69 | 70 | | |
| COMPRESSION SET | under deformation of 25% | 70h at 23°C | ISO 815 | % | - | - | 47 | 43 | 32 | 37 | 22 | 19 | | |
| COMPRESSION SET | under load of 9.3MPa | 22h at 70°C | ASTM D 395 (method A) | % | - | - | 5 | 10 | 21 | - | 54 | 62 | | |
| RESISTANCE TO CRACKING BY REPEATED FLEXURE | 20 °C – 100 000 flex | ISO 133 | | mm | - | - | 5 | 3 | 2 | - | 2 | 2 | | |
| | -20 °C – 50 000 flex | | | | - | - | 14 | 9 | 4.5 | - | 2.5 | 2.5 | | |

PROPERTIES (PLASTIC MATERIALS TESTS)

| CHARACTERISTICS | CONDITIONS | STANDARD | UNITS | RDG | RDG | 7233 | 7033 | 6333 | 5533 | MX | 4033 | MX | 3533 | 2533 |
|---------------------------------------|---------------|--------------------|-------------------|------|------|-------------------|-------------------|-------------------|-------------------|------|------|------|------|------|
| | | | | 314 | 277 | | | | | 1940 | | 1205 | | |
| FLEXURAL MODULUS | | ISO 178 | MPa | 2200 | 1500 | 513 | 390 | 285 | 170 | 167 | 77 | 86 | 21 | 12 |
| | | ASTM D 790 | MPa | - | - | 518 | 379 | 278 | 164 | - | 81 | 93 | 20 | 14 |
| TENSILE MODULUS | | ISO 527 | MPa | - | - | 522 | 384 | 280 | 161 | - | 71 | 81 | 18 | 10 |
| | | ASTM D 638 | MPa | 2600 | 2000 | 521 | 383 | 287 | 160 | 158 | 74 | 79 | 20 | 10 |
| TENSILE – STRESS AT YIELD | v = 50 mm/min | ASTM D 638 type IV | MPa | 62 | 50 | 26 | 22 | 18 | 12 | 12 | - | - | - | - |
| TENSILE – STRAIN AT YIELD | | | % | 6 | 10 | 18 | 20 | 22 | 25 | 25 | - | - | - | - |
| TENSILE – STRESS AT BREAK | | | MPa | 56 | 45 | 56 | 54 | 53 | 52 | 51 | 40 | 42 | 39 | 32 |
| TENSILE – STRAIN AT BREAK | | | % | 10 | 17 | 300 | 350 | 350 | 450 | 550 | 450 | 550 | 600 | 750 |
| IMPACT STRENGTH * (IZOD) AT + 23 °C | unnotched | ASTM D 256 | J/m | - | - | 1380 ^P | 969 ^P | 607 ^P | N | - | N | N | N | N |
| | notched | | J/m | - | - | 192 ^C | 847 ^P | 554 ^P | N | - | N | N | N | N |
| IMPACT STRENGTH * (IZOD) AT - 40 °C | unnotched | ASTM D 256 | J/m | - | - | 2460 ^P | 2345 ^P | 1589 ^P | 1589 ^P | - | N | N | N | N |
| | notched | | J/m | - | - | 50 ^C | 50 ^C | 11 ^C | 1038 ^P | - | N | N | N | N |
| IMPACT STRENGTH * (CHARPY) AT + 23 °C | unnotched | ISO 179 | kJ/m ² | - | - | N | N | N | N | N | N | N | N | N |
| | notched | | | - | - | 15 ^C | 120 ^P | N | N | N | N | N | N | N |
| IMPACT STRENGTH * (CHARPY) AT - 30 °C | unnotched | ISO 179 | kJ/m ² | - | - | N | N | N | N | N | N | N | N | N |
| | notched | | | 7.3 | 7.3 | 10 ^C | 10 ^C | 20 ^C | N | N | N | N | N | N |

* N: no break
P: partial break
C: complete break

GENERAL CHARACTERISTICS - SPECIAL GRADES

| CHARACTERISTICS | CONDITIONS | STANDARD | EQUIVALENT | UNITS | ANTISTATIC | | MV | MP | MV | MV | INIT |
|---------------------------------|----------------------|-----------|-------------|-------------------|-------------------|---------------------|------|------|------|------|------|
| | | | | | MH | MV | | | | | |
| | | | | | 1657 | 1074 | 1041 | 1878 | 3000 | 6100 | 1100 |
| SHORE HARDNESS | instantaneous | ISO 868 | ASTM D 2240 | Shore D | 40 | 40 | 60 | 58 | 35 | 58 | 75 |
| DENSITY | | ISO 1183 | | g/cm ³ | 1.14 | 1.07 | 1.04 | 1.09 | 1.02 | 1.04 | 1.12 |
| MELTING POINT | | ISO 11357 | ASTM D 3418 | °C | 204 | 158 | 170 | 195 | 158 | 170 | 198 |
| VICAT SOFTENING POINT | under 10 N | ISO 306 | ASTM D 1525 | °C | 160 | - | - | 169 | - | - | - |
| FLEXURAL MODULUS | at 23°C and 50% RH | ISO 178 | ASTM D 790 | MPa | 80 | 80 | 270 | 180 | 45 | 210 | 440 |
| TENSILE – STRESS AT BREAK | v = 50 mm/min | ISO 527 | | MPa | 32 | 30 | 44 | 60 | 35 | 48 | 71 |
| TENSILE – STRAIN AT BREAK | v = 50 mm/min | ISO 527 | | % | 3500 | 3700 | 450 | 550 | 500 | - | 300 |
| WATER ABSORPTION AT EQUILIBRIUM | at 23°C and 50% RH | ISO 62 | ASTM D 570 | % | 4.5 | 1.4 | 0.9 | 1.35 | 1 | 0.9 | - |
| WATER ABSORPTION SATURATION | 24h in water at 23°C | ISO 62 | ASTM D 570 | % | 120 | 48 | 12 | 6.7 | 28 | 11 | - |
| MELT INDEX | 235°C / 1kg | ISO 1133 | ASTM D 1238 | g/10 mn | 27 | 14 | 7 | 8 | - | - | 1.7 |
| SURFACE RESISTIVITY | | IEC 60093 | ASTM D 257 | Ohm/sq | 1 10 ⁹ | 3 10 ⁹ | - | - | - | - | - |
| VOLUMIC RESISTIVITY | | | | Ohm.cm | 2 10 ⁹ | 2.5 10 ⁹ | - | - | - | - | - |

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