

PROPERTIES OF OUR PLASTICS

OUR RANGE OF PRODUCTS

Sheets planed

Murdotec®2000,
Murdotec®1000,
Murdotec®1000 U,
Murdotec®500

can be supplied in standard colours.
All other types available on demand.

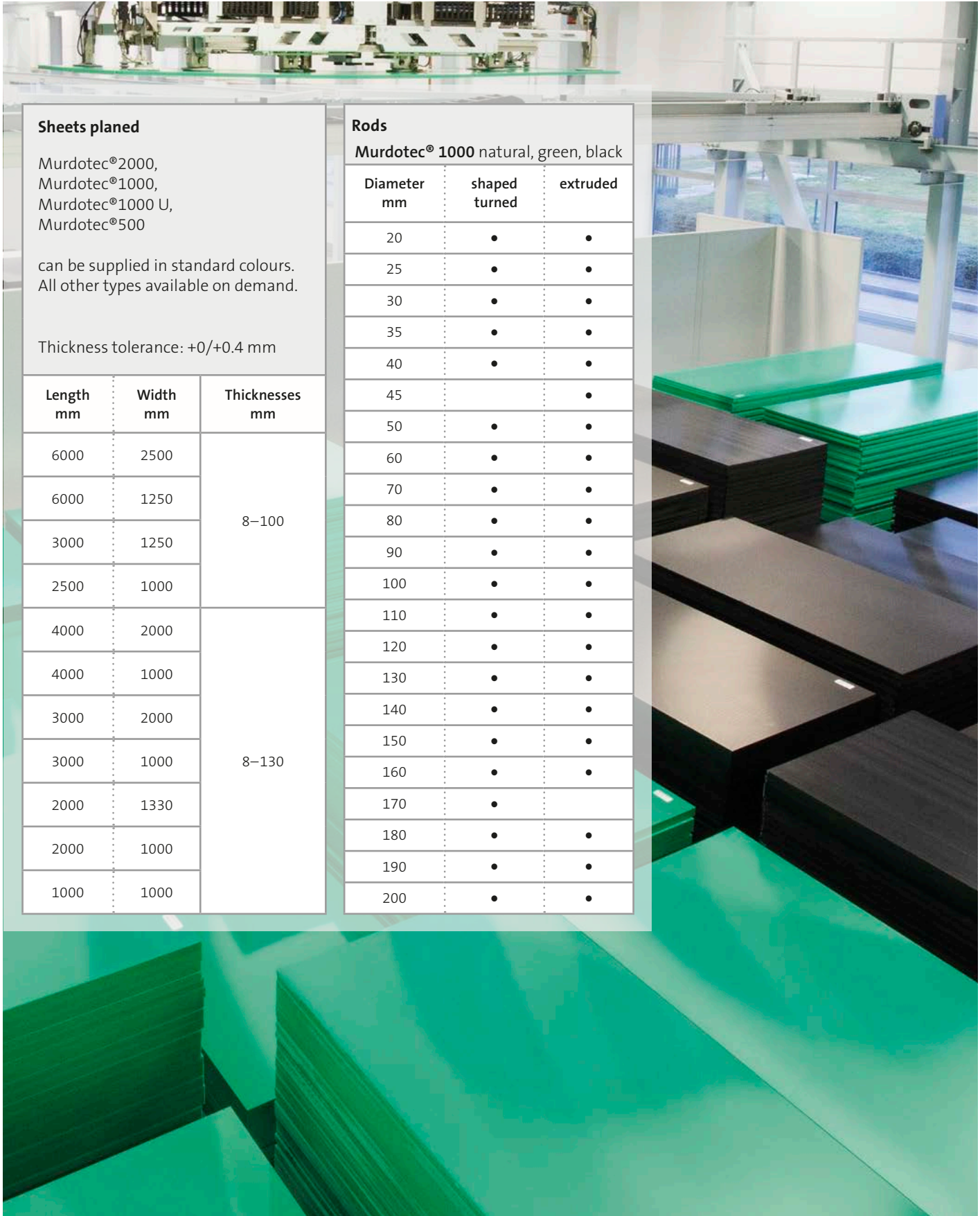
Thickness tolerance: +0/+0.4 mm

| Length mm | Width mm | Thicknesses mm |
|-----------|----------|----------------|
| 6000 | 2500 | 8-100 |
| 6000 | 1250 | |
| 3000 | 1250 | |
| 2500 | 1000 | |
| 4000 | 2000 | |
| 4000 | 1000 | 8-130 |
| 3000 | 2000 | |
| 3000 | 1000 | |
| 2000 | 1330 | |
| 2000 | 1000 | |
| 1000 | 1000 | |

Rods

Murdotec® 1000 natural, green, black

| Diameter mm | shaped turned | extruded |
|-------------|---------------|----------|
| 20 | • | • |
| 25 | • | • |
| 30 | • | • |
| 35 | • | • |
| 40 | • | • |
| 45 | | • |
| 50 | • | • |
| 60 | • | • |
| 70 | • | • |
| 80 | • | • |
| 90 | • | • |
| 100 | • | • |
| 110 | • | • |
| 120 | • | • |
| 130 | • | • |
| 140 | • | • |
| 150 | • | • |
| 160 | • | • |
| 170 | • | |
| 180 | • | • |
| 190 | • | • |
| 200 | • | • |



PROPERTIES OF OUR STANDARD MATERIALS

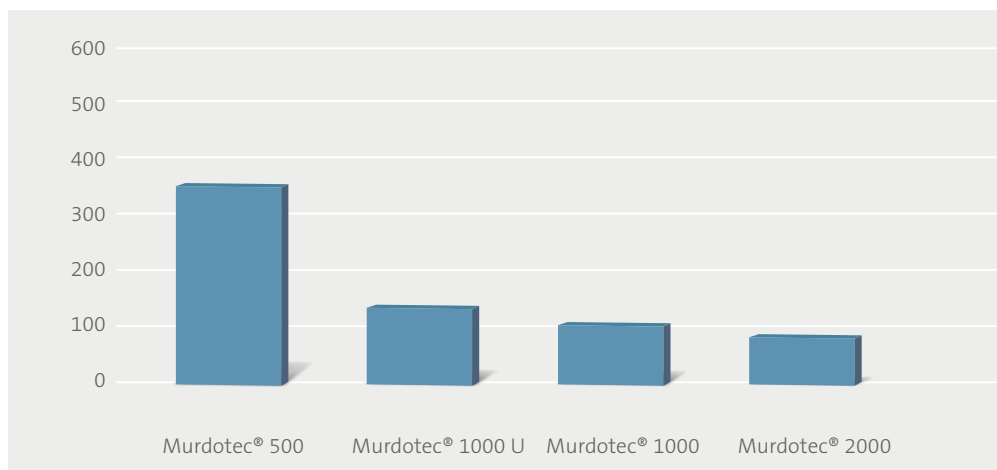
Our extensive product range enables us to precisely fulfil special customer wishes every time. Depending on the application or customer's wish, our Murdotec® 500, Murdotec® 1000 and Murdotec® 2000 materials differ in terms of their optimised mechanical, electrical or chemical properties and RAL colours.

Molecular weight [g/mol]

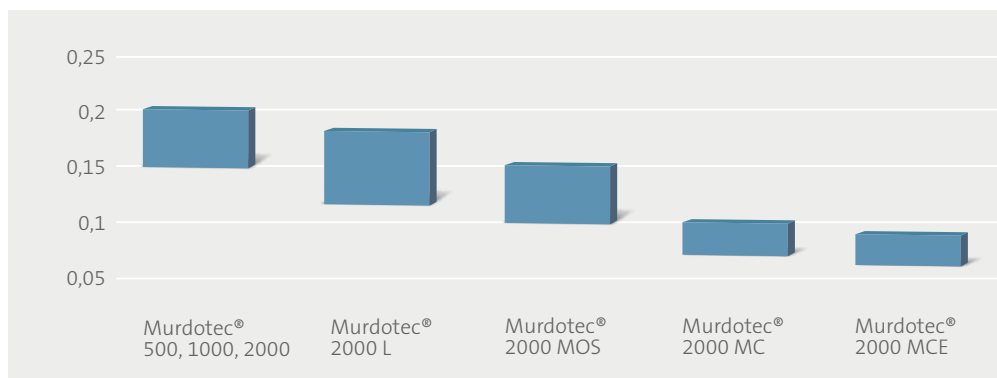


// 1

Wear [%]



Sliding friction coefficient



WEAR- AND ABRASION-RESISTANT

Murdotec® 1000

Ultra high molecular polyethylene (UHMW-PE) as per ISO 15527 Sheet group 1.2

The standard UHMW-PE with a molecular weight of 5 million g/mol is characterised by its very good wear and abrasion resistance. It has excellent impact and shock resistance, very good chemical resistance, good anti-adhesion properties, a low density and a low friction coefficient.

It has very good electrical insulation and dielectric properties (with the exception of static dissipation and conductive types), good resistance to radiated energy (gamma and X-ray radiation) and outstanding machinability. It is FDA approved. A design is possible approved for use in the food sector as per EU Directive 10/2011.

**Murdotec® 1000 and Murdotec® 2000
are available in the following RAL colours.**



Murdotec® 2000

Ultra high molecular polyethylene (UHMW-PE) as per ISO 15527 Sheet group 1.1

Murdotec® 2000 is the premium UHMW-PE with a molecular weight of around 9 million g/mol. It has the same basic properties as Murdotec® 1000, but has better abrasion resistance.

Application areas for Murdotec® 1000 and Murdotec® 2000

- Transport and conveyor technology
- Food sector, machine construction
- Chemical industry

MURDOTEC® 1000 AND MURDOTEC® 2000

| Material | Murdotec® 1000 natural | Murdotec® 1000 coloured | Murdotec® 1000 AST | Murdotec® 2000 natural | Murdotec® 2000 coloured | Murdotec® 2000 AST | DIN | ISO/ (IEC) |
|---|------------------------------|-------------------------------|--------------------------|------------------------------|-------------------------------|--------------------------|-------|---------------|
| Material colour | natural | coloured | black | natural | coloured | black | – | – |
| Molecular weight <i>g/mol</i> | 5×10^6 | 5×10^6 | 5×10^6 | 9×10^6 | 9×10^6 | 9×10^6 | 7728 | – |
| Sheet group | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | – | – |
| Density <i>kg/dm³</i> | ≤0,94 | ≤0,94 | ≤0,94 | ≤0,94 | ≤0,94 | ≤0,94 | 53479 | 1183 |
| Water absorption – saturation at 23°C % | <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | | |
| Mechanical properties | | | | | | | | |
| Tensile stress/Breaking stress <i>Mpa</i> | ~20 | ~20 | ~20 | ~20 | ~20 | ~20 | 53455 | 527 |
| Breaking elongation (elongation at break) % | >300 | >300 | >300 | >250 | >250 | >250 | 53455 | 527 |
| Zug-E-Modul <i>MPa</i> | >700 | >700 | >700 | >600 | >600 | >600 | | |
| Charpy notched impact strength <i>kJ/m²</i> | ≥170 | ≥170 | ≥170 | ≥170 | ≥170 | ≥170 | 53453 | 179 |
| Shore hardness D ° | 61–65 | 61–65 | 61–65 | 61–64 | 61–64 | 61–65 | 53505 | – |
| Ball indentation hardness <i>N/mm²</i> | >30 | >30 | >30 | >30 | >30 | >30 | – | – |
| Wear resistance (sand slurry test) % | 100 | 100 | 110 | 80 | 80 | 80 | – | – |
| Coefficient of friction steel (0,25m/s, 0,25N/mm²) | ~0,2 | ~0,2 | ~0,2 | ~0,2 | ~0,2 | ~0,2 | – | – |
| Coefficient of friction Pom (0,25m/s, 0,25N/mm²) | | | | | | | | |
| Thermal properties | | | | | | | | |
| Capable of conducting heat at 23°C <i>W/(K x m)</i> | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 52612 | – |
| Linear thermal expansion coefficient α | | | | | | | | |
| Average value between 23 and 60°C <i>m/(m x K)</i> | 20×10^{-5} | 20×10^{-5} | 20×10^{-5} | 20×10^{-5} | 20×10^{-5} | 20×10^{-5} | – | – |
| Upper service temperature in air: | | | | | | | | |
| Short-term service temperature °C | 90 | 90 | 90 | 90 | 90 | 90 | – | – |
| Constant for 5000 h °C | 80 | 80 | 80 | 80 | 80 | 80 | – | – |
| Lower service temperature °C | -200 | -200 | -200 | -200 | -200 | -200 | – | – |
| Burning behaviour | HB | HB | HB | HB | HB | HB | – | – |
| Melting temperature °C | 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | | |
| Electrical properties | | | | | | | | |
| Electric strength <i>kV/mm</i> | ≤45 | ≤45 | – | ≤45 | ≤45 | – | 53481 | (243) |
| Specific contact resistance <i>Ohm x cm</i> | > 10^{12} | > 10^{12} | ≤ 10^6 | > 10^{12} | > 10^{12} | ≤ 10^6 | 53482 | (93) |
| Surface resistance <i>Ohm</i> | > 10^{12} | > 10^{12} | ≤ 10^9 | > 10^{12} | > 10^{12} | ≤ 10^9 | 53482 | (93) |
| Physiological properties | | | | | | | | |
| Approved for use in the food industry as per the FDA | yes | yes | yes | yes | yes | yes | – | – |
| Approved for use in the food industry as per the EU | possible | possible | possible | possible | possible | possible | – | – |

// 3

OUR SPECIALISTS

Ultra high molecular polyethylene (UHMW-PE) as per ISO 15527 Sheet group 1.1 / 1.2

Murdotec® special types are the respective specialists in their area. They are used wherever specific properties are called for.

Application areas

- Transport and conveyor technology
- food sector
- machine construction
- chemical industry
- filling plants
- bulk goods handling
- medical engineering

MURDOTEC® SPECIAL TYPES

| Material | Murdotec® 1000 E | Murdotec® 1000 AB | Murdotec® 1000 light AST |
|---|------------------------|-------------------------|--------------------------------|
| Material colour | black | sky-blue | light grey |
| Molecular weight <i>g/mol</i> | 5 x 10 ⁶ | 5 x 10 ⁶ | 5 x 10 ⁶ |
| Sheet group | 1.2 | 1.2 | 1.2 |
| Density <i>kg/dm³</i> | ≤0,94 | ≤0,94 | ≤0,94 |
| Water absorption – saturation at 23°C % | <0,01 | <0,01 | <0,01 |
| Mechanical properties | | | |
| Tensile stress/Breaking stress <i>Mpa</i> | ~20 | ~20 | ~20 |
| Breaking elongation (elongation at break) % | >300 | >300 | >300 |
| Zug-E-Modul <i>MPa</i> | >700 | >700 | >200 |
| Charpy notched impact strength <i>kJ/m²</i> | ≥170 | ≥170 | ≥170 |
| Shore hardness D ° | 61–65 | 61–65 | 61–65 |
| Ball indentation hardness <i>N/mm²</i> | >30 | >30 | >30 |
| Wear resistance (sand slurry test) % | 110 | 100 | 120 |
| Coefficient of friction steel (0,25m/s, 0,25N/mm ²) | ~0,2 | ~0,2 | ~0,2 |
| Coefficient of friction Pom (0,25m/s, 0,25N/mm ²) | | | |
| Thermal properties | | | |
| Capable of conducting heat at 23°C <i>W/(K x m)</i> | 0,4 | 0,4 | 0,4 |
| Linear thermal expansion coefficient α | | | |
| Average value between 23 and 60°C <i>m/(m x K)</i> | 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ |
| Upper service temperature in air: | | | |
| Short-term service temperature °C | 90 | 90 | 90 |
| Constant for 5000 h °C | 80 | 80 | 80 |
| Lower service temperature °C | -200 | -200 | -200 |
| Burning behaviour | HB | HB | HB |
| Melting temperature °C | 130–135 | 130–135 | 130–135 |
| Electrical properties | | | |
| Electric strength <i>kV/mm</i> | – | ≤45 | – |
| Specific contact resistance <i>Ohm x cm</i> | ≤10 ⁶ | >10 ¹² | ≤10 ⁶ |
| Surface resistance <i>Ohm</i> | ≤10 ⁶ | >10 ¹² | ≤10 ⁶ |
| Physiological properties | | | |
| Approved for use in the food industry as per the FDA | yes | yes | no |
| Approved for use in the food industry as per the EU | possible | possible | no |

Murdotec Special types

are available in the following RAL colours.



The following special types are not approved for use in the food industry:

Murdotec® 1000 light AST light antistatic

Murdotec® 2000 MOS molybdenum sulphide

Murdotec® 2000 MCWE slide-optimised for POM, silicone-free, electrically conductive

| Murdotec® 2000 HS | Murdotec® 2000 L | Murdotec® 2000 MC | Murdotec® 2000 MCE | Murdotec® 2000 MCWE | Murdotec® 2000 G | Murdotec® 2000 MOS | Murdotec® 2000 MD | Murdotec® 2000 E | Murdotec® 2000 MR | DIN | ISO/ (IEC) |
|-------------------------|------------------------|-------------------------|--------------------------|---------------------------|------------------------|--------------------------|-------------------------|------------------------|-------------------------|-------|---------------|
| ruby red | aqua | cobalt blue | black | black | light green | anthracite | pastel blue | black | opal green | 16972 | 15527 |
| 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | 9 x 10 ⁶ | – | – |
| 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 7728 | – |
| ≤0,94 | ≤0,94 | ≤0,94 | ≤0,94 | ≤0,94 | ≤0,94 | ≤0,95 | ~1,14 | ≤0,94 | ≤0,94 | 53479 | 1183 |
| <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | <0,01 | | |
| ~20 | ~20 | ~20 | ~20 | ~20 | ~20 | ~20 | ~20 | ~20 | ~20 | 53455 | 527 |
| >200 | >150 | >250 | >220 | >300 | >250 | >200 | >200 | >250 | >250 | 53455 | 527 |
| >600 | >600 | >700 | >700 | >700 | >600 | >600 | >600 | >600 | >600 | | |
| ≥140 | ≥170 | ≥120 | ≥120 | ≥170 | ≥100 | ≥170 | ≥100 | ≥170 | ≥170 | 53453 | 179 |
| 61–64 | 60–64 | 60–63 | 60–63 | 60–63 | 62–65 | 61–64 | 62–64 | 61–65 | 61–64 | 53505 | – |
| >30 | >30 | >25 | >25 | >30 | >35 | >35 | >35 | >30 | >30 | – | – |
| 80 | 80 | 80 | 80 | 120 | 80 | 80 | 100 | 80 | 80 | – | – |
| ~0,2 | ~0,2 | ~0,1 | ~0,1 | ~0,2 | ~0,2 | ~0,2 | ~0,2 | ~0,2 | ~0,2 | – | – |
| | | ~0,18 | ~0,18 | ~0,12 | | | | | | | |
| 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 52612 | – |
| 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | 17 x 10 ⁻⁵ | 17 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | 20 x 10 ⁻⁵ | – | – |
| 120 | 90 | 90 | 90 | 90 | 90 | 90 | 120 | 90 | 90 | – | – |
| 100 | 80 | 80 | 80 | 80 | 80 | 80 | 100 | 80 | 80 | – | – |
| -200 | -200 | -200 | -200 | -200 | -200 | -200 | -200 | -200 | -200 | – | – |
| HB | HB | HB | HB | HB | HB | HB | HB | HB | HB | – | – |
| 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | 130–135 | | |
| ≤45 | ≤45 | ≤45 | – | – | ≤45 | ≤45 | ≥45 | – | ≥45 | 53481 | (243) |
| >10 ¹² | >10 ¹² | >10 ¹² | ≤10 ⁶ | ≤10 ⁶ | >10 ¹² | >10 ¹² | >10 ¹² | ≤10 ⁶ | >10 ¹² | 53482 | (93) |
| >10 ¹² | >10 ¹² | >10 ¹² | ≤10 ⁶ | ≤10 ⁶ | >10 ¹² | >10 ¹² | >10 ¹² | ≤10 ⁶ | >10 ¹² | 53482 | (93) |
| yes | yes | yes | yes | yes | yes | no | yes | yes | yes | – | – |
| possible | possible | possible | possible | possible | possible | no | possible | possible | possible | – | – |

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The following special types are FDA-approved. A design is possible approved for use in the food industry in line with EU Directive 10/2011:

Murdotec® 1000/2000 E electrically conductive

Murdotec® 1000 AB antibacterial

Murdotec® 2000 HS heat-stabilised

Murdotec® 2000 L oil-filled

Murdotec® 2000 MC slide-optimised

Murdotec® 2000 MCE electrically conductive, slide-optimised

Murdotec® 2000 G filled with glass balls

Murdotec® 2000 MD metal-detectable

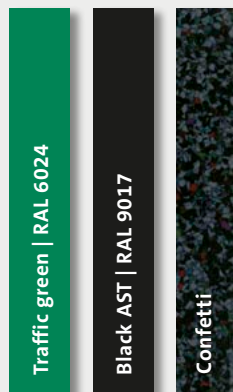
Murdotec® 2000 MR wear-optimised

HIGH QUALITY WITH OUR MIXED TYPES

High-quality raw material sources – even for our regenerated materials

Due to its molecular construction, polyethylene is extremely suitable for the recycling of chippings and off-cuts. The sorting accuracy and high level of grinding have a significant effect on quality. For this reason, we sort materials that are suitable for recycling and store them separately. Only material types of the same quality may be mixed together. This prevents mixed types being produced that keep appearing on the market yet cannot be identified.

Murdotec® regenerated materials are available in the following colours.



And we go even further

A certain amount of new material is added to each batch on our mixing lines. With Murdotec® 1000 U, you can be sure that you will receive a material made from UHMW-PE base material of the highest quality.

Application areas

- Transport and conveyor technology
- machine construction
- chemical industry
- crane underlays

MURDOTEC® REGENERATED MATERIALS

| Material | Murdotec® 1000 U green | Murdotec® 1000 U AST | Murdotec® 1000 U black-confetti | DIN | ISO/ (IEC) |
|---|------------------------------|----------------------------|---------------------------------------|-------|---------------|
| Material colour | green | black | black-confetti | – | – |
| Molecular weight <i>g/mol</i> | | | | 7728 | – |
| Sheet group | | | | – | – |
| Density <i>kg/dm³</i> | ≤0,96 | ≤0,96 | ≤0,96 | 53479 | 1183 |
| Water absorption – saturation at 23°C % | <0,01 | <0,01 | <0,01 | | |
| Mechanical properties | | | | | |
| Tensile stress/Breaking stress <i>Mpa</i> | ~20 | ~20 | – | 53455 | 527 |
| Breaking elongation (elongation at break) % | >280 | >200 | – | 53455 | 527 |
| Zug-E-Modul <i>MPa</i> | >700 | >700 | – | | |
| Charpy notched impact strength <i>kJ/m²</i> | ≥80 | ≥80 | ≥50 | 53453 | 179 |
| Shore hardness D ° | 61–65 | 61–65 | 61–66 | 53505 | – |
| Ball indentation hardness <i>N/mm²</i> | >30 | >30 | >30 | – | – |
| Wear resistance (sand slurry test) % | 120 | 120 | 160 | – | – |
| Coefficient of friction steel (0,25m/s, 0,25N/mm²) | ~0,2 | ~0,2 | ~0,2 | – | – |
| Coefficient of friction Pom (0,25m/s, 0,25N/mm²) | | | | | |
| Thermal properties | | | | | |
| Capable of conducting heat at 23°C <i>W/(K x m)</i> | 0,4 | 0,4 | 0,4 | 52612 | – |
| Linear thermal expansion coefficient α | | | | | |
| Average value between 23 and 60°C <i>m/(m x K)</i> | 20×10^{-5} | 20×10^{-5} | 20×10^{-5} | – | – |
| Upper service temperature in air: | | | | | |
| Short-term service temperature °C | 90 | 90 | 90 | – | – |
| Constant for 5000 h °C | 80 | 80 | 80 | – | – |
| Lower service temperature °C | -150 | -150 | -150 | – | – |
| Burning behaviour | HB | HB | HB | – | – |
| Melting temperature °C | 130–135 | 130–135 | 130–135 | | |
| Electrical properties | | | | | |
| Electric strength <i>kV/mm</i> | ≤45 | – | k.a. | 53481 | (243) |
| Specific contact resistance <i>Ohm x cm</i> | > 10^{12} | ≤ 10^6 | k.a. | 53482 | (93) |
| Surface resistance <i>Ohm</i> | > 10^{12} | ≤ 10^9 | k.a. | 53482 | (93) |
| Physiological properties | | | | | |
| Approved for use in the food industry as per the FDA | no | no | no | – | – |
| Approved for use in the food industry as per the EU | no | no | no | – | – |

RESISTANT WHEN USED IN THE FOOD SECTOR

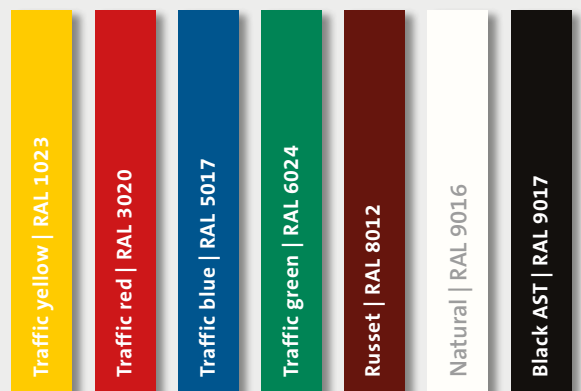
Murdotec® 500

High molecular polyethylene (HMW-PE) as per ISO 15527 Sheet group 2.1

Owing to its good resistance, Murdotec® 500 is suitable for use in the food sector. It has good anti-adhesion properties and good impact and shock resistance. In addition, it has good slide properties and Murdotec® 500 is characterised by very good electrical insulation and dielectric properties (with the exception of static dissipation and conductive types). It has very good cut resistance. It is FDA approved. A design is possible approved for use in the food sector as per EU Directive 10/2011.

Murdotec® 500

is available in the following RAL colours.

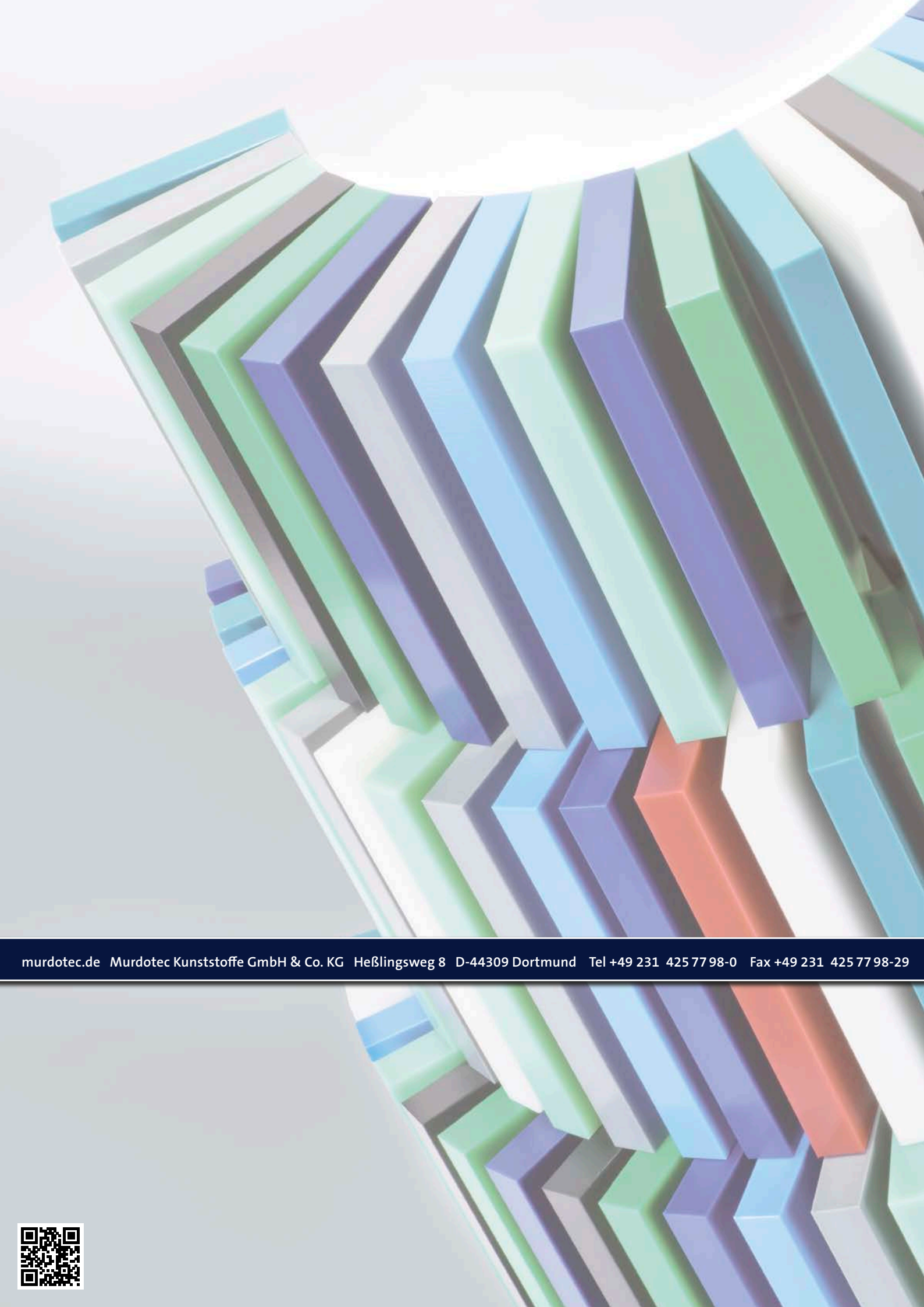


Application areas

- Food sector
- chemical industry
- machine construction

MURDOTEC® 500

| Material | Murdotec® 500 natural | Murdotec® 500 coloured | Murdotec® 500 AST | Murdotec® 500 AB | DIN | ISO/ (IEC) |
|---|-----------------------------|------------------------------|----------------------|---------------------|-------|---------------|
| Material colour | natural | coloured | black | sky blue | – | – |
| Molecular weight <i>g/mol</i> | $0,5 \times 10^6$ | $0,5 \times 10^6$ | $0,5 \times 10^6$ | $0,5 \times 10^6$ | 7728 | – |
| Sheet group | 2.1 | 2.1 | 2.1 | 2.1 | – | – |
| Density <i>kg/dm³</i> | ≤0,96 | ≤0,96 | ≤0,96 | ≤0,96 | 53479 | 1183 |
| Water absorption – saturation at 23°C % | <0,01 | <0,01 | <0,01 | >0,01 | | |
| Mechanical properties | | | | | | |
| Tensile stress/Breaking stress <i>Mpa</i> | ~25 | ~25 | ~25 | ~25 | 53455 | 527 |
| Breaking elongation (elongation at break) % | >500 | >500 | >500 | >500 | 53455 | 527 |
| Zug-E-Modul <i>MPa</i> | >800 | >800 | >700 | >800 | | |
| Charpy notched impact strength <i>kJ/m²</i> | ≥25 | ≥25 | ≥25 | ≥25 | 53453 | 179 |
| Shore hardness D ° | 62–65 | 62–65 | 62–66 | 62–65 | 53505 | – |
| Ball indentation hardness <i>N/mm²</i> | >35 | >35 | >35 | >35 | – | – |
| Wear resistance (sand slurry test) % | 350 | 350 | 350 | 350 | – | – |
| Coefficient of friction steel (0,25m/s, 0,25N/mm²) | ~0,2 | ~0,2 | ~0,2 | ~0,2 | – | – |
| Coefficient of friction Pom (0,25m/s, 0,25N/mm²) | | | | | | |
| Thermal properties | | | | | | |
| Capable of conducting heat at 23°C <i>W/(K x m)</i> | 0,4 | 0,4 | 0,4 | 0,4 | 52612 | – |
| Linear thermal expansion coefficient α | | | | | | |
| Average value between 23 and 60°C <i>m/(m x K)</i> | 20×10^{-5} | 20×10^{-5} | 20×10^{-5} | 20×10^{-5} | – | – |
| Upper service temperature in air: | | | | | | |
| Short-term service temperature °C | 90 | 90 | 90 | 90 | – | – |
| Constant for 5000 h °C | 80 | 80 | 80 | 80 | – | – |
| Lower service temperature °C | -100 | -100 | -100 | -100 | – | – |
| Burning behaviour | HB | HB | HB | HB | – | – |
| Melting temperature °C | 130–135 | 130–135 | 130–135 | 130–135 | | |
| Electrical properties | | | | | | |
| Electric strength <i>kV/mm</i> | ≤45 | ≤45 | – | ≤45 | 53481 | (243) |
| Specific contact resistance <i>Ohm x cm</i> | > 10^{12} | > 10^{12} | ≤ 10^6 | > 10^{12} | 53482 | (93) |
| Surface resistance <i>Ohm</i> | > 10^{12} | > 10^{12} | ≤ 10^9 | > 10^{12} | 53482 | (93) |
| Physiological properties | | | | | | |
| Approved for use in the food industry as per the FDA | yes | yes | yes | yes | – | – |
| Approved for use in the food industry as per the EU | possible | possible | possible | possible | – | – |



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