

# Technical data

## Dialen® MR black AST

Ultra high molecular polyethylene (UHMW-PE) according to ISO 15527, sheet group 1.1

Technical properties	Standard	Unit	Values
Short mark	ISO 1043-1		UHMW-PE
Material colours			traffic black
Similar RAL			9017
Average molecular weight	N.N.	g/mol	$9 \times 10^6$
Sheet group	ISO 15527		1.1
Density	ISO 1183-1	g/cm <sup>3</sup>	$\leq 0.94$

Mechanical properties <sup>1</sup>	Standard	Unit	Values
Yield stress	ISO 527-1/-2	MPa	~ 20
Breaking elongation	ISO 527-2	%	> 250
Coefficient of elasticity	ISO 527-1/-2	MPa	> 600
Double-sided notch impact toughness (Charpy)	ISO 21304-2	kJ/m <sup>2</sup>	$\geq 170$
Shore hardness D	ISO 868		61-65
Ball indentation hardness	ISO 2039-1	N/mm <sup>2</sup>	> 30
Wear resistance (Sand-Slurry-Test)	ISO 15527	%	80
Av. coefficient of friction against steel (0,25 m/s, 0,25 MPa, 24 h) <sup>2</sup>			~ 0.20

Thermal properties	Standard	Unit	Values
Linear thermal coefficient of expansion			
- Average value between 23 and 60 °C	ISO 11359-1/-2	m/(K × m)	$20 \times 10^{-5}$
Upper service temperature in air			
- short term <sup>3</sup>		°C	90
- constant for 5000 h <sup>4</sup>		°C	80
Lower service temperature <sup>5</sup>	N.N.	°C	-200
Burning behaviour as per UL94 (sample thickness 3/6 mm)	DIN IEC 60695-11-10		HB/HB
Melting temperature	ISO 11357-1/-3	°C	130-135

Electrical properties <sup>1</sup>	Standard	Unit	Values
Volume resistivity <sup>6</sup>	DIN EN 62631-3-1	Ohm × cm	$\leq 10^6$
Surface resistivity <sup>6</sup>	DIN EN 62631-3-2	Ohm	$\leq 10^9$

Physiological properties	Standard	Unit	Values
Food safe according to FDA regulations			Yes
Food safe according to regulation EU 10/2011			Yes

### Legend

The aim of the material characteristic tables, which are to some extent based on data provided by our raw material suppliers, is to help you to quickly compare/select a material. The values stated are short-term values that may be affected by processing, environmental, and application conditions. The user is solely responsible for the selected material's suitability for the specific application.

RH (relative humidity)  
N.N. (not named)

1) The mechanical and electrical characteristics are based on a test in a standard atmosphere at 73.4°F/ 50% relative humidity (RH).

2) Test period 24h, linear oscillating measurement method.

3) Temperature stress for several hours; no or low mechanical stress (short-term service temperature).

4) Maximum continuous operating temperature in air: the specified temperature limit is based on the thermo-oxidative degradation ("aging") after the specified period. It does not refer to the mechanical strength of the material.

5) As the temperature decreases, the impact strength drops. The specified values are based on the most unfavorable impact load possible and are not absolute practical limits (lower service temperature).

6) Test standard series DIN EN 62631-3 for insulating materials, DIN EN 61340 for dissipative and conductive materials.