Technical data sheet



SUSTAPEEK MG natural

Product characteristics

- High purity
- USP VI and ISO 10993 tested on semi-finished products
- High sterilisation resistance

Typical fields of application

- Medical technology
- · Pharmaceutical industry
- Precision engineering

General propertiesDensityDIN EN ISO 1183-1g/cm³1,31Water absorptionDIN EN ISO 62%0,2Flammability (Thickness 3 mm / 6 mm)UL 94V0 / V0Mechanical propertiesYield stressDIN EN ISO 527MPa110Elongation at breakDIN EN ISO 527%20Tensile modulus of elasticityDIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 527MPa200Ball indentation hardnessDIN EN ISO 179kJ/m²-Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 688scale D88Thermal propertiesMelting temperatureISO 11357-3°C343Thermal conductivityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210.ºK+150Service temperature, long termAverage°C60250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electric al properties3,2Dielectric dissipation factor (50Hz)IEC 60093 Ω 101°8Comparative tracking indexIEC 60112Dielectric strengthIEC 60112Dielectric strengthDielectric strengthIEC 6012-Dielectric strengthDielectric strength		Test method	Unit	Value
Water absorptionDIN EN ISO 62%0,2Flammability (Thickness 3 mm / 6 mm)UL 94V0 / V0Mechanical propertiesV0 / V0Yield stressDIN EN ISO 527MPa110Elongation at breakDIN EN ISO 527%20Tensile modulus of elasticityDIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 527MPa230Shore hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal properties343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612k J / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210 *K-150Service temperature, long termAverage°C60 250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical properties0,001Volume resistivityIEC 602500,0010,001Volume resistivityIEC 60093Ω101*8Comparative tracking indexIEC 60112	General properties			
Flammability (Thickness 3 mm / 6 mm)UL 94V0 / V0Mechanical propertiesUN EN ISO 527MPa110Field stressDIN EN ISO 527%20Tensile modulus of elasticityDIN EN ISO 527%20Notched impact strength (charpy)DIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 527MPa230Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal properties*********************************	Density	DIN EN ISO 1183-1	g/cm ³	1,31
Mechanical propertiesYield stressDIN EN ISO 527MPa110Elongation at breakDIN EN ISO 527%20Tensile modulus of elasticityDIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 527MPa230Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal propertiesMetting temperatureISO 11357-3°C343Thermal conductivityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210°K-150Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C310Heat deflecton temperatureDIN EN ISO 75, method A°C152Electric al propertiesUIN EN ISO 75, method A°C152Dielectric constantIEC 602503,20,001Volume resistivityIEC 60093 Ω *cm4,9*10 ¹⁶ Surface resistivityIEC 60112	Water absorption	DIN EN ISO 62	%	0,2
Yield stressDIN EN ISO 527MPa110Elongation at breakDIN EN ISO 527%20Tensile modulus of elasticityDIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 179kJ/m²-Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal properties-343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210 °K-150Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C32Dielectric constantIEC 602503,20,001Volume resistivityIEC 60250 Ω *cm4,9 * 1016Surface resistivityIEC 60093 Ω 101°aComparative tracking indexIEC 60112	Flammability (Thickness 3 mm / 6 mm)	UL 94		V0 / V0
Elongation at breakDIN EN ISO 527%20Tensile modulus of elasticityDIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 179kJ/m²-Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal propertiesMelting temperatureISO 11357-3°C343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210 °K·150Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C152Electrical properties3,2Dielectric constantIEC 602500,001Volume resistivityIEC 60093Ω*cmSurface resistivityIEC 60093Ω1018Comparative tracking indexIEC 60112-	Mechanical properties			
Tensile modulus of elasticityDIN EN ISO 527MPa4000Notched impact strength (charpy)DIN EN ISO 179kJ/m²-Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal propertiesMelting temperatureISO 11357-3°C343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210 *6K *150Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C152Electrical propertiesDIN EN ISO 75, method A°C152Dielectric constantIEC 602500,0010Volume resistivityIEC 60093 Ω 101*8Comparative tracking indexIEC 60112	Yield stress	DIN EN ISO 527	MPa	110
Notched impact strength (charpy)DIN EN ISO 179kJ/m²-Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal propertiesMelting temperatureISO 11357-3°C343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210.°K·150Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesUEC 602500,001001Volume resistivityIEC 60093 Ω *cm4,9 * 1016Surface resistivityIEC 60112	Elongation at break	DIN EN ISO 527	%	20
Ball indentation hardnessDIN EN ISO 2039-1MPa230Shore hardnessDIN EN ISO 868scale D88Thermal propertiesMelting temperatureISO 11357-3°C343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 5375210.°K·150Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesUEC 602500,001011Volume resistivityIEC 60093 Ω *cm4,9 * 1016Surface resistivityIEC 60112	Tensile modulus of elasticity	DIN EN ISO 527	MPa	4000
Shore hardnessDIN EN ISO 868scale D88Thermal properties $\$ Melting temperatureISO 11357-3°C343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 53752 10^{-6} K-150Service temperature, long termAverage°C-60250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesUEC 602503,20,001Dielectric dissipation factor (50Hz)IEC 602500,0010,001Volume resistivityIEC 60093 Ω *cm4,9 * 10^{16}Surface resistivityIEC 60112	Notched impact strength (charpy)	DIN EN ISO 179	kJ/m ²	-
Thermal propertiesMelting temperatureISO 11357-3°C343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 53752 $10^{.6}$ K-150Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesUU3,2Dielectric constantIEC 602500,001Volume resistivityIEC 60093 Ω *cm4,9 * 10^{16}Surface resistivityIEC 60112-	Ball indentation hardness	DIN EN ISO 2039-1	MPa	230
Melting temperatureISO 11357-3°C343Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 53752 10^{-6} K-150Service temperature, long termAverage°C-60250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesUEC 602503,20,001Volume resistivityIEC 602500,0014,9 * 10^{16}Surface resistivityIEC 60093 Ω *cm4,9 * 10^{16}Comparative tracking indexIEC 60112	Shore hardness	DIN EN ISO 868	scale D	88
Thermal conductivityDIN 52612-1W / (m * K)0,25Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 53752 10^{-6} K-150Service temperature, long termAverage°C $-60 \dots 250$ Service temperature, short term (max.)Average°C 310 Heat deflection temperatureDIN EN ISO 75, method A°C 152 Electrical propertiesUU $3,2$ $0,001$ Dielectric constantIEC 60250 $0,001$ $0,001$ Volume resistivityIEC 60093 Ω *cm $4,9 * 10^{16}$ Surface resistivityIEC 60112- $-$	Thermal properties			
Thermal capacityDIN 52612kJ / (kg * K)1,34Coefficient of linear thermal expansionDIN 53752 10^{-6} K-150Service temperature, long termAverage°C $-60 \dots 250$ Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesDiverage°C3,2Dielectric constantIEC 602503,2Dielectric dissipation factor (50Hz)IEC 60093 Ω *cm4,9 * 10^{16}Surface resistivityIEC 60093 Ω 10^{18}Comparative tracking indexIEC 60112	Melting temperature	ISO 11357-3	°C	343
Coefficient of linear thermal expansionDIN 53752 10^{-6} K-150Service temperature, long termAverage°C $-60 \dots 250$ Service temperature, short term (max.)Average°C 310 Heat deflection temperatureDIN EN ISO 75, method A°C 152 Electrical propertiesElectric constantIEC 60250 $3,2$ Dielectric dissipation factor (50Hz)IEC 60250 $0,001$ Volume resistivityIEC 60093 Ω^{*} cm $4,9^{*}10^{16}$ Surface resistivityIEC 60112-	Thermal conductivity	DIN 52612-1	W / (m * K)	0,25
Service temperature, long termAverage°C-60 250Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesElectric constantIEC 602503,2Dielectric dissipation factor (50Hz)IEC 602500,001Volume resistivityIEC 60093Ω *cm4,9 * 1016Surface resistivityIEC 60093Ω1018Comparative tracking indexIEC 60112-	Thermal capacity	DIN 52612	kJ / (kg * K)	1,34
Service temperature, short term (max.)Average°C310Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical properties3,2Dielectric constantIEC 602503,2Dielectric dissipation factor (50Hz)IEC 602500,001Volume resistivityIEC 60093Ω *cm4,9 * 1016Surface resistivityIEC 60093Ω1018Comparative tracking indexIEC 60112-	Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ K ⁻¹	50
Heat deflection temperatureDIN EN ISO 75, method A°C152Electrical propertiesIEC 602503,2Dielectric dissipation factor (50Hz)IEC 602500,001Volume resistivityIEC 60093Ω *cm4,9 * 1016Surface resistivityIEC 60093Ω1018Comparative tracking indexIEC 60112-	Service temperature, long term	Average	°C	-60 <mark> 25</mark> 0
Electrical propertiesDielectric constantIEC 60250 $3,2$ Dielectric dissipation factor (50Hz)IEC 60250 $0,001$ Volume resistivityIEC 60093 Ω *cm $4,9$ * 10 ¹⁶ Surface resistivityIEC 60093 Ω 10^{18} Comparative tracking indexIEC 60112-	Service temperature, short term (max.)	Average	°C	310
Dielectric constantIEC 602503,2Dielectric dissipation factor (50Hz)IEC 602500,001Volume resistivityIEC 60093 Ω^{*} cm4,9 * 10^{16}Surface resistivityIEC 60093 Ω 10^{18}Comparative tracking indexIEC 60112-	Heat deflection temperature	DIN EN ISO 7 <mark>5,</mark> method A	°C	152
Dielectric dissipation factor (50Hz) IEC 60250 0,001 Volume resistivity IEC 60093 Ω *cm 4,9 * 10 ¹⁶ Surface resistivity IEC 60093 Ω 10 ¹⁸ Comparative tracking index IEC 60112 -	Electrical properties			
Volume resistivityIEC 60093 Ω *cm $4,9$ * 1016Surface resistivityIEC 60093 Ω 10^{18} Comparative tracking indexIEC 60112-	Dielectric constant	IEC 60250		3,2
Surface resistivity IEC 60093 Ω 10 ¹⁸ Comparative tracking index IEC 60112 -	Dielectric dissipation factor (50Hz)	IEC 60250		0,001
Comparative tracking index IEC 60112 -	Volume resistivity	IEC 60093	Ω *cm	4,9 * 10 ¹⁶
	Surface resistivity	IEC 60093	Ω	10 ¹⁸
Dielectric strength IEC 60243 kV/mm 20	Comparative tracking index	IEC 60112		-
	Dielectric strength	IEC 60243	kV/mm	20

This material is not intended for the use in medical products that remain for more than 24 hours in the human body or are intended to remain in contact with internal human tissue or blood for more than 24 hours. The short-term maximum application temperature only applies to very low mechanical stress for a few hours. The long-term maximum application temperature is based on the thermal ageing of plastics by oxidation, resulting in a decrease of the mechanical properties. This applies to an exposure to temperatures for at least 5.000 hours causing a 50% loss of the tensile strength from the original value (measured at room temperature). This value says nothing about the mechanical strength of the material at high application temperatures. In case of thick-walled parts, only the surface layer is affected by oxidation from high temperatures. With the addition of antioxidants, a better protection of the surface layer is achieved. In any case, the center area of the material remains unaffected. The minimum application temperature is basically influenced by possible stress factors like impact and/or shock under application. The values stated refer to an minimum degree of impact stress. The electrical properties as stated result from measurements on natural, dry material. With other colours (in particular black) or saturated material, there may be clear differences in the electrical properties and are presented as a guide to choose from our range of materials. This, however, does not include an assurance of specific properties or the suitability for particular application purposes that are legally binding. Since the properties also depend on the dimension of the semi-finished products and the degree of crystallization (e.g. nucleating by pigments), the actual values of the properties of a particular product may differ from the indicated values.

