cps GmbH creative plastic solutions	Type	T - series	T-series UV	C - series	F - series	FC - series	W - series	UMC - series
General Physical Properties	**Code**	**EV20134**	**EV20235**	**EV20236**	**EV20198**	**EV20138**	**EV21119**	**EV20520**
density	g/cm³	0,930	0,930	0,940	0,940	0,940	0,940	0,940
molecular weight (1)	g/mol	5.000.000	5.000.000	5.000.000	5.000.000	5.000.000	5.000.000	10.000.000
Mechanical Properties (2)								
ultimate elongation at break (5)	%	600	550	450	400	500	500	400
tensile modulus of elasticity (5) (6)	MPa	530	500	550	600	530	500	500
notch impact strength (7) (2)	kJ/m	≥ 210	≥ 210	≥ 210	≥ 210	≥ 210	≥ 210	≥ 90
shore hardness (8)	Skala D	65	65	65	65	65	65	65
Thermal Properties								
melting temperature	°C	135	135	135	135	135	135	135
thermal conductivity	W / (m * K)	0,41	0,41	0,41	0,41	0,41	0,41	0,41
average coefficient of linear thermal expansion	10^{-6} K^{-1}	~2*10^{-4}	~2*10^{-4}	~2*10^{-4}	~2*10^{-4}	~2*10^{-4}	~2*10^{-4}	~2*10^{-4}
service temperature, long term (3)	°C	-200 … 80	-200 … 80	-200 … 80	-200 … 80	-200 … 80	-200 … 80	-200 … 80
service temperature, short term (max.) (4)	°C	130	130	130	130	130	130	130
Electrical Properties								
contact resistance	Ω * cm	>10^{14}	>10^{14}	<10^{4}	>10^{14}	<10^{4}	>10^{14}	<10^{4}
surface resistance	Ω	>10^{13}	>10^{13}	<10^{3}	>10^{13}	<10^{3}	>10^{13}	<10^{3}
dielectric strength (9)	kV/mm	≥ 45	≥ 45	./.	≥ 45	./.	≥ 45	./.
Others								
UV		no	yes	yes	yes	yes	yes	yes
FDA compliance certification		yes	yes	yes	no	no	yes	no
EU 10/2011		yes	X	yes	X	X	yes	X
Color		natur	natur	black	black	black	white	black
Conductivity		no	no	yes	no	yes	no	yes

The values indicated herein are mean values safeguarded by continuous monitoring and recurring testing. Present data exclusively represent the properties of the materials (indicative values) – unless expressly agreed, they shall not be contractually guaranteed.

(1) This is the average molar mass of the PE-UHMW (= ultra-high molecular weight polyethylene) resins – irrespective of any additives – used for the manufacture of this material. It is calculated by means of the Margolies equation M = 5.37 x 104 x [η]1.49 with [η] being the intrinsic viscosity (Staudinger index), derived from a viscosity measurement according to ISO 1628-3:2001, using decahydronaphtalene as a solvent (concentration of 0.0002 g/cm ³).
(2) The values given for these properties are, for the most part, derived from raw material supplier data (material data sheet) as well as from other publications.
(3) Valid only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material.
(4) Temperature resistance over a period of 20,000 hours. After this period of time, there is a decrease in tensile strength – measured at 23 °C – of approximately 50% as compared with the original value. The maximum allowable service temperature indicated herein is thus based on the thermal-oxidative degradation taking place, causing a reduction in properties. Note, however, that in many cases the highest admissible service temperature essentially depends on the duration and the magnitude of the mechanical load/stress the material is subjected to during heat exposure.
(5) Average values from test specimen taken (machine direction orientation)
(6) Test speed: 1 mm/min
(7) With 14° sharp, double-sided V-notch
(8) Measured on 10 mm thick test specimens for a duration of 15 seconds
(9) Electrode configuration: two (2) coaxial cylindres (ø25 mm / ø75mm); in transformer oils according to IEC (= International Electrotechnical Commission) Regulation No 60296; measured on 1 mm thick test specimen. It is important to note that the dielectric strength of UniC Film black may be considerably lower than the value indicated in the table for UniC Film off-white.

Present table shall provide valuable assistance in the choice of material. The data listed herein are within the normal range of product properties. However, they are not guaranteed and they should neither be used to establish material specifications/specification limits nor should they be consulted as a basis of design.

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