

Product Data Sheet EP GC 202 HFD (halogen free)

It fulfills all the requirements concerning EP GC 308 EP GC 311
the types according to DIN EN 60893-3-2 EP GC 204
EP GC 306

Property	Method of testing	Unit	max. or min.	Ref. Value IEC 60893-3-2	Test value (median)
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Mechanical properties

Flexural stress at rupture perpendicular to laminations	ISO 178 150 °C 180 °C	MPa	min.	340 170	700,76 189,14 109,01
Apparent modulus of elasticity in flexure	ISO 178 150 °C 180 °C	MPa	min.	22000*	27540 15662 12245
Compressive strength perpendicular to laminations	ISO 604	MPa	min.	350*	563,66
Impact strength (Charpy) parallel to laminations	ISO 179/3C	kJ/m ²	min.	50	118,31
Tensile strength	ISO 527-4	MPa	min.	300*	398,19

Electrical properties

Electric strength at 90°C in oil perpendicular to laminations	IEC 60243-1	kV/mm	min.	10,2**	11,78
Breakdown voltage at 90°C in oil parallel to laminations	IEC 60243-1	kV	min.	45	80
Insulation resistance after immersion in water	IEC 60167	MOhm	min.	50.000	150.550
Comparative tracking index CTI	IEC 60112	CTI	min.	600*	600

other properties

Thermal endurance	IEC 60216	T.I.		155*	>180
Density	ISO 1183	g/cm ³		1,8 - 2,0*	2,036
Water absorption, absolute	ISO 62	mg	max.	23***	6,00

Base material Woven glass cloth
Matrix resin: Epoxy (epoxide)
Compound: halogen free

* Typical values as per IEC 60893-4. They shall not be considered as specification requirements.

** for thickness $\geq 3,0$ mm

*** for test specimens 50 x 50 x 4 mm

Test values are derived from an average type test

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Certifications Underwriter Laboratories



Flammability	E307596	IEC 60695-11-10	UL 94		V-0	V-0
Hot-wire Ignition	E307596	UL746A	HWI			0
High Amp Arc Ignition	E307596	UL746A	HAI			0
Relative Temperature Index	E307596	UL746A	RTI			130

Fire behaviour and fire side effects of materials and parts DIN 5510 – 2

flammability group	DIN 5510 T.2	class			S 4
smoke emission class	DIN 5510 T.2	class			SR 2
drop forming category	DIN 5510 T.2	class			ST 2

Fire testing at DIN EN 45545-2:2013

Oxygen index	T01	EN ISO 4589-2	Vol. %	min.		76,7
Smoke density D _s max	T10.3	EN ISO 5659-2		max.		82
Smoke toxicity CIT _{NLP}	T12	NF X 70-100		max.		0,09
					3 mm	20 mm
MARHE- value	T03.01	ISO 5660-1	kW/m ²	max.	22,1	16,2
Smoke density D _s max	T10.04	EN ISO 5659-2		max.	431	388
Smoke density D _s (4)	T10.01	EN ISO 5659-2		max.	116	52
Smoke density VOF4	T10.02	EN ISO 5659-2		max.	179	75
Smoke toxicity CIT _G -Wert	T11.01	EN ISO 5659-2		max.	0,12	0,06
flux at extinguishment CFE	T11.02	EN ISO 5658-2	kW/m ²	min.	42,3	46,3

These tests allow a classification into the requirement levels R1, R2, R3, R7, R11, R12, R17, R22 and R23 according to EN 45545-2.

Glowing/hot-wire based test methods

Glow-wire flammability index GWFI	DIN EN 60695-2-12				GWFI: 960/3,0
Glow-wire ignition temperature GWIT	DIN EN 60695-2-13				GWIT: 960/3,0

RoHS- Declaration

This material does not contain any substances of very high concern as listed in the EU directive 2011/65/EU, article 4, paragraph 1