

Product Data Sheet EP GC 202 HFS (halogen free)

It fulfills all the requirements concerning EP GC 309 EP GC 310
the types according to DIN EN 60893-3-2

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 RT 100 °C 130 °C	MPa	min.	340 170	669,89 340,96 182,16
Apparent modulus of elasticity in flexure	ISO 178 RT 100 °C 130 °C	MPa	min.	22000*	28.216 20.188 11.203
Compressive strength perpendicular to laminations	ISO 604	MPa	min.	350*	503,49
Impact strength (Charpy) parallel to laminations	ISO 179/3C	kJ/m ²	min.	42	129,83
Tensile strength	ISO 527-4	MPa	min.	300*	366,83

Electrical properties

Electric strength at 90°C in oil perpendicular to laminations	IEC 60243-1	kV/mm	min.	10,2**	11,95
Breakdown voltage at 90°C in oil parallel to laminations	IEC 60243-1	kV	min.	45	75
Insulation resistance after immersion in water	IEC 60167	MOhm	min.	50.000	514.000
Comparative tracking index CTI	IEC 60112	CTI	min.	200*	600/400M

other properties

Thermal endurance	IEC 60216	T.I.		130*	>160
Density	ISO 1183	g/cm ³		1,8 - 2,0*	2,074
Water absorption, absolute	ISO 62	mg	max.	23***	6,60

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			1
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
smoke gas toxicity	DIN 5510 An. C	t _{zul} =30min			FED = 0,02<1

Fire testing at DIN EN 45545-2:2013

					1,6 mm	10/ 25 mm
Oxygen index	T01	EN ISO 4589-2	Vol. %	min.	53,9	53,6
Smoke density D _s max	T10.3	EN ISO 5659-2		max.	70	5
Smoke toxicity CIT _{NLP}	T12	NF X 70-100		max.	0,05	0,05

Fire testing at NFPA 130:2014

Fire propagation	ASTM C 1166	15 min	< 100		82
Specific optical density of smoke	ASTM E 662	D _s (1,5 min)	< 100	0	0
Specific optical density of smoke	ASTM E 662	D _s (4 min)	< 200	1	18
Toxic gas generation	BSS 7239	currenta		satisfies	15/0612

Fire testing at NF F 16-101

Fire behaviour and materil selection	NF F 16-101	class			F 1
Fire behaviour and materil selection	NF F 16-101	class			I 1

Fire testing at UNI CEI 11170

Flammability of materials	EN ISO 11925-2	class	30 s		satisfies
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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