

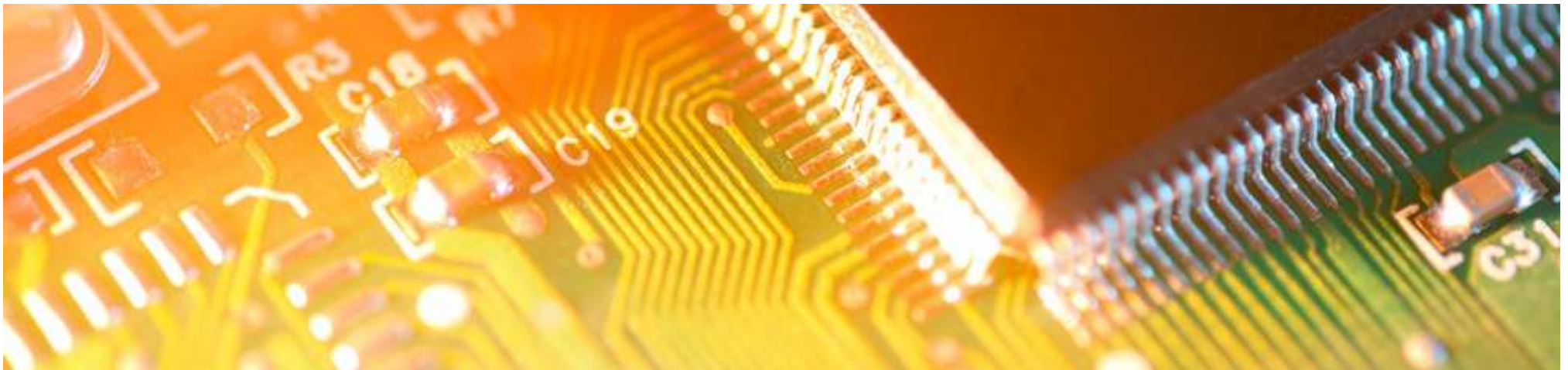
# Araldite® Vergussmassen / Giessharze

## Epoxidharz Giessharz gefüllt heiss härtend

### Zwei-Komponenten Epoxidharz heiss härtend

Das Epoxid-Giessharz Angebot eignet sich für den Verguss elektronischer Bauteile wie z.B. Isolatoren, Transformatoren, Kondensatoren, Halbleiter bis hin zum Verguss ganzer Baugruppen (Elektronikgiessharz). Besonders häufig wird Epoxid-Giessharz zur Herstellung von Kunststoff-Isolatoren für den Innenraum als Alternative zu Porzellan- und Glasisolatoren verwendet.

Teilweise kommt Epoxidharz als Giessharz bei Aussenbereichsanwendungen wie z.B. bei Isolatoren für Freileitungen zum Einsatz. Die hierbei entstehenden hohen mechanischen Beanspruchungen werden in Verbundbauweise aus glasfaserverstärktem Epoxidharz und Silikon-Elastomeren aufgefangen.



Quelle: Technical data sheets of Huntsman Advanced Materials  
Araldite® is a registered tradename of Huntsman Advanced Materials

## Encapsulating systems

Araldite®: filled epoxy hot curing

System	resin		CW 5730 N	CW 1446 BDF	CW 2250	CW 1116-1	CW 1116-1	CW 1116-1	CW 1491 BD	CW 2122-1	CW 2122-1	XB 5763	CW 5725	CW 5742	CW 1195-1	CW 229-3
	hardener		HY 5731	HY 2919	HY 2919	XW 1257-1	HY 2919	HY 2123	HW 1491 BD	HY 2123	HY 2901-1	HY 5726	HY 5726	HY 5726	HW 1196	HW 229-1
Type of System			EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled	EP/filled
Color			black	beige	Yellow/Beige/Grey	red-brown	red-brown	red-brown	blau	red-brown	red-brown	black	black	black	black	red-brown
Density of casting	g/cm3		1.59	1.66	1.54	1.59	1.62	1.62	1.67	1.54	1.42	1.65	1.71	1.71	1.73	1.85
Filler content	resin %	%	71	65	57	resin 61 hardener 46	resin 61 hardener -	resin 61 hardener -	resin 66 hardener 56	58	58		65		resin 61 hardener 67	resin 55-58 hardener 62-65
Mixing ratio	resin/hardener parts by weight	Gewichtsmischung	100/28	100/24	100/30	100/100	100/31	100/31	100/100	100/34	100/100	100/26	100/28	100/33	100/100	100/100
	resin/hardener parts by volume	Volumenmischung	100/52		100/41	100/120		100/44	100/105	100/48	100/135	100/42	100/45	100/53	100/92	
Viscosity	resin mPas/°C	mPas/°C	50 000/25	3800-6800/50	8000/25	35 000/25	30 000/25	30 000/25	800 000/25	40 000/25	40 000/25	10000-20000/60°C	8000/60	4000-12000/25	90000/25	120000/25
	hardener mPas/°C		800/25	50-100/25	50-100/25	7 500/25	75/25	75/25	165 000/25	75/25	5000/25	70/25	70/25	70/25	16500/25	12000/25
	mixture mPas/25°C	mPas/25°C	7000	3500	1160	3500/40	490/40	400/40	175 000	1800/25	9400	1200	1500	17000		
	mPas/°C	mPas/°C	360/80	300/60	390/50	1400/60	150/60		1300/80	590/40	360/70	600/60	420/60	220/60	300/80	2000/60
Pot life	min / °C / mPas	min / °C / mPas	372/60/15000	97/60/1500	120/25/1750	300/60/15000	260/60/15000	360/60/15000	4/60/15000	24/40/15000	4.75/60/15000	410/60/15000	190/60/15000	400/60/15000	12h/60/15000	8/60/15000
			114/80/15000	220/60/15000	420/25/2540	75/80/15000	140/80/15000	90/80/15000	2.5/70/15000	6/60/15000	2.75/70/15000	120/80/15000	130/80/15000	125/80/15000	4h/80/15000	2.5/80/15000
Gel time	min/°C	min/°C	480/60			130 / 80			8 / 60	300/70	310/70	200/70				
			180/60			34 / 100			3,40 / 70	160/80	160/80	110/80				
			37/100						1,5 / 80	80/90	80/90	64/90			22/140	6/140
Minimum curing time	h/°C	h/°C	3 / 80 + 6 / 100	5.5 / 100	3/80 + 3/110	3/80+6/100	2/70+4/110	2/70+4/110	16/80 or 4/80+2/120	4/70+3/100 or 3/80 + 2/110	4/70 + 6/90	2/85+2/100	2.5/90+2.5/140	2 h at 80°C + 1 h at 120°C + 2 h at 200°C	6/80+5/140 or 6/140	0/80 + 10/140
Glass transition temperature (DSC)	°C	°C	25	95	78	32	108	122	25	115	22	126	144	200 - 230*	146	115
Martens deflection temperature	°C	°C		85			103	113							130	100-110
Thermal conductivity	25°C W/mK	W/mK	0.61	0.67	0.51	0.68	0.55	0.55	0.82	0.51	0.34	0.56	0.65	0.65	0.65	0.7
Coefficient of linear thermal expansion	ppm/K	ppm/K	40 @ <30°C 101 @ >30°C	48 @ 20-81°C @ 95-100°C	134		45 @ 40-100°C	45 @ 40-100°C	83@32-46°C 119@46-59°C	50@20-80°C 70@90-110°C	60-80@24-38°C 165@38-65°C	alpha1 33°C	38	alpha1@38°C	28@20-130°C ->90@150°C	27-30@20-80°C 100@90-170°C
Thermal class			F (155°C)	H (180°C)				F (155°C)	F (155°C)		F (155°C)	H (180°C)	H (180°C)	H (180°C)	H (180°C)	H (180°C)
Shore hardness	23°C Shore D	Shore D	65	92		55	86	90	75	81	D 47 / A 96	90	90	90	95	
Flammability	UL 94 grade	grade	V-0 (6mm)	V-0 (6mm)	V-0 (6mm)	V-0 (6mm)	V-0 (6mm)	V-0 (6mm)	V-0 (4mm)	V-0 (1.6mm)	V-0 (1.6mm)	-	-	-	V-0 (6mm)	V-1 (12mm)
IEC 60695-2-11																
Flexural strength	max bending stress 25°C MPa	MPa	6	100	78	13	86	86	14	94		114	90	80	112	120-130
	surface strain failure 25°C %	%	8.1	1.5	1.29	8	1.4	1.3	13	1.7		1.6	1.4	1.2		1.4-1.6
Modulus of elasticity	25°C MPa	MPa	130	7400	6437	260	6880	6400	260	6270	90	8100	7800	7000	11100	9600-10000
Tensile strength	max bending stress 25°C MPa	MPa	5.6	47	51.8	9	60	51	9	58	9	82		38	44	80-90
	surface strain failure 25°C %	%	45	1.5	1.04	12	1.25	1.2	11	1.2	55	1.9		0.5	1.3	1.3-1.5
	Modulus of elasticity 25°C MPa	MPa			6465											
Compressive strength max.	25°C MPa	MPa		105-115												170-190
Impact strength	kJ/m2	kJ/m2		4-7			6.5	5.5		8					6	9-11
Water absorption	23°C days / %	days / %	1 / 0.43	1 / 0.06	1 / 0.05		1 / 0.06	1 / 0.06	1 / 0.06	1 / 0.1	1 / 0.21		10 / 0.08	10 / 0.45	1 / 0.2	10 / 0.1-0.2
	100°C min / %	min / %	30 / 0.27	30 / 0.14	30 / 0.15		30 / 0.13	30 / 0.13	30 / 0.18	30 / 0.16	30 / 0.42		30 / 0.05	30 / 0.12	30 / 0.08	60 / 0.4
Dielectric strength	kV/mm	kV/mm	28	25	29.7	28	16	16	15		25	41	25	41	14	20
Dielectric dissipation factor tan δ (50 Hz)	23°C %	%	3.4	1.5	1.5	4	0.7	1.3	5	1.75	5	1.1	0.4	2	0.5	1.2
	60°C %	%	6.5	3.5	3.5	4.8	0.9	2.6	7	2	8		0.8		1.2	1.7
Relative permittivity εr (50 Hz)	23°C		4.7	4	3.8	4	3.8	4.1	5	4	5	4	4.2	4.6	3.7	4.3
	60°C		6.1	4.3	4.3	5.3	3.8	4.2	6.8	4.1	5.7		4.3		3.7	4.3
Volume resistivity ρ	25°C Ohm cm	Ohm cm	4 x 10 <sup>14</sup>	1 x 10 <sup>15</sup>	2 x 10 <sup>15</sup>		2 x 10 <sup>15</sup>	2 x 10 <sup>15</sup>	7 x 10 <sup>14</sup>	2 x 10 <sup>16</sup>	3 x 10 <sup>14</sup>	1 x 10 <sup>15</sup>	4 x 10 <sup>15</sup>	1 x 10 <sup>15</sup>	8x10 <sup>16</sup>	1 x 10 <sup>16</sup>
	60°C Ohm cm	Ohm cm			5 x 10 <sup>15</sup>		8 x 10 <sup>14</sup>	8 x 10 <sup>14</sup>	3 x 10 <sup>11</sup>	9 x 10 <sup>15</sup>	3 x 10 <sup>11</sup>		2 x 10 <sup>15</sup>		4x10 <sup>15</sup> /120°C	5 x 10 <sup>15</sup>
Tracking resistance CTI	CTI	CTI	>600M-0.1	>600		>600 M 0.1	>600	>600-0.0	>600-0.0	>600-0.0	>600-0.0	>600-0.0	>600-0.1	>600	>600	>600-0.0
Electrolytic corrosion	grade	Stufe	A-1	A-1			A-1	A-1	A-1.2	A-1	A-1.2	A-1	A-1	A-1	AN/1.2	A-1

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