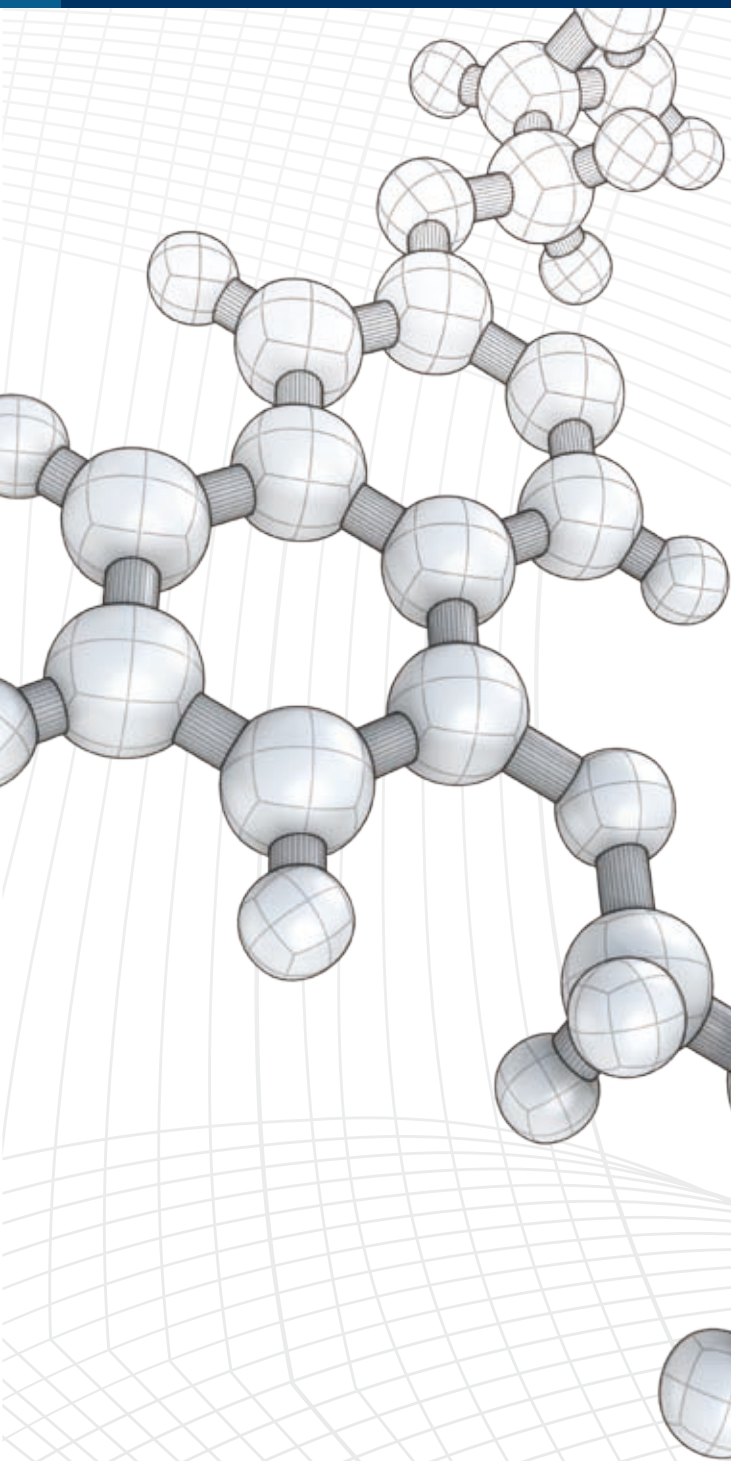


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Selector guide
for formulators

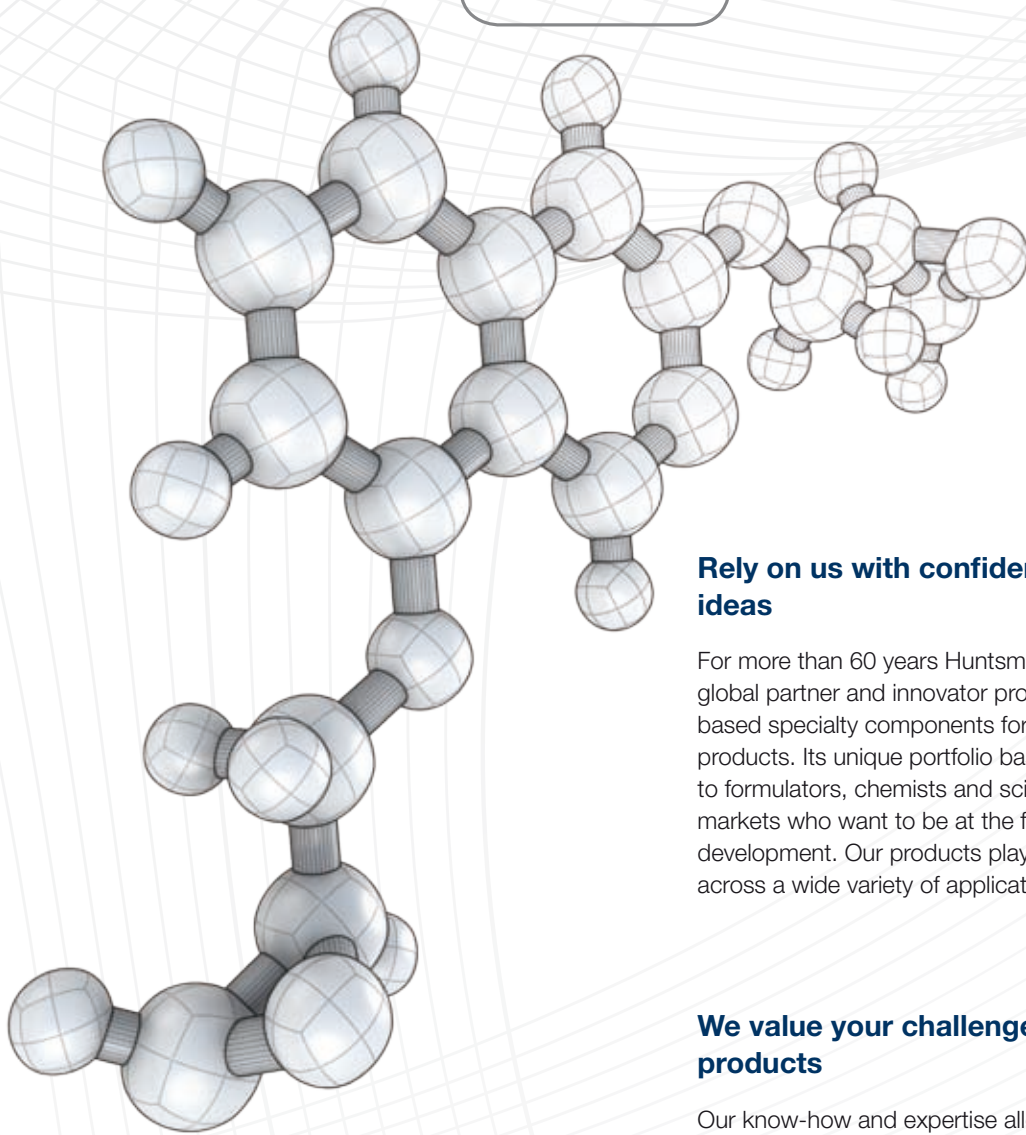


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Our know-how and expertise allow us to develop building blocks and preformulated master-batches to answer your specific formulation requirements.

- Huntsman Advanced Materials has a worldwide team of experts
- > to identify with you the best building block within its large range
 - > to modify or develop when needed high performance products
 - > to improve the quality, the durability and the performance of your products such as mechanical, temperature, fire, chemical or corrosion resistance and more to help you in process optimization and to quickly bring your product to market.



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Note

EHC: Easily Hydrolysable Chlorine

TC: Total Chlorine

NM: Not Measured

NA: Not Applicable

Epoxy resins

1-1 Bisphenol-A based epoxy resins

1-1-1 Unmodified liquid resins

Product designation	Viscosity	Epoxy equivalent weight	EHC	Characteristics / comments
Conditions	25°C			
Unit	mPa.s	g/Eq	ppm	
Araldite® GY 240	7 000 - 9 000	178 - 183	0 - 400	Aero grade available.
Araldite® GY 266	9 500 - 12 000	189 - 196	NM	
Araldite® LY 1556	9 500 - 12 000	189 - 196	0 - 1 000	Controlled chlorine content.
Araldite® GY 250	10 000 - 12 000	183 - 189	0 - 400	
Araldite® LY 556	10 000 - 12 000	183 - 189	400 - 1 000	Aero grade.
Araldite® GY 2600	12 000 - 14 000	184 - 189	0 - 170	Low chlorine content. Aero grade available.
Araldite® GY 260	12 000 - 16 000	182 - 192	NM	
Araldite® GY 261	12 500 - 17 500	192 - 204	8 000 - 12 000	High chlorine content.
Araldite® GY 280	450 - 700 (70% in Butylcarbitol)	225 - 280	NM	Semi-solid (available 80% in xylene).

1-1-2 High purity liquid resins

Product designation	Viscosity	Epoxy equivalent weight	EHC	Characteristics / comments
Conditions	25°C			
Unit	mPa.s	g/Eq		
Araldite® MY 790	60 - 80 at 70°C	169 - 178	NM	Distilled grade.
Tactix® 123	4 400 - 5 600	172 - 176	NM	Distilled grade, lowest viscosity within the Bis-phenol A epoxy range. Aero grade.

1-1-3 Solid epoxy resins - low and medium molecular weight

Product designation	Viscosity	Epoxy equivalent weight	Softening point	Characteristics / comments
Conditions	25°C / 40% in butylcarbitol			
Unit	mPa.s	g/Eq	°C	
Araldite® GT 6071	160 - 190	450 - 465	70 - 75	Type 1 (available 75% in xylene).
Araldite® GT 7071	200 - 250	500 - 525	77 - 82	Type 1 (available 75% in xylene).
Araldite® GT 6703	230 - 320	690 - 740	~ 87	Type 3.
Araldite® GT 7072	280 - 340	570 - 595	82 - 90	Type 2.
Araldite® GT 6063	350 - 500	640 - 730	90 - 97	Type 2.5.
Araldite® GT 6064	400 - 600	730 - 780	96 - 101	Type 3.5.
Araldite® GT 7004	500 - 600	714 - 752	95 - 101	Type 3.5.
Araldite® GT 6084-2	550 - 700	833 - 895	99 - 105	Type 4.

1-1-4 Solid epoxy resins - high molecular weight

Product designation	Viscosity	Epoxy equivalent weight	Softening point	Characteristics / comments
Conditions	25°C / 40% in butylcarbitol			
Unit	mPa.s	g/Eq	°C	
Araldite® GT 7077	1 300 - 1 900	1 490 - 1 640	125 - 135	Type 7.
Araldite® GT 6097	1 800 - 2 600	1 695 - 1 885	121 - 132	Type 7.
Araldite® GT 6609	2 700 - 4 800	2 380 - 2 941	~ 150	Type 9, low viscosity, available in powder form.
Araldite® GT 6810	4 000 - 7 000	>10 000	130 - 160	Type 10, modified.
Araldite® GT 6610	5 000 - 8 000	2 940 - 3 845	~ 150	Type 10, low viscosity.
Araldite® GT 6099	5 000 - 10 000	2 380 - 2 941	143 - 158	Type 9.
Araldite® GZ 7488 N50	2 000 - 5 000 (as produced)	≥12 500	NA	High molecular weight. Solution : 50% in MEK/cyclohexanone/1-methoxy-2-propylacetate (81:11:8).
Araldite® GZ 7488 V40	3 000 - 6 000 (as produced)	≥17 000	NA	High molecular weight. Solution : 40% in 1-methoxy-2-propylacetate/cyclohexanone (93:7).

1-2 Bisphenol-F based epoxy resins

1-2-1 Unmodified liquid resins

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa·s	g/Eq	
Araldite® PY 306	1 200 - 1 800	156 - 167	Distilled, very low viscosity, Aero grade.
Araldite® GY 285	2 000 - 3 000	164 - 172	Aero grade available.
Araldite® GY 282	3 300 - 4 100	164 - 172	Aero grade available.
Araldite® GY 281	5 000 - 7 000	158 - 172	

1-2-2 Bisphenol-A / Bisphenol-F based liquid resins

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa·s	g/Eq	
Araldite® PY 304	6 500 - 8 000	172 - 182	
Araldite® PY 302-2	6 500 - 8 000	169 - 177	Non-crystallizing.
Araldite® PY 720	7 000 - 9 400	179 - 189	

1-3 Epoxy reactive diluents

1-3-1 Mono functional reactive diluents

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa·s	g/Eq	
Araldite® DY-E	4 - 12	275 - 315	Monoglycidylether of C12-C14 alcohol.
Araldite® DY-K	6 - 12	175 - 189	Monoglycidylether of cresol.
Araldite® DY-P	20 - 28	222 - 244	Monoglycidylether of p-tert. Butylphenol.
Araldite® DY-CNO	30 - 70	425 - 575	Monoglycidylether of cardanol (aromatic, high content of biosourced materials).

1-3-2 Multifunctional reactive diluents

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa.s	g/Eq	
Araldite® DY-026	11 - 15	110 - 115	Diglycidylether of butanediol, aero grade.
Araldite® DY-D	15 - 25	118 - 125	Diglycidylether of butanediol.
Araldite® DY-H	21 - 31	143 - 155	Diglycidylether of 1,6-hexanediol.
Araldite® DY 3601	42 - 52	385 - 405	Diglycidylether of polyoxypropylene glycol.
Araldite® DY-C	60 - 90	167 - 179	Diglycidylether of cyclohexane dimethanol.
Araldite® DY-F	60 - 90	425 - 513	Diglycidylether of polyoxypropylene glycol.
Araldite® DY-L	160 - 240	556 - 714	Triglycidylether of polyoxypropylene glycol.
Araldite® DY-T	100 - 300	122 - 128	Triglycidylether of trimethylolpropane.
Araldite® DY-S	1 000 - 1 400	160 - 180	Multiglycidylether of poly-glycerol (high content of biosourced materials).

1-4 Novolac resins

1-4-1 Epoxy Phenol Novolac (EPN)

Mainly used for improvement of Tg levels, modulus, strength and chemical resistance. Typical applications in filament winding, RTM, prepregs and high Tg adhesives.

Product designation	Viscosity	Epoxy equivalent weight	EHC	Characteristics / comments
Conditions	52°C			
Unit	mPa.s	g/Eq	ppm	
Araldite® GY 289	7 000 - 11 000 at 25°C	167 - 175	NM	Low viscosity, functionality 2.2.
Araldite® PY 307-1	30 000 - 50 000 at 25°C	169 - 179	NM	Medium viscosity, functionality 2.2.
Araldite® EPN 1179	1 100 - 1 700	172 - 179	0 - 1 500	Semi-solid, functionality 2.5.
Araldite® EPN 1139	1 100 - 1 700	172 - 179	NM	Semi-solid, functionality 2.5. Aero grade.
Araldite® EPN 9880	18 000 - 25 000	171 - 185	0 - 1 000	Semi-solid, functionality > 3.
Araldite® EPN 1180	20 000 - 50 000	175 - 182	NM	Semi-solid, functionality 3.6. Available at 80% in xylene.
Araldite® EPN 1138	20 000 - 50 000	175 - 182	0 - 1 000	Semi-solid, functionality 3.6. Controlled chlorine content. Aero grade.

1-4-2 Epoxy Cresol Novolac (ECN)

Use to upgrade epoxy formulations to improve thermal, mechanical and chemical resistance. Typical applications in high temperature adhesives, composites, electrical and laminating products

Product designation	Viscosity	Epoxy equivalent weight	Softening point	EHC	Characteristics / comments
Conditions	130°C				
Unit	mPa.s	g/Eq	°C	ppm	
Araldite® ECN 9511	NM	200 - 227	32 - 42	0 - 1500	Functionality 2.7.
Araldite® ECN 1273	1 000 - 2 700	217 - 233	68 - 78	0 - 1500	Functionality 4.8.
Araldite® ECN 1280	3 000 - 4 000	206 - 224	75 - 85	0 - 1500	Functionality 5.1. Aero grade available.
Araldite® ECN 1299	7 000 - 15 000	206 - 230	85 - 100	0 - 2000	Functionality 5.4. Aero grade available.

1-4-3 -Epoxy Dicyclopentadiene Novolac (EDCPDN)

Lower moisture absorption than other novolac epoxies commonly used in advanced composites. Equivalent glass transition temperatures in dry conditions as standard epoxy novolac resins. Ideal for use when retention of properties under hot and wet conditions is critical.

Product designation	Viscosity	Epoxy equivalent weight	Softening point	EHC	Characteristics / comments
Conditions	85°C				
Unit	mPa.s	g/Eq	°C	ppm	
Tactix® 556	1 000 - 1 500	225 - 240	53	0 - 300	Multifunctional hydrocarbon epoxy novolac with high moisture resistance, aero grade.
Tactix® 756	NM	250 - 274	78 - 90	0 - 100	Multifunctional hydrocarbon epoxy novolac with high moisture resistance, aero grade.

1-5 Cycloaliphatic epoxy resins

Non aromatic, UV resistant and high Tg epoxy resins

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa.s	g/Eq	
Araldite® CY 179	250 - 450	130 - 143	Bis-(epoxycyclohexyl)methylcarboxylate. Low viscosity, high deflection temperature, excellent dielectric properties, good UV resistance. Typical applications in insulators, transformers, generators and motors.
Araldite® CY 192-1	430 - 660	150 - 164	Tetrahydrophthalic acid diglycidylester. Low viscosity, solventless impregnating resin. Typical applications in insulators, transformers, generators and motors.
Araldite® CY 184	700 - 1 000	144 - 157	Hexahydrophthalic acid diglycidylester. Low viscosity, high deflection temperature, excellent dielectric properties, good UV resistance. Typical applications in insulators, transformers, generators and motors.

1-6 Glycidyl amine based epoxy resins

Unique combination of high epoxy functionality, aromatic backbone and relatively low viscosity. Main features: strong improvement of Tg levels and modulus in epoxy formulations. Typical applications: prepregs, RTM, filament winding and high Tg adhesives.

Product designation	Viscosity	Epoxy equivalent weight	EHC	Characteristics / comments
Conditions				
Unit	mPa.s	g/Eq	ppm	
Araldite® MY 0500	2 000 - 5 000 at 25°C	100 - 115	300 - 3 000	TGPAP based Trifunctional Epoxy Resin, liquid. Aero grade.
Araldite® MY 0510	550 - 850 at 25°C	96 - 106	0 - 2 000	Distilled TGPAP based Trifunctional Epoxy Resin, lower viscosity and higher stability than MY 0500. Aero grade.
Araldite® MY 0600	7 000 - 13 000 at 25°C	101 - 111	0 - 3 000	TGMAP based Trifunctional Epoxy Resin, liquid, Aero grade.
Araldite® MY 0610	1 500 - 4 800 at 25°C	94 - 102	0 - 2 000	Distilled TGMAP based Trifunctional Epoxy Resin, lower viscosity and higher stability than MY0600. Aero grade.
Araldite® MY 721	3 000 - 6 000 at 50°C	111 - 117	0 - 2 000	TGMDA based Tetrafunctional Epoxy Resin, liquid. Aero grade. Industrial version available.
Araldite® MY 9655	6 900 - 11 400 at 50°C	113 - 125	0 - 1 000	TGMDA based Tetrafunctional Epoxy Resin, liquid. Aero grade.
Araldite® MY 9612	10 000 - 12 000 at 50°C	117 - 134	700 - 1 000	TGMDA based Tetrafunctional Epoxy Resin, liquid. Aero grade.
Araldite® MY 9512	11 000 - 13 000 at 50°C	117 - 134	0 - 1 000	TGMDA based Tetrafunctional Epoxy Resin, liquid. Aero grade.
Araldite® MY 9634	13 000 - 15 000 at 50°C	118 - 133	0 - 1 000	TGMDA based Tetrafunctional Epoxy Resin, liquid. Aero grade.
Araldite® MY 9663	17 000 - 19 000 at 50°C	117 - 133	0 - 1 000	TGMDA based Tetrafunctional Epoxy Resin, liquid. Aero grade.
Araldite® MY 720	7 000 - 19 000 at 50°C	117 - 134	0 - 1 000	TGMDA based Tetrafunctional Epoxy Resin, liquid.

1-7 Other specialty epoxy resins

Product designation	Viscosity	Epoxy equivalent weight	Softening point	EHC	Characteristics / comments
Conditions					
Unit	mPa.s	g/Eq	°C	ppm	
Araldite® MY 0816	25 000 - 80 000 at 25°C 1 500 - 2 500 at 50 °C	133 - 154	NA	0 - 2 000	Naphthalene-based epoxy, high performance bifunctional epoxy. Provides higher glass transition temperatures than bisphenol-A epoxy resins, close to glycidylamines epoxy resins. Contributes to toughness improvement via reduction of cross-linking density. Low contribution to water uptake.
Tactix® 742	600 - 700 at 80°C	150 - 170	45 - 55	0 - 500	Tris(hydroxyphenyl)methane based epoxy resin. Provides very high glass transition temperatures. Most commonly used in adhesive and composite formulation, especially for parts and components near high-heat zones. Aero grade.
XB 4399-3		213 - 244	50 - 60	300 - 1 100	Tetra(hydroxyphenyl)ethane based epoxy resin. Provides high glass transition temperatures. Suggested for temperature resistant adhesive, composite and electro-laminate formulations. Available in solution.

1-8 Formulated resins & waterborne

1.8-1 Formulated liquid resins

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa.s	g/Eq	
Araldite® BY 158	280 - 360	154 - 161	BPA resin with difunctional reactive diluent.
Araldite® GY 764	350 - 550	179 - 189	BPA resin with difunctional reactive diluent.
Araldite® GY 257	500 - 650	182 - 192	BPA resin with monofunctional reactive diluent.
Araldite® GY 253	700 - 1 400	172 - 185	BPA resin with difunctional reactive diluent.
Araldite® GY 279	800 - 1 500	194 - 208	BPA resin with monofunctional reactive diluent.
Araldite® GY 784	1 200 - 1 600	192 - 204	BPA resin with monofunctional reactive diluent.
Araldite® GY 298	2 000 - 4 000	400 - 455	BPA resin with reactive flexibilizer.
Araldite® GY 776	2 700 - 3 800	185 - 196	BPA resin with monofunctional reactive diluent.
Araldite® BY 157	4 200 - 5 700	182 - 187	BPA resin with difunctional reactive diluent.
Araldite® GY 793	650 - 750	185 - 200	BPA/F resin with monofunctional reactive diluent.
Araldite® GY 783	800 - 1 100	185 - 196	BPA/F resin with monofunctional reactive diluent.
Araldite® PY 3483	1 000 - 1 600	196 - 208	BPA/F resin with monofunctional reactive diluent.
Araldite® GY 1955	4 500 - 6 500	172 - 185	BPA/F resin with difunctional reactive diluent.
Araldite® EPN 1183	7 000 - 13 000	145 - 159	Medium viscosity, modified EPN, functionality 3.3.

1.8-2 Formulated solid resins

Product designation	Viscosity	Epoxy equivalent weight	Softening point	Characteristics / comments
Conditions	25°C / 40% in butylcarbitol			
Unit	mPa·s	g/Eq	°C	
Araldite® GT 6143	250 - 375	620 - 660	90 - 96	BPA resin with 2.5% flow agent.
Araldite® GT 2874-1	350 - 550	740 - 870	85 - 95	BPA resin with 10% flow agent.
Araldite® GT 7220	460 - 670	520 - 545	90 - 100	BPA resin with EPN.
Araldite® GT 7255	1 000 - 1 600	775 - 855	106 - 113	BPA resin with EPN.

1.8-3 Waterborne resins

Product designation	Viscosity	Epoxy equivalent weight	Solid content	Characteristics / comments
Conditions	25°C			
Unit	mPa·s	g/Eq	wt. %	
Araldite® PZ 33757/67	~ 230 , sl. thixotropic	246	66 - 68	Emulsified, crystallization-resistant liquid epoxy resin.
Araldite® PZ 3961-1	400 - 750	925 - 1 048	51 - 55	Aqueous dispersion of BPA type 1 resin.
Araldite® ECN 1400	900 - 1 500	217 - 244	38 - 42	Water-based epoxy cresol novolac resin.
Araldite® PY 33757	6 200 - 7 200	172 - 182	100	Emulsifiable, crystallization-resistant liquid epoxy resin.
Araldite® PZ 3903-2	8 000 - 20 000	715 - 800	53 - 58	Aqueous dispersion of Type 3 epoxy resin.
Araldite® PZ 3907-1	8 000 - 20 000	1 800 - 2 200	52 - 55	Aqueous dispersion of Type 7 epoxy resin.
Araldite® PZ 323	slightly thixotropic	222 - 250	75 - 78	Aqueous dispersion of polyfunctional EPN resin.

Epoxy curing agents and accelerators

2-1 Polyamidoamine based

Hardeners for low to medium Tg two components system

Product designation	Viscosity	H+ active equivalent weight	Gel time	Characteristics / comments
Conditions	25°C		with GY 250, 250 g	
Unit	mPa.s	g/Eq	min	
Aradur® 350	100 - 400	95	180	Polyaminoimidazoline.
Aradur® 33225	100 - 400	75 - 115	900	Polyamidoimidazoline. Good latency at room temperature.
Aradur® 370	150 - 350	95	70	Polyaminoimidazoline.
Aradur® 250	400 - 700	95	60	Polyamidoamine.
Aradur® 3282-1	900 - 1900	115	100	Formulated polyamidoamine adduct for enhanced adhesion properties. Good adhesion on unprepared surface.
Aradur® 145	2 400 - 4 000	95	180	Polyaminoimidazoline.
Aradur® 224	4 000 - 6 000	180	>480	Polyaminoimidazoline.
Aradur® 140	300 - 600 at 75°C	95	120	Polyaminoimidazoline.
Aradur® 125	700 - 900 at 75°C	130	120	Polyamidoamine. Solvent versions available.
Aradur® 115	3 100 - 3 700 at 75°C	240	>1 000 (50% in methoxypropylacetate)	Semi-solid polyamidoamine. Solvent versions available.
Aradur® 100	700 -1 100 at 150°C	475	>1 000 (50% in methoxypropylacetate)	Semi-solid polyamidoamine. Solvent versions available.

2-2 Aromatic amine based

High performance curing agents for epoxy resins when thermal stability, high temperature performances and chemical resistances are key.

Product designation	H+ active equivalent weight	Softening point	Characteristics / comments
Conditions			
Unit	g/Eq	°C	
Aradur® 976-1	63	176 - 180	4,4'-DiaminoDiphenylSulfone, Aero grade. Industrial grade available.
Aradur® 9664-1	63	176 - 185	Micropulverised 4,4'-DiaminoDiphenylSulfone, Aero grade.
Aradur® 9719-1	63	170 - 180	Micropulverised 3,3'-DiaminoDiphenylSulfone, Aero grade.

2-3 Anhydride based

Hardeners of choice when process requires very long latency, low viscosity and also when high temperature resistance is targeted.

Product designation	Viscosity	Molecular weight	Characteristics / comments
Conditions	25°C		
Unit	mPa.s	g/mol	
Aradur® HY 1102	50 - 70	168	Methyl hexahydrophthalic anhydride for high temperature industrial composite applications by filament winding, RTM and pultrusion.
Aradur® 917	50 - 100	166	Methyl tetrahydrophthalic anhydride for high temperature industrial composite applications by filament winding, RTM and pultrusion.
Aradur® 906	175 - 275	178	Nadic methyl anhydride for high Tg composites and potting applications.

2-4 Formulated hardeners and accelerators

2-4-1 Liquid formulated hardeners

Product designation	Viscosity	H+ active equivalent weight	Gel time	Tg range	Characteristics / comments
Conditions	25°C		with GY 250 (100g, 23°C)	cured with GY 250	
Unit	mPa.s	g/Eq	min	°C	
Aradur® 70	16 000 - 27 000	~ 900	300 - 500	< - 10	Polyetherurethane amine. Hardener giving very high flexibility. Max elongation at 23°C 350% and at - 10°C > 250%.
Aradur® 3275	200 - 300	250	~ 85	< - 10	Formulated polyetherpolyamine giving high level of flexibility. Elongation 110% at 23°C and up to 50% down to -10°C.
Aradur® 15-1	100 - 300	140	~ 18	< 30	Polyamine. Suitable for flexibilizing and hydrophobizing mastics.
Aradur® 90	10 000 - 16 000	200	~ 5 (20 g)	< 50	Polymercaptan, can be used for epoxy adhesive at room temperature, extremely fast cure.
Aradur® 2992	10 - 20	55	~ 5	75 - 95	Polyamine, can be used as reactive fast accelerator in combination with other hardener or for anchor bonding adhesive.
Aradur® 3486	10 - 20	57,00	~ 550	80 - 105	Polyamine, can be used in 2 systems for wet lay-up, infusion, adhesives. Exhibits very high ultimate elongation in combination with a long pot life.
Aradur® 3492	5 - 20	52	~ 325	90 - 110	Polyamine, can be used in a 2K systems for wet lay-up, infusion, RTM, adhesives with relatively long open time at room temperature.
Aradur® 3489	5 - 20	52	~ 900	90 - 110	Polyamine, can be used in a 2K systems for wet lay-up, infusion, RTM, adhesives with very long open time at room temperature.
Aradur® 3740	5 - 20	41	~ 58	105 - 120	Polyamine, can be used in 2 systems for wet lay-up, infusion, adhesives. Exhibits excellent mechanical properties and good thermal resistance.
Aradur® 3741	5 - 25	39	~ 84	115 - 140	Polyamine, can be used in 2 systems for wet lay-up, infusion, adhesives. Exhibits excellent mechanical properties and good thermal resistance.
XB 3473	80 - 125	~ 43	21 - 29 at 140°C	165 - 195	Latent polyamine which allows parts manufacture to tailor specific formulation processing characteristics and cured polymer properties.

2-4-2 Paste hardeners & accelerators

Product designation	Viscosity	Gel time	Characteristics / comments
Conditions	25°C	with GY 250 (ratio 100/20, 130°C)	
Unit	mPa.s	min	
Aradur® 1571	28 000 - 40 000	NA	DICY paste (28% DICY in Epoxy resin). Eliminate manipulation of Dicyandiamide in powder form and the need for heavy dispersion equipments. Homogeneous, agglomerate-free dispersion. Easy to manipulate and introduce in epoxy resins formulations.
Accelerator 1573	60 000 - 90 000	15 - 19	Accelerator suggested for use in combination with Aradur® 1571.

2-4-3 Waterborne hardeners

Product designation	Viscosity	H+ active equivalent weight	Pot life	Characteristics / comments
Conditions	25°C		with GY 776	
Unit	mPa.s	g/Eq	min	
Aradur® 3985	1 000 - 6 000	~265	~ 60	Polyamine adduct 54-56% in water.
Aradur® 3985S	3 000 - 8 000	~210	~ 30	Polyamine adduct 54-56% in water.
Aradur® 36	4 000 - 7 000	~165	~150	Polyamine adduct 79-81% in water.
Aradur® 39	12 000 - 20 000	~335	120 - 240	Polyamine adduct 49-51% in water.
Aradur® 435	13 000 - 23 000	~250	90 - 120	Polyamidoamine adduct 49-51% in water.
Aradur® 340	18 000 - 23 000	~210	120 - 180	Polyamidoamine adduct 49-51% in water.
Aradur® 3987	15 000 - 30 000	~147	~ 60	Polyamine adduct 80% in water.
Aradur® 3986	15 000 - 35 000	~415	~ 180	Polyamine adduct 39-41% in water.
Aradur® 35-1	19 000 - 35 000	~380	~ 90	Polyamine adduct 50-55% in water.

2-4-4 Liquid accelerators

Product designation	Viscosity	Characteristics / comments
Conditions	25°C	
Unit	mPa.s	
Accelerator DY 070	1 - 50	Heterocyclic amine. Extremely low viscosity. Typical use in acceleration of anhydride hardeners in filament winding, pultrusion and RTM applications.
Accelerator DY 071	250 - 500	Heterocyclic amine based. Typical use in acceleration of anhydride hardeners in filament winding, pultrusion and RTM applications.
Accelerator DY 062	0 - 10	Tertiary amine based accelerator. Extremely low viscosity. For ambient and high temperature cure epoxy systems.
Accelerator 960-1	150 - 300	Tertiary amine based accelerator. For ambient cure epoxy systems and alternatively as hardener/catalyst for high temperature cure epoxy system
Accelerator DY 061	1 000 - 1 800	Based on tertiary amine accelerator. Modified in order to improve compatibility between the epoxy and the tertiary amine. Aero grade.
Accelerator 2950	2 000 - 6 000	Reactive, tertiaryamine based accelerator, for ambient cure epoxy systems. Low plasticising effect.

2-4-5 Solid accelerators

Product designation	Softening point	Characteristics / comments
Conditions		
Unit	°C	
Accelerator DY 9577	25 - 31	Latent accelerator based on Boron trichloride amine complex. Good latency up to 80°C. High reactivity above 120°C. For use in casting, encapsulation, filament winding, pultrusion, molding, electrical tape applications.
Aradur® HT 973	80 - 95	Boron trifluoride amine complex. Commonly used to cure epoxy at 80-100°C.
Aradur® 3123	180 - 250	Imidazole based accelerator. Very low solubility in epoxy resins and solvents at room temperature. Recommended as latent catalytic curing agent for liquid epoxy resins or as latent accelerator for anhydride or amine cured epoxy resins. Very good latency up to 100-110°C. Snap-cure type behaviour at temperature above 110°C.
Aradur® 1167	89 - 102	Latent modified phenolic accelerator for heat curing epoxy systems for curing <150°C. Contributes to adhesion enhancement and cross-linking density.

Tougheners and flexibilizers

3-1 CTBN epoxy terminated

Elastomer-epoxy adducts to increase toughness and flexibility in thermoset formulations. Typical usage in adhesive and composite applications.

Product designation	Viscosity	Epoxy equivalent weight	Elastomer content	Characteristics / comments
Conditions	25°C			
Unit	Pa·s	g/Eq	%	
Araldite® LY 1108	22 - 51	269 - 301	~ 30	Epoxy terminated, Bisphenol F epoxy / CTBN resin adduct. Contains co-reacted additive for improved corrosion resistance and adhesion on contaminated surfaces. Very low viscosity, easy incorporation.
Araldite® LY 1115	250 - 400	238 - 250	~ 20	Epoxy terminated, Bisphenol F epoxy / CTBN resin adduct.
Araldite® LY 1146	350 - 1 100	833 - 1 176	~ 40	Epoxy terminated, Bisphenol A epoxy / CTBN resin adduct. Contains co-reacted additive for improved corrosion resistance and adhesion on contaminated surfaces.
Araldite® LY 1134	200 - 500 at 40°C	286 - 323	~ 20	Epoxy terminated, Bisphenol A epoxy / CTBN resin adduct.
Araldite® LT 1522	1.6 - 5.5 (40% in butyl carbitol)	550 - 641	~ 30	Solid, epoxy terminated, Bisphenol A epoxy / CTBN resin adduct. Softening Point (°C) 90-110.

3-2 Phenol functionalised

Phenol functionalised adducts to increase toughness and flexibility in hot curing (>100°C) thermoset formulations. Typical usage in adhesive and composite applications.

Product designation	Viscosity	Hydroxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	Pa·s	g/Eq	
Araldite® DY 1186	5.6 - 8.4	500 - 700	Phenol terminated polyether adduct. Low viscosity intermediate.
Flexibilizer XB 3333	400 - 1 280 at 40°C	833 - 1 000	Liquid phenol terminated polyurethane adduct. Improves adhesion on metals. Good impact resistance and adhesion to metals at sub-zero temperature.
Flexibilizer DY 965	440 - 1 280 at 40°C	869 - 1 000	Liquid phenol terminated polyurethane adduct. Improves adhesion on metals. Outstanding impact resistance and adhesion to metals down to -40°C.

3-3 Epoxy functionalised

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa·s	g/Eq	
Araldite® DY 3601	42 - 52	385 - 405	Low viscosity, di functional polypropylene glycol-based epoxy resin. Enhances flexibility of epoxy systems.
Araldite® DY-L	160 - 240	556 - 714	Low viscosity, tri-functional polypropylene glycol-based epoxy resin. Enhances flexibility of epoxy systems.

Continued on page 19

Continued			
Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa.s	g/Eq	
Araldite® PY 4122	700 - 1 400	330 - 365	Low viscosity, internally flexibilized Bisphenol-A type epoxy resin. Generally used in adhesives and sealants requiring flexibility and toughness: also used as a modifier in solventless and high solids coatings requiring toughness, adhesion, corrosion and abrasion resistance.
XU 3508	11 000 - 20 000	191 - 206	Liquid toughened epoxy resin. Similar viscosity as standard liquid Bisphenol-A based epoxy resins. Unique multi-phase toughening technology. Provides high toughness with minor effect on glass transition temperature. Suggested use in adhesives, and composite formulations (filament winding, pultrusion...).
Tactix® 695-1	1 500 - 5 500 at 70°C	335 - 410	Single in-situ toughened epoxy resin. Contains proprietary blocked catalyst irreversibly deblocked at 80°C or above. Can be used alone or as an additive to other resin systems to increase toughness. Outstanding fracture toughness along with thermal and mechanical properties of standard epoxy resins. Suggested for highly damage-tolerant composites or high peel strength adhesive applications. Aero grade.

3-4 Amine functionalised

Amine functionalised, used in epoxy formulations to provide high elongation to adhesive and composite materials.

Product designation	Viscosity	H+ active equivalent weight	Gel time	Characteristics / comments
Conditions	25°C		GY 250 (100g, 23°C)	
Unit	mPa.s	g/Eq	min	
Aradur® 15-1	100 - 300	140	~ 18	Polyamine. Suitable for flexibilizing and hydrophobizing adhesives and mastics.
Aradur® 3275	200 - 300	250	~ 85	Formulated polyetherpolyamine giving high level of flexibility. Elongation 110% at 23°C and up to 50% down to -10°C.
Aradur® 70	16 000 - 27 000	~ 900	300 - 500	Polyether urethane amine. Hardener giving very high flexibility. ~350% elongation at break at 23°C; >250% at -10°C.

3-5 Miscellaneous

Product designation	Viscosity	Epoxy equivalent weight	Characteristics / comments
Conditions	25°C		
Unit	mPa.s	g/Eq	
Araldite® DY 1158	< 20	450 - 550	Low viscosity epoxy silane with unique substituents. Suitable as adhesion promoter and flexibilizer in epoxy formulations. Typical usage in high temperature epoxy adhesives.
Araldite® DY 91158	50 - 150	260 - 290	Modified version of Araldite® DY1158 with Bisphenol-A based epoxy resin.
Matrimid® 5218	NA	NA	Soluble thermoplastic polyimide powder. Very high glass transition temperature. Excellent high temperature properties for use in structural composites and adhesives. Powder form, fully imidized polymer. Excellent adhesion on various substrates, excellent thermal performance, soluble in a variety of common solvents (i.e. CH ₂ Cl ₂ , CHCl ₃ , THF, DMAC, DMF, NMP).
Matrimid® 9725	NA	NA	Micropulverized version of Matrimid® 5218.

Imides and benzoxazines

4-1 Imides based resins

4-1-1 Bismaleimides

Thermosetting resins suitable for long term thermal resistance above 200°C

Product designation	Viscosity	Double bond content	Melting point	Characteristics / comments
Conditions	25°C			
Unit	mPa.s	%*	°C	
Matrimid® 5292 A	solid	> 85	155 - 165	4,4 Bismaleimidodiphenylmethane. Outstanding heat performance (Tg range 250-300°C) and excellent mechanical properties at high T°. Can be used in advanced composite structures and high performance structural adhesives. Can be use with Matrimid 5292 B to optimize processing, toughness and performance.
Matrimid® 5292 B	12 000 - 20 000	> 90	NA	O,O'- Diallyl bisphenol A. For use with Matrimid 5292 A to optimize toughness, processing and performance.
Matrimid® 2292	< 100			Low viscosity resin for use as a reactive diluent for epoxy, bismaleimide or polyimides. Provides excellent mechanical properties at ambient or elevated temperatures.

*% of theoretical

4-1-2 Polyimides

Thermosetting and thermoplastic resins for long term thermal resistance above 200°C

Product designation	Viscosity	Gel time	Solid content	Characteristics / comments
Conditions	25°C	170°C		
Unit	mPa.s	sec	wt. %	
Kerimid® 701 A N-70	1 500 - 4 000	150 - 450	69 - 71	Non-MDA based polyimide prepolymer in solution in MEK. Kerimid® 701 A N-70 is suitable for use in the manufacture of high performance composites. Provides glass transition temperatures above 250°C with excellent thermostability. Low coefficient of thermal expansion (CTE).
Kerimid® 701-1 B	20 - 80	NA	44 - 46	Halogenated flame retardant additive for use in conjunction with Kerimid® 701 A to achieve UL 94 V-O flammability performance.
Kerimid® 701 C	50 - 150	NA	35 - 37	Halogenated flame retardant additive for use in conjunction with Kerimid® 701 A to achieve superior thermal performance as well as UL 94 V-1 flammability performance. Lower halogene content than Kerimid® 701-1 B.
Kerimid® 8292 NPM 60-1	100 - 600	275 - 400	59 - 64	Non-MDA polyimide pre-polymer in solution. Suggested for high temperature composites application such as laminates for printed circuit boards. Supplied at 60% non-volatiles in methyl ethyl ketone and propylene glycol monomethyl ether.
Kerimid® 8292 N-75	2 000 - 8 000	350 - 500	74 - 76	Non-MDA polyimide pre-polymer in solution. Suggested for high temperature composites application such as laminates for printed circuit boards. Supplied at 75% non-volatiles in methyl ethyl ketone.
Matrimid® 5218	NA	NA	100	Soluble and fully imidized thermoplastic polyimide powder. Very high glass transition temperature (> 300°C). Excellent high temperature properties for use in structural composites and adhesives. Excellent adhesion on various substrates, excellent thermal performances, soluble in a variety of common solvents (i.e. CH ₂ Cl ₂ , CHCl ₃ , THF, DMAC, DMF, NMP).
Matrimid® 9725	NA	NA	100	Micropulverized version of Matrimid® 5218.

4-1-3 Polyamide-imides

Thermosetting resins, suitable for long term thermal resistance above 200°C

Product designation	Viscosity	Solid content	Characteristics / comments
Conditions	25°C		
Unit	mPa.s	wt. %	
Rhodefal® 210	2 500 - 4 000	27 - 29	Solution in N-Ethylpyrrolidone (NEP). Binder for thermostable paints, lubricants, adhesives, impregnation, varnish. Heat class 220-250°C, good dielectric rigidity and flexibility, good chemical properties, outstanding adhesion at elevated temperature on many substrates. Compatible with epoxy resin to reach very good flexibility.

4-2 Benzoxazines

4-2-1 Benzoxazine resins

Resins providing phenolic-like matrices through addition reaction. No gas release and near-zero shrinkage on curing.

Product designation	Viscosity	Melting point	Gel time	Characteristics / comments
Conditions	25°C		220°C	
Unit	mPa.s	°C	min	
Araldite® MT 35600	50 - 500 at 125°C	58 - 70	250 - 550	Bisphenol A based benzoxazine. Di-functional thermoset resin. Can be homopolymerized or co-reacted with epoxy or phenolic resins to produce polymers with extremely good thermal and mechanical properties. Proposed for advanced composites, structural adhesives, laminates for printed wiring boards, high performance coatings, encapsulating and molding compounds.
Araldite® MT 35700	1 000 - 7 000 at 100°C	55 - 65	200 - 450	Bisphenol F based benzoxazine. Di-functional thermoset resin. Can be homopolymerized or co-reacted with epoxy or phenolic resins to produce polymers with extremely good thermal and mechanical properties. Available in solvent (75% in MEK).
XU 8282-1	500 - 3 000			Ready to use, single component based on patented phenolphthalein benzoxazine resin. Supplied as a solution in methyl ethyl ketone and n-butanol (70% solid). For manufacturing halogen free high temperature resistant electrical laminates and prepregs. Very good flame retardant properties.

4-2-2 Benzoxazine accelerators

Catalyst to improve reactivity for both benzoxazine homopolymerization and benzoxazine/epoxy combination.

Product designation	Melting point	Acid value	Characteristics / comments
Conditions			
Unit	°C	mgKOH/g	
Accelerator DT 300	154 - 156	NA	Increase reactivity (gel-time reduced by half).
Accelerator DT 310	127 - 134	600 - 650	Increase reactivity (gel-time reduced by half) and reduce curing temperature (down to ~160°C).



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