

## Advanced Materials

# Electrical Engineering

### Selector Guide



## About Huntsman Advanced Materials

Huntsman Advanced Materials is a leading global supplier of synthetic and formulated polymer systems for customers requiring high-performance materials which outperform the properties, functionality and durability of traditional materials. Over 2,100 associates at 13 locations worldwide work to fulfill this promise every day. The primary markets we serve include:

- Aerospace & Defense
- Construction
- Consumer-DIY
- Electrical Engineering
- Electronics
- Paint & Coatings
- Sport & Leisure
- Wind Energy

## Electrical Engineering Market

For over 50 years we have supplied our customers throughout the world with insulating thermoset materials for motors, generators, switchgears, distribution and instrument transformers, and insulators and bushings for utility and industrial applications.

Our comprehensive product portfolio consists of high-performance epoxy-based and polyurethane-based systems which are free of any volatile organic compounds (VOC) and thus offer an environmentally safer alternative to solvent-borne systems.

The products formulated by Huntsman Advanced Materials are designed to provide an extended service life and meet specific industry requirements for electrical insulation in indoor and outdoor environments. They are supported with a comprehensive technical data package which may include thermal conductivity, mechanical properties, shrinkage, water absorption and flame retardancy properties to name but a few. Many of our products are UL recognized and are designed to be compatible with insulation media such as air, mineral oil, SF<sub>6</sub>, mixtures of insulating gases (e.g. SF<sub>6</sub> and nitrogen) or vacuum conditions. In addition many of our products are suitable for high temperature or sub zero service conditions.

Huntsman Advanced Materials has received ISO 9001, QS 9000 and TS 16949 certification for its quality management. Meeting these stringent requirements is just one additional way we strive to exceed the demands of our customers by supplying consistent quality products and value-added technology.



## Huntsman's Commitment to REACH & Sustainability

Huntsman is committed to supporting global health, safety and environmental efforts, including new REACH regulations. REACH is the European Regulation for the Registration, Evaluation, Authorization and Restriction of Chemicals. It entered into operation on June 1st, 2008 to streamline and improve the former legislative framework on chemicals of the European Union (EU). REACH places greater responsibility on industry to manage the risks that chemicals may pose to human health and the environment.

Huntsman has set up teams of experts in each business area to coordinate our response to complex REACH requirements. We are working with our customers to ensure that their applications are REACH compliant. We have also established web-based portals for customers and suppliers as a conduit through which we communicate REACH-related updates.

In addition to our REACH activities, Huntsman is dedicated to Sustainable Chemistry. We have established a strategic business unit wholly devoted to developing new chemistries and processes that can help address the world's most pressing environmental needs. By leveraging our core competencies, we will produce sustainable products that benefit our customers, consumers and the planet as a whole.

To learn more, please visit [www.huntsman.com](http://www.huntsman.com)



## I. Products By Application (Typical Properties)

Product	Mixed Viscosity (mPas)	Mix Ratio: Resin/Hardener/Accelerator/Filler	Pot Life	Gel Time	Cure Schedule	Density of Components (g/cm <sup>3</sup> )	Density of Casting (g/cm <sup>3</sup> )	Tg (°C) [DSC]
<b>A. Assemblies</b>								
<b>Araldite® CY 221 Aradur® 956-2</b>	400 - 450 at 25°C	by weight 100 R : 20 H by volume 100 R : 22 H	60 min. at 25°C (100gm mass)	N/D	24 - 36 hrs at 25°C or gel at room temp + 4 - 6 hrs at 60°C, or gel at room temp + 2 hrs at 80°C	R: 1.15 H: 1.00 - 1.03	1.15	20
<b>Araldite® CY 221 Aradur® HY 2966</b>	490 at 25°C 205 at 40°C	by weight 100 R : 25 H by volume 100 R : 30 H	117 min. at 25°C	120 min. at 25°C	24 - 48 hrs at 25°C or 4 hrs at 25°C + 4 hrs at 60°C	R: 1.15 H: 0.97	N/A	29
<b>Araldite® DBF Aradur® HY 2966</b>	1,500 at 25°C 700 at 40°C	by weight 100 R : 25 H by volume 100 R : 30 H	35 min. at 25°C	42 min. at 25°C	24 - 48 hrs at 25°C or 4 hrs at 25°C + 4 hrs at 60°C	R: 1.15 H: 0.97	1.10	54
<b>Araldite® DBF Aradur® 956-2</b>	1,800 at 25°C 1,300 at 40°C	by weight 100 R : 20 H by volume 100 R : 22 H	120 min. at 25°C	62 min. at 40°C	24 - 48 hrs at 25°C or 4 hrs at 25°C + 4 hrs at 60°C	R: 1.15 H: 1.02	1.10	64
<b>Araldite® CW 2243-2L Blue Aradur® HY 2966</b>	4,400 at 25°C 1,600 at 40°C	by weight 100 R : 11 H	40 min. at 25°C	13 - 20 min. at 60°C	24 hrs at 25°C or 6 hrs at 60°C	R: 1.59 - 1.64 H: 0.97	N/A	37
<b>Araldite® CW 5801 Aradur® HY 5801</b>	1,100 - 1,300 at 25°C	by weight 100 R : 19.6 H	220 min. at 25°C	340 - 370 min. at 25°C	12 hrs at 23°C + 3 hrs at 95°C	R: 0.77 - 0.80 H: 0.91 - 0.96	0.79 - 0.84	90 - 95
<b>Arathane CY 8877 Aradur® HY 8877</b>	550 at 25°C	by weight 48 R : 100 H by volume 50 R : 100 H	<5 min. at 25°C	5 - 10 min. at 25°C (100gm mass)	4 - 5 hrs at 25°C	R: 1.05 - 1.09 H: 0.94 - 0.98	1.03	N/A
<b>B. Capacitors</b>								
<b>Araldite® DBF Aradur® 956-2</b>	1,800 at 25°C 1,300 at 40°C	by weight 100 R : 20 H by volume 100 R : 22 H	120 min. at 25°C	62 min. at 40°C	24 - 48 hrs at 25°C or 4 hrs at 25°C + 4hrs at 60°C	R: 1.15 H: 1.02	1.10	64
<b>Araldite® CY 221 Aradur® 956-2</b>	400 - 450 at 25°C	by weight 100 R:20 H by volume 100 R : 22 H	60 min. at 25°C (100gm mass)	N/A	24 - 36 hrs at 25°C or gel at room temp + 4 - 6 hrs at 60°C, or gel at room temp + 2 hrs at 80°C	R: 1.15 H: 1.00 - 1.03	1.15	20
<b>C. Dry Type Distribution Transformers</b>								
<b>Araldite® CW 229 Aradur® HW 229-1</b>	35,000 - 65,000 at 25°C 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60°C or 3 hrs at 80°C	13 - 15 min. at 130°C (10gm mass)	Depends on processing method - refer to TDS	R: 1.76 - 1.83 H: 1.90 - 1.98	1.81-1.85	110-120
<b>Araldite® CW 9029 Aradur® HW 9029</b>	35,000 - 65,000 at 25°C 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60°C or 3 hrs at 80°C	29 - 35 min. at 120°C	Depends on processing method - refer to TDS	R: 1.69 - 1.77 H: 1.86 - 1.91	1.81-1.85	110-120
<b>Araldite® CY 5825 Aradur® HY 5825</b>	30,000 - 40,000 at 25°C	by weight 100 R : 121 H	~3 hrs at 80°C	3.5-4 hrs at 90°C 60-80 min. at 120°C	1 hr at 150°C + 2 hrs at 200°C + 2hrs at 220°C + 4 hrs at 250°C	R: 1.17 - 1.20 H: 1.18 - 1.20	1.20-1.22	230-240
<b>Araldite® CW 5942-1 Aradur® HW 5943-1</b>	~40,000 at 25°C	by weight 100 R : 100 H	~1 hr at 60°C	15 min. at 120°C or 1 hr at 90°C	3 hrs at 90°C + 4 hrs at 140° C	R: 1.70 - 1.80 H: 1.75 - 1.85	1.75-1.80	50-60
<b>Araldite® B Aradur® HT 903-1</b>	~2,500 at 100°C	by weight 100 R : 40 H	~50 min. at 100°C	100 min. at 140°C	16 hrs at 140°C	R: 1.15 - 1.25 H: 1.48 - 1.53	1.60 - 1.70	105 - 120
<b>Araldite® F Aradur® HY 905 Accelerator DY 062 Flexibilizer DY 040 (Unfilled)</b>	~300 at 40°C	by weight 100 R : 100 H : 0.20 A : 7 F	20 hrs at 60°C	10 hrs at 80°C	6 hrs at 80°C + 6 hrs at 140°C	R: 1.15 - 1.20 H: 1.18 - 1.22 F: 0.95 - 1.05 A: 0.88 - 0.92	1.18 - 1.20	90 - 100
<b>Araldite® F Aradur® HY 905 Accelerator DY 062 Flexibilizer DY 040 (w/Silica Filler)</b>	10,000 at 80°C	by weight 100 R : 100 H : 410 A : 10 F	3.5 hrs at 60°C	50 min. at 90°C	4 hrs at 80°C + 10 hrs at 130°C	R: 1.15 - 1.20 H: 1.18 - 1.22 F: 0.95 - 1.05 A: 0.88 - 0.92 S: 2.65	1.80 - 1.90	90 - 100
<b>Araldite® CY 5841</b>	1,500 - 2,200 at 25°C	Not Applicable	Not Applicable	25 - 30 min. at 120°C	6 hrs at 160°C or 3 hrs at 170°C	1.15 - 1.20	1.18 - 1.20	115 - 120
<b>Araldite® CY 5948 Brown Aradur® HY 925-1 Silica Filler</b>	14,000 at 60°C	by weight 100 R : 80 H : 350 S	340 min. at 60°C	220 min. at 80°C	4 hrs at 80°C + 10 hrs at 140°C	R: 1.16 - 1.20 H: 1.19 - 1.22 F: 2.65	1.90 - 1.96	80 - 90
<b>Araldite® CY 5622 Aradur® HY 1235 Accelerator DY 062 Silica Flour</b>	10,000 at 40°C	by weight 100 R : 82 H : 0.45 A : 325 S	920 min. at 40°C	100 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.10 - 1.15 H: 1.18 - 1.20 A 0.88 - 0.92 F: 2.65	1.83 - 1.92	110 - 115
<b>Araldite® F Aradur® HY 905 Accelerator DY 061 Flexibilizer DY 040 Silica Flour</b>	~40,000 at 40°C	by weight 100 R : 100 H : 1 A : 10 F : 410 S	180 min. at 60°C	~10 min. at 120°C	6 hrs at 80°C + 6 hrs at 140°C	R: 1.15 - 1.20 H: 1.18 - 1.22 A: 0.97 - 1.02 F: 1.02 - 1.04 S: 2.65	1.80 - 1.90	90 - 100

\*N/D = Not determined

Shore Hardness	Thermal Conductivity at 77°F (W/mK)	Thermal Class	Tensile Strength at 77°F (psi)	Flexural Strength at 77°F (psi)	Dielectric Dissipation Factor (IEC 60250)	Dielectric Constant 50Hz at 77°F (IEC 60250)	Dielectric Strength (kV/mm)	Comments
70 [D]	0.33	N/D	850	N/D	N/D	N/D	18	Suitable for the encapsulation or potting of low-voltage electronic components. Low viscosity. Volume shrinkage is 0.15%.
25 [D]	0.15	B	1,160	N/D	6.0 - 7.0 at 25°C	N/D	21	Suitable for the encapsulation or potting of low-voltage electronic components. Good crack resistance.
80 [D]	N/D	Unclassified	8,845	16,240	0.70 at 25°C	3.9	24	Suitable for the encapsulation or potting of low-voltage electronic components. Good resistance to atmospheric and chemical degradation.
80 [D]	N/D	N/D	8,410	15,500	0.80 at 25°C	N/D	24	Suitable for the encapsulation or potting of low-voltage electronic components. Good heat resistance.
70 [D]	0.80	Unclassified	2,300	3,480	5 at 25°C	5.7	15	Flexible castings. Good thermal shock resistance. Flammability: UL 94 V-0 [6mm]
82 - 86 [D]	N/D	N/D	N/D	11,000 - 12,000	1 at 25°C	~3.0	28	Very low shrinkage upon cure. Excellent dielectric properties. Linear shrinkage is <0.005 in/in
15 - 35 [A]	0.17	N/D	180 285 at -60°C	N/D	3.9 at 1 kHz	4.0	20	Rapid gelation and cure. Exceptional flexibility, tear resistance and thermal shock resistance.
80 [D]	N/D	N/D	8,410	15,500	0.80 at 25°C	N/D	24	Suitable for the encapsulation or potting of low-voltage electronic components. Good heat resistance.
70 [D]	0.33	N/D	850	N/D	N/D	N/D	18	Suitable for the encapsulation or potting of low voltage electronic components. Low viscosity. Volume shrinkage is 0.15%.
92-96 [D]	0.70-0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1-4.4 at 40°C [60 Hz]	18	Excellent resistance to thermal cycling and thermal endurance properties. Recognized UL 746C. Relative thermal index (200°C).
92-96 [D]	0.70-0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Suitable for electrical insulation for indoor medium and high- voltage applications including SF <sub>6</sub> types of insulation.
92-96 [D]	0.20-0.23	N/D	7,000 - 9,000	18,000 - 20,000	0.40 at 25°C [60Hz]	4.9	28	Suitable for high-temperature electrical insulation applications. Good resistance to gamma radiation.
N/D	N/D	N/D	5,000 - 6,500	9,400 - 10,800	1.80 at 25°C	5.0	22	Suitable for applications requiring a flame retardant insulation system. (UL 94-V0)
N/D	0.70 - 0.80	B	10,150 - 13,000	17,400 - 20,300	2.0 at 25°C	4.1	23 - 25	Suitable for indoor medium- and high-voltage electrical insulation application.
N/D	0.20 - 0.30	N/D	11,600 - 13,000	19,000 - 21,500	~1.0 at 25°C	~4.0	18 - 22	Good mechanical and electrical properties.
N/D	0.80 - 0.90	F	10,800 - 12,300	18,000 - 19,500	~1.5 at 25°C	~4.0	18 - 22	Good mechanical and electrical properties. Very high thermal endurance properties.
84 - 86 [D]	0.22 - 0.24	180°C by UL 1446	5,000 - 6,500	15,000 - 19,000	~0.50 at 25°C [60 Hz]	~3.4 [60Hz]	21	Single component epoxy impregnation system with excellent thermal endurance - suitable for applications requiring 180°C continuous service.
N/D	0.98 - 1.08	H	12,300 - 13,700	20,300 - 21,700	~1.5 at 25°C	~4.0	22 - 26	Long pot life. Excellent mechanical and electrical properties. Excellent crack resistance. Recognized UL 746C. Relative thermal index (200°C).
N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,100 - 21,000	~1.5 at 25°C	~4.0	21 - 26	Epoxy system with hydrophobicity transfer and recovery for outdoor applications. High erosion resistance under UV radiation.
N/D	0.80 - 0.90	F	10,800 - 12,300	18,100 - 19,500	~1.5 at 25°C	~4.0	18 - 22	Good electrical and mechanical properties. Suitable for indoor insulators, medium and high voltage insulators and dry-type transformers.

# I. Products By Application (Typical Properties)

Product	Mixed Viscosity (mPas)	Mix Ratio: Resin/Hardener/Accelerator/Filler	Pot Life	Gel Time	Cure Schedule	Density of Components (g/cm <sup>3</sup> )	Density of Casting (g/cm <sup>3</sup> )	Tg (°C) [DSC]
<b>D. Generators &amp; Motors</b>								
<b>Araldite® CW 229</b> <b>Aradur® HW 229-1</b>	35,000 - 65,000 at 25°C or 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60°C or 3 hrs at 80°C	13 - 15 min. at 130°C (10gm mass)	Depends on processing method - refer to TDS	R: 1.76 - 1.83 H: 1.90 - 1.98	1.81 - 1.85	110 - 120
<b>Araldite® CW 5715</b> <b>Aradur® HY 5716</b>	8,000 at 25°C	by weight 100 R : 27 H by volume 100 R : 44 H	3 hrs at 60°C	78 - 108 min. at 90°C	4 hrs at 80°C + 2 hrs at 150°C or 3 hrs at 85°C + 2 hrs at 150°C	R: 1.87 - 1.97 H: 1.15 - 1.18	N/D	125
<b>Araldite® CW 5853</b> <b>Aradur® HY 5853</b>	1,000 at 25°C	by weight 100 R : 90 H	~1 hr at 85°C	5 - 6 min. at 140°C (10 gm mass)	6 hrs at 80°C + 2 hrs at 150°C	R: 1.17 - 1.19 H: 1.18 - 1.28	1.18 - 1.20	125 - 135
<b>Araldite® CY 192-1</b> <b>Aradur® HY 918</b>	200 at 25°C	by weight 100 R : 100 H	20 hrs at 60°C	500 min. at 100°C	14 hrs at 120°C or 9 hrs at 140°C	R: 1.22 - 1.26 H: 1.18 - 1.24	1.22 - 1.24	90 - 95
<b>Araldite® CY 5841</b>	1,500 - 2,200 at 25°C	Not Applicable	Not Applicable	25 - 30 min. at 120°C	6 hrs at 160°C or 3 hrs at 170°C	1.15 - 1.20	1.18 - 1.20	115 - 120
<b>Araldite® MY 790-1</b> <b>Aradur® HY 1102</b> <b>Accelerator DY 9577</b> <b>Accelerator DY 073-1</b>	450 - 500 at 25°C	by weight 100 R : 90 H : 0.16 A : 0.04 DY073-1	>30 days at 25°C 7 days at 60°C	~60 min. at 120°C	24 hrs at 80°C + 10 hrs at 140°C	R: 1.15 - 1.20 H: 1.13 - 1.17 DY9577: 1.12 - 1.15 DY073-1: 0.95 - 1.00	1.16 - 1.20	135 - 145
<b>E. Ignition Coils &amp; Specialized Coils</b>								
<b>Araldite® CW 5715</b> <b>Aradur® HY 5716</b>	8,000 at 25°C	by weight 100 R : 27 H by volume 100 R : 44 H	3 hrs at 60°C	78 - 108 min. at 90°C	4 hrs at 80°C + 2 hrs at 150°C or 3 hrs at 85°C + 2 hrs at 150°C	R: 1.87 - 1.97 H: 1.15 - 1.18	N/D	125
<b>Araldite® CW 2243-2L Blue</b> <b>Aradur® HY 2966</b>	4,400 at 25°C 1,600 at 40°C	by weight 100 R : 11 H	40 min. at 25°C	13 - 20 min. at 60°C	24 hrs at 25°C or 6 hrs at 60°C	R: 1.59-1.64 H: 0.97	N/D	37
<b>F. Inductive Components</b>								
<b>Araldite® CW 5715</b> <b>Aradur® HY 5716</b>	8,000 at 25°C	by weight 100 R : 27 H by volume 100 R : 44 H	3 hrs at 60°C	78 - 108 min. at 90°C	4 hrs at 80°C + 2 hrs at 150°C or 3 hrs at 85°C + 2 hrs at 150°C	R: 1.87 - 1.97 H: 1.15 - 1.18	N/D	125
<b>Araldite® CW 1302</b> <b>Aradur® HY 1300</b>	10,000 at 25°C 3,400 at 40°C	by weight 100 R : 11 H	34 min. at 25°C 28 min. at 40°C	120 min. at 25°C 75 min. at 40°C	48 hrs at 25°C or 8 hrs at 40°C or 2 hrs at 60°C	R: 1.76 H: 1.0	1.65	76
<b>G. Instrument Transformers</b>								
<b>Araldite® CW 9029</b> <b>Aradur® HW 9029</b>	35,000 - 65,000 at 25°C or 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60°C or 3hrs at 80°C	29 - 35 min. at 120°C	Depends on processing method - refer to TDS	R: 1.69 - 1.77 H: 1.86 - 1.91	1.81 - 1.85	110 - 120
<b>Araldite® CW 229</b> <b>Aradur® HW 229-1</b>	35,000 - 65,000 at 25°C or 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60°C or 3 hrs at 80°C	13 - 15 min. at 130°C (10gm mass)	Depends on processing method - refer to TDS	R: 1.76 - 1.83 H: 1.90 - 1.98	1.81 - 1.85	110 - 120
<b>Araldite® CW 5625</b> <b>Aradur® HW 5625-1</b>	10,000 at 40°C	by weight 100 R : 100 H	10 hrs at 40°C	90 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.71 - 1.77 H: 1.85 - 1.90	1.83 - 1.92	100 - 115
<b>Araldite® CY 5622</b> <b>Aradur® HY 1235</b> <b>Accelerator DY 062</b> <b>Silica Flour</b>	10,000 at 40°C	by weight 100 R : 82 H : 0.45 A : 325 F	920 min at 40°C	100 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.10 - 1.15 H: 1.18 - 1.20 A: 0.88 - 0.92 S: 2.65	1.83 - 1.92	110 - 115
<b>Araldite® CW 5817</b> <b>Aradur® HY 1235</b> <b>Accelerator DY 062</b>	3,800 at 40°C	by weight 100 R : 23 H : 0.125 A	>6 hrs at 40°C	~20 min. at 120°C	2 hrs at 100°C + 2 hrs at 150°C	R: 1.95 - 2.00 H: 1.18 - 1.20 A: 0.88 - 0.92	1.70	95 - 105
<b>Araldite® CW 5942-1</b> <b>Aradur® HW 5943-1</b>	~40,000 at 25°C	by weight 100 R : 100 H	~1 hr at 60°C	15 min. at 120°C or 1 hr at 90°C	3 hrs at 90°C + 4 hrs at 140°C	R: 1.70 - 1.80 H: 1.75 - 1.85	1.75 - 1.80	50 - 60
<b>Arathane® 5814 PO</b> <b>Arathane® 5814 IS</b>	3,000 - 8,000 at 25°C	by weight 100 PO : 18 IS by volume 100 PO : 23 IS	50 min. at 25°C	90 min. at 25°C (10 grams) or 40 min. at 40°C (10 grams)	24 hrs at 25°C	PO: 1.54 - 1.58 IS: 1.24	1.5	30
<b>Araldite® CY 184</b> <b>Aradur® HT 907</b> <b>Accelerator DY 183</b> <b>Silica Flour</b>	10,000 - 15,000 at 40°C	by weight 100 R : 90 H : 3 A : 300 F	5 hrs at 40°C	7 - 8 min. at 130°C	15 hrs at 60°C + 10 hrs at 140°C	R: 1.20 - 1.25 H: 1.36 - 1.40 A: 1.00 - 1.10 S: 2.65	1.80 - 1.85	110 - 115
<b>Arathane® 5881 PO</b> <b>Arathane® 5881 IS</b>	1,000 - 1,500 at 25°C	by weight 2.33 PO : 1.00 IS	~5 min	10 - 15 min. at 25°C	1 hr at 100°C	PO: 1.15-1.20 IS: 1.20 -1.25	1.15 - 1.20	72 - 77
<b>Arathane® 5884 PO</b> <b>Arathane® 5814 IS</b>	N/D	by weight 3.8 PO : 1 IS by volume 3.5 PO : 1 IS	~5 min	10 - 15 min. at 25°C	24 hrs at 25°C	PO: 1.30 - 1.35 IS: 1.22 -1.24	1.28 - 1.32	N/D
<b>Arathane® CW 5620</b> <b>Arathane® HY 5610</b>	1,300 at 25°C	by weight 100 PO : 22 IS	25 min at 25°C	70 min. at 25°C	24 hrs at 25°C or 6 hrs at 80°C	PO: 1.42 IS: 1.23	N/D	20

\*N/D = Not determined

Shore Hardness	Thermal Conductivity at 77°F (W/mK)	Thermal Class	Tensile Strength at 77°F (psi)	Flexural Strength at 77°F (psi)	Dielectric Dissipation Factor (IEC 60250)	Dielectric Constant 50Hz at 77°F (IEC 60250)	Dielectric Strength (kV/mm)	Comments
92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Excellent resistance to thermal cycling and thermal endurance properties. Qualifies for 200°C applications.
90 [D]	0.60	N/D	10,000	14,500	1.1	~4.2	24	High-temperature, filled epoxy encapsulation system. Excellent high-temperature endurance and thermal shock resistance.
88 - 92 [D]	N/D	H	7,000 - 10,000	16,000 - 19,000	0.95 at 60 Hz	3.5 at 25°C [60 Hz]	18	UL recognized insulation component with thermal index of 180°C by UL 1446 by twisted pair and 200°C by helical coil test. Good adhesion to most substrates including copper.
N/D	N/D	N/D	N/D	16,000 - 21,500	0.40 - 0.50 at 23°C	3.5 - 3.8	57 - 83	High impact and shear strength. Outstanding arc and tracking resistance.
84 - 86 [D]	0.22 - 0.24	180°C by UL 1446	5,000 - 6,500	15,000 - 19,000	~0.50 at 25°C [60 Hz]	~3.4 [60Hz]	21	Single-component, epoxy impregnation system with excellent thermal endurance - suitable for applications requiring 180°C continuous service.
N/D	N/D	N/D	4,350 - 5,800	19,600 - 21,000	~0.40 at 25°C	~3.2	23 - 26	Low-viscosity, latent heat-curing system with excellent mechanical and electrical properties. **If a catalyst is used in the insulation tapes, omit accelerators.
90 [D]	0.60	N/D	10,000	14,500	1.1	~4.2	24	High-temperature, filled epoxy encapsulation system. Excellent high temperature endurance and thermal shock resistance.
70 [D]	0.80	Unclassified	2,300	3,480	5 at 25°C	5.7	15	Suitable for flexible castings. Good thermal shock resistance. Flammability: Recognized to UL 94 V-0 (6.0 mm)
90 [D]	0.60	N/D	10,000	14,500	1.1	~4.2	24	High-temperature, filled epoxy encapsulation system. Excellent high temperature endurance and thermal shock resistance.
80 [D]	0.083 at 64°F	H	4,350	9,100	9.3	~5.50	15	Filled epoxy casting system with good thermal conductivity and long term thermal resistance. Flammability: Recognized to UL 94 V-0 (3.0 mm). Recognized UL 1446 system component (180°C).
92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Suitable for electrical insulation for indoor medium- and high- voltage applications including SF6 types of insulation.
92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Excellent resistance to thermal cycling and thermal endurance properties. Recognized UL 746C relative thermal index (200°C).
N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,000 - 21,000	~ 1.5 at 25°C	~ 4	21 - 26	Pre-filled, hydrophobic epoxy resin system. Excellent mechanical properties. Very good thermal shock resistance and high resistance to UV radiation.
N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,100 - 21,000	~1.5 at 25°C	~ 4.0	21 - 26	Epoxy system with hydrophobicity transfer and recovery for outdoor applications. High erosion resistance under UV radiation.
N/D	0.70 - 0.90	N/D	12,300 - 13,800	17,400 - 18,800	0.7	~ 4.0 [60 Hz]	N/D	Prefilled, heat-curing cycloaliphatic epoxy casting system. Suitable for outdoor applications. High thermal shock resistance and high glass transition temperature. Flammability: recognized to UL 94 V-0 (12 mm).
N/D	N/D	N/D	5,000 - 6,500	9,400 - 10,800	1.80 at 25°C	5.0	22	Suitable for applications requiring a flame retardant insulation system. Flammability: recognized to UL 94 V-0 (6.0 mm).
75 - 80 [D]	0.70	B by UL 1446	1,850	N/D	0.05 at 60 Hz	4.7 [60 Hz]	0.53	UV resistant, two-component polyurethane system designed for the casting and potting of electrical components. Flammability: recognized to UL 94 V-0 (6.0 mm). UL 1446 system temperature class 130°C (TP) and 180°C (HC).
N/D	0.80 - 0.85	F	10,500 - 14,000	18,300 - 22,000	1.0	3.8	0.45 - 0.50	Heat-curing cycloaliphatic epoxy casting system. Suitable for medium and high-voltage electrical insulating components.
70 - 80 [D]	N/D	N/D	N/D	N/D	N/D	N/D	N/D	Two-component, low-viscosity liquid polyurethane system designed for casting or potting of electrical and electronic devices.
85 - 90 [A]	N/D	N/D	N/D	N/D	N/D	N/D	N/D	Two-component, low-viscosity liquid polyurethane system designed for casting or potting of electrical and electronic devices. Particularly suitable for delicate components.
85 [A] 40 [D]	0.50	B	1,015	N/D	11	6	25	Halogen-free casting and impregnating system for processing and curing at room temperature. Suitable for pressure-sensitive devices.

## I. Products By Application (Typical Properties)

Product	Mixed Viscosity (mPas)	Mix Ratio: Resin/Hardener/Accelerator/Filler	Pot Life	Gel Time	Cure Schedule	Density of Components (g/cm <sup>3</sup> )	Density of Casting (g/cm <sup>3</sup> )	Tg (°C) [DSC]
<b>H. Insulators &amp; Bushings</b>								
Araldite® CY 184 Aradur® HT 907 Accelerator DY 183 Silica Flour	10,000 - 15,000 at 40°C	by weight 100 R : 90 H : 3 A : 300 F	5 hrs at 40°C	7 - 8 min. at 130°C	15 hrs at 60°C + 10 hrs at 140°C	R: 1.20 - 1.25 H: 1.36 - 1.40 A: 1.00 - 1.10 S: 2.65	1.80 - 1.85	110 - 115
Araldite® CW 5915-1 Grey Aradur® HW 5916-1	4,000 at 80°C	by weight 77 R : 100 H	80 min. at 80°C	6 - 9 min. at 140°C	2 hrs at 100°C + 5 hrs at 140°C + 2 hrs at 160°C	R: 1.50 - 1.70 H: 1.90 - 2.00	1.80 - 1.85	>130
Araldite® CW 229 Aradur® HW 229-1	35,000 - 65,000 at 25°C or 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60° C or 3 hrs at 80° C	13-15 min. at 130°C (10gm mass)	Depends on processing method - refer to TDS	R: 1.76 - 1.83 H: 1.90 - 1.98	1.81 - 1.85	110 - 120
Araldite® CW 5817 Aradur® HY 1235 Accelerator DY 062	3,800 at 40°C	by weight 100 R : 23 H : 0.125 A	>6 hrs at 40°C	~20 min. at 120°C	2 hrs at 100°C + 2hrs at 150°C	R: 1.95 - 2.00 H: 1.18 - 1.20 A: 0.88 - 0.92	1.70	95 - 105
Araldite® CY 5622 Aradur® HY 1235 Accelerator DY 062 Silica Flour	10,000 at 40°C	by weight 100 R : 82 H : 0.45 A : 325 S	920 min. at 40°C	100 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.10 - 1.15 H: 1.18 - 1.20 A: 0.88 - 0.92 S: 2.65	1.83 - 1.92	110 - 115
Araldite® CY 5910 Aradur® HY 1235 Accelerator DY 062 Silica Flour	20,000 at 25°C	by weight 100 R : 80 H : 0.50 A : 310 S	4 hrs at 60°C	100 min. at 80°C	2 hrs at 100°C + 16 hrs at 140°C	R: 1.20 H: 1.18 - 1.20 A: 0.84 - 0.89 S: 2.65	1.70 - 1.80	105 - 115
Araldite® CW 5908 Aradur® HW 5909	10,500 at 40°C	by weight 100 R : 100 H	20 hrs at 40°C	200 min. at 80°C	2 hrs at 150°C or 5 hrs at 140°C	R: 1.74 - 1.80 H: 1.77 - 1.83	1.80	115 - 132
Araldite® CW 5625 Aradur® HW 5625-1	10,000 at 40°C	by weight 100 R : 100 H	10 hrs at 40°C	90 min. at 80°C	6 hrs at 80°C + 10hrs at 140°C	R: 1.71 - 1.77 H: 1.85 - 1.90	1.83 - 1.92	100 - 115
Araldite® CY 5995 Aradur® HY 5996 Silica Flour	20,000 at 40°C	by weight 100 R : 87 H : 280 S	4.5 hrs at 60°C	200 min. at 80°C	4 hrs at 80°C + 10 hrs at 140°C + 2 hrs at 160°C or 2 hrs at 100°C + 16 hrs at 140°C	R: 1.12 - 1.16 H: 1.14 - 1.18 S: 2.65	1.74 - 1.78	130 - 150
<b>I. Modules &amp; Sensors</b>								
Araldite® CY 221 Aradur® HY 2966	490 at 25°C 205 at 40°C	by weight 100 R : 25 H by volume 100 R : 30 H	117 min. at 25°C	120 min. at 25°C	24-48 hrs at 25°C or 4 hrs at 25°C + 4hrs at 60°C	R: 1.15 H: 0.97	N/A	29
Araldite® CW 2243-2L Blue Aradur® HY 2966	4,400 at 25°C 1,600 at 40°C	by weight 100 R : 11 H	40 min. at 25°C	13 - 20 min. at 60°C	24 hrs at 25°C or 6 hrs at 60°C	R: 1.59-1.64 H: 0.97	N/A	37
Arathane® CY 8877 Aradur® HY 8877	550 at 25°C	by weight 48 R : 100 H by volume 50 R : 100 H	<5 min. at 25° C	5 - 10 min. at 25°C (100gm mass)	4-5 hrs at 25°C	R: 1.05-1.09 H: 0.94-0.98	1.03	N/D
<b>J. Power Semiconductors</b>								
Araldite® CW 1195-1 Aradur® HW 1196	17,000 at 20°C 3,600 at 40°C	by weight 100 R : 100 H by volume 100 R : 92 H	15 hrs at 60°C	7 - 8 min. at 140°C	2 hrs at 80°C + 5 hrs at 140°C or 6 hrs at 140°C	R: 1.60 - 1.70 H: 1.77 - 1.83	1.73	130 - 155
<b>K. Switchgears</b>								
Araldite® CW 229 Aradur® HW 229-1	35,000 - 65,000 at 25°C 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~ 8 hrs at 60° C or 3 hrs at 80° C	13-15 min. at 130°C (10gm mass)	Depends on processing method - refer to TDS	R: 1.76 - 1.83 H: 1.90 - 1.98	1.81 - 1.85	110 - 120
Araldite® CW 9029 Aradur® HW 9029	35,000 - 65,000 at 25°C 2,500-3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~ 8 hrs at 60° C or 3 hrs at 80° C	29-35 min. at 120°C	Depends on processing method - refer to TDS	R: 1.69 - 1.77 H: 1.86 - 1.91	1.81 - 1.85	110 - 120
Araldite® CW 5908 Aradur® HW 5909	10,500 at 40°C	by weight 100 R : 100 H	20 hrs at 40°C	200 min. at 80°C	2 hrs at 150°C or 5 hrs at 140°C	R: 1.74 - 1.80 H: 1.77 - 1.83	1.80	115 - 132
Araldite® CY 5622 Aradur® HY 1235 Accelerator DY 062 Silica Flour	10,000 at 40°C	by weight 100 R : 82 H : 0.45 A : 325 S	920 min. at 40°C	100 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.10 - 1.15 H: 1.18 - 1.20 A: 0.88 - 0.92 S: 2.65	1.83 - 1.92	110 - 115
Araldite® CW 5915-1 Grey Aradur® HW 5916-1	4,000 at 80°C	by weight 77 R : 100 H	80 min. at 80°C	6 - 9 min. at 140°C	2 hrs at 100°C + 5 hrs at 140°C + 2 hrs at 160°C	R: 1.50 - 1.70 H: 1.90 - 2.00	1.80 - 1.85	>130
Araldite® CW 5625 Aradur® HW 5625-1	10,000 at 40°C	by weight 100 R : 100 H	10 hrs at 40°C	90 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.71 - 1.77 H: 1.85 - 1.90	1.83 - 1.92	100 - 115
Araldite® CW 5817 Aradur® HY 1235 Accelerator DY 062	3,800 at 40°C	by weight 100 R : 23 H : 0.125 A	>6 hrs at 40°C	~20 min. at 120°C	2 hrs at 100°C + 2 hrs at 150°C	R: 1.95 - 2.00 H: 1.18 - 1.20 A: 0.88 - 0.92	1.70	95 - 105
Araldite® CY 5910 Aradur® HY 1235 Accelerator DY 062 Silica Flour	20,000 at 25°C	by weight 100 R : 80 H : 0.50 A : 310 S	4 hrs at 60°C	100 min. at 80°C	2 hrs at 100°C + 16 hrs at 140°C	R: 1.20 H: 1.18 - 1.20 A: 0.84 - 0.89 S: 2.65	1.70 - 1.80	105 - 115
Araldite® CY 5995 Aradur® HY 5996 Silica Flour	20,000 at 40°C	by weight 100 R : 87 H : 280 S	4.5 hrs at 60°C	200 min. at 80°C	4 hrs at 80°C + 10 hrs at 140°C + 2 hrs at 160°C or 2 hrs at 100°C + 16 hrs at 140°C	R: 1.12 - 1.16 H: 1.14 - 1.18 S: 2.65	1.74 - 1.78	130 - 150
Araldite® CY 5910 Aradur® HY 1102 Accelerator DY 062 Araldite® DW 9134 BD Silica Flour	10,500 at 40°C	by weight 100 R : 89 H : 0.3 A : 5 DW : 310 S	20 hrs at 40°C	200 min. at 80°C	2 hrs at 150°C or 5 hrs at 140°C	R: 1.18 - 1.24 H: 1.13 - 1.17 A: 0.88 - 0.92 DW: 2.00 - 2.10 S: 2.65	1.80	115 - 132

\*N/D = Not determined



Shore Hardness [D]	Thermal Conductivity at 77°F (W/mK)	Thermal Class	Tensile Strength at 77°F (psi)	Flexural Strength at 77°F (psi)	Dielectric Dissipation Factor (IEC 60250)	Dielectric Constant 50Hz at 77°F (IEC 60250)	Dielectric Strength (kV/mm)	Comments
N/D	0.80 - 0.85	F	10,500 - 14,000	18,300 - 22,000	1.0	3.8	0.45 - 0.50	Heat curing cycloaliphatic epoxy casting system. Suitable for medium- and high-voltage electrical insulating components.
N/D	N/D	N/D	8,200 - 9,300	15,500 - 17,000	~1.5 at 25°C [60 Hz]	4.4	N/D	Heat-curing, filled, toughened two-component epoxy system with excellent thermal shock resistance, high Tg and high modulus.
92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Excellent resistance to thermal cycling and thermal endurance properties. Recognized UL 740 C relative thermal index (200°C).
N/D	0.70 - 0.90	N/D	12,300 - 13,800	17,400 - 18,800	0.7	~4.0 [60 Hz]	N/D	Prefilled, heat-curing cycloaliphatic epoxy casting system. Suitable for outdoor applications. High thermal shock resistance and high glass transition temperature. Please refer to TDS for UL classification.
N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,100 - 21,000	~1.5 at 25°C	~4.0	21 - 26	Epoxy system with hydrophobicity transfer and recovery for outdoor applications. High erosion resistance under UV radiation.
N/D	0.85 - 0.95	N/D	12,300 - 13,700	21,000 - 23,900	~ 1.0 at 25°C	~4.0	18 - 22	Heat-cured, toughened cycloaliphatic epoxy casting system with excellent mechanical properties and very good thermal shock resistance. Refer to TDS for UL 94 classification.
N/D	0.75 - 0.85	N/D	10,500 - 12,000	17,000 - 20,000	~0.50 at 25 C	~4.0	26 - 29	Filled, heat-curing cycloaliphatic epoxy casting system suitable for medium-voltage applications. Offers high thermal shock resistance and high glass transition temperature. Refer to TDS for UL classification.
N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,000 - 21,000	~ 1.5 at 25C	~4.0	21 - 26	Pre-filled hydrophobic epoxy resin system. Excellent mechanical properties. Very good thermal shock resistance and high resistance to UV radiation.
N/D	0.75 - 0.80	F	10,100 - 11,600	16,600 - 18,100	~ 3 at 20°C	~4.0	19 - 24	Heat-curing, filled, toughened two-component epoxy system with high Tg, good mechanical properties and high thermal shock resistance.
25 [D]	0.15	B	1,160	N/D	6.0 - 7.0 at 25°C	N/D	21	Suitable for the encapsulation or potting of low-voltage, electronic components. Good crack resistance.
70 [D]	0.80	Unclassified	2,300	3,480	5.0 at 25°C	5.7	15	Flexible castings. Good thermal shock resistance. Flammability: Recognized to UL 94 V-0 (4.0 mm).
15 - 35 [A]	0.17	N/D	180 285 at -60°C	N/D	3.9 at 1 kHz	4.0	20	Rapid gelation and cure. Exceptional flexibility, tear resistance and thermal shock resistance.
95	0.65 at 91°F	N/D	6,350	16,200	0.50 at 20°C	3.7	14	Heat-curing, filled epoxy casting system with excellent temperature cycling resistance. Flammability: Recognized to UL 94 V-0 (6.0 mm).
92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Excellent resistance to thermal cycling and thermal endurance properties. Suitable for 200°C applications.
92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Suitable for electrical insulation for indoor medium- and high- voltage applications including SF <sub>6</sub> types of insulation.
N/D	0.75 - 0.85	N/D	10,500 - 12,000	17,000 - 20,000	~0.50 at 25°C	~4.0	26 - 29	Filled, heat-curing cycloaliphatic epoxy casting system suitable for medium-voltage applications. Offers high thermal shock resistance and high glass transition temperature. Refer to TDS for UL classification.
N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,100 - 21,000	~1.5 at 25°C	~4.0	21 - 26	Epoxy system with hydrophobicity transfer and recovery for outdoor applications. High erosion resistance under UV radiation.
N/D	N/D	N/D	8,200 - 9,300	15,500 - 17,000	~1.5 at 25°C [60 Hz]	4.4	N/D	Heat-cured, filled, toughened two-component epoxy system with excellent thermal shock resistance, high Tg and high modulus.
N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,000 - 21,000	~1.5 at 25°C	~4.0	21 - 26	Pre-filled, hydrophobic epoxy resin system. Excellent mechanical properties. Very good thermal shock resistance and high resistance to UV radiation.
N/D	0.70 - 0.90	N/D	12,300 - 13,800	17,400 - 18,800	0.7	~4.0 [60 Hz]	N/D	Prefilled, heat-curing cycloaliphatic epoxy casting system. Suitable for outdoor applications. High thermal shock resistance and high glass transition temperature. Please refer to TDS for UL classification.
N/D	0.85 - 0.95	N/D	12,300 - 13,700	21,000 - 23,900	~1.0 at 25°C	~4.0	18 - 22	Heat-cured, toughened, cycloaliphatic epoxy casting system with excellent mechanical properties and very good thermal shock resistance. Please refer to TDS for UL classification.
N/D	0.75 - 0.80	F	10,100 - 11,600	16,600 - 18,100	~3 at 20°C	~4.0	19 - 24	Heat-curing, filled, toughened two-component epoxy system with high Tg, good mechanical properties and high thermal shock resistance.
N/D	0.75 - 0.85	N/D	10,500 - 12,000	17,000 - 20,000	~0.50 at 25°C	~4.0	26 - 29	Heat-curing, toughened, cycloaliphatic epoxy resin system with excellent mechanical and electrical properties for casting applications. Suitable for use in severe environments.

## I. Products By Application (Typical Properties)

Product	Mixed Viscosity (mPas)	Mix Ratio: Resin/Hardener/Accelerator/Filler	Pot Life	Gel Time	Cure Schedule	Density of Components (g/cm <sup>3</sup> )	Density of Casting (g/cm <sup>3</sup> )	Tg (°C) [DSC]
<b>L. Medical</b>								
XU 9537 Resin XU 9537 Hardener	550 at 25°C	by weight 100 R : 84 H by volume 100 R : 86 H	>60 hrs at 60°C	200 hrs at 60°C 10 hrs at 100°C	10 hrs at 120°C	R: 1.12 - 1.16 H: 1.09 - 1.13	1.12 - 1.18	49
XU 9502 Resin XU 9502 Hardener	850 - 950 at 25°C	by weight 100 R : 105 H by volume 100 R : 130 H	40 min. at 25°C	80 - 130 min. at 25°C	7 days at 25°C	R: 1.17 - 1.20 H: 0.90 - 1.05	1.05 - 1.09	24 - 30
XU 9529 Resin XU 9529 Hardener	9,000 - 10,000 at 25°C	by weight 100 R : 90 H by volume 100 R : 108 H	~6 hrs at 60°C	~6 hrs at 80°C	2 hrs at 120°C	R: 2.20 - 2.28 H: 1.82 - 1.90	2.0 - 2.1	2 - 4
Araldite® CY 9579 Aradur® HY 918 Accelerator DY 070	600 - 900 at 25°C	by weight 100 R : 90 H : 1 A	4 - 5 hrs at 40°C	35 - 45 min. at 100°C	4 hrs at 80°C + 8 hrs at 140°C	R: 1.15 - 1.20 H: 1.20 - 1.25 A: 0.95 - 1.05	~1.2	148 - 153
Araldite® LY 5052 Aradur® 5052	500 - 700 at 25°C	by weight 100 R : 38 H by volume 100 R : 47 H	110 - 160 min. at 25°C	40 - 45 min. at 40°C	24 hrs at 23°C + 1 hr at 100°C	R: 1.17 H: 0.94	1.05 - 1.10	118 - 130
<b>M. Batteries</b>								
Araldite® CY 8760 Aradur® HY 8760	1,200 at 25°C	by weight 100 R : 25 H	10 - 20 min. at 25°C	7 min. at 55°C	80 - 110 min. at 65°C	R: 1.13 - 1.17 H: 1.01 - 1.05	~ 1.15	80
Araldite® CY 8763 Araldite® HY 8763	3,500 at 25°C	by weight 100 R : 46 H by volume 100 R : 50 H	20 min. at 25°C (300 gram mass)	8 - 16 min. at 60°C	40 min. at 60°C	R: 1.13 - 1.17 H: 1.03 - 1.07	N/D	60 - 80
<b>N. Electro Composites</b>								
XB 5829 Resin XB 5830 Hardener	4,000 at 25°C	by weight 100 R : 155 H by volume 100 R : 100 H	5 hrs at 40°C	1 hr at 80°C	2 hrs at 80°C + 1 hr at 130°C	R: 1.20 - 1.24 H: 1.90 - 1.94	1.55 - 1.57	15 - 25

## II. Electrical Insulation Systems (Typical Properties)

Product	Mixed Viscosity (mPas)	Mix Ratio Resin/Hardener/Accelerator/Filler	Pot Life	Gel Time	Curing Schedule	Density of Components (g/cm <sup>3</sup> )	Density of Casting (g/cm <sup>3</sup> )	Tg (°C) [DSC]
<b>A. Systems Without Filled Resin - Indoor</b>								
<b>Toughened</b>								
Araldite® CY 5995 Aradur® HY 5996 Silica Flour	20,000 at 40°C	by weight 100 R : 87 H : 280 S	4.5 hrs at 60°C	200 min. at 80°C	4 hrs at 80°C + 10 hrs at 140°C + 2 hrs at 160°C or 2 hrs at 100°C + 16 hrs at 140°C	R: 1.12 - 1.16 H: 1.14 - 1.18 S: 2.65	1.74 - 1.78	130 - 150
Araldite® CY 5995 Aradur® HY 227 Silica Flour	45,000 at 40°C	by weight 100 R : 100 H : 300 S	>20 hrs at 40°C	400 min. at 80°C	2 hrs at 100°C + 10 hrs at 140°C	R: 1.12 - 1.16 H: 1.15 - 1.19 S: 2.65	1.70 - 1.80	55 - 65
Araldite® CY 5995 Aradur® HY 225 Silica Flour	45,000 at 40°C	by weight 100 R : 100 H : 300 S	>5 hrs at 60°C	100 min. at 90°C	2 hrs at 100°C + 10 hrs at 140°C	R: 1.12 - 1.16 H: 1.15 - 1.19 S: 2.65	1.70 - 1.80	55 - 65
Araldite® CY 5995 Aradur® HY 925 Silica Flour	40,000 at 40°C	by weight 100 R : 80 H : 270 S	12 hrs at 60°C	1000 min. at 80°C	2 hrs at 100°C + 10 hrs at 140°C	R: 1.12 - 1.16 H: 1.19 - 1.22 S: 2.65	1.70 - 1.80	115 - 125
<b>Standard</b>								
Araldite® F Aradur® HY 905 Flexibilizer DY 040 Accelerator DY 061 Silica Flour	15,000 at 60°C	by weight 100 R: 100 H : 10 F : 1 A : 410 S	2.5 hrs at 60°C	90 min. at 80°C	6 hrs at 80°C + 10 hrs at 130°C	R: 1.15 - 1.20 H: 1.18 - 1.22 F: 1.02 - 1.04 A: 0.97 - 1.02 S: 2.65	1.80 - 1.90	90 - 100
Araldite® CY 225 Aradur® HY 925 Silica Flour	27,000 at 40°C	by weight 100 R : 80 H : 270 S	14 hrs at 40°C	280 min. at 80°C	6 hrs at 80°C + 10 hrs at 130°C	R: 1.15 - 1.20 H: 1.19 - 1.22 S: 2.65	1.75 - 1.80	105 - 125
Araldite® CY 225 Aradur® HY 227 Silica Flour	15,000 at 60°C	by weight 100 R : 100 H : 300 S	3 hrs at 60°C	230 min. at 80°C	6 hrs at 80°C + 10 hrs at 130°C	R: 1.15 - 1.20 H: 1.15 - 1.19 S: 2.65	1.77 - 1.81	60 - 70
Araldite® CY 225 Aradur® HY 225 Silica Flour	13,000 at 60°C	by weight 100 R : 80H : 270 S	4 hrs at 60°C	60 min. at 80°C	6 hrs at 80°C + 10 hrs at 130°C	R: 1.15 - 1.20 H: 1.20 - 1.23 S: 2.65	1.75 - 1.80	90 - 105
Araldite® DBF Aradur® 956-2	1,800 at 25°C 1,300 at 40°C	by weight 100 R : 20 H by volume 100 R : 22 H	2 hrs at 25°C	62 min. at 40°C	24-48 hrs at 25°C or 4 hrs at 25°C + 4hrs at 60°C	R: 1.15 H: 1.02	1.1	64
Araldite® CY 221 Aradur® 956-2	450 at 25°C 75 at 40°C	by weight 100 R : 20 H	110 min. at 25°C (100gm mass)	N/A	24-36 hrs at 25°C or gel at room temp + 4-6 hrs at 60°C	R: 1.15 H: 1.02	1.15	N/D
Araldite® CY 221 Aradur® HY 2966	490 at 25°C 205 at 40°C	by weight 100 R : 25 H by volume 100 R : 30 H	117 min. at 25°C	2 hrs at 25°C	24-48 hrs at 25°C or 4 hrs at 25°C + 4hrs at 60°C	R: 1.15 H: 0.97	N/D	29
Araldite® CY 179 Aradur® HY 917 Accelerator DY 070	100 - 200 at 25°C	by weight 100 R : 115 H : 0.50 - 2.0 A	~2 days at 23°C	30 - 50 min. at 90°C	1 - 2 hrs at 100°C + 6 hrs at 160°C or 1 - 2 hrs at 100°C + 4 - 6 hrs at 180°C	R: 1.17 H: 1.20 - 1.25 A: 0.95 - 1.05	N/D	200 - 205

\*N/D = Not determined

Shore Hardness	Thermal Conductivity at 77°F (W/mK)	Thermal Class	Tensile Strength at 77°F (psi)	Flexural Strength at 77°F (psi)	Dielectric Dissipation Factor (IEC 60250)	Dielectric Constant 50Hz at 77°F (IEC 60250)	Dielectric Strength (kV/mm)	Comments
N/D	N/D	N/D	4,500	N/D	N/D	N/D	21 - 23	Unfilled, heat-curing, toughened epoxy casting system with low viscosity and long working time. Provides cured castings with high tensile elongation and good chemical resistance.
67 [D]	0.20 - 0.30	N/D	2,000	N/D	N/D	N/D	25 - 27	Suitable for large castings such as transformer coils. Ambient-cure, tough, low viscosity, good mechanical strength and high elongation.
N/D	0.94 - 0.96	N/D	200 - 220	N/D	N/D	N/D	N/D	Flexible, two-component epoxy with high thermal conductivity.
N/D	N/D	N/D	12,000 - 13,500	18,100 - 19,600	N/D	N/D	N/D	Heat-curing anhydride cured epoxy system for indoor electrical insulation applications.
N/D	N/D	N/D	11,900 - 12,500	18,900 - 20,300	N/D	N/D	N/D	Low-viscosity epoxy system suitable for casting, filament winding and impregnation.
85 [D]	N/D	N/D	N/D	N/D	N/D	N/D	N/D	Potting and encapsulation system specifically designed for the assembly of sealed acid batteries.
N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	Ambient-cure, epoxy encapsulating system designed for use in sealed lead acid batteries.
N/D	0.45 - 0.51	N/D	1450 - 2175	N/D	N/D	N/D	19- 24	Flexible, hydrophobic cycloaliphatic epoxy system for outdoor electrical insulation applications.

Shore Hardness	Thermal Conductivity at 77°F W/mK	Thermal Class	Tensile Strength at 77°F/psi	Flexural Strength at 77°F/psi	Dielectric Dissipation Factor (IEC 60250)	Relative Permittivity 50Hz/73°F	Dielectric Strength (2mm plate) 73°F kV/mm	Comments
N/D	0.75 - 0.80	F	10,100 - 11,600	16,600 - 18,100	~3 at 20°C	~4	19 - 24	Heat-curing, filled, toughened two-component epoxy system with high Tg, good mechanical properties and high thermal shock resistance.
N/D	0.75 - 0.80	N/D	9,400 - 10,800	18,800 - 20,300	4 at 50°C	~4	19 - 24	Toughened, heat-curing epoxy casting system with high mechanical strength and excellent thermal shock properties.
N/D	0.75 - 0.80	N/D	8,700 - 13,000	19,600 - 21,000	2.50 at 25°C	~4	20 - 24	Toughened, heat-curing epoxy casting system for applications requiring high mechanical properties and very high thermal shock resistance.
N/D	0.75 - 0.85	N/D	11,600 - 13,000	18,100 - 19,500	2.80 at 25°C	~4	19 - 23	Toughened, heat-curing epoxy casting system with high glass transition temperature for applications requiring high mechanical properties and thermal shock resistance.
N/D	0.80 - 0.90	F	10,900 - 12,300	18,000 - 19,500	2 at 50°C	~4	36 - 41	Suitable for medium- and high-voltage indoor electrical insulation applications. High thermal endurance properties.
N/D	0.80 - 0.90	H	10,000 - 11,600	16,000 - 18,000	2 at 50°C	~4.1	Refer to TDS	Suitable for medium- and high-voltage indoor electrical insulation applications. Excellent mechanical properties.
N/D	0.80 - 0.90	F	10,000 - 11,600	19,500 - 21,000	3.2 at 50°C	~4	32 - 38	Semi-flexible casting system suitable for medium- and high-voltage indoor electrical insulation applications. Very high mechanical and electrical properties, as well as thermal shock resistance.
N/D	0.80 - 0.90	N/D	10,800 - 12,300	17,400 - 18,800	1.5 at 50°C	~4	Refer to TDS	Suitable for medium- and high-voltage indoor electrical insulation applications requiring very high resistance to mechanical and electrical stresses and very high resistance to thermal shock.
80 [D]	N/D	N/D	8,410	15,500	0.80 at 25°C	N/D	24	Suitable for the encapsulation or potting of low-voltage electronic components. Good heat resistance.
34 [D]	N/D	N/D	870	N/D	N/D	N/D	18	Suitable for the encapsulation or potting of low-voltage electronic components. Low viscosity.
25 [D]	0.15	B	1,160	N/D	7.60 at 25°C	N/D	36	Suitable for the encapsulation or potting of low-voltage electronic components. Good crack resistance.
N/D	N/D	N/D	7,000 - 8,700	10,800 - 13,700	N/D	N/D	N/D	Very low viscosity, anhydride-cured cycloaliphatic epoxy system suitable for the formulation of electrical casting systems and other demanding applications.

## II. Electrical Insulation Systems (Typical Properties)

Product	Viscosity Resin/ Hardener/Mixture cP/°F	Mix Ratio Resin/Hardener/ Accelerator/Filler	Pot Life	Gel Time	Curing Schedule	Specific Gravity	Density of Casting g/cm <sup>3</sup>	Tg (C°) [DSC]
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### B. Systems Without Filled Resin - Outdoor

Toughened								
Araldite® CY 5910 Aradur® HY 1102 Accelerator DY 062 Araldite® DW 9134 Silica Flour	40,000 at 25°C	by weight 100R : 89 H : 0.3 A / 5 C / 310 S	5.5 hrs at 60 C	200 min. at 80°C	2 hrs at 150°C or 5 hrs at 140°C	R: 1.18 - 1.24 H: 1.13 - 1.17 A: 0.88 - 0.92 C: 2.0 - 2.1 S: 2.65	1.8	115 - 132
Araldite® CY 5910 Aradur® HY 1235 Accelerator DY 062 Silica Flour	20,000 at 25°C	by weight 100 R : 80 H : 0.50 A : 310 S	4 hrs at 60°C	100 min. at 80°C	2 hrs at 100°C + 16 hrs at 140°C	R: 1.20 H: 1.18 - 1.20 A: 0.84 - 0.89 S: 2.65	1.70 - 1.80	105 - 115
Hydrophobic								
Araldite® CY 5622 Aradur® HY 1235 Accelerator DY 062 Silica Flour	10,000 at 40°C	by weight 100 R : 82 H : 0.45 A : 325 S	920 min. at 40°C	100 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.10 - 1.15 H: 1.18 - 1.20 A: 0.88 - 0.92 S: 2.65	1.83 - 1.92	110 - 115
Standard								
Araldite® CY 184 Aradur® HT 907 Accelerator DY 183 Silica Flour	10,000 - 15,000 at 40°C	by weight 100 R : 90 H : 3 A : 300 S	5 hrs at 40°C	7 - 8 min. at 130°C	15 hrs at 60°C + 10 hrs at 140°C	R: 1.20 - 1.25 H: 1.36 - 1.40 A: 1.00 - 1.10 S: 2.65	1.9 - 2.0	110 - 115
Araldite® CY 184 Aradur® HY 1235 Accelerator DY 062 Silica Flour	5,500 at 60°C	by weight 100 R : 90 H : 0.60 A : 290 S	160 min. at 60°C	100 min. at 80°C	2 hrs at 100°C + 16 hrs at 140°C	R: 1.20 - 1.25 H: 1.17 - 1.19 A: 0.89 - 0.91 S: 2.65	1.60 - 1.70	1.05 - 1.15
Araldite® CY 9729 Aradur® HT 907 Accelerator DY 9741	25,000 - 30,000 at 25°C	by weight 100 R : 74 H : 2-4 A	N/A	29 - 35 min. at 120°C	5 hrs at 80°C + 10 hrs at 140°C	R: 1.11 - 1.15 H: 1.15 - 1.20 A: 1.00 - 1.15	N/D	~125

### C. Systems With Filled Resin - Indoor

Toughened								
Araldite® CW 5915-1 Grey Aradur® HW 5916-1	4,000 at 80°C	by weight 77 R : 100 H	80 min. at 80°C	6 - 9 min. at 140°C	2 hrs at 100°C + 5 hrs at 140°C + 2 hrs at 160°C	R: 1.50 - 1.70 H: 1.90 - 2.00	1.80 - 1.85	>130
Hydrophobic								
Araldite® CW 5625 Aradur® HW 5625-1	10,000 at 40°C	by weight 100 R : 100 H	10hrs at 40°C	90 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.71 - 1.77 H: 1.85 - 1.90	1.83 - 1.92	100 - 115
Standard								
Araldite® CW 9029 Aradur® HW 9029	35,000 - 65,000 at 25°C or 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60° C or 3 hrs at 80° C	29 - 35 min. at 120°C	Depends on processing method - refer to TDS	R: 1.69 - 1.77 H: 1.86 - 1.91	1.81 - 1.85	110 - 120
Araldite® CW 229 Aradur® HW 229-1	35,000 - 65,000 at 25°C or 2,500 - 3,500 at 50°C	by weight 100 R : 100 H by volume 100 R : 90 H	~8 hrs at 60° C or 3 hrs at 80° C	13 - 15 min. at 130°C (10gm mass)	Depends on processing method - refer to TDS	R: 1.76 - 1.83 H: 1.90 - 1.98	1.81 - 1.85	110 - 120
Araldite® CW 9557 Aradur® HW 9558	4,000 - 5,000 at 60°C	by weight 100 R : 100 H	4 - 5 hrs at 40°C	10 - 11 min. at 150°C	4 hrs at 60°C + 2 - 4 hrs at 150°C	R: 1.78 - 1.86 H: 1.88 - 1.96	~1.85	112 - 117

### D. Systems With Filled Resin - Outdoor

Toughened								
Araldite® CW 5908 Aradur® HW 5909	10,500 at 40°C	by weight 100 R : 100 H	20 hrs at 40°C	200 min. at 80°C	2 hrs at 150°C or 5 hrs at 140°C	R: 1.74 - 1.80 H: 1.77 - 1.83	1.80	115 - 132
Hydrophobic								
Araldite® CW 5625 Aradur® HW 5625-1	10,000 at 40°C	by weight 100 R : 100 H	10 hrs at 40°C	90 min. at 80°C	6 hrs at 80°C + 10 hrs at 140°C	R: 1.71 - 1.77 H: 1.85 - 1.90	1.83 - 1.92	100 - 115
XB 5829 BD Resin XB 5830 BD Hardener	400 - 500 at 25°C	by weight 100 R : 155 H by volume 100 R : 100 H	8 hrs at 25°C	60 min. at 80°C	10 - 40 min. at 120°C	R: 1.20 - 1.24 H: 1.90 - 1.94	1.56	15 - 25
Standard								
Araldite® CW 5817 Aradur® HY 1235 Accelerator DY 062	3,800 at 40°C	by weight 100 R : 23 H : 0.125 A	>6 hrs at 40°C	~20 min. at 120°C	2 hrs at 100°C + 2 hrs at 150°C	R: 1.95 - 2.00 H: 1.18 - 1.20 A: 0.88 - 0.92	1.70	95 - 105

		Thermal Conductivity at 77°F W/mK	Thermal Class	Tensile Strength at 77°F/psi	Flexural Strength at 77°F/psi	Dielectric Dissipation Factor (IEC 60250)	Dielectric Constant 50 Hz at 77°F (IEC 60250)	Dielectric Strength (2mm plate) 73°F kV/mm	Comments
	N/D	0.75 - 0.85	N/D	10,500 - 12,000	17,000 - 20,000	~1.0 at 25°C	~4.0	N/D	Heat-cured, toughened, cycloaliphatic epoxy casting system with excellent mechanical properties and very good thermal shock resistance. Flammability: UL 94 V-0 (12 mm) compliant.
	N/D	0.85 - 0.95	N/D	12,300 - 13,700	21,000 - 23,900	~1.0 at 25°C	~4.0	18 - 22	Heat-cured, toughened, cycloaliphatic epoxy casting system with excellent mechanical properties and very good thermal shock resistance. Flammability: UL 94 V-0 (12 mm) compliant.
	N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,100 - 21,000	~1.5 at 25°C	~4.0	21 - 26	Epoxy system with hydrophobicity transfer and recovery for outdoor applications. High erosion resistance under UV radiation.
	N/D	0.80 - 0.85	F	10,500 - 14,000	18,300 - 22,000	~1.0 at 25°C	3.8 - 4.2	0.45 - 0.50	Heat-curing, cycloaliphatic epoxy casting system. Suitable for medium and high-voltage electrical insulating components.
	N/D	1.00 - 1.10	F	13,000 - 14,500	4,300 - 20,300	0.80 at 50°C	~4.0	N/D	Heat-curing, cycloaliphatic epoxy casting system. Suitable for medium and high-voltage electrical insulating components used under adverse climate conditions.
	N/D	N/D	N/D	~8,100	N/D	N/D	3.6 (60 Hz)	N/D	Low-viscosity, unfilled electrical casting system suitable for demanding indoor or outdoor applications.
	N/D	N/D	Not Determined	8,200 - 9,300	15,500 - 17,000	~1.5 at 25°C [60 Hz]	4.4	N/D	Heat-curing, filled, toughened, two-component epoxy system with excellent thermal shock resistance, high Tg and high modulus.
	N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,000 - 21,000	~1.5 at 25°C	~4	N/D	Pre-filled hydrophobic epoxy resin system. Excellent mechanical properties. Very good thermal shock resistance and high resistance to UV radiation. Suitable for indoor and outdoor applications.
	92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Suitable for electrical insulation for indoor medium and high voltage applications including SF6 types of insulation.
	92 - 96 [D]	0.70 - 0.80	K	11,000 - 12,500	18,000 - 19,000	1.8 - 2.2 at 40°C [60 Hz]	4.1 - 4.4 at 40°C [60 Hz]	18	Excellent resistance to thermal cycling and thermal endurance properties. Qualifies for 200°C applications.
	N/D	1.00 - 1.10	N/D	10,000 - 12,000	16,000 - 19,000	~1.0 at 60 Hz	3.4 at 60 Hz	16 - 20	Suitable for electrical casting and encapsulation applications.
	N/D	0.75 - 0.85	N/D	10,500 - 12,000	17,000 - 20,000	~0.50 at 25°C	~4.0	26 - 29	Filled, heat-curing, cycloaliphatic epoxy casting system suitable for medium voltage applications. Offers high thermal shock resistance and high glass transition temperature. Refer to TDS for UL classification.
	N/D	0.90 - 1.00	N/D	9,400 - 13,000	18,000 - 21,000	~1.5 at 25°C	~4	21 - 26	Pre-filled hydrophobic epoxy resin system. Excellent mechanical properties. Very good thermal shock resistance and high resistance to UV radiation.
	N/D	0.45 - 0.51	N/D	1,400 - 2,100	N/D	N/D	N/D	19 - 24	Heat-curing, flexibilized, hydrophobic cycloaliphatic epoxy casting system suitable for applications impacted by severe climatic conditions.
	N/D	0.70 - 0.90	N/D	12,300 - 13,800	17,400 - 18,800	0.7	~4.0 [60 Hz]	N/D	Prefilled, heat-curing cycloaliphatic epoxy casting system. Suitable for outdoor applications. High thermal shock resistance and high glass transition temperature. Please refer to TDS for UL classification.

## II. Electrical Insulation Systems (Typical Properties)

### E. Dielectric Bonding

	Chemistry	Color	Mix Ratio	Mixed Viscosity at 77°F (25°C)	Gel Time at 77°F (25°C) 100 gm mass	Shore Hardness (D)
Araldite® 5861 A/B	Epoxy	Pale Yellow	by weight/volume 100 R : 100 H	33,000	4 min.	78 - 83
Araldite® 5863 A/B	Epoxy	Black	by weight/volume 100 R : 50 H	Paste	90 min.	87 - 92
Araldite® 5864 A/B	Epoxy	Beige	by weight/volume 100 R : 50 H	90,000	40 min.	84
Araldite® 5865 A/B	Epoxy	Beige	by weight/volume 100 R : 50 H	Thixotropic	40 min.	84
Araldite® 5871 A/B	Epoxy	Light Amber	by weight 100 R : 80 H by volume 100 R : 100 H	45,000	120 min.	80
Arathane® 3427 PO Arathane® 3304 IS	Polyurethane	Beige	by weight 100 PO : 40 IS by volume 100 PO : 45 IS	Thixotropic	100 min. (50 gm mass)	80
Arathane® 4497 PO Arathane® 3304 IS	Polyurethane	Beige	by weight 100 PO : 40 IS by volume 100 PO : 45 IS	Thixotropic	9 min.	N/D

### F. Low-Pressure Molding

	Chemistry	Open Time 23°C/Silicone Paper (200°C App. Temp)	Open Time 23°C/Canal Method (200°C App. Temp)	Setting Time 23°C (200°C App. Temp)	Melt Viscosity (Pas)	Tensile Strength (psi)
Euremelt® 3413	Thermoplastic Copolyamide	6 - 10 sec	20 - 28 sec	1 - 3 sec	2.8 - 4.0 at 210°C	>580
Euremelt® 3413 Black	Thermoplastic Copolyamide	6 - 10 sec	20 - 28 sec	1 - 3 sec	2.8 - 4.0 at 210°C	>580
Euremelt® 2170	Thermoplastic Copolyamide	1 - 5 sec	24 - 30 sec	1 - 3 sec	5.2 - 6.4 at 200°C	1,253
Euremelt® 2170 Black	Thermoplastic Copolyamide	1 - 5 sec	24 - 30 sec	1 - 3 sec	5.2 - 6.4 at 200°C	1,224
Euremelt® 2140	Thermoplastic Copolyamide	55 - 65 sec	29 - 35 sec	1 - 3 sec	7.6 - 10 at 225°C	N/D
Euremelt® 2888	Thermoplastic Copolyamide	11 - 15 sec	25 - 31 sec	1 - 3 sec	4 - 6 at 200°C	1,700 - 1,800

## III. Components (Typical Properties)

### A. Specialty Epoxy Resins

	Viscosity (at 25°C)	Epoxide Eq. Weight [EEW, g/eq]	Density at 25°C [g/cm <sup>3</sup> ]	Color (Gardner)	Comments
Araldite® CY 9579	11,000 - 13,000	182 - 192	1.15 - 1.18	<1	Unmodified, bisphenol-A based liquid epoxy resin suitable for electrical insulation and casting applications.
Araldite® F	9,000 - 12,000	189 - 196	1.15 - 1.20	≤2	Liquid, solvent-free, pre-catalyzed bisphenol-A epoxy resin suitable for electrical insulation and casting applications.
Araldite® B	450 - 58 at 120°C	370 - 392	1.15 - 1.25	N/D	Unmodified bisphenol-A based liquid epoxy resin suitable for electrical insulation and casting applications.
Araldite® CY 9008	6,500 - 10,500	177 - 188	1.17	<1	Low-viscosity, unmodified liquid epoxy resin.
Araldite® CT 6060	600 - 900 (at 130°C)	385 - 500	1.17	<4	Unmodified, solid, bisphenol-A based epoxy resin.
Araldite® GY 2600	11,000 - 14,000	184 - 188	1.17	<1	Unmodified, bisphenol-A based liquid epoxy resin suitable for electrical insulation and casting applications. Low hydrolyzable chlorine content.
Araldite® CY 6005	7,500 - 9,500	182 - 196	1.16	<1	Bisphenol-A liquid epoxy resin modified with a monofunctional reactive diluent.
Araldite® CY 221	355 - 475	238 - 253	1.15	<1	Low-viscosity bisphenol-A liquid epoxy resin modified with a difunctional reactive diluent.
Araldite® DBF	1,350 - 2,000	230 - 238	1.1 - 1.2	<1	Bisphenol-A based liquid epoxy resin modified with a plasticizer.
Araldite® MY 790-1	4,000 - 5,500	170 - 175	1.17	<1	Distilled bisphenol-A based liquid epoxy resin with very low chloride content.
Araldite® CY 5806	500 - 700	172 - 185	1.13	<1	Low-viscosity, modified bisphenol-A based epoxy resin suitable for casting, impregnation and encapsulation.
Araldite® DY 026	<15	108 - 118	1.0 - 1.1	<1	Reactive diluent based on aliphatic diglycidyl ether.
Araldite® CY 8043	3,000 - 4,200	222 - 239	1.42	<5	Liquid-brominated epoxy resin (23 - 26% bromine). 100% solids.

### B. Cycloaliphatic Epoxy Resins

Araldite® CY 184	700 - 1,000	144 - 172	1.20 - 1.25	<1	Low-viscosity cycloaliphatic liquid epoxy resin suitable for the manufacture of medium and high-voltage outdoor electrical insulating components.
Araldite® CY 179	100 - 600	130 - 143	1.15 - 1.18	<1	Very low-viscosity cycloaliphatic liquid epoxy resin suitable for the manufacture of medium and high-voltage outdoor electrical insulating components.
Araldite® CY 5622	3,000 - 5,000	179 - 187	1.10 - 1.15 (at 60°C)	Milky white	Hydrophobic, modified, cycloaliphatic liquid epoxy resin designed for use in outdoor medium and high-voltage electrical insulating components.
Araldite® CY 192-1	430 - 660	150 - 167	1.22 - 1.26	<2	Low viscosity, cycloaliphatic epoxy resin designed for casting, potting and vacuum pressure impregnation applications.
Araldite® CY 5910	2,000 - 4,500	182 - 192	~ 1.20	Milky white	Toughened, cycloaliphatic liquid epoxy resin suitable for electrical castings with excellent mechanical properties and very good thermal shock resistance.
Araldite® CY 9729	300 - 500	181 - 193	1.11 - 1.15	Slight haze	Low viscosity, cycloaliphatic epoxy resin suitable for use in medium and high-voltage indoor and outdoor electrical insulation.

\*N/D = Not determined

Tg (°C) [DSC]	CTE (ppm/°C)	Lap Shear Strength at 77°F (25°C)	Thermal Conductivity	Surface Resistivity	Dielectric Strength	Volume Resistivity	Comments
48 - 53	65 - 70	>2,500 psi	0.22	1.5 E+15	16.7kV/mm	5.7 E+14	Fast-cure, multi-purpose epoxy adhesive suitable for a wide variety of substrates and most commonly used for electrical insulation materials.
148 - 153	25 - 30	>2,000 psi (AI)	N/D	N/D	14.8 kV/mm	1.20E+16	Multi-purpose epoxy adhesive suitable for a wide variety of substrates. Offers good degree of chemical resistance.
110 [DMA]	67	>2,500 psi	0.33	7.00 E + 15	11	6.1 E + 15	Multi-purpose epoxy adhesive suitable for a wide variety of substrates. Offers good heat and chemical resistance.
110 [DMA]	67	2,700 psi	0.33	7.00 E + 15	11	6.1 E + 15	Epoxy adhesive with high strength and toughness. Suitable for exposure in aggressive environments. Heat resistant up to 120°C.
63 [DMA]	85	>2,500 psi	0.22	1.20 E + 16	16	7.1 E + 14	Epoxy adhesive suitable for a wide variety of substrates. For applications requiring low-outgassing properties.
47	N/D	>3,000 psi	N/D	N/D	N/D	N/D	Polyurethane adhesive with high strength and toughness. Suitable for the bonding of dissimilar substrates.
50	N/D	2,900 psi	N/D	N/D	N/D	N/D	Fast-curing polyurethane adhesive with high strength and toughness, as well as good environmental and chemical resistance.

Elongation (%)	Dielectric Constant	Dielectric Strength (kV/mm)	Shore Hardness (23°C)	Tracking Resistance (Test Solution A)	Comments
>250	3.50 at 1Mhz	~23	83 - 89 (A) 25 - 31 (D)	CTI 600	Suitable for the casting of electrical devices by low-pressure injection molding. Good adhesion to PVC and other plastics.
>250	3.50 at 1Mhz	~23	83 - 89 (A) 25 - 31 (D)	CTI 600	Suitable for the casting of electrical devices by low-pressure injection molding. Good adhesion to PVC and other plastics.
236	N/D	N/D	90 - 96 (A) 47 - 53 (D)	N/D	Thermoplastic hot-melt adhesive with high softening point and flexibility for bonding or casting of plastics or porous substrates.
234	N/D	N/D	90 - 96 (A) 47 - 53 (D)	N/D	Thermoplastic hot-melt adhesive with high softening point and flexibility for bonding or casting of plastics or porous substrates.
N/D	N/D	N/D	N/D	N/D	Thermoplastic hot-melt adhesive providing good adhesion to a wide variety of substrates.
500 - 600	5	390 - 410	93 - 99 (A) 47 - 53 (D)	N/D	High thermal resistance under load and good oil and fuel resistance.



### III. Components (Typical Properties)

#### C. Hardeners

	Viscosity (at 25°C)	Equivalent Weight [g/eq]	Density at 25°C [g/cm <sup>3</sup> ]	Visual Appearance	Comments
Aradur® HY 225	1,500 - 2,500	~170	1.20 - 1.23	Amber	Liquid formulated anhydride hardener suitable for electrical casting applications.
Aradur® HY 227	1,500 - 2,200	~210	1.15 - 1.19	Amber	Liquid formulated anhydride hardener suitable for electrical casting applications.
Aradur® HY 920	~3,400	~330	1.03	Clear Yellow	Modified liquid anhydride hardener designed to impart flexibility to electrical casting systems.
Aradur® HY 925	300 - 400	~170	1.19 - 1.22	Amber	Liquid modified anhydride curing agent.
Aradur® HY 951	~21	24	0.98	Almost colorless	Unmodified aliphatic amine suitable for ambient cure electrical casting and encapsulating systems.
Aradur® HY 4217	14 (at 20°C)	43	0.98	Clear Yellow	Highly reflective, low-viscosity amine.
Aradur® HY 964	~410	240 - 260	1.00 - 1.01	Clear Yellow	Liquid anhydride curing agent used in heat cured epoxy systems, enhancing flexibility in cured products with good dielectric properties.
Aradur® HY 1235	70 - 80	158	1.18 - 1.20	Almost colorless	Fully-saturated, anhydride hardener designed for the formulation of medium to high-voltage indoor/outdoor electrical insulating systems.
Aradur® HY 1473	1,000 - 1,400 (at 20°C)	N/D	0.96	Amber	Modified polyamidoamine hardener suitable for casting and encapsulation.
Aradur® HY 2966	300 - 600	59	0.97	Clear	Low viscosity polyamine hardener suitable for ambient or elevated temperature cure electrical casting systems.
Aradur® 943	3,000 - 5,000	38	1.07	Yellow	Highly reactive aliphatic amine.
Aradur® HT 903-1	N/A	147	1.48 - 1.53	White	Solid anhydride hardener suitable for electrical casting system requiring excellent mechanical properties.
Aradur® 956-2	290 - 500	47	1.02	Yellow	Modified, low-viscosity, aliphatic amine suitable for ambient or elevated temperature cure electrical casting systems.
Aradur® HY 1102	~70	168	1.13 - 1.17	Clear	Low-viscosity, saturated liquid anhydride hardener suitable for medium- and high-voltage casting and impregnation systems.
Aradur® HY 905	100 - 250	186	1.18 - 1.22	Yellow	Low-viscosity, liquid anhydride hardener suitable for medium- and high-voltage indoor casting systems.
Aradur® HY 906	175 - 275	178	1.23	Pale Yellow	Nadic methyl anhydride suitable for high-temperature casting and impregnation insulation systems.
Aradur® HT 907	40 - 50 at 40°C	154	1.36 - 1.40	Almost colorless	Hexahydrophthalic anhydride hardener for medium- to high-voltage outdoor electrical casting systems.
Aradur® HY 918	50 - 80	166	1.18 - 1.24	Yellow	Low-viscosity, liquid anhydride hardener for indoor electrical and electronic casting and encapsulating systems.

#### D. Accelerators

	Viscosity (at 25°C)	Suggested Use Level [phr]	Density at 25°C [g/cm <sup>3</sup> ]	Visual Appearance	Comments
Accelerator DY 062	<10	0.2 - 1.0	0.89 - 0.91	Almost colorless	Fast, tertiary amine accelerator suitable for epoxy anhydride based systems.
Accelerator DY 070	<50	0.2 - 1.0	1.03	Pale Yellow	Very fast, heterocyclic amine accelerator suitable for high Tg, epoxy anhydride-based systems.
Accelerator DY 073-1	5 - 15	0.2 - 3.0	0.95 - 1.0	Pale Yellow	Latent, amine-based accelerator for use in anhydride-cured casting and impregnating epoxy systems.
Accelerator DY 183	3,000 - 5,000	2.0 - 4.0	1.0 - 1.1	Dark Brown	Tertiary amine accelerator for use in anhydride cured epoxy systems.
Accelerator DY 9741	30 - 150	2.0 - 4.0	1.00 - 1.15	Clear Yellow	Tertiary amine accelerator suitable for epoxy anhydride based systems.
Accelerator DY 9577	26 - 35°C Melting Point	0.1 - 1.0	1.1	Dark Amber	Boron trichloride-amine complex suitable as a latent accelerator for anhydride cured epoxy resins.
Accelerator DY 071	250 - 500	2.0 - 4.0	1.0 - 1.1	N/A	Tertiary amine accelerator suitable for epoxy-based systems used in electrical composite applications.
Accelerator 960-1	120 - 150	0.2 - 1.0	0.97	Clear Yellow	Fast, tertiary amine accelerator suitable for epoxy-based systems.

#### E. Ancillaries

	Viscosity (at 25°C)	Suggested Use Level [phr]	Solids Content [weight %]	Density at 25°C [g/cm <sup>3</sup> ]	Visual Appearance
Flexibilizer DY 040	60 - 90	5 - 25	100	1.02 - 1.04	Almost colorless
Flexibilizer DY 045	105 - 140	5 - 25	100	1.10 - 1.15	Almost colorless
Mold Release QZ 13	~4	Not Applicable	~30	~0.85	Almost colorless
Mold Release QZ 66	~17	Not Applicable	100	~0.95	Almost colorless
Airout™	32 - 42	0.10 - 0.50 [% of total resin system]	45	0.86	Slight haze
Airout™ S	32 - 42	0.10 - 0.50 [% of total resin system]	~44	0.86	Slight haze
Airout™ X89075	500 - 1,500	0.001 - 0.05 [% of total resin system]	100	0.99	Translucent grey liquid

\*N/D = Not determined



**F. Individual Components Available for Specific Needs**

**Coloring Pastes**

**Bisphenol-A Epoxy-Based Coloring Pastes**

- Araldite® DW 0131 WHITE,
- Araldite® DW 0132 YELLOW
- Araldite® DW 0133 RED
- Araldite® DW 0134 GREEN
- Araldite® DW 0135 BLUE
- Araldite® DW 0136 BROWN
- Araldite® DW 0137-1 BLACK

**Cycloaliphatic Epoxy-Based Coloring Paste**

- Araldite® DW 9134 GREY



#### IV. Definition of Properties

Properties	Standards	Definitions
<b>Density</b>	ISO 1183	The mass per unit volume of a substance under specified conditions of pressure and temperature.
<b>Viscosity</b>	ISO 2555	Measure of the resistance to flow of a fluid under applied force.
<b>Gel Time</b>	ISO 9396	Time taken for a thermosetting compound to solidify or become extremely viscous.
<b>Glass Transition Temperature</b>	ISO 11357-2	Approximate midpoint of the temperature range over which a material undergoes a phase change from a hard, glass-like state to a rubbery state or vice versa.
<b>Thermal Conductivity</b>	ISO 8894-2	Heat flow per unit area divided by the temperature gradient [W/mK].
<b>Thermal Class</b>	IEC 60085	Thermal Classes: Y = 90°C, A = 105°C, E = 120°C, B = 130°C, F = 155°C, H = 180°C, 200 = 200°C, 220 = 220°C
<b>Shore Hardness</b>	DIN 53805	Resistance against the penetration of a body of specified shape, applied under a specific load.
<b>Tensile Strength</b>	ISO 527	Maximum tensile stress sustained by a material during a tensile test (stretching).
<b>Flexural Strength</b>	ISO 178	Maximum flexural stress sustained by a material during a bending test.
<b>Elongation at Break</b>	ISO 527	Tensile strain at which the material breaks.
<b>Modulus of Elasticity</b>	ISO 527	Stress required to produce unit strain $E = [\text{symbol}]$ (Young's Modulus).
<b>Dielectric Dissipation Factor Tan</b>	IEC 60250	The dielectric dissipation factor $\tan \delta$ of a material indicates the electrical losses of the dielectric. It is the tangent of the dielectric loss angle $\delta$ . The dielectric loss angle $\delta$ of an insulating material is the angle by which the phase difference between applied voltage and resulting current deviates from 90 degrees, when the dielectric of the capacitor consists exclusively of the dielectric material.
<b>Relative Permittivity</b>	IEC 60250	The relative permittivity of an insulating material is the ratio of capacitance of a capacitor, in which the space between and around the electrodes is entirely and exclusively filled with the insulating material in question, to the capacitance of the same configuration of electrodes in vacuum. The permittivity of an insulating material is the product of its relative permittivity, and the electric constant (or permittivity of vacuum).
<b>Dielectric Strength</b>	IEC 60243-1 IEC 60455-2 (1998)	The dielectric strength is the quotient of the breakdown voltage and the distance between the conducting parts between which the voltage is applied under prescribed test conditions.
<b>Fracture Toughness</b>	Internal test PM 216-0 double-torsion test (for prefilled material) ISO 13586 bend notch test (for unfilled material)	The double-torsion test and the bend notch test are controlled crack propagation methods for measuring the energy required to propagate a crack. - $K1c$ , critical stress intensity factor: $K1$ defines the stress field around the sharp crack; the fracture occurs when $K1$ reaches the critical value $K1c$ . - $G1c$ , specific energy of fracture: measure of resistance to crack propagation in a material under static load. The higher the values of $K1c$ and $G1c$ , the tougher is the material.
<b>Comparative Tracking Index CTI</b>	IEC 60112	The comparative tracking index is the numerical value of the maximum voltage at which five test specimens withstand the test period for 50 drops without tracking failure and without a persistent flame occurring and including also statements relating to the behavior of the material when tested using 100 drops and the depth of erosion.

## V. Guidelines for Optimizing Performance

Proper processing is critical to achieving a system's optimum performance properties. Processing any electrical engineering systems involves three main steps: preparation of the casting mix (i.e. carefully weighing the components, thorough mixing and de-gassing), casting / gelation and cure. Please refer to the product technical data sheets which contain some comprehensive processing information.

## VI. Safety / Handling Precautions

To ensure that all products are handled safely, please read all the material safety data sheets prior to using any of the product. Repeated exposure to some of the chemicals present in the electrical engineering systems may have some serious health effects. Suitable protective clothing and equipment (e.g. gloves, safety glasses) designed to prevent any contact with skin and eyes, should be worn whenever handling these products. Discard contaminated clothing and gloves immediately after use.

Please consult the **Huntsman Advanced Materials Epoxy Resin Systems Safe Handling Guide** for more detailed information. Copies are available upon request from your Huntsman representative or from one of our Distributors.

For more information on UL-recognized products, please visit [www.ul.com/global/eng/pages/offerings/services/components/online/](http://www.ul.com/global/eng/pages/offerings/services/components/online/)



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[www.huntsman.com/power](http://www.huntsman.com/power)  
[advanced\\_materials@huntsman.com](mailto:advanced_materials@huntsman.com)

### Americas:

Huntsman Advanced Materials Americas  
10003 Woodloch Forest Drive  
The Woodlands  
Texas 77380  
USA  
Tel. +1 888 564 9318  
Fax +1 281 719 4047

### Europe:

Huntsman Advanced Materials (Switzerland) GmbH  
Klybeckstrasse 200  
P.O. Box  
4002 Basel  
Switzerland  
Tel. +41 61 299 20 41  
Fax +41 61 299 20 40

### India/MiddleEast/Africa & Turkey:

Huntsman Advanced Materials (India) Pvt. Ltd.  
5th Floor, Bldg. No. 10  
Solitaire Corporate Park, 167  
Guru Hargovindji Marg, Chakal, Andheri (East)  
Mumbai – 400 093  
India  
Tel. +91 22 4095 1556  
Fax + 91 22 4095 1300/1500

### Asia/Pacific:

Huntsman Advanced Materials (Guangdong) Co., Ltd.  
Rooms 4604 – 4606, 46F Maxdo Center  
8 Xing Yi Road  
Shanghai, 200336  
P.R. China  
Tel. +86 21 2208 7588  
Fax +86 21 2208 7511  
Customer Free Call Inquiry +86 20 8484 5000

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