

ASIA PACIFIC

# Epoxy Additives and Polyamides

## Product Guide





# About Us

**EVONIK IS ONE OF THE WORLD LEADERS IN SPECIALTY CHEMICALS.**

The focus on more specialty businesses, customer-oriented innovative strength and a trustful and performance-oriented corporate culture form the heart of Evonik’s corporate strategy. These attributes uniquely position us to add value to our customers and help them achieve their objectives.

The Crosslinkers Business Line offers a broad range of products and competences for coatings and adhesives, as well as for high-performance elastomers and composites. Besides products based on isophorone chemistry the portfolio contains a full range of high quality epoxy curing agents and modifiers for a wide range of applications, including marine and protective coatings, civil engineering and construction adhesives and composites. We also offer polyamides and other resins for printing ink and hotmelt adhesive applications and hybrid polymer dispersions for waterborne coatings.



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# Epoxy Additives and Polyamides

Evonik offers a full line of high-quality, performance-orientated epoxy curing agents and modifiers for a wide range of applications, including marine and protective coatings, civil engineering and construction, adhesives, and composites. We also offer polyamides and other resins for printing ink and hotmelt adhesive applications and hybrid polymer dispersions for waterborne coatings.

This Product Guide illustrates some of the product performance solutions readily available.



# Broad Range of Products

## Our epoxy curing agents and modifiers include:

### Modified aliphatic and cyclo-aliphatic amines

Aliphatic (and cyclo-aliphatic) amines are modified to make them more useful as epoxy curing agents for ambient temperature use. Modifications including adduction and condensation reactions lead to products having very diverse reactivity and providing very diverse end-performance properties (color, chemical resistance, gloss, adhesion, compressive strength, etc.) when used to cure liquid epoxy resins. Very wide range of applications.

### Solvent-borne polyamides, poly-amide adducts and polyamine adducts

Ethylene and other amines are modified via reaction with carboxylic acids and/or epoxy resins and then solvent-cut for use in solvent-borne coating systems. Modifications lead to products that provide varying degrees of corrosion resistance, chemical resistance, over-coatability, etc. when used with solid epoxy resins for the protection of steel and concrete as primers, mid- and top-coats applied and cured normally under ambient temperature conditions.

### Solvent-free amidoamines, polyamides and polyamide adducts

Ethylene and other amines are reacted with carboxylic acids to form low viscosity products, some of which are further modified for improved performance and viscosity. Products are used to cure both liquid epoxy resins (VOC-free systems) and solid epoxy resins (High Solids systems) in a variety of applications.

### Waterborne epoxy resin and hardeners

Complex modified amines and polyamides capable of emulsifying and curing liquid epoxy resins at ambient temperature. Also used with solid resins including a high molecular weight waterborne dispersion included in this product guide. Used in aqueous and low-VOC coatings upon both concrete and steel.

### Epoxy resin diluents and modifiers

Mono- and di-functional glycidyl ethers and other modifying diluents can be used to enhance the applicability of liquid epoxy resins and, after cure with amine or polyamide curing agent, enhance some end-performance characteristics. Modified polyamides presented here are used as adhesion promoting additives for PVC plastisols.

### Catalysts, latent hardeners, unmodified amines and other special products

Dicyandiamide of controlled reactivity/ particle size and dicyandiamide accelerators permitting a wide range of latency/reactivity for heat cure of both liquid and solid epoxy resins. Aromatic, cyclo-aliphatic and aliphatic amines normally used for heat-cure of epoxy resins in structural composites, adhesives and electrical compounds. The all-round amine/polyamide accelerator K54 and other catalysts for epoxy cure acceleration. CED coating crosslinkers.

### Urethane-acrylic hybrid polymers

1-component dispersions of anionically-stabilized aliphatic urethane acrylic polymers for coatings that exhibit exceptional adhesion to a wide variety of substrates because of their special amorphous nature.

### Polyamide and polyurethane ink resins

Ethylene and other amines are reacted with carboxylic acids to form high molecular weight "non-reactive" polyamide resins providing excellent adhesion to a wide variety of flexible substrates. Structural modifications introduce varying degrees of solvent release, deep-freeze resistance, etc. These polyamides are used as the resin carrier for inks in gravure and flexographic surface and reverse printing of all types of flexible packaging. Complimented by special polyurethane resin varnishes for special reverse printing applications.

### Polyamide hot-melt adhesives

Ethylene and other amine are reacted with carboxylic acids to form very high molecular weight "non-reactive" polyamide resins that are further modified to provide varying degrees of "open time", "green strength" and final adhesive strength to a wide variety of substrates. Used as structural adhesives in TV deflection yoke, cable-joint thermal shrinkable sleeving, oil filter, etc. assembly.

Modified Aliphatic and Cyclo-aliphatic Amines

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Equivalent WT/{H} (Solid)	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C, 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
												Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMINE® 155	Modified Cyclo-aliphatic	2	350	1.03	310	95	50	27	6	ambient temp	Low-viscosity, low-loading curing agent giving excellent surfaces and rapid build up of mechanical properties. Good resistance to carbonation even at low temperatures.					+	
ANCAMINE® 1608	Modified Aliphatic	3	3,500	1.08	800	44	20	14	3.0	ambient temp	Good balance of chemical and solvent resistance. Compatible with multifunctional epoxy resins for improved hot chemical and water resistance.			+	+		
ANCAMINE® 1618	Modified Cyclo-aliphatic	1	400	1.03	272	113	60	40	5.5	ambient temp	Good color and color stability. Produces high-gloss, non-blushing films with good chemical resistance. FDA-compliant component of adhesives under 12 CFR 175.105.			+	+	+	+
ANCAMINE® 1637-LV	Mannich Base	6	1,500	1.08	775	50	26	16	2.5	ambient temp	Lower viscosity version of Ancamine 1637 curing agent. Cures down to 2°C under adverse conditions. DOT non-corrosive. Contains phenol.			+	+		+
ANCAMINE® 1638	Modified Aliphatic	2	100	1.03	1,070	31	15	15	2.5	ambient temp	Modified aliphatic amine that combines low viscosity with good chemical resistance. Used in trowelable flooring, grouts and mortars, and as an accelerator and viscosity reducer for other amines.	+					+
ANCAMINE® 1693	Modified Cyclo-aliphatic Amine	3	100	1.04	310	96	50	52	9	ambient temp	Modified cyclo-aliphatic amine that offers very good chemical resistance, especially to acids, organic solvents and alcohols. Low viscosity. DOT non-corrosive. Used in solvent-free, and high-solids coatings, secondary containment coatings, and tank linings.		+	+	+		
ANCAMINE® 1768	Modified Aliphatic	2	220	0.97	630	95	50	10	1.5	ambient temp	A rapid-ambient or low-temperature curing agent for epoxy resins. It is a modified aliphatic amine that is particularly useful as an accelerator of other amines and polyamides.	+					+
ANCAMINE® 1784	Modified Aliphatic	1	50	0.95	315	86	46	120	12	ambient temp	Longer pot life, low viscosity and good color stability. Gives low blush and exudation, and good flexibility. May be accelerated with other curing agents.	+			+	+	+
ANCAMINE® 1884	Modified Cyclo-aliphatic	2	320	1.04	360	86	45	80	9	ambient temp	Modified cycloaliphatic amine. Provides long pot life and bonds to damp concrete. DOT non-corrosive. Used in solvent-free and high-solids coatings, grouts, exterior patching mortar, and overlay binders.		+	+	+		+
ANCAMINE® 2014AS	Modified Amine	NA	NA	NA	184	NA	25	NA	NA	NA	Can be used either as a sole curing agent or as an accelerator for dicy. This product can be used in both 1k adhesives and pre-pregs.		+				
ANCAMINE® 2014FG	Modified Amine	NA	NA	NA	184	NA	25	NA	NA	NA	Ancamine 2014FG is a more highly micronised variant of Ancamine 2014AS, providing faster development of properties.		+				
ANCAMINE® 2049	Cyclo-aliphatic Amine	2	120	0.95	458	60	32	400	NA	NA	Provides low color with longer pot life than other cyclo-aliphatic amines, with comparable mechanical properties to aromatic amines. Used in casting, potting encapsulation, wet lay-up laminating and filament winding for tooling, electrical, and general industrial applications.	+	+				
ANCAMINE® 2074	Modified Cyclo-aliphatic	1	60	1	345	92	50	32	4.5	ambient temp	Very low viscosity with good color and color stability. Gives good film flexibility and bonds well to damp concrete.	+		+			
ANCAMINE® 2089M	Modified Aliphatic	2	100	1.00	395	75	40	15	2.0	ambient temp	Low-viscosity product for rapid cure at low temperatures. Gives high-gloss films with much better resistance to carbamation than other aliphatic amines, even under high humidity. Accelerator for cyclo-aliphatic amines. Phenol-free.						+
ANCAMINE® 2143	Modified Cyclo-aliphatic	1	600	1.03	255	115	60	42	7	ambient temp	Excellent color and color stability, combined with films exhibiting high-gloss and non-blushing characteristics. Good resistance to carbamation at both ambient and low temperatures (5-10°C). Very good solvent resistance.			+		+	+
ANCAMINE® 2165	Modified Aliphatic Amine	1	30	1.05	705	48	25	40	8	ambient temp	An ultra-low-viscosity modified aliphatic amine designed for use with diluted liquid epoxy resins in crack injection, concrete impregnation, and patch repair mortars. The fabrication of industrial composites						+
ANCAMINE® 2286	Modified Cyclo-aliphatic	1	60	1.01	325	NA	50	40	6	ambient temp	A modified cyclo-aliphatic amine that offers very low viscosity with good color. Used in self-leveling flooring, flooring mortars, and concrete repair materials.	+					

NA - Not Applicable



Modified Aliphatic and Cyclo-aliphatic Amines

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa·s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Equivalent WT/{H} (Solid)	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C, 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
												Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMINE® 2337S	Modified Aliphatic Amine	NA	NA	NA	260	NA	45	NA	NA	NA	This product offers rapid reactivity above 70°C. Whilst not being a dicy accelerator, Ancamine 2337S is often used in conjunction with accelerated dicy formulations to provide dual cure aspect and rapid development of green strength for 1k adhesives.	+					
ANCAMINE® 2410	Modified Aliphatic Amine	3	20,500	1.17	444-480	85.5	45	NA	NA	ambient temp	An isolated adduct with low odour and low free amine content, for use in FDA compliant coatings, tank linings and other chemical resistant systems, Ancamine 2410 offers both fast dry speeds and good chemical resistance. Due to its high viscosity this curing agent is commonly used as a co-curable or in its solvated form (Ancamine 2410B75).			+	+		
ANCAMINE® 2432	Modified Aliphatic Amine	3	300	1.10	368	88	46	27	2	ambient temp	Outstanding resistance to a wide range of chemicals. A fast-curing amine with good working life. Rapid development of properties at low temperature. Phenol-free and low viscosity.			+	+	+	+
ANCAMINE® 2458	Modified Aliphatic	4	5	0.88	NA	55	30	NA	NA	ambient temp	A low-viscosity ketimine curing agent that allows significant pot life extension in formulated systems. Achieves performance similar to unmodified amines and amine adducts, and achieves typical pot life of 7-8 hours in high-solids coatings and adhesives.			+	+		
ANCAMINE® 2459	Modified Aliphatic	6	300	0.97	NA	101	54	NA	NA	ambient temp	A ketimine curing agent that allows for extended pot life in formulated systems. Compared with Ancamine 2458, Ancamine 2459 will have the lowest level of amine blush, especially when applied at lower temperatures or higher humidity.			+	+		
ANCAMINE® 2489	Modified Cyclo-aliphatic	2	80	1.04	360	83	44	32	3	ambient temp	Extremely low viscosity and low mix viscosity with epoxy resin. Very high strength and modulus. Very fast cure and strength development with suitable pot life. Be used for high strength concrete reinforcement and steel structural reinforcement.					+	+
ANCAMINE® 2515	Modified Cyclo-aliphatic	3	200	1.01	330	85	45	20	3.5	ambient temp	Low viscosity and rapid development of physical properties at ambient and low temperature down to 10°C. Good chemical resistance.					+	
ANCAMINE® 2519	Modified Cyclo-aliphatic Amine Adduct	1	185	1.01	315	95	50	23	3.5	ambient temp	A low viscosity curing agent which exhibits good carbamation resistance at temperatures down to 10°C. It can be used to formulate high solids coatings, self leveling and screed floors with good all round performance.				+	+	
ANCAMINE® 2578	Modified Aliphatic Amine	5	2,000-3,000	1.01	250-270	175	90-95	70	1.5	ambient temp	A modified aliphatic polyamine adduct intended for use as a low temperature curing agent for liquid epoxy resin. The product exhibits fast cure under adverse conditions of high humidity and low temperature, and will cure at temperatures as low as 0°C.			+			
ANCAMINE® 2595	Modified Cyclo-aliphatic	5 Max	15,000-25,000	NA	420-470	NA	NA	NA	NA	NA	Cyclo-aliphatic amine modified without diluents.		+				
ANCAMINE® 2609	Modified Aliphatic	3	350	1.01	400	75	40	15	2	ambient temp	Low-viscosity product that gives rapid cure at low temperatures. Gives high-gloss films with much better resistance to carbamation than other aliphatic amines, even under high humidity. Accelerator for cycloaliphatic amines. Low cost-in-use. Nonyl phenol/Phenol-free.		+	+	+		+
ANCAMINE® 2635	Modified Aliphatic	1	25	0.96	310	78	40	35	10	ambient temp	Low viscosity, low color, high gloss, good resistance to amine blush. Low cost-in-use.					+	
ANCAMINE® 2636	Modified Aliphatic	5	300	1.10	360	78	40	11	3	ambient temp	Fast cure and rapid hardness development; high strength and high modulus. Good amine blush resistance. Can be as accelerator for other curing agents and be suitable for concrete reinforcement and concrete repair mortars; solvent free self levelling floor. Good chemical and water resistance for heavy duty coating.			+	+	+	+
ANCAMINE® 2641	Modified Aliphatic Amine	4	3,500	1.04	578	91	48	6	1	ambient temp	Fastest cure of the aliphatics. Effective accelerator for polyamides and amidoamines.		+				
ANCAMINE® 2678	Modified Aliphatic	<2	35	NA	1,300	30	16	29	135	NA	Designed for use as a curing agent for liquid epoxy resins with similar performance to AEP in most applications. It is characterized by its rapid gel at room temperature to give a B state cure. It requires an elevated temperature post-cure to obtain optimum properties, notably high impact strength.	+	+				+

NA - Not Applicable



Modified Aliphatic and Cyclo-aliphatic Amines

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa·s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Equivalent WT/{H} (Solid)	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C, 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
												Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMINE® 2683	Cyclo-aliphatic Amine	>10	160	NA	700	42.5	22.5	75	NA	2h/250°F	Cyclo-aliphatic amine which exhibits low viscosity and a high gloss transition temperature within liquid epoxy resin systems. Ideal curative for heat cured applications.	+					
ANCAMINE® 2689	Modified Aliphatic Amine	<2	25-85	NA	680-720	49	25	24	NA	NA	A low viscosity modified aliphatic amine hardener for room temperature cure of epoxy resins. This product provides low viscosity and rapid cure.	+					
ANCAMINE® 2724	Phenal Amine	18 Max	2,600	1.02	173	255	130-140	NA	4.1 @ 5°C	ambient temp	Fast drying time at low temperature, high corrosion and chemical resistance. Which also make it very well suited for use in the most demanding heavy-duty coatings applications. Xylene version of Sunmide CX-1151.			+	+		
ANCAMINE® 2726	Modified Cyclo-aliphatic Amine	2	300-600	1.03	240-290	115	50-60	40-50	7.5	ambient temp	Non-IPDA based modified cyclo-aliphatic amine. Good color and color stability, excellent amine blush resistance, good UV resiistance. Be used for decorative and performance self-leveling and screed floor.			+	+	+	
ANCAMINE® 2727	Phenal Amine	8-16	800	0.966	177	279	133	NA	2.1	ambient temp	Fast dry at ambient temperature, high corrosion and chemical resistance and is very well suited for use in the most demanding heavy-duty coating applications.			+	+		
ANCAMINE® 2738	Modified Polyamine	6 Max	100-200	1	525-575	95	50	150 @ 23°C	13 @ 23°C	ambient temp	Use as a curing agent for diluted liquid epoxy resin at ambient and low temperature application (10°C) Free of benzylalcohol, facilitating zero volatile organic component coating and flooring formulations. Good color and color durability.			+	+		
ANCAMINE® 2739	Modified Polyamine	3 Max	350-650	1	540-590	95	45-50	70-90 @ 23°C	8.5 @ 23°C	ambient temp	Free of alkyl-substituted phenol, facilitating in low volatile organic component coating and flooring formulations and allows the use in emission compliant systems. Fast cure and development of properties at ambient and low temperature. High resistance to carbamation and water-spotting			+	+		
ANCAMINE® 2753	Modified Cyclo-aliphatic	Typical 2	2-200	1.04	350-410	75	40	62	7.3	ambient temp	Light color, good blushing resistance.					+	
ANCAMINE® 2756	Phenal Amine	8-16	530	0.97	188	237	56	NA	5.0 @ 5°C	ambient temp	Fast dry at low temperature, high corrosion and chemical resistance and is very well suited for use in the most demanding heavy-duty coating applications.			+	+		
ANCAMINE® 2758	Modified Amine	18 Max	60-150	1.028	5550-650	82	35-45	20	3.8	ambient temp	Excellent mechanical performance and adhesion. Offer rapid properties development even at 0°C. It also shows excellent adhesion on cold and damp concrete.				+		+
ANCAMINE® 2760	Modified Cyclo-aliphatic	<2	300-600	1.02	235-275	115	60	50-60	7	ambient temp	Low viscosity, it provides an excellent balance of properties in terms of handling, cure speed and UV durability. It has similar chemical resistance and anti-corrosion properties to Ancamine 2280.					+	
ANCAMINE® 2764	Modified Cyclo-aliphatic	<3	70-130	1.03	260-280	104-108	55	35-40	5-6 @ 23°C	ambient temp	Low color and color stability, low viscosity, good carbamation resistance, excellent cure speed at ambient and low temperature, very good corrosion protection and chemical resistance.			+	+		
ANCAMINE® 2771	Modified Aliphatic Amine	<4	250-500	1.03	245-275	95	50	53	7.3	ambient temp	Good blushing resistance, high gloss surface appearance for year-round use.					+	
ANCAMINE® 2774	Modified Cyclo-aliphatic	Clear Brown	100-300	1.04	290-330	95	50	47	13	ambient temp	Cost-in-use economics for primers and mid-coat. Balance of chemical resistance and surface appearance properties.					+	+
ANCAMINE® 2775	Modified Aliphatic Amine	<15	100-400	1	350-415	95	50	30-35	5	ambient temp	Excellent adhesion strength, provides rapid hardness development and early water resistance at the lower temperature cure condition (eg 10°C).				+		
ANCAMINE® 2777	Polyamine	NA	180	NA	NA	86	80	15	NA	elevated temp	A modified polyamine curing agent, with low viscosity, exhibits good cure at low temperatures. It provides good mechanical performance and adhesion. It is recommended to be used as anti-skid road.						+
ANCAMINE® 2904	Cyclo-aliphatic Amine	1	40-50	NA	NA	NA	23	NA	NA	ambient temp	Cyclo-aliphatic amine designed to cure liquid epoxy resins at elevated ~125°C temperatures, lower than typical cyclo-aliphatic amine. Moderate pot life with rapid cures ability at elevated temperature. The cure product exhibit excellent chemical resistance, high mechanical strength, and high temperature tolerance.	+	+				

NA - Not Applicable



# Modified Aliphatic and Cyclo-aliphatic Amines

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Equivalent Wt/{H} (Solid)	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C, 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
												Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMINE® MCA	Modified Cyclo-aliphatic	3	150	1.03	305	101	55	32	6.5	NA	A modified cyclo-aliphatic amine designed for use with liquid epoxy resins. It also can be used to cure solid resins in solvent-based system.			+	+		+
SUNMIDE® CX-105	Phenal Amine	15	37,500	1.01	310	142	75	65	2	ambient temp	Good anti-corrosive for high-solid coatings. Good low temperature cure. FDA-compliant component of coatings under 21 CFR 175.300. Phenal Amine-based modified polyamine.			+	+		
SUNMIDE® CX-105X	Phenal Amine	<18	4,250	0.994	244	142	90-95	NA	5.5-15.5	ambient temp	Provides high corrosion and chemical resistance and is very well suited for use in the most demanding, heavy-duty coatings applications. FDA compliant.			+	+		
SUNMIDE® CX-1151	Phenal Amine	<18	2,620	1.02	175	255	130-140	NA	5.5-9.0	ambient temp	Provides fast drying time at low temperature, high corrosion and chemical resistance. Which also make it very well suited for use in the most demanding heavy-duty coatings applications.			+	+		
SUNMIDE® I-544	Modified Cyclo-aliphatic	1	400	1.03	275	112	59	40	7	ambient temp	Good color and color stabiltiy. Produces high-gloss, non-blushing films with good chemical resistance.					+	+
SUNMIDE® I-965	Modified Cyclo-aliphatic Amine	9	300-700	1.03	280-320	102	55	32	6.5	ambient temp	Allows for cures at high humidity, low temperature, and work with Sur-Wet R can be under water cure.				+	+	+
SUNMIDE® J-230N	Modified Aliphatic	<3	35-55	NA	300-320	87	40	134	134	ambient temp	A low viscosity and long pot life curing agent for high-solid and solvent-free coating, flooring.			+	+	+	+
SUNMIDE® P-1003	Polyamine Adduct	<15	1,000-2,000	NA	280-320	75	NA	NA	NA	ambient temp	Sunmide P-1003 has excellent chemical resistance properties and it has good adhesion on concrete and steel surface during surface coating.			+	+		
SUR-WET™ R	Modified Aliphatic Amine	4	6,500	0.98	195	222	115	60	6	ambient temp	Adheres and cures well when applied under water. Can be accelerated with other amines to give harder, faster cures. Presence of water will accelerate cure.		+	+	+		+

NA - Not Applicable





Solvent-borne Polyamides,  
Polyamide Adducts and Polyamine Adducts

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Solid (%)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C; 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMIDE® 220X70	Reactive Polyamide	7	1,100	0.94	170	70	264	70 <sup>3</sup>	NA	NA	ambient temp	Industry standard high viscosity polyamide.				+		
ANCAMIDE® 221X70	Reactive Polyamide	9	1,000-2,500	0.94	144-164	70	300	50-70 <sup>7</sup>	>7h	4.5	ambient temp	A TETA-free variant of Ancamide 220X70. Ancamide 221X70 is diluted to 70% solids in xylene and offers good color, color stability, chemical, and corrosion resistance for the general protective coatings market.			+	+	+	
ANCAMIDE® 702B75	Reactive Polyamide Adduct in Butanol	8	4,000-8,000	0.96	230-260	75	170	90	180	NA	ambient temp	A low-TETA reactive polyamide developed for use in the curing of epoxy resins in solvent-based surface coatings applications. Special features included good epoxy resin compatibility without induction, excellent adhesion, and cure under adverse conditions.			+	+		
ANCAMIDE® 2603	Polyamine Adduct	5	2,700	1.01	260	60	175	93	70	3	ambient temp	Fast cure under adverse conditions of high humidity and low temperature at 0°C. High gloss, low blush when cured under adverse conditions.				+		
ANCAMIDE® 2652	Polyamide	8	2,000	0.99	132	100	250	90-130	140	5	ambient temp	Ancamide 2652 has been specifically developed to provide long overcoatability with epoxy and polyurethanes, while maintaining the performance properties you expect from a polyamide.			+	+		
ANCAMINE® 2766	Modified Amine	10 Max	1,000-3,000	NA	255-295	NA	120	80	37	5	ambient temp	Excellent adhesion on concrete and resilient properties, low modulus, good flexibility and strength. Excellent weatherability and aging resistance. Can't be used as anti-skid road.					+	+
ANCAMINE® 2410B75	Polyamine Adduct	2	11,000	1.05	340	75	114	60	30	2	ambient temp	Excellent chemical resistance, can be used in compliance with FDA 21 CFR 175.300, low residual EDA. Sharp reduction in viscosity with increased temperature or solvent addition for easier handling and reduced VOC.			+	+		
EDA ADDUCT 870XB50	Polyamine Adduct	2	2,500	0.99	90	50	370	80-100 <sup>7</sup>	NA	NA	ambient temp	Isolated amine adduct with very low odor, free-amine content, and irritation potential. Non-yellowing, bloom-free films. Improved cure under adverse conditions without induction. Good water resistance.			+	+		
SUNMIDE® 153-60S	Polyamide	7	2,500	0.93	70	60	655	80-131 <sup>7</sup>	NA	4.7	ambient temp	Fast dry and good adhesion and mechanical property, good flexibility and low toxicity.			+	+		
SUNMIDE® 175-60	Polyamide Adduct	6	3,500	0.93	115	60	467	60-93 <sup>7</sup>	NA	2.5	ambient temp	Long overcoatability, good corrosion resistance, fast dry and cure, moderate viscosity, good flexibility, and high-gloss finish. Non-critical loading (40-60 phr).			+			
SUNMIDE® 301AK	Polyamide	10	6,450@40°C	0.98	244	NA	380	200	80	NA	ambient temp	High-peel strength and flexibility.		+				
SUNMIDE® 305	Polyamide	12	50,000-70,000/40°C	0.97	210 ± 20	100	180	60-80 <sup>7</sup>	NA	NA	ambient temp	Standard high-viscosity polyamide providing high flexibility, long pot life, and good overall properties with solid epoxy resin. Cure can be accelerated with up to 5 phr of Ancamine K54. DOT non-corrosive.			+	+		
SUNMIDE® 305-70X	Polyamide	6	1,300	0.94	170	70	257	51 <sup>7</sup>	NA	6.5	ambient temp	Ambient cure, low toxicity, and flexibility and toughness, long pot life, and good water/corrosion resistance.			+	+	+	+
SUNMIDE® 307D-60	Polyamide	5	3,000	0.93	135	60	377	75 <sup>7</sup>	NA	3	ambient temp	Fast cure, low toxicity, and long pot life.			+	+		
SUNMIDE® 328N	Polyamide	5	230	0.94	230	66	169	89	NA	5	ambient temp	Polyamide resin as epoxy hardener for repair paint with weak solvent. Has excellent adhesion strength with good flexibility for various areas. Good adhesion to oil-surface concrete			+	+		+

NA - Not Applicable

# Solvent-borne Polyamides, Polyamide Adducts and Polyamine Adducts

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa·s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Solid (%)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C; 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
SUNMIDE® 350	Polyamide Adduct	5	2,500	0.94	129	60	377	75 <sup>7</sup>	NA	4	ambient temp	Fast dry at low temperature, good corrosion resistance, good adhesion and flexibility.			+			
SUNMIDE® 353N	Polyamide Adduct	6	700	0.93	165	51	267	53 <sup>7</sup>	NA	2	ambient temp	Fast dry and good performance at low temperature, good adhesion to damp surface, good resistance to chemicals and solvents.				+	+	+
SUNMIDE® 381	Polyamide Adduct	7	8,500	0.98	270	7	183	37 <sup>7</sup>	NA	3.5	ambient temp	Fast cure, excellent water and chemical resistance.		+				
SUNMIDE® 390	Polyamide Adduct	12	800-1,500	0.95	130±1	60	190	70-80	NA	NA	ambient temp	Fast cure, good adhesion for damp surface and relative good chemical resistance.			+	+		
SUNMIDE® 390-70	Polyamide Adduct	6	4,000	0.95	175	70	271	54 <sup>7</sup>	NA	3.5	ambient temp	Fast dry and good adhesion to damp surface, good resistance to chemicals and solvents.			+	+		
SUNMIDE® 390-70X	Polyamide Adduct	6	5,000	0.94	168	70	271	54*	NA	3	ambient temp	Fast dry and good adhesion to damp surface, good resistance to chemicals and solvents. Xylene version of Sunmide 390-70			+	+		
SUNMIDE® 3060K-6M	Modified Polyamide	12	25,000	0.98	225	NA	NA	1-4	NA	NA	ambient temp	Modified polyamide amine for use in automotive formulations.		+				
SUNMIDE® D-1100	Polyamine Adduct	3	600	0.98	135	51	290	58 <sup>7</sup>	NA	4	ambient temp	A good chemical resistance and adhesion on steel.			+	+		
SUNMIDE® E-1000	Polyamine Adduct	2	1,100	0.98	100	50	380	76 <sup>7</sup>	NA	4	ambient temp	A fast drying, good chemical resistance and good impact resistance curing agent.			+	+		

NA - Not Applicable





Solvent-free Polyamides, Adducts and Amidoamines

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Solid (%)	Equivalent WT/{H} (Solid)	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C; 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMIDE® 260A	Polyamide	10	35-45 Pa.S	0.96	330-360	100	120	65	200	10	ambient temp	Ancamide 260A curing agent is one in a series of standard reactive liquid polyamides developed specifically for use in the curing of epoxy resins. It has a relatively high amine value and is used primarily, but not exclusively, with liquid resins. Good chemical resistance, FDA compliant.		+	+			
ANCAMIDE® 261A	Reactive Polyamide	7	40,000	0.96	350	100	120	65	75	7	ambient temp	A low-TETA variant of Ancamide 260A. Common applications include adhesives, sealants, putties, flexible cable jointing and high solids coatings.		+	+	+	+	
ANCAMIDE® 350A	Polyamide	10	9,000-15,000	0.97	365-395	100	100	55	235	11	ambient temp	Ancamide 350A curing agent is one in a series of standard reactive liquid polyamides for use in the curing of epoxy resins. Standard high imidazole-content polyamide with lower viscosity. FDA compliant.		+	+	+		
ANCAMIDE® 351A	Reactive Polyamide	8	15,000	0.97	344	100	100	50-55	150	10	ambient temp	A low-TETA variant of Ancamide 350A. It is commonly used in adhesives, sealants, putties, flexible cable jointing and high solids coatings.		+	+	+		+
ANCAMIDE® 400	Polyamide	7	1,600	0.97	405	NA	95	50	65	9.5	ambient temp	Special polyamide with low viscosity and faster cure. Compatible with epoxy resins without induction. Good hot water resistance when blended with cyclo-aliphatics. Blended with AIBNs in adhesives.		+				
ANCAMIDE® 501	Accelerated Aliphatic Amidoamine	7	600	0.98	550	NA	68	35	40	7.5	ambient temp	A versatile accelerated amidoamine for the civil engineering market that is used in patch repair, tile grouts and general adhesives.		+				+
ANCAMIDE® 506	Amidoamine	7	250	0.94	420	NA	105	55	385	23	ambient temp	Highest imidazoline content of amidoamine range giving long pot life and good through cure with very little exotherm. In high-solids coatings, often mixed with cyclo-aliphatic curing agents.	+	+				+
ANCAMIDE® 910	Polyamide	6	6,000	0.99	118	NA	230	110-125	120	8	ambient temp	Outstanding flexible/peel strength, excellent thermal shock resistance and good electrical properties. Lower viscosity than conventional polyamides. DOT non-corrosive.		+				
ANCAMIDE® 2050	Polyamide Adduct	7	4,000	1.02	225	NA	150	70	100	7	ambient temp	With liquid epoxy resin, it achieves high gloss, flexibility, hardness, and reverse impact resistance comparable to traditional solvent-cut polyamide/solid epoxy resin systems. No induction required. Non-critical loading (70-10 phr).			+	+		
ANCAMIDE® 2137	Polyamide	7	1,500-2,000	1.04	293-308	100	NA	NA	27	3	NA	Ancamide 2137 is a lower viscosity, shorter pot life, faster thin-film set time version of our Ancamide 2050.						+
ANCAMIDE® 2386	Amidoamine	8	340	1.00	364	NA	93	49	135	8.5	ambient temp	Long pot life with good thin-film set time. Excellent film formation, blush resistance, and good low-temperature cure compound with standard amidoamines. Very good solvent and corrosion resistance.		+				+
ANCAMIDE® 2396	Amidoamine	8	680	0.99	350	NA	93	49	102	8.5	ambient temp	Excellent adhesion to cold, damp concrete. High strength and modulus, and the best chemical resistance. Less amine blush than standard amidoamines.		+		+		+
ANCAMIDE® 2426	Amidoamine	8	650	0.95	380	NA	93	49	245	14	ambient temp	A plasticizer-free curing agent. Long pot life with excellent blush resistance. Excellent hardness development and good resistance to aqueous reagents. Good color stability.			+			
ANCAMIDE® 2443	Amidoamine	7	30	0.97	530	NA	86	45	250	12	ambient temp	A very low-viscosity, plasticizer-free amidoamine with long pot life and good blush resistance. Develops good adhesion to concrete and rusty metal. Exhibits excellent humidity and corrosion resistance.				+		+
ANCAMIDE® 2757	Modified Polyamide	12 Max	3,800	0.96	408	NA	NA	40	96	4	ambient temp	Two component epoxy adhesives with longer pot life, faster built up of mechanical strength and better chemical resistance than normal polyamides. Lower viscosity enable high loading of filler, which make formulation cost effective.		+		+		

NA - Not Applicable

Solvent-free Polyamides, Adducts and Amidoamines

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Solid (%)	Equivalent WT/{H} (Solid)	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C; 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMIDE® 2766	Modified Amine	10 Max	1,000-3,000	NA	255-295	NA	120	80	37	5	ambient temp	Excellent adhesion on concrete and resilient properties, low modulus. Good flexibility and strength. Excellent weatherability and aging resistance. It is recommended to be used as anti-skid road.					+	+
ANCAMIDE® 2767	Modified Polyamide	<7	1,700-2,500	1.08	340	NA	114	60	57	5	ambient temp	Excellent high-gloss film formation and fast dry with no induction time. Cures down to 5°C. Develops hard films with very good solvent and corrosion resistance. Best chemical resistance of polyamides. Improved yellowing resistance.			+	+		
ANCAMIDE® 2772	Modified Polyamide	12	3,000	0.98	500	100	123	64.7	16	NA	ambient temp	Low viscosity, fast cure at room temperatures and excellent adhesion to various substrates (Al honeycomb). When it is used with liquid epoxy resin and Ancarez® 2364, it will show greater toughness and peel strength than the conventional epoxy polyamide system.		+				
ANCAMIDE® 2778	Polyamide	Yellowish Liquid	10,000-30,000	1.01	NA	NA	180	100	NA	NA	ambient temp	A low viscosity 100% solid polyamide, and good flexibility and toughness, long pot life and good water/corrosion resistance. Can be used for primer and cost effective solvent borne top coat in flooring application.					+	
ANCAMIDE® 2779	Polyamide	15	40,000	0.97	233	100	NA	NA	90	5	ambient temp	Cost effective. Medium viscosity enable 1:1 volume ratio with standard liquid epoxy resin. Improved reactivity, chemical resistance and/or reduction in viscosity can be achieved by blending with aliphatic curing agents or amidoamines.		+				+
SUNMIDE® 75	Amidoamine	6	750	0.95	410	NA	110	58	150	11.6	ambient temp	Low viscosity, long pot life, and non-critical mixing ratio. Develops good adhesion to concrete and rusty metal. Exhibits excellent humidity and corrosion resistance.		+	+	+	+	+
SUNMIDE® 75IL	Amidoamine	5	250	0.95	470	NA	98	52	125	6	ambient temp	Low viscosity, moderate pot life. Non-critical mixing ratio. Good adhesion to concrete. Used alone or with other curing agents (e.g. Ancamine 1608, 1768, or 2432) to adjust cure rate and other properties.		+	+	+	+	+
SUNMIDE® 75IM	Amidoamine	7	250	0.95	413	NA	105	55	220	11	ambient temp	Amidoamine range giving long pot life and good through cure with very little exotherm. In high-solids coatings, often mixed with cyclo-aliphatic curing agents.		+				
SUNMIDE® 310P	Polyamide	7	25,000/40°C	0.98	350	NA	110	58	60	8	ambient temp	Good adhesive on wet surface or underwater, good mechanical impact resistance.		+				
SUNMIDE® 315	Polyamide	7	10,000/40°C	0.99	350	NA	125	66	124	10	ambient temp	Good adhesion to various materials such as metal, glass, plastics, wood, porcelain, concrete, and rubber. Good toughness flexibility, good chemical resistance, formulation by 1:1 ratio and low toxicity in comparison with aliphatic polyamine.		+	+	+		
SUNMIDE® 336	Polyamide	5	6,500	0.97	455	NA	90	47	48	5.6	ambient temp	Excellent adhesion to PVC sheet, good adhesion to aluminum plate. Good toughness flexibility and low toxicity in comparison with aliphatic polyamine.		+				
SUNMIDE® 328A	Polyamide	7	15,000	0.97	395	NA	100	53	117	10	ambient temp	This room temperature curing type hardener has excellent adhesion strength to various materials, such as metal, glass, plastics, wood, porcelain, concrete, and rubber. Excellent toughness flexibility, excellent chemical resistance, low shrinkage and heat, and excellent heat resistance.		+				

NA - Not Applicable



Waterborne Epoxy Resin and Hardeners

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Specific Gravity (@25°C)	Amine Value (mg KOH/g)	Solid (%)	Equivalent WT/[H] (Solid)	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Gel Time <sup>5</sup> (Min@25°C, 150 G mix)	Thin Film Set Time <sup>6</sup> (H@25°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAREZ® AR555	Water-based Solid Resin Dispersion	Milky	150	1.09	NA	55	550	NA	4-6h	NA	NA	This zero-VOC, novel, low-viscosity, solid epoxy resin dispersion (supplied at 55% solids) may be used with products such as our Anquamine 419, Anquamine 401 and Anquawhite 100 for rapid cure water based systems. It is ideal for concrete primers/coatings, industrial maintenance primers/top coats.			+	+	+	
ANQUAMINE® 287	Modified Polyamine	12	700	1.08	165	50	240	126	60-75	1	ambient temp	Designed for application on green concrete as a primer or primer-sealer. Unlike traditional sealers, a sealer based on this product does not need to be removed before further treatment. Fast drying time, quick return to service, zero-VOC, easily mixes with water and resin, can be brushed, rolled or spray applied. Low formulation viscosity allows excellent penetration of concrete substrate, good through-cure and easy to clean up.					+	+
ANQUAMINE® 401	Modified Polyamine	12	30,000	1.09	250	70	200	100-150	100	3	ambient temp	Exhibits rapid dry time with excellent hardness development and good corrosion resistance. Gives high-gloss films with excellent gloss retention. This, combined with excellent stain resistance, makes it ideal for institutional coatings. It can be used with liquid epoxy resin, or solid and semi-solid dispersions.			+	+	+	
ANQUAMINE® 419	Modified Polyamine	7	11,000	1.09	NA	60	284	120-150	NA	2-7	ambient temp	Designed for use with solid epoxy resin dispersions to give fast dry times, and excellent corrosion and humidity resistance. Exhibits good gloss and good gloss retention. Excellent adhesion to steel makes it an ideal product for metal primers. Can also be used on concrete where improved humidity resistance is required.			+	+		
ANQUAMINE® 721	Modified Amine	5	25,000-45,000	1.05	150-190	48-52	300	140-180	1-2h/ 23°C	3.5	2-7days	Anquamine 721 has been specifically developed for cost effective concrete floor coatings at up to 300 micron applied film thickness. It easily emulsifies standard liquid epoxy resins, offers excellent adhesion to damp concrete and has universal pigment acceptance.			+	+	+	+
ANQUAMINE® 735	Modified Polyamine	Max 4	20,000	1.05	240	NA	200	100	30-45	NA	2-7days	A waterborne curing agent for standard liquid epoxy resin. It is specifically designed for cost-effective high film build concrete coatings. It is particularly suitable for water-based, self-levelling systems of 1-3 mm film thickness. Formulations based on Anquamine 735 curing agent provide highly decorative functional floors without the requirement for plasticisers or solvents.					+	
ANQUAWHITE® 100	Modified Polyamine	Milky	200	1.05	100	53-57	350	180	6-8 (20°C)	0.5-9	ambient temp	Provides 6-8 hours pot life with liquid epoxy resins and addresses the typically short pot life of 1-2 hours from current two component, water-based systems, extremely low viscosity, low color, and good retention of color upon UV exposure.				+	+	
EPILINK® 360	Aqueous Solution of Modified Polyamide	16	30,000-50,000	1.05	150-190	49-51	240	100-150	NA	NA	ambient temp	Capable of emulsifying and curing epoxy resins at room temperature without added surfactants. Designed for use where absence of organic solvents is desired. DOT non-corrosive.					+	
EPILINK® 660	Polyamine Adduct	<9	15-25	1.1	180-210	68-72	200	100-120	NA	2.5-10	NA	Waterborne curing agent. Low viscosity, good color and color stability with low free-amine content. Capable of emulsifying and curing epoxy resins at ambient temperature without added surfactants and produces observable end of pot life.					+	
EPILINK® 701	Water-based Modified Polyamine	Milky	7,500	1.08	150	55	300	150	120-240	2.5	ambient temp	Fast film drying and cure with liquid epoxy. Excellent anti-corrosive and flash rust resistance. Low temperature cure down to 5°C. 50% binder reduction in "Self-leveling Floors" vs. conventional systems. Water vapor permeability. Zero-VOC systems and very low free amine content (<1%). Temperature and shear stable.			+	+	+	+
SUNMIDE® WH-900	Modified Polyamine	5	15,000	1.08	200	60	225	118	29	1.7	ambient temp	Exhibits rapid dry time with excellent hardness development and good corrosion resistance. Gives high-gloss films with excellent gloss retention. This, combined with excellent stain resistance, makes it ideal for institutional coatings. It can be used with liquid epoxy resin.			+	+	+	
SUNMIDE® WH-1000	Modified Polyamideamine	5	20,000	1.07	241	60	210	110	65	3.5	ambient temp	Good anti-corrosive and adhesive properties which are especially suitable for use in concrete. Good chemical resistance and long pot life properties with solid epoxy resin.					+	

NA - Not Applicable

Epoxy Resin Diluents and Modifiers

Diluent and Product	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa·s/25°C)	Specific Gravity (@25°C)	WT/ Epoxide	Moisture Content (%max)	Residual ECH (ppm,max)	Hydrolyzable Chloride	Amine Value	Recommended Loading	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAREZ™ 2364	Epoxy Flexibilizer	1	30,000	1.1	NA	NA	NA	NA	NA	NA	ambient temp	Ancarez 2364 flexibilizer is a moderate viscosity acrylate-functional urethane resin. Stable over long periods of time when mixed with epoxy resin and completely reacted when cured with amine curing agents.					+	+
EPODIL® 741	Butyl Glycidyl Ether	1	2	0.91	150	0.2	10	0.1	NA	NA	NA	The best glycidyl ether for viscosity reduction with good retention of properties. High vapor pressure.		+	+	+		+
EPODIL® 746	2-Ethylhexyl Glycidyl Ether	2	9	0.91	220	0.1	10	0.1	NA	NA	NA	Less toxic, less irritating substitute for Epodil 741 with only a slight reduction in dilution efficiency. Low volatility makes it suitable for high-temperature cure.		+	+	+	+	+
EPODIL® 748	Alkyl (C12–C14) Glycidyl Ether	1	12	0.89	290	0.1	10	0.1	NA	NA	NA	General-purpose diluent. Low toxicity and low vapor pressure. Slows reactivity. Good viscosity reduction. Improves flexibility. Improves adhesion to nonpolar surfaces.		+	+	+		+
EPODIL® 749	Neopentyl Glycol Diglycidyl Ether	1	18	1.04	138	0.2	10	0.1	NA	NA	NA	Low volatility. Low reduction in physical properties and reactivity.		+	+	+		+
EPODIL® 757	1,4-Cyclohexanedimethanol Diglycidyl Ether	2	65	1.10	166	0.2	10	0.2	NA	NA	NA	Good maintenance of physical properties combined with moderate dilution efficiency. Good creep resistance.		+	+	+		+
EPODIL® 759	Alkyl (C12–C13) Glycidyl Ether	1	8	0.89	285	0.2	10	0.1	NA	NA	NA	Similar to Epodil 748 except it is less likely to crystallize.		+	+	+		+
EPODIL® LV5	Hydrocarbon Resin	<2	50	1.02	NA	0.01%	NA	<5ppm	NA	NA	NA	A chemically-inert, low-viscosity, liquid hydrocarbon resin. Acts as a surface tension reducer, as a pigment wetting aid, and as an adhesion promoter.		+	+	+		+
NOURYBOND® 272	Modified Polyamidoamine	≤10	15,000-35,000	0.99	NA	NA	NA	NA	185-200	1.0-4.0%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings.		+				
NOURYBOND® 276	Modified Polyamidoamine	≤10	9,000-28,000	0.99	NA	NA	NA	NA	110-130	1.0-2.0%	30min@ 120°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings.		+				
NOURYBOND® 289	Blocked Isocyanate	2	30,000-50,000	NA	NA	NA	NA	NA	NA	4.0-6.0%	30min@ 120°C	Blocked isocyanate PVC plastisol adhesion promoter for use in automotive sealants applied to visible areas and anti-chip primers.		+				
NOURYBOND® 290	Blocked Isocyanate	2	25,000-35,000	NA	NA	NA	NA	NA	NA	3.0-4.0%	30min@ 120°C	Blocked isocyanate PVC plastisol adhesion promoter for use in automotive sealants applied to visible areas and anti-chip primers. Used in conjunction with small amount of polyamidoamine adhesion promoter.		+				
NOURYBOND® 301	Modified Polyamidoamine	≤12	1,000-1,500 @ 75°C	1.0 g/cm³	NA	NA	NA	NA	380-400	0.5-2.0%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings.		+				
NOURYBOND® 308	Modified Polyamidoamine	≤12	12,500-22,500	1.0 g/cm³	NA	NA	NA	NA	180-210	1.0-2.0%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings. Humidity resistance.		+				
NOURYBOND® 312	Modified Polyamidoamine	≤12	2,000-4,000 @ 75°C	0.96 g/cm³	NA	NA	NA	NA	440-500	0.5-1.5%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings. Excellent adhesion strength.		+				
NOURYBOND® 316	Modified Polyamidoamine	≤14	1,000-2,000 @ 75°C	0.95 g/cm³	NA	NA	NA	NA	260-310	0.5-2.0%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings. Good rheology property profile.		+				
NOURYBOND® 346	Modified Polyamidoamine	≤14	1,000-3,000	NA	NA	NA	NA	NA	280-330	0.5-2.0 Wt%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings. Phthalate-free and good handling properties.		+				
NOURYBOND® 350	Modified Polyamidoamine	≤10	500-2,000 @ 75°C	NA	NA	NA	NA	NA	130-170	1.0-3.0 Wt%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings. Phthalate-free, excellent sag resistance, and good color stability.		+				
NOURYBOND® 351	Modified Polyamidoamine	≤12	2,000-5,000	NA	NA	NA	NA	NA	300-350	0.5-2.0 Wt%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings. Phthalate-free and good adhesion.		+				
NOURYBOND® 356	Modified Polyamidoamine	≤12	1,000-4,000	0.97 g/cm³	NA	NA	NA	NA	185-200	0.5-2.0 Wt%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings.		+				
NOURYBOND® 368	Modified Polyamidoamine	≤12	2,000-8,000	0.97 g/cm³	NA	NA	NA	NA	225-245	0.5-2.0%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter for use in automotive sealants and underbody coatings.		+				
NOURYBOND® 377	Modified Polyamidoamine	12 Max	4,000-10,000	NA	NA	NA	NA	NA	245-285	0.5-2.0%	30min@ 130°C	Modified polyamidoamine PVC plastisol adhesion promoter intended for use in automotive sealants, underbody coatings and anti-chip primers. It is designed to provide adhesion to electrode deposition primers used in the manufacture of automobiles and large vehicles such as trucks and buses.		Adhesion Promoter				

NA - Not Applicable



# Catalysts, Latent Hardeners, Unmodified Amines, and Other Special Products

Curing Agent	Type	Physical Form Appearance	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Melting Point (°C)	Bulk Density	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Latency	DCS Activation Temp (°C)	Heat Deflection Temp (°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
AMICURE® 101	Modified Amine	Amber Liquid	NA	120	32-41	NA	26	NA	NA	NA	NA	Low-viscosity, nonstaining, MDA-free aromatic amine. Lower exotherm and higher heat resistance than MDA. Used in filament-wound pipe, electrical encapsulation, tooling, large castings, and adhesives.	+					
AMICURE® CG-12000G	Dicyandiamide	White Powder	NA	NA	207-208	NA	4-15	6 months	Tg 121°C	NA	1-2h 180°C	Micronised dicy with a particle size of 90% <30 microns with 1.5% flow aid. Used in powder coatings, pre-pregs, adhesives and laminates.				+		
AMICURE® CG-325G	Dicyandiamide	White Powder	NA	NA	405-406	NA	4-15	NA	NA	NA	NA	Dicyandiamide pulverized to 90% less than 44 micron particle size. Contains 1.5% of an inert flow control additive. Used in structural laminates and one-component adhesives.	+	+				
AMICURE® CG-NA	Dicyandiamide	White Crystalline Solid	NA	NA	405-406	0.6	4-15	6	NA	NA	NA	Unpulverized dicyandiamide with no inert flow control agent. Used in electrical laminates, adhesives, and powder coatings, where the total resin system is pulverized prior to extrusion.	+	+				
AMICURE® HAPI	Imidazole	Micronized Powder	NA	NA	219	0.31g/cm³	1-10	NA	NA	134	NA	Amicure HAPI is a modified imidazole and it can be used as a sole curing agent or as an accelerator for DICY or anhydrides.	+	+				
AMICURE® KT-22	Modified Polyamine	NA	3	NA	NA	NA	NA	NA	NA	NA	NA	Modified polyamide for cationic electro-deposition systems, low-viscosity.				+		
AMICURE® UR 7/10	Substituted Urea	White Powder	NA	NA	130-133	NA	0.5-3.0	NA	NA	NA	NA	Suitable as an alternative for chloro phenol ureas, Amicure UR7/10 is used in the high performance pre-preg and 1k adhesive market.	+					
AMICURE® UR 10/30	Substituted Urea	White Powder	NA	NA	130-133	NA	0.5-3.0	NA	NA	NA	45-60mins at 130°C	Substitute for chlorophenyl ureas; co-curing accelerator for dicyandiamide-cured epoxy resins. Rapid cure above activation temperature.		+				
AMICURE® UR-D	Substituted Urea	Micronized Powder	NA	NA	154	0.38g/cm³	0.5-3.0	NA	NA	120	NA	Amicure UR-D is used as a DICY accelerator.	+	+				
AMICURE® UR2T	[1,1'-(4 methymphenylene) bis (3,3dimethyl urea)]	White Powder	NA	NA	186	NA	0.5-3.0	NA	Tg 50(°C)	NA	elevated temp	Substitute for chlorophenyl ureas, co-curing accelerator for dicyandiamide cured epoxy resins. Faster green strength adhesion build than Amicure UR. Also used at lower loadings than Amicure UR for comparable acceleration.		+				
AMICURE® PACM	Polyamine	NA	1	80	NA	NA	28	NA	NA	NA	elevated temp	Low-color, low-viscosity alternative to aromatic diamines, giving comparable properties with improved fracture toughness.	+	+				
ANCAMINE® 1110	Tertiary Amine	Pale Brown Liquid	6	20	NA	NA	5-15	NA	NA	NA	NA	Dimethylaminomethylphenol. Reduced-activity variant of Ancamine K54 curing agent. Used in concrete adhesives and coatings with polysulfide and polymercaptan curing agents, and in electrical castings with anhydrides.	+	+				
ANCAMINE® 1482	Modified Polyamine	Dark Brown	900	1.16	770	NA	37	19	220	NA	2h/80°C Plus 4h/150°C	Compared to solid aromatic amines, permits mixing with resin and curing at lower temperatures thus extending the pot life. Excellent mechanical properties, chemical and heat resistance.	+					
ANCAMINE® 1769	Adduct	NA	1	600	NA	NA	25	NA	NA	NA	ambient or elevated temp	Low shrinkage, vapor pressure and skin irritation potential. Yields a good combination of mechanical and electrical properties. DOT non-corrosive.	+	+				
ANCAMINE® 1922A	Diethylene Glycol Di (aminopropyl) Ether	NA	1	10	NA	NA	29	NA	NA	NA	ambient or elevated temp	Produces exceptional toughness, resiliency, thermal shock resistance and outstanding impact resistance. Good electrical properties.		+				

NA - Not Applicable

# Catalysts, Latent Hardeners, Unmodified Amines, and Other Special Products

Curing Agent	Type	Physical Form Appearance	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Melting Point (°C)	Bulk Density	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Latency	DCS Activation Temp (°C)	Heat Deflection Temp (°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
ANCAMINE® 2422	Modified Polyamine	NA	3	2,000	NA	NA	26	NA	NA	NA	ambient or elevated temp	A high-functionality amine giving good working time with multifunctional epoxy resins. Gives resistance to the most aggressive reagents with ambient or slightly elevated temperature cures.			+	+		
ANCAMINE® 2694	Amine Salt	NA	14	6,000	NA	NA	10-20	NA	NA	91°C @ 80°C for 12h	elevated temp	Liquid form. Used as sole curing agent for latent epoxy system. Low temperature curable.		+				
ANCAMINE® 2709	Amine Salt	Light Yellow Liquid	<2	470	NA	NA	1-20	NA	NA	NA	NA	A tertiary amine based cure accelerator for dicyandiamide and anhydride cured epoxy resin systems.	+	+				
ANCAMINE® BDMA	Catalyst	Light Yellow Liquid	NA	NA	NA	NA	NA	NA	NA	NA	NA	Ancamine BDMA (Benzyltrimethylamine) is an accelerator for epoxy resins cured with cyclo-aliphatic, dicyandiamide, anhydrides, polymercaptans and phenolic resins. Applications include rapid curing adhesives, light coloured coatings/flooring with cyclo-aliphatic amines, electrical laminates and encapsulation.	+	+				
ANCAMINE® DL-50	Methylenedianiline	NA	18	30,000/40°C	NA	NA	27	NA	74/43°C	NA	elevated temp	Good mechanical, thermal and electrical properties. Excellent chemical resistance.	+					
ANCAMINE® K54	Tertiary Amine	NA	6	200	NA	NA	1-15	NA	NA	NA	ambient temp	2,4,6-Tri (dimethylaminomethyl) phenol. Efficient activator for epoxy resins cured with a wide variety of hardener types including polyamide, amidoamines, polymercaptans and anhydrides.	+	+	+	+		+
ANCAMINE® K-61B	Tertiary Amine	Amber Liquid	12	700	NA	NA	10-12	NA	NA	NA	elevated temp	A 2-Ethylhexanoic acid salt of Ancamine K54 that offers an extended pot life and lower exotherm on cure. Can be used at relatively low levels (10-12 parts per 100 parts of standard liquid epoxy resin) for small to medium sized castings or to increase the Tg of other systems.	+	+				
ANCAMINE® T	Adduct	Water White Liquid	1	300	NA	NA	20	NA	NA	208	elevated temp	Modified aliphatic amine offering good color and a reduced level of skin irritation relative to most aliphatic polyamines. Used in wet lay-up laminating, tooling, adhesives, and patch repair kits.	+					
ANCAMINE® Y	Aromatic Amine	NA	NA	2,500-4,500	NA	NA	25	NA	NA	NA	NA	Liquid aromatic amine eutectic. Long pot life, high Tg, excellent physical properties and chemical resistance. Used in filament wound tanks and pipes as well as laminates.	+					
ANCAMINE® Z	Aromatic Amine	Dark Liquid	NA	1,500-4,000	NA	NA	19-21	NA	NA	NA	NA	Liquid aromatic amine eutectic. High Tg, excellent physical properties and chemical resistance. Used in filament wound tanks and pipes as well as laminates.	+					
ANCHOR® 1040	Modified Amine Complex of BF3	NA	12	20,000	NA	NA	7-12 <sup>9</sup>	NA	NA	NA	4h @ 130°C	Modified amine complex of BF3 with reduced hygroscopicity and good solubility in epoxy resins. It varies in latency and activation temperature. Cured mechanical properties and heat resistance properties are dependent upon the concentration and post-cure schedule employed. It exhibits opposite behavior with nonstandard epoxies, such as glycidyl esters and cycloaliphatic and alkyl epoxides, that gel within minutes to hours at room temperature.	+	+				
ANCHOR® 1115	Modified Amine Complex of BF3	NA	17	1,700	NA	NA	5-10 <sup>9</sup>	NA	NA	NA	4h @ 130°C	A curing agent which have the advantage of being freely compatible with liquid epoxy resin, provide cures over a wide range of temperature.	+	+				
CATALYST 1786B	Catalyst	Amber Liquid	6	NA	NA	NA	NA	NA	NA	NA	NA	Catalyst 1786B is a 50wt% solution of the p-toluenesulphonate salt of 2-amino-2-methyl-1-propanol in butanol. Widely used in white goods / applications, OEM, drum and pail coatings.		+				
CATALYST 2134	Morpholinium p-toluene Sulphonate	12 Max	35	1.08	ph6.5-7.5	30-32%	NA	NA	NA	NA	elevated temp	Solution of morpholinium-p-toluene sulphonate in 1-methoxy-2-propenol. Ethylene glycol monoethyl ether free. Permits a reduction of the stoving temperature as a catalyst.		+				
DICYANEX® 1400F	Dicyandiamide	White Powder	NA	NA	209-212	NA	4-15	>6 months	165	NA	30min @ 180°C	Micronized grade of dicyandiamide. It is designed for use as a latent curing agent for epoxy resin (D90, <10 microns; D50, <5 microns).	+	+				

NA - Not Applicable



# Catalysts, Latent Hardeners, Unmodified Amines, and Other Special Products

Curing Agent	Type	Physical Form Appearance	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (mPa•s/25°C)	Melting Point (°C)	Bulk Density	Use Level <sup>3</sup> (PHR <sup>4</sup> )	Latency	DCS Activation Temp (°C)	Heat Deflection Temp (°C)	Typical Cure Schedule	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
													Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
IMICURE® AMI-1	Liquid Imidazole	Liquid	NA	NA	-1-2	1.04	2-4	NA	Tg 150°C	NA	elevated temp	A liquid, elevated temperature curing agent for epoxy resins. It is readily compatible with both liquid and solid epoxy resins, and because it is a catalytic curing agent, it is used at low loadings of 1–5 phr.	+	+				
IMICURE® AMI-2	Solid Imidazole	White Powder	NA	NA	142-146	0.4-0.6	2-4	NA	Tg 150°C	NA	elevated temp	A liquid, elevated temperature curing agent for epoxy resins. It is readily compatible with both liquid and solid epoxy resins, and because it is a catalytic curing agent, it is used at low loadings of 1–5 phr.	+	+				
IMICURE® EMI-24	Liquid Imidazole	White Powder	8	6.50	NA	SG0.99	1-4	9h	Tg 156°C	NA	elevated temp	High-reactivity, medium-viscosity liquid used alone or to accelerate dicyandiamide or anhydride cures. May solidify as a result of thermal or mechanical shock. Gradual warming above 46°C returns material to a stable liquid form.	+	+				
SUNMIDE® 301D	Polyamide	NA	12	6,000-9,000	NA	NA	380	NA	NA	NA	ambient temp	A new product which has excellent performance in terms of workability, adhesion and water resistance compare with conventional polyester type resins as epoxy and hardeners.		+				
SUNMIDE® 3155	Modified Polyamine	NA	8	38,000/20°C	NA	NA	NA	NA	NA	NA	NA	Modified polyamide for cationic electro-deposition systems, low-viscosity.				+		
SUNMIDE® 3160	Modified Polyamide	NA	11	11,000-17,000	NA	NA	NA	NA	NA	NA	NA	Modified polyamide amine for cationic electro-deposition coating.				+		
SUNMIDE® LH-210	Modified Polyamine	6 Micron Powder	NA	NA	135	NA	10-20	1-30 months	NA	NA	30min @ 180°C	Substitute for modified imidazole, co-curing accelerator for dicyandiamide cured epoxy resins. Fast cure at low temperature (80°C), provides high Tg.		+				

NA - Not Applicable

# Polyamides Hot-melt Adhesives

Curing Agent	Type	Amine Value	Acid Value	Viscosity (mPa•s) <sup>10</sup>	Softening Point (°C)	Specific Gravity (@25°C)	Open Time (sec) <sup>11</sup>	Comments	COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
									Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
SUNMIDE® 15K-5	Polyamide Resin	22	2	530 (200°C)	160	0.97	120	UL V-O. Good flexibility.		+				
SUNMIDE® HT-100G	Polyamide Resin	1	5	7,500 (200°C)	104	0.95	330	Good adhesive for PE and aluminum.		+				
SUNMIDE® HT-140PK-20	Polyamide Resin	6	3	6,000 (200°C)	137	NA	165	Good adhesive for PVC.		+				

NA - Not Applicable

Urethane-acrylic Hybrid Polymers

											COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
Curing Agent	Solid (%)	Viscosity (cP)	VOC (lb/gal, g/L)	Gloss (60°)	Hardness	Tensil Strength (psi)	Elongation (%)	Modulus (100%)	Impact Resistnace (in-lb)	Comments	Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
HYBRIDUR® 540	40	50-250	1.35/150	95	Hard	3,700	200	NA	NA	Same as HYBRIDUR 580. Superior chemical and solvent resistance properties (best solvent stain resistance).			+	+	+	
HYBRIDUR® 560	40-45	NA	1.35/150	92	Moderate	4,500	220	2.990	NA	Polyurethane and acrylic polymers mixed at the molecular level unique patented hybrid technology single component, lacquer dry. Novel combination of properties hard, tough, chemically resistant environmentally friendly.			+	+	+	
HYBRIDUR® 570	40-42	50-150	1.35/150	85-87	Softest	3,800	200	2.200	NA				+	+	+	
HYBRIDUR® 580	40-42	50-150	1.35/150	85-87	Hard	4,000	120	NA	NA				+	+	+	
HYBRIDUR® 870	40	<150mPa.s	-5(g/L)	75-85	Soft	2.525	279	NA	>160	Significantly improved value versus PUDs and PUD/acrylic blends. Films with excellent mechanical properties, adhesion to a variety of substrates, and good chemical resistance. Rapid dry and one-component (1K) systems. Excellent gloss, clarity and superior weatherability. Solvent-free (<0.2%).			+	+	+	
HYBRIDUR® 878	40	<150mPa.s	0.20(-24)	70-80	Hard	4.400	>32 Mandrel bend test (ASTM D522)	NA	>160	Same as HYBRIDUR 870. Solvent-free (<0.1%)			+	+	+	

NA - Not Applicable

Polyamide and Polyurethane Ink Resins

											COMPOSITE AND ADHESIVE		COATING		CIVIL ENGINEERING	
Curing Agent	Type	Varnish Viscosity (mPa•s/20°C) <sup>10</sup>	Amine Value	Acid Value	Color <sup>1</sup> (Gardner)	Softening Point (°C)	Solid (%)	Specific Gravity (@25°C)		Comments	Composite	Adhesive	Marine & Container	Protective Coating	Floor	Repairing & Bonding
SUNMIDE® 50	Wax-like Polyamide	N/A	1	8	NA	120	NA	0.96		Good compatibility with polyamide resin. Improve adhesion.						+
SUNMIDE® 550	Co-solvent Soluble Polyamide Resin	130	2	4	4	111	NA	0.95		Standard type for gravure and rotogravure ink.						+
SUNMIDE® 550H	Co-solvent Soluble Polyamide Resin	210	4	2	5	110	NA	0.94		Good gloss, color property, good solvent release.						+
SUNMIDE® 500H-6	Co-solvent Soluble Polyamide Resin	170	2	4	5	107	NA	0.98		Good color property, and varnish stability.						+
SUNMIDE® 550S-1	Co-solvent Soluble Polyamide Resin	160	3	3	5	108	NA	0.96		Good anti-blocking, water resistance. Good decomposition resistance.						+
SUNMIDE® 554	Co-solvent Soluble Polyamide Resin	90	1	4	4	104	NA	0.94		Good chelating stability and varnish stability at low temperature. Good compatibility with nitro-cellulose.						+
SUNMIDE® 556W-2	Co-solvent Soluble Polyamide Resin	70	1	11	10	90	NA	0.98		Good adhesion on untreated PE/PP films.						+
SUNMIDE® 615A	Alcohol Soluble Polyamide Resin	90	6	2	7	103	NA	0.98		Good solvent release and oil resistance.						+
SUNMIDE® 640	Alcohol Soluble Polyamide Resin	90	4	2.5	6	111	NA	0.98		Good solubility in IPA and varnish stability at low temperature. Good compatibility with nitro-cellulose.						+

NA - Not Applicable



## PRODUCT TRADEMARKS

Amicure®  
Ancamine®  
Ancamide®  
Ancarez®  
Anchor®  
Anquamine®  
Anquamide®  
Anquawhite®  
Dycyanex®  
Epilink®  
Epodil®  
Hybridur®  
Imicure®  
Nourybond®  
Sunmide®  
Sur-Wet®



## Footnotes

1. ASTM D1544-80.
2. Brookfield viscosity. ASTM D445-83
3. Concentration with standard undiluted, liquid Bisphenol A epoxy, EEW 182-192, e.g., Epon 828 resin (Shell Chemical Co.).
4. phr: part by weight per 100 parts by weight of epoxy resin.
5. Gel time or pot life in 150g mass in air at 25°C for room temperature cures. Shelf life or working life at 25°C in case of elevated temperature cures.
6. Film applied immediately after mixing using BK dry time recorder. Similar to cotton-free or touch-dry time in conventional coatings.
7. With standard, solid Bisphenol A epoxy, FEW 450- 575, e.g., DER 661 resin (Dow Chemical Co.).
8. Heat deflection temperature (HDI) to ASTM O648 at 264 psi after curing 7 days at 25°C only for room temperature curing systems. Longer cure times and particularly higher temperature postcures yield much higher values. Results given for elevated-temperature (E.T.) curing systems are based on various E.T. cure schedules.
9. Typical concentration range. Data given based on Anchor 1040 curing agent (10 phr).
10. BH type viscometer or bubble viscometer. For co-solvent soluble type, varnish's solid content is 40% with toluene/IPA=7/3 as solvent except Sunmide 554. For Sunmide 554, varnish's solid content is 40% with toluene/IPA=2/1 as solvent. For alcohol soluble type, varnish's solid content is 35% with IPA as solvent.
11. 15g of resin is melt at 200°C in a tin 75mm in diameter. Steel ball 12mm in diameter is put into the tin every 10 seconds under room temperature. Open time is measured as when the steel ball does not sink into the resin.

Use of ingredient may be limited by function or type of food or drink. Refer to regulations. FDA compliance is dependent upon curing under conditions such that the nature and/or amount of extractables conform to the limits specified. FDA is particularly concerned with one-time-use containers. Evonik makes no claim or warranty with respect to any aspect of FDA compliance. Formulator, fabricator and/or user of the finished article is urged to become familiar with the specific regulations. Contact Evonik for further assistance. NA = Not Applicable.

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