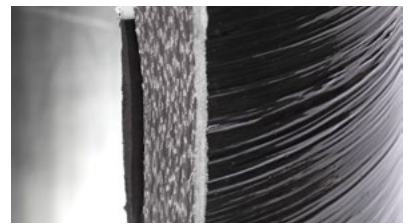
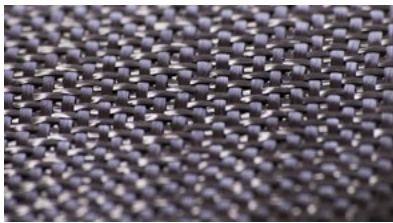


AMERICAS

# Epoxy Curing Agents

Diluents | Accelerators | Adhesion Promoters  
Specialty Resins | Additives





# Contents

## 2 ABOUT US

### 4 PRODUCT GROUP PROPERTY SUMMARY

Epoxy Curing Agents

### 5 GENERAL PERFORMANCE COMPARISON

#### 6 ALIPHATIC AMINES — MODIFIED

Aliphatic amines — modified to improve properties such as pot life and viscosity. Modifications include adduction and condensation reactions (Mannich bases).

#### 12 ALIPHATIC AMINES — UNMODIFIED

Aliphatic amines are multifunctional amines with primary, secondary or tertiary amine functions linked by ethylene groups.

#### 14 AMIDOAMINES

Reaction products of ethyleneamines with tall oil fatty acid. Includes modified versions for improved performance.

#### 18 CYCLOALIPHATIC AMINES — MODIFIED

Polyamines with at least one amino group attached directly to a saturated ring. Modified in various ways to allow complete cure at ambient temperature. Modifications include adduction and condensation reactions (Mannich bases).

#### 24 CYCLOALIPHATIC AMINES — UNMODIFIED

Polyamines with at least one amino group attached directly to a saturated ring. They will B-stage at ambient temperature, requiring heat for full cure.

#### 26 POLYAMIDES

Reaction product of ethyleneamines with dimer acids. Includes modified versions for improved viscosity and performance.

## 32 WATERBORNE CURING AGENTS AND RESINS

Modified amines capable of emulsifying and curing epoxy resins at room temperature. Used in aqueous and low-VOC formulations.

### CURING AGENTS & ACCELERATORS FOR ONE-COMPONENT SYSTEMS —

#### 40 MODIFIED AMINES

One-component products that can be used alone or as accelerators for dicyandiamide products.

#### 44 IMIDAZOLES

Latent catalysts for epoxy systems which offer pot life ranges from a few hours to six months. Excellent accelerators for other curing agents such as dicyandiamide and anhydrides.

#### 46 SUBSTITUTED UREAS

Substituted ureas are used as low toxicity replacements for conventional dicyandiamide accelerators.

#### 48 DICYANDIAMIDE

Latent curing agents providing greater than six months, one-package stability. Available in several physical forms.

#### 50 TERTIARY AMINES (LEWIS-BASE CATALYSTS)

Tertiary amines cure an epoxy resin by catalytic anionic polymerization. Excellent accelerators for other curing agents, especially polyamides and amidoamines.

#### 50 BORON TRIFLUORIDE: AMINE COMPLEXES (LEWIS-ACID CATALYSTS)

Boron trifluoride: amine complexes cure an epoxy resin by catalytic cationic polymerization.

## 52 EPOXY RESIN REACTIVE DILUENTS

Mono-, di-, and multifunctional glycidyl ethers which can be used to reduce the viscosity of typical epoxy resins without causing significant changes in final physical properties.

## 54 EPOXY RESIN MODIFIERS

Resin modifiers to improve epoxy systems.

## 56 POLYCARBAMIDE TECHNOLOGY

Amine curing agents and polyisocyanate resins.

## 58 URETHANE-ACRYLIC HYBRID POLYMERS

High-performance, one-component urethane-acrylic dispersions that lead to higher performance than achieved by blending.

## 60 ADHESION PROMOTERS FOR PVC & ACRYLIC PLASTISOLS

## 62 ADDITIVES

Wetting agents, defoamers, dispersants, and grind aids for 100% solids and waterborne epoxy systems.

## 64 PRODUCT INDEX

## 66 PRODUCT TRADEMARKS AND FOOTNOTES

This Product Guide is intended to familiarize you with various properties and applications information on Evonik Corporation's epoxy curing agents, resins, diluents, modifiers, and specialty resin. If you'd like more detailed information, please contact Evonik Corporation at **800-345-3148**, [crosslinkersprodinfo@evonik.com](mailto:crosslinkersprodinfo@evonik.com). Or visit our web site at [www.evonik.com/crosslinkers](http://www.evonik.com/crosslinkers)

# About Us

---

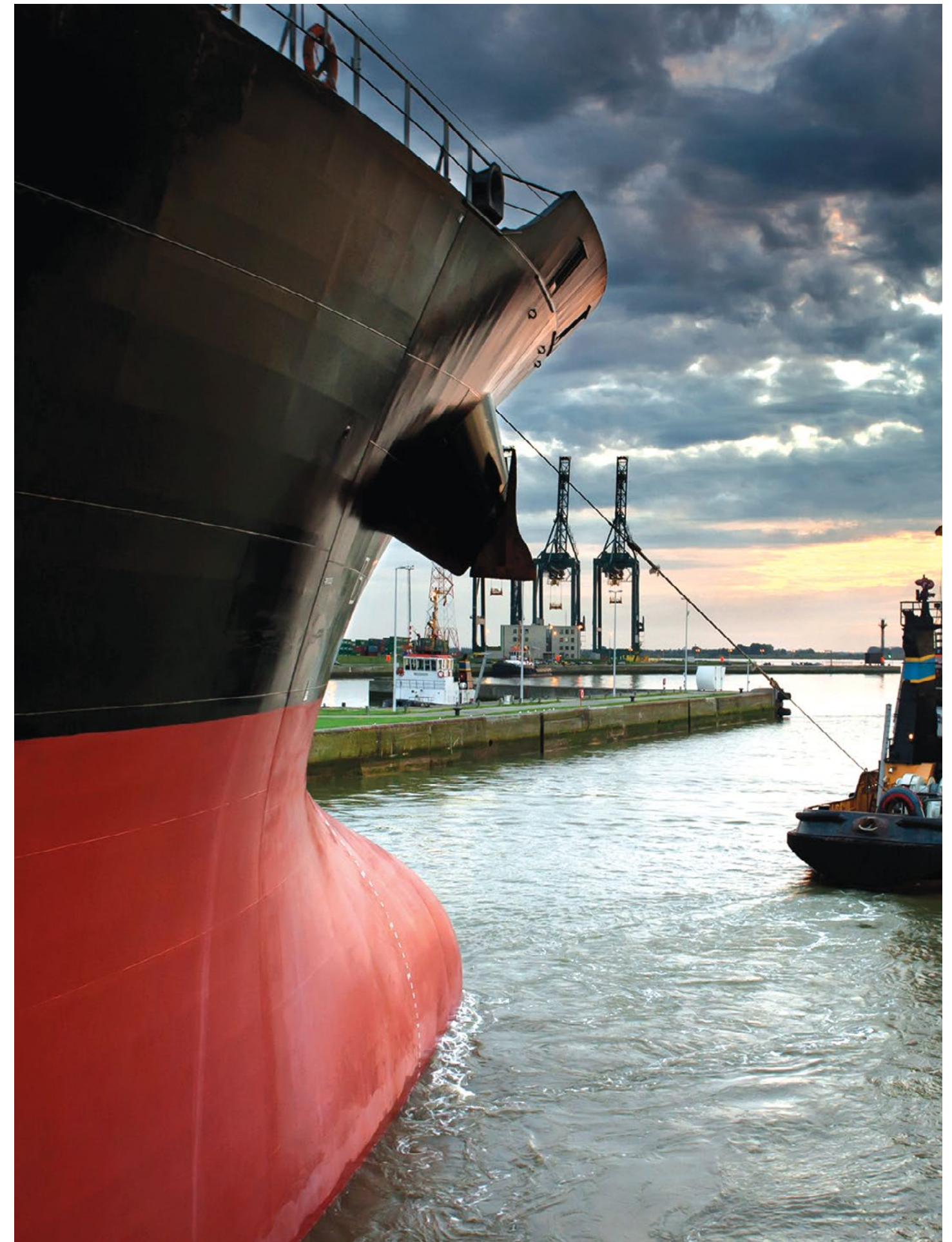
## EVONIK EPOXY CURING AGENTS AND SPECIALTY RESINS

Evonik offers a full line of high-quality, performance-oriented epoxy curing agents and modifiers for a wide variety of applications, including industrial coatings, civil engineering and construction, adhesives, and composites. We also offer high-performance specialty resins for waterborne coatings applications.

These products are produced at state-of-the-art manufacturing facilities located in the U.S.A, England, Germany, Japan, China, and Singapore. In addition we maintain numerous stocking points throughout the world.

Our experienced technical specialists have an in-depth understanding of your market requirements and are able to provide the right level of technical service and support you need.

---



# Product Group

## Property Summary

PRODUCT GROUP	GENERAL PROPERTIES
<b>ALIPHATIC AMINES</b>	Wide range of products with differing properties. High reactivity, fast cure at ambient or low temperatures. Relatively moisture insensitive. Reasonable color and color retention. Good chemical resistance, particularly to solvents. For heat-cure applications, good elevated-temperature performance, very good chemical resistance, and electrical and mechanical properties.
<b>AMIDOAMINES</b>	Range of amidoamines of differing reactivities. Low viscosity. Exhibit very good adhesion, particularly to concrete. Good cure under humid conditions. Modified amidoamines can offer faster cure speed and improved chemical resistance.
<b>CYCLOALIPHATIC AMINES</b>	Cure at low temperatures under damp conditions. Good film properties (e.g., excellent gloss). Resistant to amine blush and water spotting. Excellent color and color stability. Good adhesion and very good chemical resistance. Range of cure times and pot lives. For heat-cure applications, good elevated-temperature performance, very good chemical resistance, and electrical and mechanical properties.
<b>POLYAMIDES</b>	Ambient cure, low toxicity, good flexibility and toughness with high viscosity, long pot life and good water/corrosion resistance. Polyamide adducts provide good compatibility (without induction period) and better cure under adverse conditions than standard polyamides. Modified polyamides can offer faster cure speed, lower viscosity and improved chemical resistance.
<b>WATERBORNE CURING AGENTS</b>	Range of curing agents offering different cure speeds for use with various epoxy resins. Low VOC. Low color. Nonflammable. Easy to clean and apply. Good adhesion, especially to damp concrete. Good abrasion resistance.
<b>EPOXY RESIN DILUENTS AND MODIFIERS</b>	Diluents—viscosity reduction for improved ease of application, improved pigment/filler wetting and improved application properties. Modifiers—flexibilization, toughening, improvement of water resistance and adhesion improvement.
<b>LATENT CURING AGENTS</b>	Includes one-component products that may be used alone or as accelerators for dicyandiamide products.
<b>DICYANDIAMIDE</b>	Dicyandiamide is a latent curing agent providing greater than six months' one-package stability. Available in several physical forms and particle sizes.
<b>ACCELERATORS AND CATALYSTS</b>	This category includes: tertiary amines, which cure an epoxy resin by catalytically induced anionic polymerization; imidazoles, which offer a pot life range from a few hours to six months and are excellent accelerators for other curing agents such as dicyandiamide and anhydrides; substituted ureas, which are low-toxicity replacements for Monuron and Diuron as accelerators for dicyandiamides; and acid-blocked amine accelerators, also used primarily as accelerators.
<b>BORON TRIFLUORIDE</b>	Boron Trifluorides, or $BF_3$ , are amine complexes with a range of pot lives, activation temperatures and curing times. Very high heat distortion temperatures and very good chemical resistance.
<b>POLYCARBAMIDE TECHNOLOGY</b>	Amine curing agent technology for curing polyisocyanate resins. Amicure® IC series of products are specifically designed for use with polyisocyanate resins and other standard HDI trimer based polyisocyanates. Clear and pigmented coatings based upon Amicure® IC curing agents exhibit very rapid hardness development, excellent low temperature cure, very good color and UV stability and excellent surface appearance.
<b>ADHESION PROMOTERS</b>	Full line of adhesion promoters for use with both PVC and acrylic based plastisol systems.

## General Performance Comparison

COLOR AND COLOR STABILITY	VISCOSITY	POT LIFE	LOW-TEMPERATURE CURE	SURFACE FILM APPEARANCE	FILM FLEXIBILITY	ADHESION	CHEMICAL RESISTANCE		
							ACIDS	SOLVENTS	WATER
EXCELLENT	LOW	LONG	GOOD	GLOSS	EXCELLENT	EXCELLENT	EXCELLENT	VERY GOOD	EXCELLENT
Polycarbamide Technology*	Polycarbamide Technology*		Polycarbamide Technology*	Polycarbamide Technology*					
Cyclo-aliphatic-A	Cyclo-aliphatic	Amidoamine Polyamide	Aliphatic-MB	Cyclo-aliphatic-MB	Polyamide	Polyamide	Cyclo-aliphatic	Aliphatic	Polyamide
Aliphatic-A	Amidoamine		Cyclo-aliphatic-MB		Amidoamine	Amidoamine Cyclo-aliphatic-MB	Aliphatic	Cyclo-aliphatic	Amidoamine
Cyclo-aliphatic-MB Aliphatic-MB		Cyclo-aliphatic-A	Cyclo-aliphatic-A Aliphatic-A	Cyclo-aliphatic-A Aliphatic-MB	Polycarbamide Technology*	Aliphatic-MB			Cyclo-aliphatic
	Aliphatic		Polyamide	Polyamide	Cyclo-aliphatic	Cyclo-aliphatic-A			
Amidoamine Polyamide		Cyclo-aliphatic-MB Aliphatic-A		Amidoamine		Aliphatic-A	Amidoamine	Polyamide	
	Polyamide	Aliphatic-MB	Amidoamine	Aliphatic-A	Aliphatic	Polycarbamide Technology*	Polyamide	Amidoamine	Aliphatic
		Polycarbamide Technology*							
POOR	HIGH	SHORT	POOR	GREASE	FAIR	MODERATE	FAIR	POOR	VERY GOOD

Note: This chart applies to general product types. Evonik Corporation offers a variety of products in each line to give improved performance.  
\* For use with polyisocyanate resins.

### WORKING EXAMPLES USED FOR ABOVE SIMPLISTIC COMPARISON:

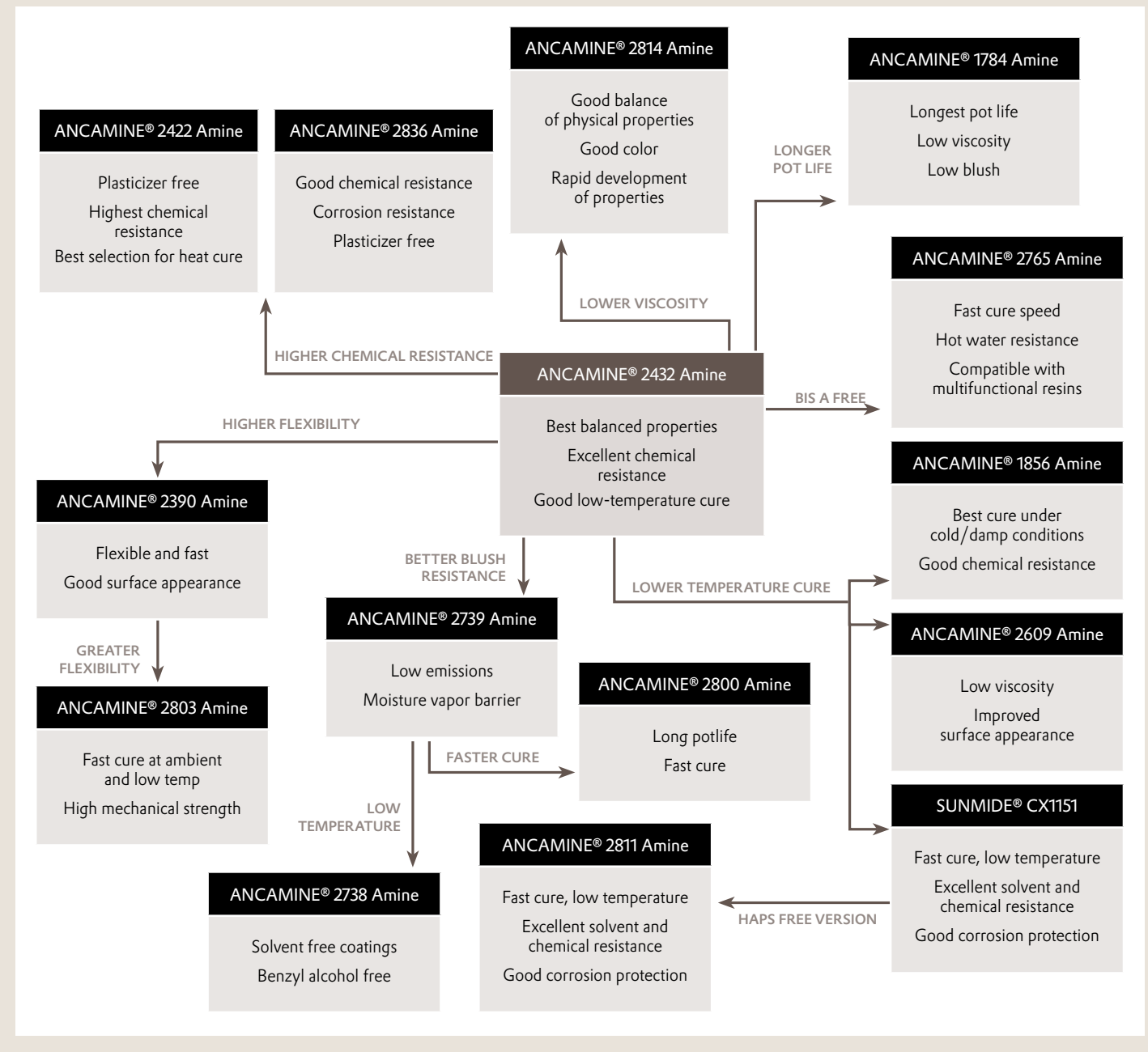
- Polyamide–Ancamide® 350A Curing Agent
- Amidoamine–Ancamide® 506
- Cycloaliphatic-A–Ancamine® 1618 Curing Agent
- Cycloaliphatic-MB–Ancamine® MCA
- Aliphatic-A–Ancamine® 1608
- Aliphatic-MB–Ancamine® 1856
- Polycarbamide Technology—Amicure® IC-221 Curing Agent

### KEY

A= Adduct-type  
MB= Mannich base-type

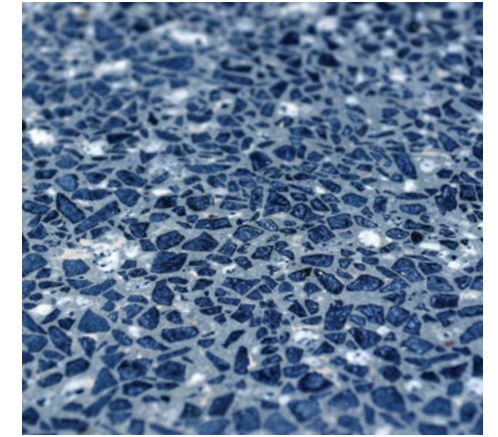
# Ancamine® Aliphatic Amines

Selection Chart

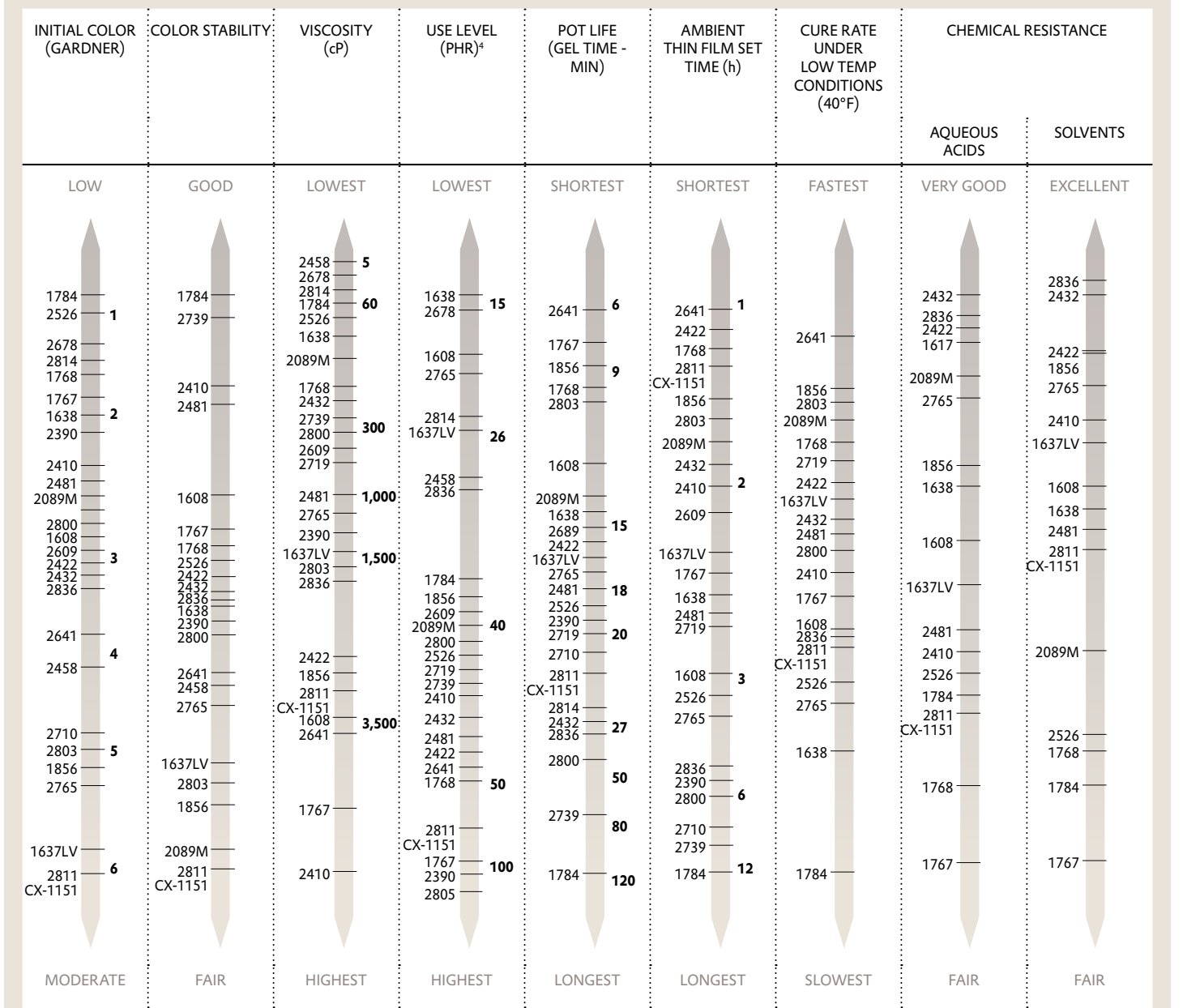


## ALIPHATIC AMINES—MODIFIED PRINCIPAL APPLICATIONS

Aliphatic amines find use in civil engineering (e.g., patch repair systems, flooring), high-solids coatings, adhesives, wet lay-up laminating, small electrical encapsulation and are used to accelerate other amine curing agents.



Performance Comparison (select products shown)



ALIPHATIC AMINES—MODIFIED

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® AD	Adduct	6	1,500	1.08	485	107	60	6	1.0	127	ambient temp	Very fast cure. Cures in cold, damp conditions and gives excellent adhesion to a variety of substrates. A phenol-free version (Ancamine® 2641) is available.	Adhesives; concrete repair; accelerator for other amines.
ANCAMINE® T	Adduct	1	300	1.03	1,145	36	20	18	4.0	128	ambient or elevated temp	Good color and reduced level of skin irritation relative to most aliphatic polyamines.	Wet lay-up laminating; tooling; adhesives; patch repair kits. FDA-compliant with 21CFR 175.105. <sup>8</sup>
ANCAMINE® T-1	Adduct	1	1,500	1.07	885	47	25	12	3.0	128	ambient temp	An accelerated version of Ancamine® T curing agent that can provide a faster thin film cure and reduced sensitivity to moisture during cure.	Wet lay-up laminating; tooling; adhesives; patch repair kits.
ANCAMINE® 1608	Adduct	3	3,500	1.08	800	44	20	14	3.0	128	ambient temp	Good balance of chemical and solvent resistance. Compatible with multifunctional epoxy resins for improved hot chemical and water resistance.	High-solids and solvent-free coatings; tank linings; adhesives; accelerator for amidoamines. FDA-compliant with 21CFR 175.105 (with restrictions) and 21CFR 175.300. <sup>8</sup>
ANCAMINE® 1637	Mannich Base	6	4,000	1.09	750	50	26	14	1.5	130	ambient temp	Cures down to 35°F under adverse conditions. Good resistance to solvents. Good compatibility with epoxy novolacs. Low viscosity version of Ancamine 1637LV also available.	Laminates; adhesives; accelerator for other amines.
ANCAMINE® 1638	Modified Amine	2	100	1.03	1,070	31	15	15	2.5	127	ambient or elevated temp	Combines low viscosity with good chemical resistance.	Trowelable flooring; grouts; accelerator and viscosity reducer for other amines. Compliant with 21CFR 175.105 (with restrictions) and 21CFR 175.300. <sup>8</sup>
ANCAMINE® 1767	Modified Amine	2	6,000	0.970	310	180	100	7	2.5	103	ambient temp	Fast cure and not highly moisture sensitive. Ancamine® 1767 provides low modulus and high flexibility.	Trowelable flooring; fast-setting adhesives; repair mortars; accelerator for other amines.
ANCAMINE® 1768	Modified Amine	2	220	0.971	630	95	50	10	1.5	130	ambient temp		
ANCAMINE® 1769	Adduct	1	600	1.01	965	48	25	30	4.0	126	ambient or elevated temp	Low shrinkage, low-vapor pressure and low skin irritation potential. Yields a good combination of mechanical and electrical properties. DOT noncorrosive.	Electrical potting and castings; wet lay-up laminating; tooling; adhesives.
ANCAMINE® 1784	Modified Amine	1	50	0.950	315	86	40	120	12	116	ambient temp	Longest pot life of aliphatic amines offered, low viscosity and good color stability. Gives low blush and exudation, and good flexibility. May be accelerated with other curing agents.	High-solids and solvent-free coatings; flooring; laminates; castings.
ANCAMINE® 1856	Mannich Base	5	3,000	1.12	460	73	40	9	1.8	132	ambient temp	Best cure under cold, damp conditions with rapid development of hardness. Has very good chemical resistance, and low blush and exudation.	Concrete repair materials; flooring; accelerator for other curing agents.
ANCAMINE® 1916	Adduct	4	6,000	1.09	840	43	25	23	4.0	131	ambient temp	Provides rigidity and high physical strength.	Heat-resistant coatings; FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMINE® 2071	Modified Amine	4	700	1.018	506	95	50	8	2.0	132	ambient temp	Fast cure under cold, damp conditions. Bonds well to a variety of substrates.	Metal and concrete adhesives; repair mortars; accelerator for other amines.
ANCAMINE® 2089M	Modified Amine	2	100	1.00	395	75	40	15	2.0	126	ambient temp	Low-viscosity product for rapid cure at low temperatures. Developed to enable high-gloss films with much better resistance to carbamation than other aliphatic amines, even under high humidity. Accelerator for cycloaliphatic amines.	Solvent-free and high-solids coatings; concrete patching compounds; accelerator for other amines; crack injection. FDA-compliant with 21CFR 175.105. <sup>8</sup>
ANCAMINE® 2390	Modified Amine	2	1,200	0.982	213	204	107	19	4.0	128	ambient temp	A flexibilized curing agent which allows a one-to-one mix ratio in epoxy formulations. High elongation, tear resistance and toughness.	Applications where greater flexibility, toughness and elongation are required such as crack bridging, secondary containment membranes and impact-resistant coatings.
ANCAMINE® 2410B75	Adduct Solution	2	11,000	1.05	340	114	60	30	2.0	122	ambient temp	Highly monodispersed adduct of ethylenediamine and LER with low residual resin for easier handling and formulating. Rapid dry time and good chemical resistance.	Chemically-resistant, high-solids coatings and tank linings; curing agent component FDA-compliant with 21CFR 175.105 and 21CFR 175.300 (with restrictions). <sup>8</sup>
ANCAMINE® 2422	Modified Amine	3	2,000	1.12	665	49	26	NA	NA	NA	ambient or elevated temp	Plasticizer free and multi functional curing agent designed for optimal chemical resistance at ambient and elevated temperature.	Chemically-resistant coatings, tank linings and secondary containment linings. FDA-compliant with 21CFR 175.105. <sup>8</sup>
ANCAMINE® 2432	Modified Amine	3	300	1.10	368	88	46	27	2.0	131	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. Good cathodic disbondment resistance.	Chemically-resistant coatings, mortars and secondary containment linings; also used as an accelerator for high-solids coatings and flooring. FDA-compliant with 21CFR 175.105. <sup>8</sup>
ANCAMINE® 2458	Modified Amine	4	5	0.875	NA	55	30	NA	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.	High-solids marine and industrial maintenance coatings. Adhesives and industrial flooring applications. Can combine with other curing agents to lower viscosity and extend pot life.

NA - Not Applicable

ALIPHATIC AMINES—MODIFIED

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/HT	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® 2481	Modified Amine	2	1,000	1.03	415	90	47	18	2.7	131	ambient temp	Rapid cure and development of physical properties ambient and low temperatures. Yields formulations with good blush resistance. Low color.	Flooring and high-solids coatings. Concrete adhesives and repair mortars. Can be used as a sole curing agent or as an accelerator for other amines.
ANCAMINE® 2526	Modified Amine	1	70	0.98	440	87	46	19	3.3	134	ambient temp	A low-viscosity modified aliphatic amine allows fast cure, provides some flexibility.	Flooring and industrial adhesives. Can be combined with other curing agents to lower viscosity and increase reactivity.
ANCAMINE® 2557	Adduct	1	360	1.02	1,030	47	25	31	2	130	ambient or elevated temp	Low shrinkage. Yields a good combination of mechanical and electrical properties.	Electrical potting and castings; wet lay-up laminating; tooling; adhesives.
ANCAMINE® 2609	Mannich base	3	350	1.01	400	75	40	15	2	130	ambient temp	Low-viscosity product that gives rapid cure at low temperatures. Gives films with much better resistance to carbamation than other aliphatic amines, even under high humidity. Accelerator for cycloaliphatic amines.	Solvent-free and high-solids coatings; concrete patching compounds; accelerator for other amines; crack injection.
ANCAMINE® 2638	Adduct	2	2,000	1.01	334	96	51	45	3.5	117	ambient or elevated temp	Aliphatic amine adduct offers excellent toughness and thermal shock resistance.	Structural adhesives, electrical potting and encapsulation; other high-performance applications.
ANCAMINE® 2641	Modified Amine	4	3,500	1.04	578	91	48	6	1	135	ambient temp	Phenol-free version of Ancamine® AD. Fastest cure of the aliphatics. Effective accelerator for polyamides and amidoamines.	Adhesives; concrete repair; accelerator for other amines.
ANCAMINE® 2678	Modified Amine	<2	35	0.97	1,300	30	16	29	2.25	130	ambient or elevated temp	Low-viscosity, fast-curing polyamine with excellent mechanical properties for composite and adhesive applications, a better alternative to ethyleneamines.	Adhesives and composites or as an accelerator for other amines.
ANCAMINE® 2710	Adduct	5 max	3,000-5,000	>1.05	800	42	22	18	7	130	ambient temp	Exhibits a fast set with liquid and solid epoxy resins. A medium-viscosity product used in solvent free and/or high-solids coatings where resistance to gasoline, ethanol and oxidizing acid is required.	Applications include high-build coatings and chemically-resistant tank linings.
ANCAMINE® 2719	Mannich Base	14	400	1.03	360	75	40	20	2.5	133	ambient temp	Fast cure, low temperature cure, excellent chemical resistance, nonyl-phenol free	Protective and industrial coatings, and moisture tolerant coatings.
ANCAMINE® 2738	Modified amine	6	100-200	1	525-575	85	50	150	13	NA	2-7 days	Benzyl alcohol free curing agent for solvent free coatings and flooring formulations	Emission complaint coatings and flooring systems
ANCAMINE® 2739	Adduct	3	350	1.04	560	95	50	45	10	129	ambient temp	Low emission, good UV resistance, long pot life, good cure speed, best-in-class blush and moisture resistance, excellent mechanical properties.	Protective coating, flooring, and construction applications including moisture vapor barriers.
ANCAMINE® 2746	Modified Aliphatic	4	370	0.96	305	92	50	34	7	124	ambient temp	Moderately reactive curing agent. Low viscosity, rapid cure, relatively water insensitive.	Solvent-free, high solids coatings, wet lay-up laminating for composites, flooring.
ANCAMINE® 2765	Adduct	5	850-1350	1.08	850-1350	44	20	15	4	NA	2-7 days	Bis A and plasticizer free curing agent for solvent free coating formulations . It provides good solvent and alcohol resistance.	Solvent free coatings, laminates , adhesives and accelerator for other curing agents
ANCAMINE® 2785	Modified Amine	<4	2000-5500	1.04	600-630	97	48	3-7	1	-	ambient temp	Rapid thin film cure. Low temperature cure. Can be used as an accelerator for other amine-based curing agents.	Solvent-free coatings, patch repair compounds, adhesives. Oil and gas pipelines.
ANCAMINE® 2800	Adduct	<5	250-650	1.03	350-550	80-90	40-45	30	6	130	ambient temp	Low emissions, long pot life, fast cure speed. Moisture vapor barrier. Excellent mechanical properties.	Protective coating, flooring, and construction applications including moisture vapor barrier.
ANCAMINE® 2803	Mannich Base	<8	1300-1900	1.05	230-290	176-188	90-110	10	2	-	ambient temp	Flexible, high elongation with high hardness and fast cure speeds. Elastic properties with fast recovery after deformation.	Flooring applications; repair and bonding applications including crack bridging, deck membranes and joint sealants.
ANCAMINE® 2811	Phenaklamine	18	1700-3400	1.02	172	255	134	26	1:45	43	2-7 days	High performance phenalkamine, fast cure at low temperature. Offers excellent solvent and chemical resistance as well as water and corrosion protection.	Metal and concrete primers. Heavy duty industrial, OEM coatings. HAPS free
ANCAMINE® 2814	Modified Amine	<2	25-75	0.98	700-850	40-50	20-25	35	NA	130	ambient temp	Alkyl phenol-free, very low viscosity product with low color, low loading, and rapid development of properties. Good balance of physical properties.	Heavily filled flooring applications especially terrazzo flooring.
ANCAMINE® 2836	Modified Amine	3	1500 - 5000	0.97	575-590	55	29	43*	3.5	133	7 days@ ambient temp	Ancamine® 2836 curing agent provides a long working life and yields formulations with excellent chemical resistance. It provides crosslinkable system with high glass transition temperature (Tg) development and can be used as a co-curable to improve the Tg values.	Chemically-resistant coatings, tank linings, adhesive applications with high Tg development.

\* When cut with 40% Benzyl alcohol

NA - Not Applicable

## ALIPHATIC AMINES—UNMODIFIED

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> Min @ 77°F, 150 G mix	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® 2844	Modified Amine	10	1000 - 2000	1.04	460	70	40	13	0.5	-	ambient temp	Low viscosity, high solids amine curing agent. It exhibits ultra-fast cure and rapid property development at low temperature and provides outstanding surface appearance and very good chemical resistance.	Chemically resistant coatings, tank linings, field applied coatings that require low temperature cure.
ANCAMINE® 2849	Adduct	8	3700 - 4600	1.01	370 - 440	85	45	13	0.5	-	ambient temp	Outstanding inorganic acid resistance and crude oil resistance. Outstanding resistance to concentrated Sulfuric and Hydrochloric acid at elevated temperature.	Tank linings, secondary containment, protective coatings and civil engineering applications.
ANCAMINE® 2850	Modified amine	≤ 5	450 - 650	1.01	370-435	68-76	35-40	25-35	3	135	Ambient	Meets perm rating < 0.1 per ASTM F-3010. Fast cure at ambient and low temperature. Outstanding adhesion to both dry and damp concrete. Very low VOC and emissions.	Moisture vapor barrier coatings, flooring, and construction applications
ANCAMINE® 2914UF	Modified Amine	<5	500-1500	1.08	485-525	95	50	8 <sup>1</sup>	5.3	122	ambient temp	Ultra-fast set time and rapid property development at room temperature in adhesive applications. Allows end users to improve the production throughput. Zero VOC and phenol-free epoxy curing agent that can achieve very fast cure.	Structural adhesives or as an accelerator for other amines.
SUNMIDE® CX-1151	Phenalkamine	<18	2620	1.02	175	225	135	NA	1.75	NA	ambient temp	High performance phenalkamine. Fast cure at low temperature. Offers excellent solvent and chemical resistance as well as water and corrosion protection.	Metal and concrete primers. Heavy duty industrial, marine service, flooring.
ANCAMINE® SUR-WET R	Adduct	4	6,500	0.980	195	222	115	60	6	113 <sup>10</sup>	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.	Underwater coatings, grouts, adhesives, and mortars; splash-zone compounds.

NA - Not Applicable

## ALIPHATIC AMINES—UNMODIFIED

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® 1922A	Diethylene glycol di (aminopropyl) ether	1	10	1.00	507	55	29	57	NA	117	ambient or elevated temp	For exceptional toughness, resiliency, thermal shock resistance and outstanding impact resistance. Good electrical properties. High purity grade also available.	Structural adhesives; electrical potting and encapsulation for aerospace, automotive and other high-performance applications. FDA-compliant with 21CFR 175.105. <sup>8</sup>
ANCAMINE® AEP	Aminoethyl-piperazine	1	10	0.984	1,297	43	23	19	NA	128	ambient or elevated temp	Rapid gel and initial cure at room temperature to B-stage. A post-cure for rigid castings with very high impact resistance. System requires modification with flexibilizers, aliphatic epoxies or plasticizers for full cure at room temperature.	Civil engineering adhesives; trowelable flooring and decoupage; small electrical pottings and encapsulation; an accelerating co-curing agent for other amines.
ANCAMINE® DETA	Diethylenetriamine	1	<10	0.948	1,640	21	11	25	3.8	129	ambient temp	Low-equivalent-weight, high nitrogen content curing agent for epoxy resins.	
ANCAMINE® TEPA	Tetraethylene-pentamine	2	80	0.996	1,340	31	16	35	NA	132	ambient temp	Higher molecular weight ethyleneamine. Lower vapor pressure than other ethyleneamines.	Occasionally used for flooring, solution coatings and encapsulation. Ancamine, DETA, TETA and TEPA are FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMINE® TETA	Triethylenetetramine	1	20	0.984	1,435	27	14	30	3.5	129	ambient temp	Higher molecular weight ethyleneamine. Lower vapor pressure than DETA.	

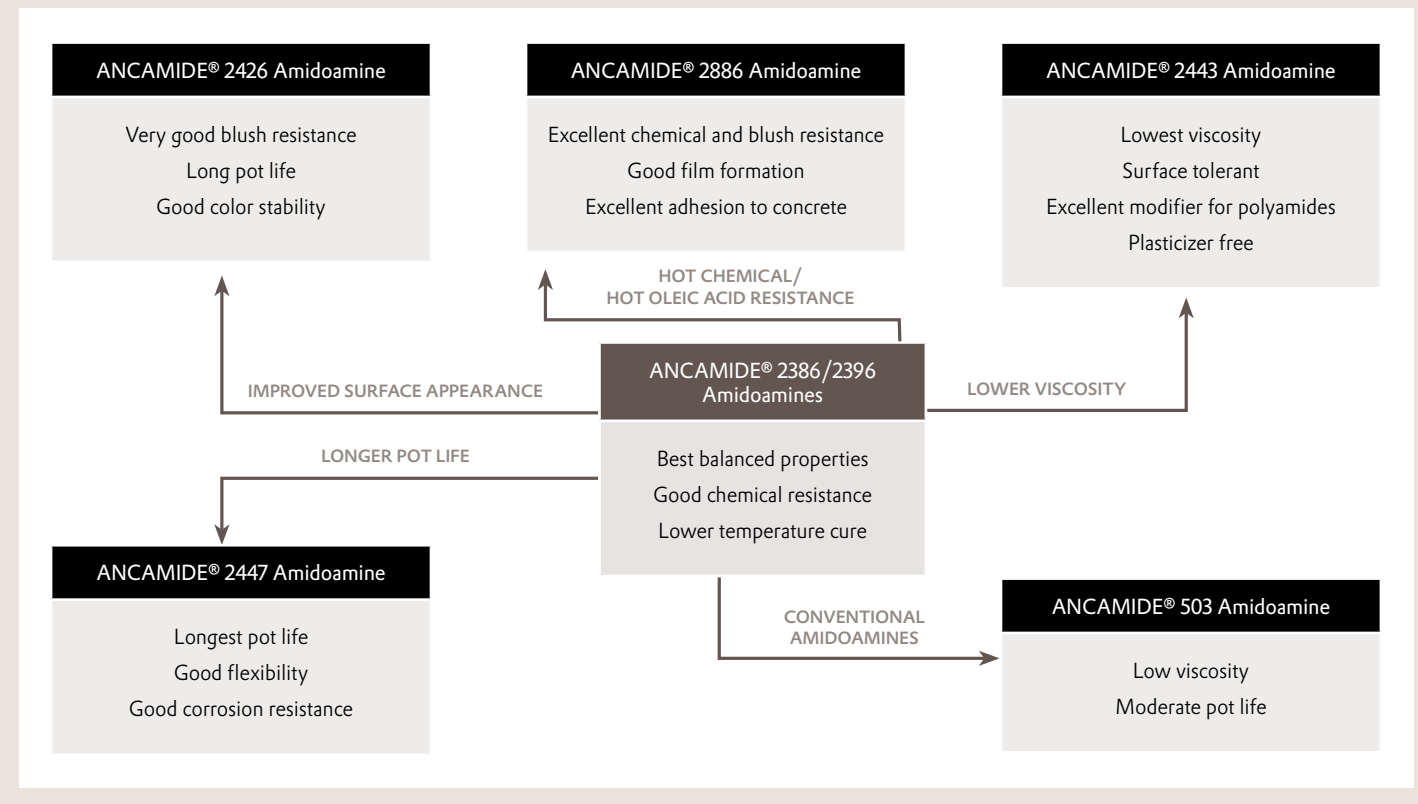
<sup>1</sup> Gel time for Ancamine® 2914UF was measured for a 20-gram mix

NA - Not Applicable



# Ancamide® Amidoamines

Selection Chart



## AMIDOAMINES PRINCIPAL APPLICATIONS

Amidoamines find use in civil engineering (e.g., concrete bonding, crack injection, flooring, tile grouts, etc.), high-solids coatings, adhesives, electrical encapsulation, and wet lay-up laminating.



Performance Comparison (select products shown)

VISCOSITY (cP)	USE LEVEL (PHR) <sup>4</sup>	POT LIFE (GEL TIME - MIN)	CURE RATE AT 25°C (TFST - h)	FILM FLEXIBILITY	SOLVENT RESISTANCE	ACID RESISTANCE
LOWEST	LOWEST	LONGEST	FASTEST	GOOD	VERY GOOD	VERY GOOD
2443 30	501 35	2447 400	507 4.5	2447	2886	2886
500 250	507 35	506 400	507 4.5	506	2396	2396
506	2443	2443 250	501 7.5	502	2386	2386
502	2426 49-50	2426	500	512	507	501
2447	2426 49-50	500	2396	2426	501	501
2386	2386	2386	501 7.5	2443	503	503
512	2426 49-50	502 115	2396	500	503	500
503	500 600	2396	2386	503	2386	2426
2886	502 600	502 115	503	500	501	2443
501 600	512 600	503 70	2886	507	2426	2426
2426 600	2886 600	503 70	502	2396	500	500
2396	2447 600	501 40	503 70	2886	2443	2447
	503 600	507 40	2426	501	507	506
	506 55	501 40	2447	501	512	507
		506 23	506 23	503	502	
507 1,200				2447	503	
				506	2447	
					506	
HIGHEST	HIGHEST	SHORTEST	SLOWEST	FAIR	POOR	FAIR

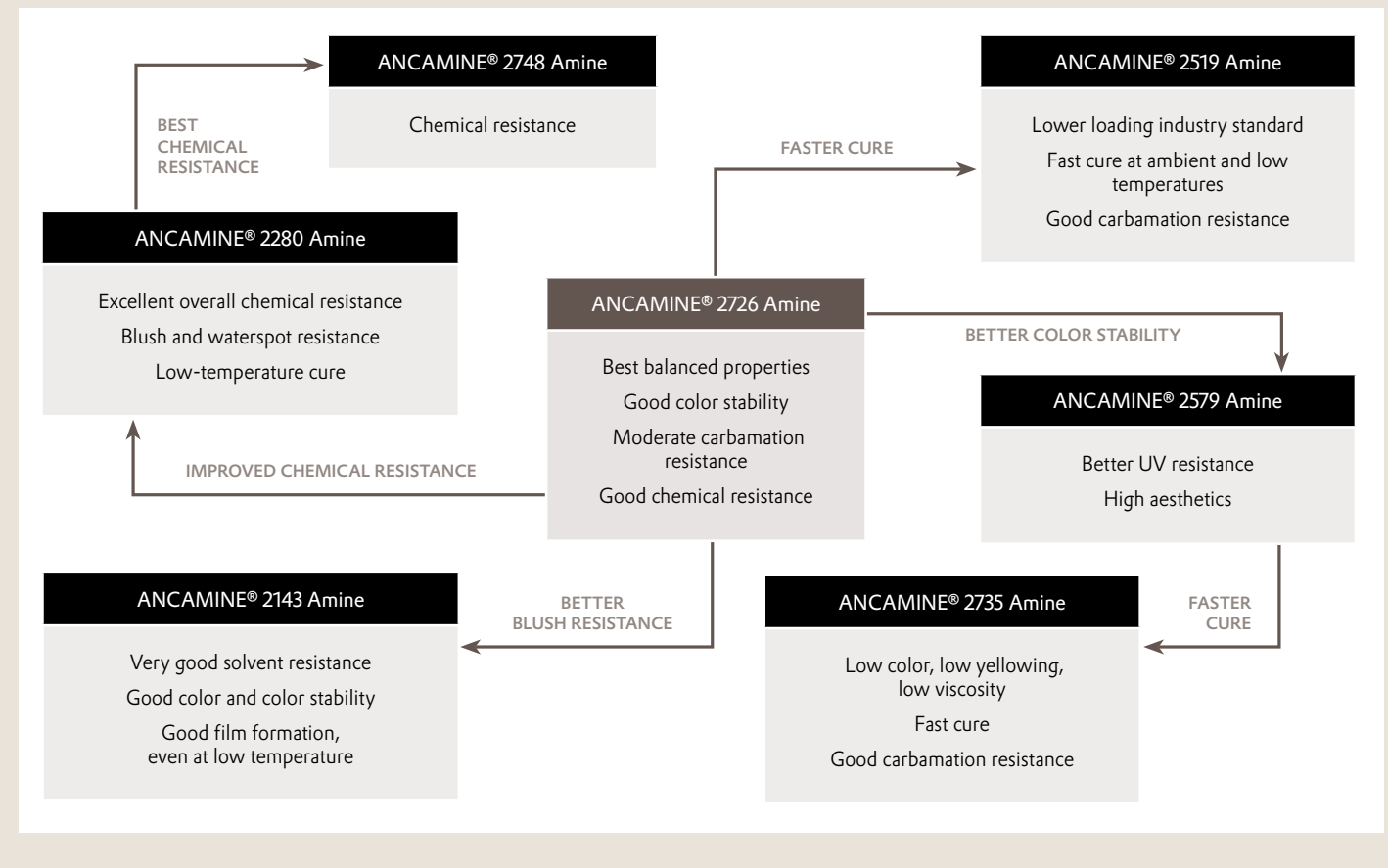
# AMIDOAMINES

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMIDE® 500	Amide/Imidazoline	7	250	0.950	445	90	50	135	12	113 <sup>10</sup>	ambient temp	Low viscosity, moderate pot life. Noncritical 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.	Concrete primers and coatings; grouts; concrete repair; flooring; riverstone mortars; electrical encapsulation; tooling; general-purpose adhesives; FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 501	Modified Amide/Imidazoline	7	600	0.980	550	68	35	40	7.5	116 <sup>10</sup>	ambient temp	Modified, accelerated version of Ancamide® 500. Cures under humid conditions. Very good adhesion to concrete. Exhibits good chemical resistance.	Trowelable flooring; concrete coatings and primers; patching compounds; concrete adhesives.
ANCAMIDE® 502	Amide/Imidazoline	7	300	0.950	450	90	50	115	12	113 <sup>10</sup>	ambient temp	Faster cure version of Ancamide® 500.	Trowelable flooring; concrete repair; grouts; structural composites. FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 503	Amide	6	350	0.950	500	90	50	70	9.0	119 <sup>10</sup>	ambient temp	Faster gel time and thin-film cure time than either Ancamide® 500 or 502.	Concrete coatings, flooring; concrete repair; tile grouts. FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 506	Imidazoline/Amide	7	250	0.940	420	105	55	385	23	113 <sup>10</sup>	ambient temp	Highest imidazoline content of amidoamine offering for long pot life and good through cure with very little exotherm. In high-solids coatings, often mixed with cycloaliphatic curing agents.	Civil engineering applications where longer pot life than Ancamide® 500 is desirable; wet lay-up laminates; electrical encapsulation; high-solids coatings; pot life extender for cycloaliphatic amine curing agents; structural composites. FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 507	Adduct	6	1,200	0.990	600	65	35	44	4.5	127 <sup>10</sup>	ambient temp	Fast cure with good water resistance for use alone or with polyamide adducts such as Ancamide® 700-B-75.	High-solids, anticorrosive coatings; concrete patching and flooring mortars; adhesives and patch kits. FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 512	Amide/Imidazoline	<10	300-450	0.93	400-500	100-110	50	96	11	150	ambient temp	Non-TEPA-based amidoamine, low viscosity, relatively long pot life, non-critical mix ratio.	Trowelable flooring, concrete repair, grouts, concrete primers and coatings, structural composites.
ANCAMIDE® 2137	Adduct	7	1,800	1.039	300	150	70	27	3.0	112 <sup>10</sup>	ambient temp	Good resistance to blush and exudation. Good flexibility, reverse impact resistance, and non-critical loading (70-100 PHR).	High-solids coatings; adhesives; sealants and putties; flexible cable-jointing compounds; coatings and primers for concrete.
ANCAMIDE® 2349	Modified Amide/Imidazoline	7	800	0.980	585	68	35	45	7.5	131	ambient temp	DOT noncorrosive version of Ancamide® 501. High strength and modulus. Good adhesion to concrete. Good chemical resistance.	Civil engineering applications; concrete adhesives; trowelable flooring; concrete primers; machinery grouts.
ANCAMIDE® 2386	Modified Amide/Imidazoline	8	340	1.000	364	93	49	135	8.5	123	ambient temp	Long pot life with good thin-film set time. Excellent film formation, blush resistance and good low-temperature cure compared with standard amidoamines. Very good solvent and corrosion resistance.	High-performance marine, maintenance and machinery coatings; tank linings; allows high-solids or 100% solids formulations for base coats or primers.
ANCAMIDE® 2396	Modified Amide/Imidazoline	8	680	0.993	350	93	49	102	8.5	137	ambient temp	Excellent adhesion to cold, damp concrete. High strength and modulus, and the best chemical resistance of the amidoamine offerings. Less amine blush than standard amidoamines.	Concrete primers and bonding agents; self-leveling and trowelable flooring, tile grouts and chemically-resistant grouts.
ANCAMIDE® 2426	Modified Amide/Imidazoline	8	650	0.952	380	93	49	245	14	115	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.	High-solids and 100% solids coatings and primers; FDA-compliant with 21 CFR 175.300 <sup>8</sup> for applications such as brewery tank linings and potable water applications (see Ancamide® 2426 data sheet for specific FDA guidelines and restrictions).
ANCAMIDE® 2443	Modified Amide/Imidazoline	7	30	0.970	530	86	45	250	12	133	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.	Penetrating primer clearcoats for poorly prepared surfaces; 100% solids, conventionally-sprayed coatings.
ANCAMIDE® 2447	Amidoamine	5	320	0.942	380	95	50	395	15	115	ambient temp	Low viscosity, long pot life, excellent corrosion resistance. Can be used as a modifier to extend pot life, reduce viscosity or impart flexibility. Can be used in combination with other amidoamines for grout applications.	Concrete primers, flooring, crack injection and grouts. FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 2886	Modified Amide/Imidazoline	<11	350-500	1.02	300-450	100-110	50	83	11	122	ambient temp	Excellent chemical resistance, especially to hot oleic acid, blush resistance and good film formation, excellent adhesion to concrete.	Tile grouts, trowelable flooring and self-leveling flooring, particularly chemical resistant floorings in food preparation areas.
ANCAMIDE® 903MAV	Amide/Imidazoline	11	200-500	0.95	400-500	92	48	130	12	-	2-7 days	Amidoamine designed for use in intumescent coatings.	High solids VOC compliant coatings, intumescent coatings, adhesives, and castings.

NA - Not Applicable

# Ancamine® Cycloaliphatic Amines

Selection Chart



## CYCLOALIPHATIC AMINES PRINCIPAL APPLICATIONS

Modified cycloaliphatic amines find use in solvent-free and high-solids coatings, flooring, chemically resistant linings and secondary containment. Unmodified cycloaliphatics are used in adhesives, electrical encapsulation, wet lay-up laminating, and filament winding.



Performance Comparison (select products shown)

INITIAL COLOR (GARDNER)	COLOR STABILITY	VISCOSITY (cP)	USE LEVEL (PHR) <sup>a</sup>	POT LIFE (GEL TIME - MIN)	CURE RATE AT LOW TEMP 40°F	FILM APPEARANCE		CHEMICAL RESISTANCE	
						CURED AT AMBIENT TEMP	CURED UNDER ADVERSE CONDITIONS	AQUEOUS ACIDS	SOLVENTS
LOW	EXCELLENT	LOWEST	LOWEST	SHORTEST	FASTEST	EXCELLENT	EXCELLENT	VERY GOOD	EXCELLENT
1618 2286 2659 2423 2735 2143 2074	2579 2735 2143 2074 1618 2735 1693 2659 MCA 2489 2286 2423 2519 2672 1693 1884 2672 2280 2605 2505 2505 2334 2280 2605 2505	2074 2286 2489 2735 1693 2659 MCA 2519 2672 2686 1884 2605 1618 2280 2505 2505 2143 2579	1884 2659 2489 45 2074 2672 2334 MCA 1000 1200 2423	2423 2519 2735 2672 2605 MCA 2074 2686 2334 2286 2726 1618 1693 52 2280 1884 80	2489 2423 MCA 2505 2074 2489 2505 2489 MCA 2074 2423 2286 2334 2280 2143 2074 1618 1693 2286 1884 1693	2280 2505 2143 2334 1618 2489 MCA 2074 2423 1618 2489 2423 2074 2286 2280 2074 1884 1693 1884	2423 2280 2334 2505 1693 2489 MCA 2489 MCA 2074 2423 1618 2489 2423 2143 MCA 1618 2286 1693 2074 1884 1693 1884	2334 2280 2505 MCA 2143 1618 2286 2074 2423 1618 2286 1693 2074 2423 1884	EXCELLENT
2686	2579	2686	60	1884	1884	GOOD	MATTE/ CARBAMATION	MODERATE	MODERATE
MODERATE	MODERATE	HIGHEST	HIGHEST	LONGEST	SLOWEST	GOOD	MATTE/ CARBAMATION	MODERATE	MODERATE

## CYCLOALIPHATIC AMINES—MODIFIED

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® MCA	Mannich Base	3	150	1.03	305	101	55	32	6.5	111	ambient temp	Fast curing, even in cold (40°F), damp conditions and under water. Excellent adhesion to cold, damp concrete. Good chemical resistance. Resistant to carbamation (water spotting). Nonylphenol-free version available (Ancamine® 2072).	Industrial flooring mortars; concrete repair mortars; concrete bonding.
ANCAMINE® 1618	Adduct	1	400	1.03	272	113	60	50	5.5	123	ambient temp	Good color and color stability to produce high-gloss, non-blushing films with good chemical resistance.	Solvent-free and high-solids coatings; gel coats; self-leveling flooring. FDA-compliant component of adhesives under 21CFR 175.105. <sup>8</sup> Also compliant with 21CFR 175.125 and 21CFR 175.300 (with restrictions). <sup>8</sup>
ANCAMINE® 1693	Adduct	3	100	1.04	310	96	50	52	9	121	ambient temp	Very good chemical resistance, especially to acids, organic solvents and alcohols. Low viscosity.	Solvent-free and high-solids coatings; secondary containment coatings; tank linings. FDA-compliant with 21CFR 175.105 (with restrictions). <sup>8</sup>
ANCAMINE® 1884	Adduct	2	320	1.04	360	86	45	80	9	123	ambient temp	Long pot life. Bonds to damp concrete.	Solvent-free and high-solids coatings; grouts; exterior patching mortar and overlay binder.
ANCAMINE® 1895	Adduct	1	1,200	1.02	410	75	40	15	3.5	130	ambient temp	Cures down to 35-40°F. Provides films with high gloss and hardness.	High-solids and solvent-free coatings; flooring.
ANCAMINE® 2072	Mannich Base	3	200	0.998	350	102	55	23	4	125	ambient temp	Nonylphenol-free version of Ancamine® MCA to produce hard films that cure at low temperatures under conditions of high humidity.	Industrial coatings; industrial flooring; mortars.
ANCAMINE® 2074	Adduct	1	60	0.996	345	92	50	32	4.5	124	ambient temp	Very low viscosity with good color and color stability. Can provide good film flexibility and bonds well to damp concrete.	Self-leveling flooring; grouts; thermal shock-resistant flooring; repair mortars.
ANCAMINE® 2143	Adduct	1	600	1.03	255	115	60	42	7.0	123	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 (40-50°F). Very good solvent resistance.	Solvent-free and high-solids coatings; self-leveling flooring; tile grouts.
ANCAMINE® 2280	Modified Amine	8	450	1.06	250	110	58	50	6.0	122	ambient temp	Great resistance to carbamation, even when cured under adverse conditions, including high humidity. Great overall chemical resistance, particularly against mineral acids and solvents. DOT noncorrosive.	Industrial flooring; high-solids coatings; chemically-resistant mortars and tank linings; secondary containment. FDA-compliant with 21CFR 175.105 (with restrictions). <sup>8</sup>
ANCAMINE® 2286	Adduct	1	60	1.01	325	95	50	40	6	123	ambient temp	Very low viscosity with good color.	Self-leveling flooring; flooring mortars; concrete repair materials.
ANCAMINE® 2334	Modified Amine	14	1,180	1.09	294	94	50	42	2	NA	ambient or elevated temp	High chemical resistance, particularly versus hot oils.	Industrial flooring, high-solids coatings, chemically-resistant mortars.
ANCAMINE® 2423	Adduct	1	1,200	1.02	269	120	60	17	3.5	126	ambient temp	Rapid development of physical properties at ambient and low temperatures. Good solvent resistance. High strength and modulus.	Self-leveling and trowelable flooring; mortars and grouts; high-solids coatings.
ANCAMINE® 2489	Amine Adduct	2	80	1.04	360	83	44	32	3.0	118	ambient temp	Low color and low viscosity. Very low mixed viscosity allows higher filler loading and/or reduced need for diluents. Very rapid cure at ambient or low temperatures.	Decorative and industrial flooring. Chemically resistant high-solids coatings. Mortars and grouts. Concrete sealers and primers.
ANCAMINE® 2505	Modified Amine	8	495	1.05	270	110	58	31	3.5	126	ambient temp	Rapid property development at ambient or low temperatures. Very good chemical resistance, waterspot resistance, and resistance to amine blush.	Industrial flooring and secondary containment linings. Chemically resistant mortars and high-solids coatings.

NA - Not Applicable

## CYCLOALIPHATIC AMINES—MODIFIED

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® 2519	Adduct	2	190	1.05	310	95	50	23	3.5	122	ambient temp	Low-viscosity adduct offers moderate to good carbamation resistance and rapid property development at 50°F.	Chemically resistant high-solids and solvent-free coatings, industrial floorings, accelerator for other curing agents.
ANCAMINE® 2579	Adduct	2	600	1.04	280	115	61	40	5.5	122	ambient temp	Excellent yellowing resistance; designed to provide good chemical resistance and physical properties.	Solvent-free and high-solids coatings, self-leveling floors.
ANCAMINE® 2605	Modified Amine	8	260	1.03	380	95	50	38	4	134	ambient temp	Low-viscosity cycloaliphatic amine; provides very good cost-performance balance.	Concrete primer and flooring.
ANCAMINE® 2659	Adduct	< 1	100	1.0	340	86	45	45	6	130	ambient temp	Low-color, low-viscosity product intended for ambient or low-temperature curing. High gloss films give good chemical resistance.	Used in flooring and floor coatings, maintenance coatings, tank linings, and secondary containment linings.
ANCAMINE® 2672	Modified Amine	5 max	100-300	1.06	280-320	95	50	30	5	130	ambient temp	Low viscosity, excellent chemical and corrosion resistance and good blush resistance. Nonyl phenol and Bisphenol A free.	High-solids coatings; chemically resistant mortars and tank linings; secondary containment. Primers and sealers for concrete.
ANCAMINE® 2686	Modified Amine	12 max	100-400	1.0	290-330	95	50	35	4	130	ambient temp	Broad balance of chemical resistance and surface appearance properties; provides high mechanical build, rapid cure, is particularly suitable for lower temperature use.	Industrial flooring; high-solids coatings; chemically resistant mortars and tank linings; secondary containment.
ANCAMINE® 2726	Adduct	2 max	300-600	1.03	240-290	115	60	40-50	7	130	ambient temp	Good color and color stability. Use to produce high-gloss, non-blushing films with good chemical resistance.	Solvent-free and high-solids coatings; gel coats; self-leveling flooring.
ANCAMINE® 2735	Modified Amine	1	<100	0.99	290	95	50	24	4.5	130	ambient temp	Excellent yellowing resistance; designed to provide good chemical resistance and physical properties as well as low-viscosity and fast cure.	Solvent-free and high-solids coatings, self-leveling floors, particularly where low-yellowing, low-viscosity and fast cure are required.
ANCAMINE® 2748	Adduct	10	2275	1.08	344	94	50	50	7	132	ambient temp	Provides industrial coatings with the best chemical resistance of the cycloaliphatic amines.	Chemical resistant coatings, grouts, mortars, including wastewater, secondary containment and other demanding applications.
ANCAMINE® 2749	Adduct	8	275	1.08	395	76	40	49	5	124	ambient temp	100% solid industrial coatings	Chemical resistant coatings, grouts, mortars.
ANCAMINE® 2764	Adduct	1	100	1.03	270	106	55	38	6	126	ambient temp	Low viscosity, good cure speed at ambient and low temp, good carbamation resistance, good yellowing resistance, good chemical resistance, and high final gloss.	High solids and solvent free epoxy primers and coatings, industrial self-leveling flooring.
ANCAMINE® 2791	Modified Amine	8	70-100	1.00	495-540	54	28	84	15	123	ambient and elevated temp	Excellent curing agent for high temp and high chemical resistance epoxy coatings. Recommended for use with LER under normal conditions and Novolac/BisF epoxy resins for harsher conditions. Performs well in Atlas cell test.	Heavy duty industrial, marine, oil and gas pipelines. Applications where cold wall effect can impact coating performance.
ANCAMINE® 2812	Adduct	8	5000-6000	1.08	330-370	90	50	50	7	-	2-7 days	Cycloaliphatic amine curing agent designed for chemical resistance applications.	High solids chemical resistance tank linings and pipe line coatings.
ANCAMINE® 2870	Modified Cycloaliphatic	<2	80-160	0.99	380-410	68-76	35-41	35	3.5	130	ambient temp	Low viscosity product with low color, low loading with high chemical resistance, good resistance to blush.	Light color castings, chemical resistant flooring and tank linings.
ANCAMINE® 2903	Mannich base	>1	115	1.02	577	44	24	190	NA	320	elevated temp	Exhibits longer pot life than conventional cycloaliphatic amines. Excellent chemical resistance and high temperature tolerance with good balance of mechanical properties make it very useful for oil and gas applications. Use as a co-curing agent for aromatic amines and polyether amines.	Fiber-reinforced composites made using filament winding, resin transfer molding.
ANCAMINE® 2904	Cycloaliphatic amine blend	1	40-50	0.99	608	42	23	140	NA	325*	elevated temp	Heats cure liquid epoxy resins at lower (~100°C) temperatures than typical cycloaliphatic amines with moderate pot life and rapid curing. Cured product exhibits excellent chemical resistance, high mechanical strength and high temperature tolerance.	Fiber-reinforced composites made by resin infusion, filament winding, resin transfer molding.

NA - Not Applicable

\*DSC-second scan ISO cured at 60°C for 1 hr. and 150°C for 2 hrs.

## CYCLOALIPHATIC AMINES—UNMODIFIED

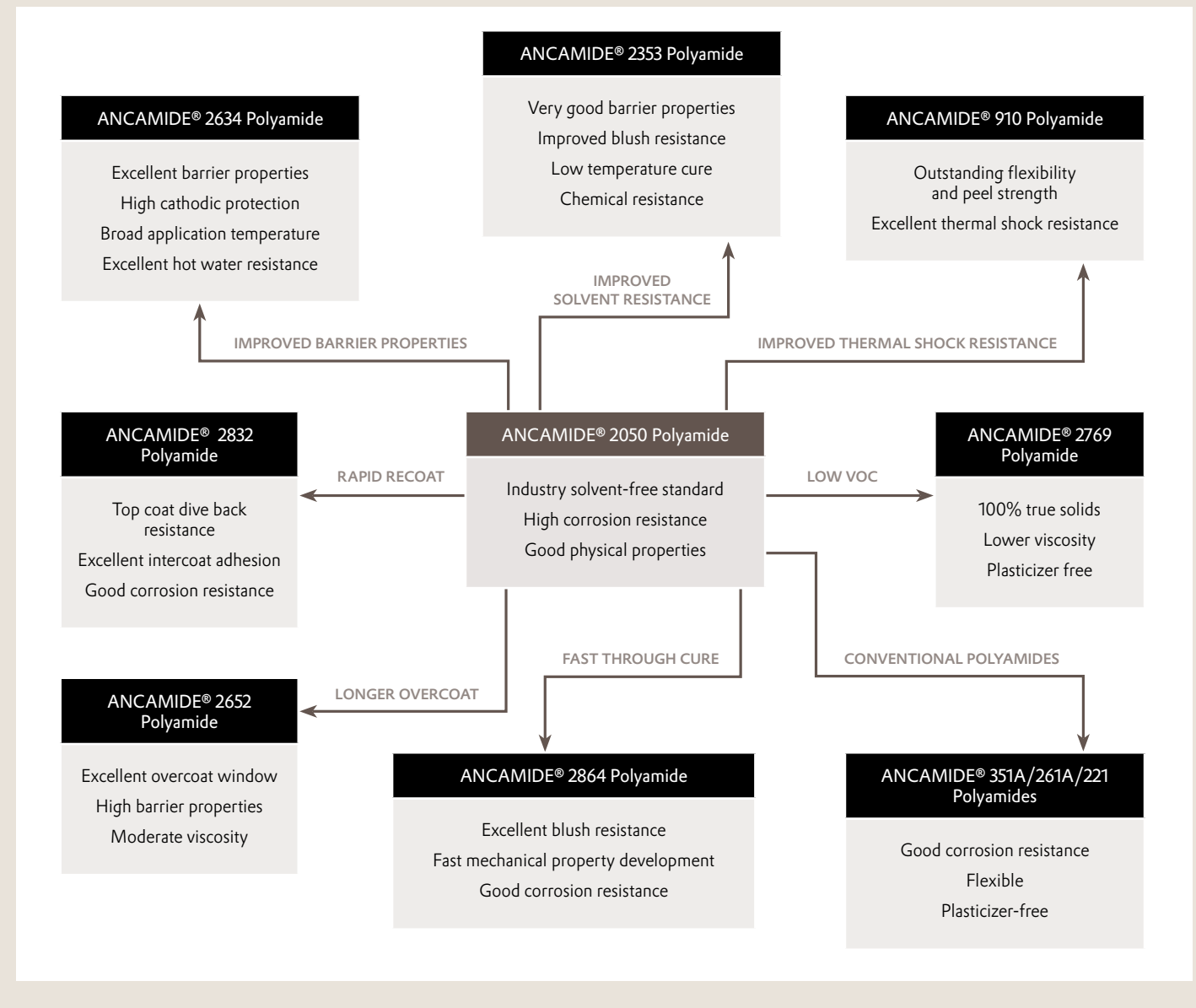
Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)*	Typical Cure Schedule	Comments	Principal Applications
VESTAMIN® PACM	Methylene-di (cyclohexyl-amine)	1	80	0.96	526	52.5	28	180	NA	318	elevated temp	Low-color, low-viscosity alternative to aromatic diamines, for comparable properties with improved fracture toughness.	Filament winding; wet lay-up laminating; casting; RIM; pultrusion for general industrial, tooling and automotive applications. Compliant with 21CFR 175.105 (with restrictions). <sup>8</sup>
AMICURE® 101	Non-MDA aromatic amine	6	120	1.00	580	48.5	26	185	NA	311 <sup>10</sup>	elevated temp	Aromatic amine; low viscosity, non-staining and MDA-free. Exhibits lower exotherm and higher heat resistance than MDA.	Filament-wound pipe; electrical encapsulation; tooling; large castings; adhesives.
ANCAMINE® 2049	3,3'-Dimethyl- methylenedi- (cyclohexylamine)	2	120	0.947	458	60	32	400	NA	324	elevated temp	Low color with longer pot life than other cycloaliphatic amines with comparable mechanical properties to aromatic diamines.	Casting; potting encapsulation; wet lay-up laminating and filament winding for tooling, electrical and general industrial applications.
ANCAMINE® 2167	Polycyclo-aliphatic amine	3	210	0.975	520	53	28	210	NA	327	elevated temp	Low-viscosity alternative to aromatic diamines with improved tensile strength, toughness and elongation.	Co-curing agent for filament winding; casting; potting; wet lay-up laminating for tooling and general industrial applications.
ANCAMINE® 2264	Polycyclo-aliphatic amine	9	2,600	1.00	502	54	29	195	NA	327	elevated temp	Moderate-viscosity alternative to aromatic diamines providing high glass transition temperature, good toughness and good chemical resistance.	Co-curing agent for filament winding; RTM; casting; potting for tooling, electrical and general industrial applications. FDA-compliant with 21CFR 175.105 (with restrictions). <sup>8</sup>
ANCAMINE® 2450	Cycloaliphatic amine blend	8	350	0.967	680	42	25	90	NA	335	elevated temp	Low viscosity with good glass transition temperature.	Filament winding; wet lay-up laminating; potting compounds.

NA - Not Applicable      \*Glass transition temperature after elevated-temperature cure.



# Ancamide® Polyamides

Selection Chart



## POLYAMIDES PRINCIPAL APPLICATIONS

Polyamides find use in solventborne, two-pack coatings (e.g., primers and finishes), coal tar epoxy coatings, adhesives, putties, sealants, cable jointing and electrical encapsulation.



Performance Comparison (select products shown)

COMPATIBILITY WITH EPOXY RESIN	CURE RATE BELOW 60°F	TENDENCY TO BLUSH	FILM FLEXIBILITY	COLOR STABILITY	CHEMICAL RESISTANCE	
					AQUEOUS ACIDS	SOLVENTS
EXCELLENT	FAST	VERY LOW	EXCELLENT	VERY GOOD	VERY GOOD	VERY GOOD
2738 2769 2445 2424 2767 2050 2353 2482 2652 2634 2832 2830 2864 375A 2424 805 351A 351 910 261A 700-B-75 221 220-X-70	2738 2864 2424 2353 2767 2634 2652 2445 2832 2050 2482 700-B-75 2830 261A 805 351A 351 910 375A 2445 2050 2864 2832 221 220-X-70	2738 2864 2353 2767 2769 2424 2652 2445 2634 700-B-75 2482 2050 2830 261A 910 805 351A 351 221 261A 910 805 351A 351 375A	910 2652 700-B-75 2832 2738 2769 221 220-X-70 2050 2830 260A 2482 805 351 2445 2445 2050 2830 261A 805 351A 351 910 375A 375A 2445 2050 2864 2832 221 220-X-70 2482 2424	2738 2769 2050 2767 2652 2832 2864 2445 2830 261A 805 351A 351 910 375A 2482 2445 2050 2864 2832 910 221 220-X-70 2424	2634 2767 2353 2424 2424 2738 2769 2482 2445 2050 2864 2832 261A 805 351A 351 375A 700-B-75 2830 221 220-X-70	2634 2767 2353 2424 2424 2738 2769 2482 2445 2050 2864 2832 261A 805 351A 351 375A 700-B-75 2830 221 220-X-70
GOOD	POOR	MODERATE	MODERATE	MODERATE	POOR	MODERATE

POLYAMIDES

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMIDE® 220	Amide	7	330,000	0.970	245	185	50 <sup>9</sup>			NA	ambient temp	Standard high viscosity polyamide formulated to provide high flexibility and long pot life. Cure can be accelerated with up to 5 PHR of Ancamine® K54	Solventborne maintenance coatings; primers, sealers and coatings for concrete; FDA-compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 220-IPA-73	Amide Solution	7	2,100	0.940	180	253	70 <sup>9</sup>	pot life and thin film set times are largely dependent upon the selected solvents		NA	ambient temp	Ancamide® 220-IPA-73 is a 73wt% solution of Ancamide® 220 in isopropanol.	FDA-compliant with 21CFR 175.105. <sup>8</sup>
ANCAMIDE® 220-X-70	Amide Solution	7	1,100	0.940	170	264	70 <sup>9</sup>			NA	ambient temp	Ancamide® 220-X-70 is a 70wt% solution of Ancamide® 220 in xylene.	Solventborne maintenance coatings. Primers, sealers and paint for concrete. FDA-compliant with 21CFR 175.105 and 21CFR 175.300 (with restrictions). <sup>8</sup>
ANCAMIDE® 221	Amide	9 max	43,000 at 40°C	0.99	205-235	185	50 <sup>9</sup>			NA	ambient temp	Standard high-viscosity polyamide formulated to provide 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.	Solventborne maintenance coatings. Primers, sealers and paint for concrete.
ANCAMIDE® 221 IPA73	Amide Solution	8	1200-2800	0.92	145-165	253	70 <sup>9</sup>	pot life and thin film set times are largely dependent upon the selected solvents		NA	ambient temp	Ancamide® 221-IPA-73 is a 73wt% solution of Ancamide® 221 in isopropanol.	Solventborne maintenance coatings. Primers, sealers and paint for concrete.
ANCAMIDE® 221-X-70	Amide Solution	9 max	1000-2500	0.94	145-165	264	70 <sup>9</sup>			NA	ambient temp	Ancamide® 221-X-70 is a 70wt% solution of Ancamide® 221 in xylene.	Solventborne maintenance coatings. Primers, sealers and paint for concrete.
ANCAMIDE® 260A	Amide/ Imidazoline	7	40,000	0.960	350	120	65	120	10	NA	ambient temp	Standard medium-viscosity polyamide. 1:1 volume ratios with standard liquid epoxy resin possible. Improved reactivity, chemical resistance, and/or reduction in viscosity may be achieved by blending with aliphatic curing agents or amidoamines.	Coatings; sealants; adhesives; coal-tar extended coatings. FDA-compliant with 21CFR 175.105 (with restrictions) and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 261A	Amide/ Imidazoline	7	35,000-45,000	0.96	320-380	120	65	75	7	NA	ambient temp	DOT non-corrosive version of Ancamide® 260A.	Coatings; sealants; adhesives; coal-tar-extended coatings. FDA-compliant with 21CFR 175.105. <sup>8</sup>
ANCAMIDE® 260TN	Amide/ Imidazoline	7	35,000	0.960	350	120	65	270	10	NA	ambient temp	Higher imidazoline version of Ancamide® 260A for improved resin compatibility.	Coatings; sealants; adhesives; coal-tar-extended coatings.
ANCAMIDE® 350A	Amide/ Imidazoline	7	11,000	0.970	380	100	55	200	11	124 <sup>10</sup>	ambient temp	Standard high imidazoline content polyamide. Lower viscosity than Ancamide® 220 or 260A.	High-solids coatings; adhesives; sealants and putties; see Ancamide® 220 for FDA status. Compliant with 21CFR 175.105 (with restrictions) and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 351A	Amide/ Imidazoline	8 max	10,000-20,000	0.97	344	100	50-55	150	10	124 <sup>10</sup>	ambient temp	Standard high imidazoline content polyamide. Lower viscosity than Ancamide® 221 or 261A; improved toughness over Ancamide® 350A.	High-solids coatings; adhesives; sealants and putties.
ANCAMIDE® 375A	Amide/ Imidazoline	7	2,450	0.960	400	100	50	170	12	124 <sup>10</sup>	ambient temp	Lower-viscosity version of Ancamide® 350A.	Low-VOC coatings; concrete repair and grouts; adhesives. Compliant with 21CFR 175.105 (with restrictions) and 21CFR 175.300. <sup>8</sup>
ANCAMIDE® 400	Amide	7	1,600	0.970	405	95	50	65	9.5	122 <sup>10</sup>	ambient temp	Special polyamide with low viscosity and faster cure. Compatible with epoxy resins without induction. Good hot water resistance when blended with cycloaliphatics. Blended with ATBNs in adhesives.	Coatings; adhesives; sealants; putties; electrical potting.
ANCAMIDE® 700-B-75	Adduct Solution	7	5,000	0.960	240	170	90	2-24 h in solution	Touch dry on evaporation of solvents	NA	ambient temp	Polyamide adduct. Good adhesion and cure under adverse conditions such as high humidity, low temperature, and poor surface preparation. No induction period required. 75% solids in butanol. Viscosity may be reduced by blending with amidoamines.	High-solids, anti-corrosive coatings for marine/industrial use; approved for use in U.S. Navy Specification MIL-P-24441/Ships/Coatings. Compliant with 21CFR 175.105. <sup>8</sup>
ANCAMIDE® 702-B-75	Adduct Solution	8 max	4,000-8,000	0.96	230-260	170	90	2-24 h in solution	Touch dry on evaporation of solvents	NA	ambient temp	Polyamide adduct. Good adhesion and cure under adverse conditions. No induction period required. 75% solids in butanol. Viscosity may be reduced by blending with amidoamines.	High-solids, anti-corrosive coatings for marine/industrial use. Compliant with 21CFR175.105 (with restrictions). <sup>8</sup>
ANCAMIDE® 805	Polyamide	7	2,300	0.99	420	124	66	60	6.5	158	ambient temp	High-performance polyamide offering a cost-effective method of achieving high-solids/low-VOC, ambient-cure epoxy coatings. Developed to provide low viscosity, good flexibility, fast dry times, excellent barrier properties, and good film appearance.	Ultra-high-solids marine, industrial maintenance and OEM coatings. Adhesives and sealants. Concrete primers and paints.

NA - Not Applicable



Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Gel Time <sup>5</sup> (Min @ 77°F, 150 G mix)	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
ANCAMIDE® 910	Polyamide	6	6,000	0.99	118	230	110-125	120	8	77	ambient temp	Outstanding flexibility and peel strength, excellent thermal shock resistance and good electrical properties. Lower viscosity than conventional polyamides. DOT noncorrosive.	Electronic potting and encapsulation compounds, general-purpose, two-component adhesives, coatings, civil engineering and composites applications. FDA-compliant with 21 CFR 175.105 (with restrictions). <sup>8</sup>
ANCAMIDE® 2050	Adduct	7	4,000	1.02	225	150	70	100	7.0	108 <sup>10</sup>	ambient temp	With liquid epoxy resin, it can achieve high gloss, flexibility, hardness and reverse impact resistance comparable to traditional solvent-cut polyamide/solid epoxy resin systems. No induction required. Non-critical loading (70-100 PHR).	High-solids coatings; primers and coatings for concrete; sealants and putties; pool paints.
ANCAMIDE® 2353	Modified Polyamide	9	3,000	1.01	330	114	60	65	4.5	131	ambient temp	Excellent high-gloss film formation and fast dry with no induction time. Cures down to 40°F. Develops hard films with very good solvent and corrosion resistance. Good for cathodic disbondment resistance. Best chemical resistance of polyamides.	High-solids marine and maintenance coatings; concrete primers and coatings; pipeline coatings.
ANCAMIDE® 2424	Modified Polyamide	9	14,000	1.00	327	114	60	60	3.0	129	ambient temp	Rapid development of adhesive strength with excellent adhesion to metal or plastic. Low-temperature cure and excellent environmental resistance. Can reduce or eliminate the need for accelerators.	Two-component structural adhesives for metal or plastic where rapid development of handling strength is required.
ANCAMIDE® 2444	Adduct	8	5,950	1.02	180	124	65	72	4.5	131	ambient temp	Excellent high-gloss film formation and fast dry with no induction time. Cures down to 40°F. Provides good corrosion resistance.	High-solids marine and maintenance coatings; concrete primers and coatings.
ANCAMIDE® 2445	Polyamide Adduct	7	5,200	1.03	210	133	70	89	5.5	90	ambient temp	A low-viscosity polyamide that exhibits fast cure at low temperatures (down to 40°F). Low residual amine content. Exhibits high gloss with excellent hardness and flexibility. Non-critical loading (70-100 PHR).	High-solids, anti-corrosive coatings for marine and industrial maintenance use; military equipment coatings.
ANCAMIDE® 2482	Modified Polyamide	7	5,500	0.97	370	125	60-65	130	7.0	172 after 2 h @ 160°F	ambient or elevated temp	Low viscosity without external plasticizers for high filler loading. Good flexibility and adhesion to metals and plastics. Excellent environmental resistance. Low cost-in-use.	Two-component ambient- or heat-cured adhesives for metal, plastics or wood bonding. Adhesives applications where high filler loading with good handling is needed.
ANCAMIDE® 2634	Amide Solution	7	1,700	0.96	335	90	48	130	7	240	ambient temp	High corrosion resistance, hot water resistance, cathodic disbondment resistance. Can be formulated for low-temperature cure, ambient cure, or heat cure. Cost effective.	High-solids marine and maintenance coatings.
ANCAMIDE® 2652	Adduct Solution	8+	2,000	0.99	132	250	90-130	140	5	NA	ambient temp	Special polyamide adduct specifically developed to provide coatings offering long overcoatability with epoxy and alternative resin technology. Can provide excellent corrosion resistance and good for cathodic disbondment resistance. Flexible loadings with standard epoxy resins.	High-solids marine and maintenance coatings. Pipeline coatings where cathodic protection is used.
ANCAMIDE® 2767	Modified Polyamide	7	2100	1.08	340	114	60	57	5	142	ambient temp	Fast dry time, good low temperature cure, high solvent resistance, good corrosion resistance, high gloss, excellent hardness development, zero induction time.	High-solids coatings, marine and maintenance coatings, concrete primers, coatings and bonding agents, adhesives.
ANCAMIDE® 2769	Modified Polyamide	10	100-160	0.97	400-440	150	65-80	120	9		2-7 days	100% solids contains no plasticizer and exhibit very low viscosity. This allows for formulation of solvent free or high-solids coatings. No Induction time. Excellent adhesion to poorly prepared substrates.	High-solids coatings, sealants, adhesives
ANCAMIDE® 2830	Modified Polyamide	9	3000-6000	1.01	215	162	85	36	6.5	33	2-7 days	Modified polyamide that does not require induction time, Excellent corrosion protection.	Industrial coatings, general protective coatings
ANCAMIDE® 2832	Modified Polyamide	7	500-2000	1.02	340	156	82	29	1.75	47		Rapid through cure, fast return to service, outstanding intercoat adhesion, outstanding top coat dive back resistance.	Fast return to service in factory applied ambient cure systems in protective and refinish coatings
ANCAMIDE® 2864	Modified Polyamide	8	1200-2500	1.04	315	135	65	32	4	NA	2-7 days	Fast through cure. Fast mechanical property development, good corrosion resistance, Low temperature cure.	Fast return to service in field applied systems in marine and protective coatings.
ANCAMIDE® 3200	Adduct	10	1500	1.01	270	115	61	80	10	141	ambient temp	Excellent adhesion to damp substrates, good corrosion protection, rapid property development.	High-solids coatings, marine and protective coatings.
ANCAMIDE® 3201	Adduct	10	1000	1.03	310	115	61	40	10	136	ambient temp	Fast property development, good adhesion to damp substrates, corrosion resistance.	Primers, coatings for wet and high humid application areas, high-solids coatings for corrosion protection.

# Anquamine® Waterborne Curing Agents

Selection Chart

	Standard Primer	Penetrating Primer	Standard Concrete Paint	Transparent Sealer	Institutional	Self-Leveling Flooring	Tile Grout/Adhesive	Thermal Shock Flooring	OEM Primer	PC/Marine
	PRIMER		THIN FILM		THICK FILM			METAL		
<b>CURING AGENTS FOR USE WITH LIQUID EPOXY RESIN</b>										
ANQUAMINE® 287		+++						+++		
ANQUAMINE® 360	+		+							
ANQUAMINE® 401	+									
ANQUAMINE® 701	+		+			+	+		+	+
ANQUAMINE® 721	+++		+++						+++	+++
ANQUAMINE® 728	+++		+++							
ANQUAMINE® 731						+++	+++			
ANQUAMINE® 100			+	+++	+++					
<b>CURING AGENTS FOR USE WITH SOLID RESIN DISPERSION (such as Ancarez® AR555 Resin)</b>										
ANQUAMINE® 401	+		+						+++	
ANQUAMINE® 419									+++	+++
ANQUAMINE® 728	+++		+++							
ANQUAMINE® 100			+	+++	+++					

+++ Primary Recommendation    + Alternative Recommendation    (Blank) May or may not be acceptable

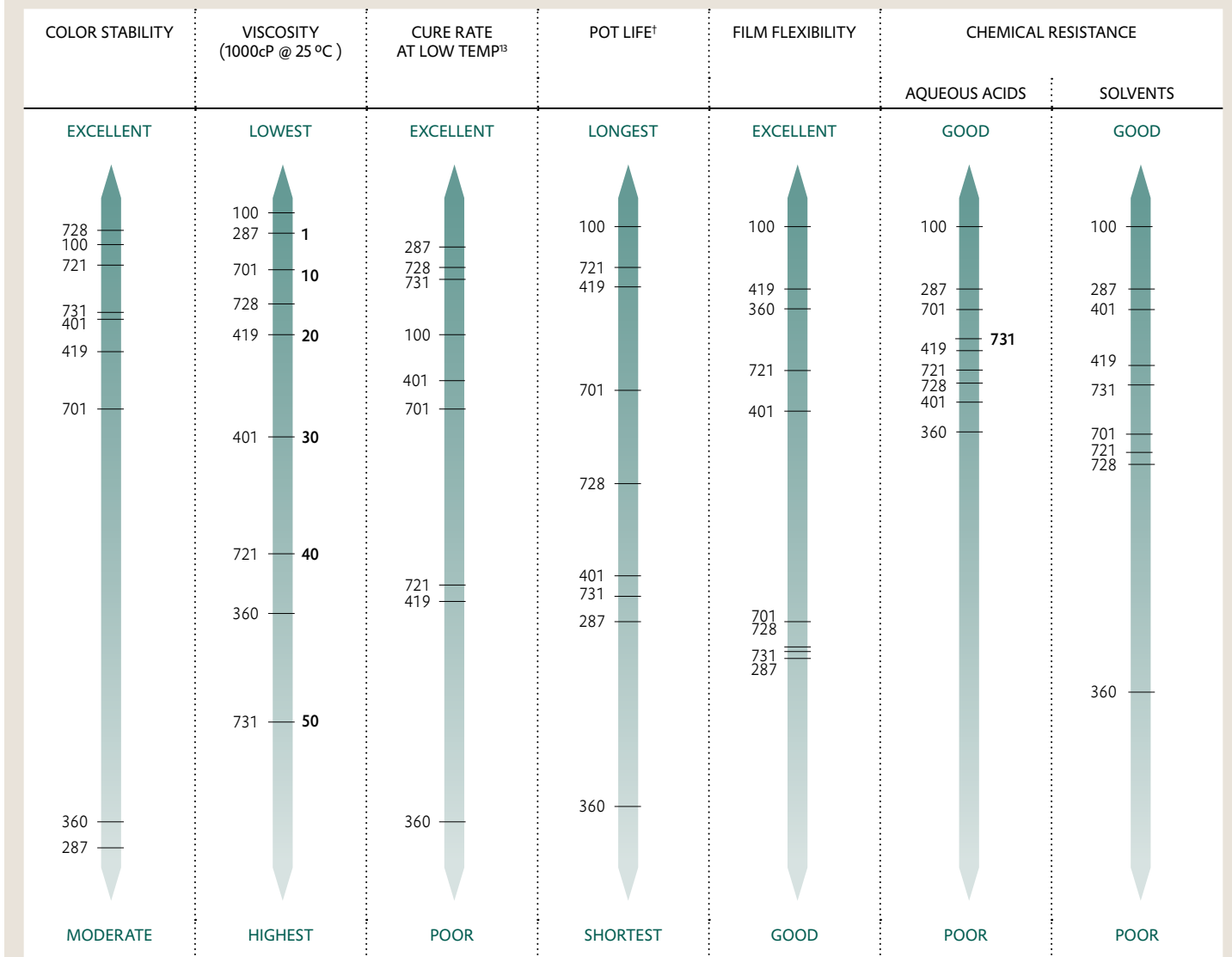


## WATERBORNE CURING AGENTS PRINCIPAL APPLICATIONS

Waterborne epoxy curing agents find use in protective and industrial concrete coatings, self-leveling and mortar floors and tile grouts, steel coatings with liquid resin and high molecular weight resin emulsions, and anti-corrosive primers for OEM and light duty applications. Increasingly, waterborne epoxy systems are being used in protective coating applications.



Performance Comparison (select products shown)



<sup>†</sup>Resin dependent. With Anquamine® 401, for example, solid and semi-solid resin emulsions can give pot lives in excess of 5 hours.

## WATERBORNE CURING AGENTS

Curing Agent	Epoxy Resin Used	Coalescing Agents Needed	Typical VOC Level (lb/gal)	Recommended Substrate	Typical Application	Primer Salt Fog (h)	Chemical Resistance	Pot Life (h)	Indicator of End of Pot Life	Stain Resistance	14-Day Pencil Hardness
ANQUAMINE® 100	Liquid Epoxy Resin, Ancarez® AR555	Yes	1.0-1.8	Concrete or Metal	Topcoat	>500@ 3 mil DFT	Moderate	1 with Liquid Resin and >4 with AR555	Viscosity Increase with Liquid Resin, Loss of Coalescence with AR555	Excellent	F
ANQUAMINE® 287	Liquid Epoxy Resin	No	0	Concrete	Primer	NA	Moderate	1	Rapid Viscosity Increase	Good	NA
ANQUAMINE® 360	Liquid, Emulsified Liquid	No	0	Concrete	Topcoat, Concrete Primer, Sealer	1,000+	Good	1.5-2	Viscosity Increase	Good	2H
ANQUAMINE® 401	Liquid, Semi-Solid Dispersion, Solid Dispersion, Ancarez® AR555	Yes	0-1.8	Concrete, Metal	Topcoat, Concrete Primer	1,800+	Good	1 with Liquid Resin and >4 with AR555	Loss of Coalescence	Good	H-2H
ANQUAMINE® 419	Solid Dispersion, Ancarez® AR555	Yes	1.2-1.8	Metal, Concrete	Metal Primer, Topcoat	3,000+	Moderate	4-6	Loss of Coalescence	Very Good	HB
ANQUAMINE® 701	Liquid	No	0	Concrete, Metal	Self-Leveling Floor, Metal Primer, Topcoat	1,000	Good	2-4	Viscosity Increase	Good	2H
ANQUAMINE® 721	Liquid Epoxy Resin	No	0-1	Concrete, Metal	Concrete, Primer, Topcoat, Wall Coatings	750	Good	1-3	Rapid Viscosity Increase	Good	3H-6H
ANQUAMINE® 728	Liquid Epoxy Resin, Ancarez® AR555	No	0	Concrete, Metal	Topcoat, Primer	Not Tested	Good	1-2 with liquid resin and 1 with AR555	Loss of Coalescence	Excellent	3H-6H
ANQUAMINE® 731	Liquid Epoxy Resin	No	0	Concrete	Self-Leveling Floor	NA	Good	0.5-1	Rapid Viscosity Increase	Good	NA

NA - Not Applicable



# WATERBORNE CURING AGENTS

Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Thin Film Set Time <sup>6</sup> (h @ 77°F)	Typical Cure Schedule	Comments	Principal Applications
ANQUAMINE® 100	Aqueous Dispersion of Modified Aliphatic Amine	dispersion	200	1.05	100	350	140-180 w/LER; 15-30 w/SED	3.0	ambient temp	Designed to provide a clear film at high builds such as 10 mils more more. Exhibits high gloss and superior stain resistance. Can be used with liquid and solid epoxy resin to give fast dry with long pot life.	Floor and wall coatings; heavy duty maintenance and institutional coatings
ANQUAMINE® 287	Aqueous Solution of Modified Aliphatic Amine	12	1,000	1.08	155-175	240	125	2.0	ambient temp	Formulated to provide zero-VOC formulations that offer rapid dry time and excellent adhesion to green concrete as well as old concrete. Formulations with lower % solids allow excellent penetration into concrete.	Primer/sealer for green concrete; primer for new and old concrete.
ANQUAMINE® 360	Aqueous Solution of Modified Polyamide	14	30,000-50,000	1.05	210	280	100-150	6.0	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 noncorrosive.	Waterborne coatings and sealers for concrete walls and floors; concrete primers; anti-graffiti coatings.
ANQUAMINE® 401	Aqueous Solution of Modified Aliphatic Amine	12	30,000	1.09	255	200	65-80 w/LER; 15-30 w/SED	3.0	ambient temp	Exhibits rapid dry time with excellent hardness development and good corrosion resistance. Provides high-gloss films with excellent gloss retention. This, combined with excellent stain resistance, makes it ideal for institutional coatings. Can be used with liquid epoxy resin, or solid and semi-solid dispersions.	Floor and wall coatings; concrete primers; industrial maintenance; marine and general metal topcoats and primers.
ANQUAMINE® 419	Aqueous Solution of Modified Aliphatic Amine	7	8,000-14,000	1.09	150-190	284	25-32*	2.5	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.	Industrial maintenance and marine primers and topcoats; general metal and transportation primers.
ANQUAMINE® 701	Aqueous Emulsion of Modified Aliphatic Amine	emulsion	5,000-10,000	1.08	130-165	300	140-170	2.5	ambient temp	Formulated to provide superior performance for a wide range of applications. Developed primarily for use with liquid epoxy resins to formulate systems with zero-VOC content and without resin emulsifiers.	High-gloss to matte top coats, food/potable water contact coatings (benzyl alcohol-free), self-leveling and trowelable flooring, grouts and putties, institutional coatings, anticorrosive and high-build coatings.
ANQUAMINE® 721	Aqueous Solution of Modified Aliphatic Amine	5	40,000	1.05	150-190	300	140-180	5.5	ambient temp	Product can be formulated to low or zero VOC. Offers good pot life, good dry speed, and good emulsion stability even at low solids. Cured coatings exhibit high gloss, a balance of hardness and flexibility, and very good adhesion to concrete and metal.	Concrete primers, top coats, and wall coatings; metal primer.
ANQUAMINE® 728	Aqueous Solution of Modified Cycloaliphatic and Heterocycloaliphatic Amines	5	5,000-15,000	1.07	160-220	250	125-130 w/ LER 34 w/SED	2.5	ambient temp	Designed for use with both liquid epoxy resin and solid epoxy resin dispersions. With solid resin dispersion, it provides extremely fast dry time at below ambient temperature and high humidity. Can be coated up to 23 mil wet in one pass. Excellent aesthetics.	Concrete primers, top coats, and wall coatings; metal primers.
ANQUAMINE® 731	Aqueous Solution of Modified Aliphatic Amine	5	50,000	1.06	175	200	100	N/A	ambient temp	Developed primarily for use with liquid epoxy resins. Capable of formulating systems with zero-VOC content and without resin emulsifiers.	Self-leveling and trowelable flooring, grouts and putties.

\*Anquamine® 419 with solid epoxy dispersion. (ANC AR555)

\*\*Thin film set times depend on the type of epoxy resin used. Reported values are dry-to-touch.

NA - Not Applicable

See product bulletins for special values of starting point formulations.



## WATERBORNE EPOXY RESINS

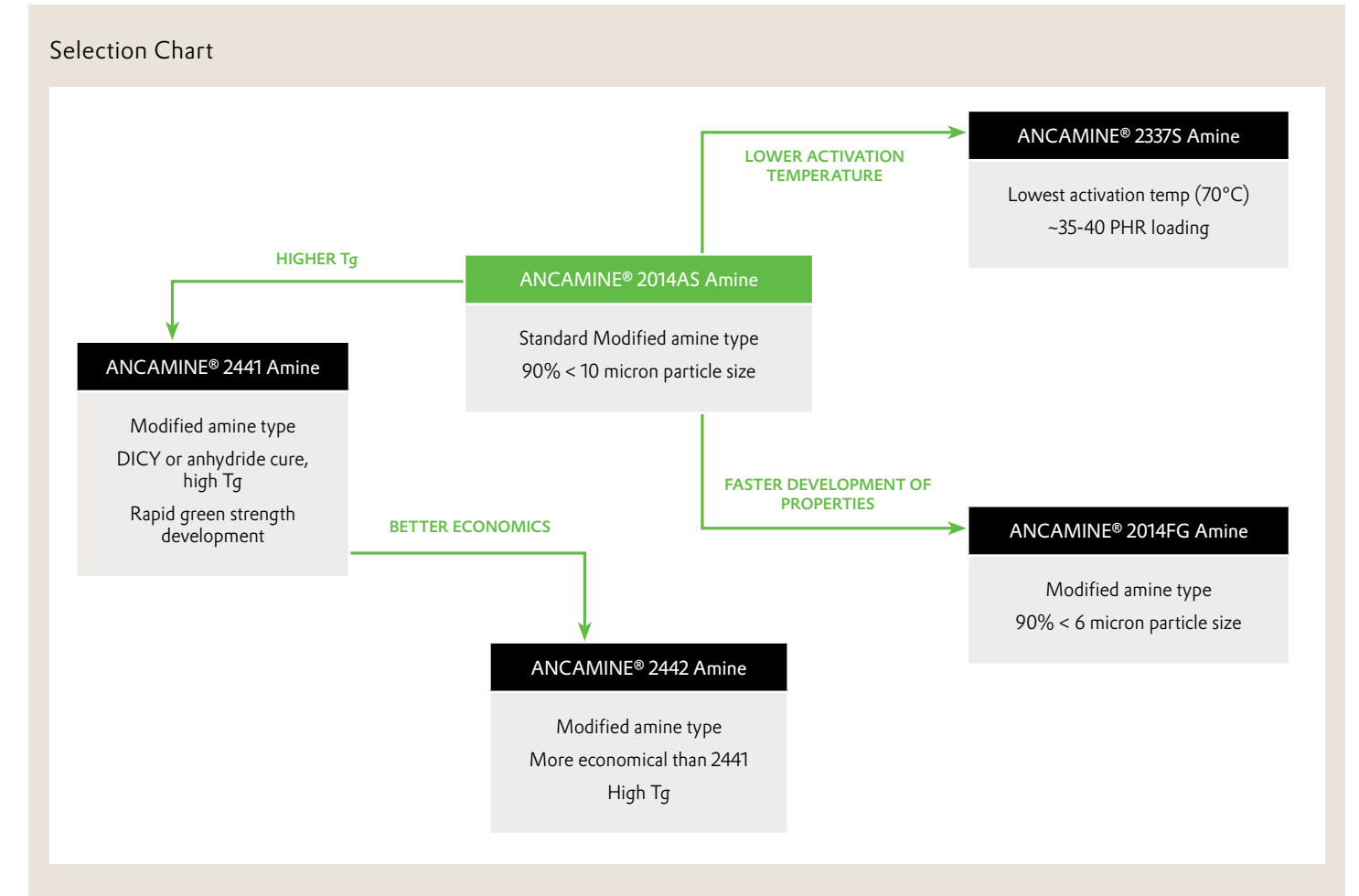
Resin	Type	Solids Content (wt %)	VOC Content (lb/gal)	Viscosity (cP @ 77°F)	Flash Point (°C)	Specific Gravity (@ 77°F)	Epoxy Equiv wt EEW (g/eq) <sup>3</sup>	Comments	Principal Applications
ANCAREZ® AR555 specialty resin	Solid Epoxy Dispersion	55	0	200	>249	1.09	550*	Waterborne solid epoxy resin dispersion delivered at 55% solids in water. Shown to deliver equal or superior performance to conventional solid resin dispersions, but at a lower cost. Enables the formulation of low-odor, zero-VOC systems.	Two-component, ambient-cure epoxy coatings for OEM, industrial maintenance and transportation coatings; floor sealers and paints, anticorrosive primers, mid-coats and topcoats; and institutional applications.

NA - Not Applicable  
 \* 550 EEW is as received. EEW is 330 on a solids basis.





# Ancamine® Curing Agents & Accelerators for One Part System – Modified Amines



## PRINCIPAL APPLICATIONS

One-component epoxy curing agents and accelerators find use in automotive underbody coatings, powder coatings, paste and film adhesives, high performance aerospace composites, pre-pregs, structural laminates, microelectronics, and electrical insulation compounds.



## CURING AGENTS & ACCELERATORS FOR ONE PART SYSTEM – MODIFIED AMINES

Curing Agent	Appearance	Melt Temp (°F)	Amine Value (mg KOH/g)	Equivalent WT/{H}	Use Level (PHR) <sup>4</sup>	Glass Transition Temp (°F) <sup>7</sup>	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® 2014AS	White Powder	205	184	52	25	230 30min @ 300°F	elevated temp	Micronized powder with an average particle size of <10 microns, easily dispersed in liquid epoxy resin. Latent curing agent and dicyandiamide cure accelerator with extremely long shelf stability in undiluted resins and excellent reactivity. Can cure rapidly above its activation temperature (167°F).	One-component adhesives, including induction-cured adhesives; potting and casting; prepregs; film adhesives; accelerator for dicyandiamide.
ANCAMINE® 2014FG	White Powder	205	184	52	25	230 30min @ 300°F	elevated temp	Finer version of Ancamine® 2014AS with 90% particle size <6microns. Developed to provide faster development of properties. Finer particles reduce the formulation shelf stability when used as a sole curing agent.	
ANCAMINE® 2337S*	Light Yellow Powder	145- 172	260	85.5	45	158 30min @ 240°F	elevated temp	Micronized powder with an average particle size of 10 microns. Latent curing agent with rapid reactivity above 158°F and rapid development of green strength. A2337S is used as a co-accelerator with other accelerators e.g., Ancamine® 2441 or 2442 when used with DICY.	One-component adhesives, including induction-cured adhesives; potting; coatings; hot-melt prepregs.
ANCAMINE® 2441	Off-White Powder	265	290	38	20	238	elevated temp	A modified polyamine for use as a latent curing agent or as an accelerator for DICY or anhydrides. Providing low activation temperature, fast green strength development, good shelf life and high glass transition temperature.	Used in one-component heat-cured adhesives as the sole curing agent or DICY accelerator. Powder coatings. Potting compounds, coatings, hot-melt prepregs, and as an accelerator for anhydrides.
ANCAMINE® 2442	Off-White Powder	NA	50-65	38	20	NA	elevated temp	Modified aliphatic amine used as a latent curing agent or an accelerator for DICY. Developed to provide excellent balance of low activation temperature, good shelf stability, and high glass transition temperature.	One-component, heat-cured adhesives as a sole curing agent or DICY accelerator. Powder coatings, potting compounds, coatings, hot melt prepregs, and as an accelerator for anhydrides.

\* All 1K products may be used alone or as accelerators to a dicyandiamide, with the exception of Ancamine® 2337S, which cannot be used as an accelerator for dicyandiamide.

NA - Not Applicable

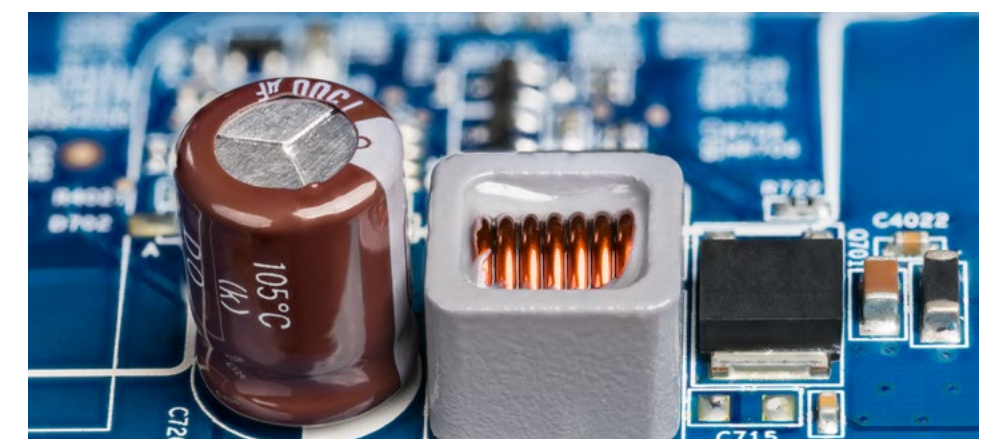
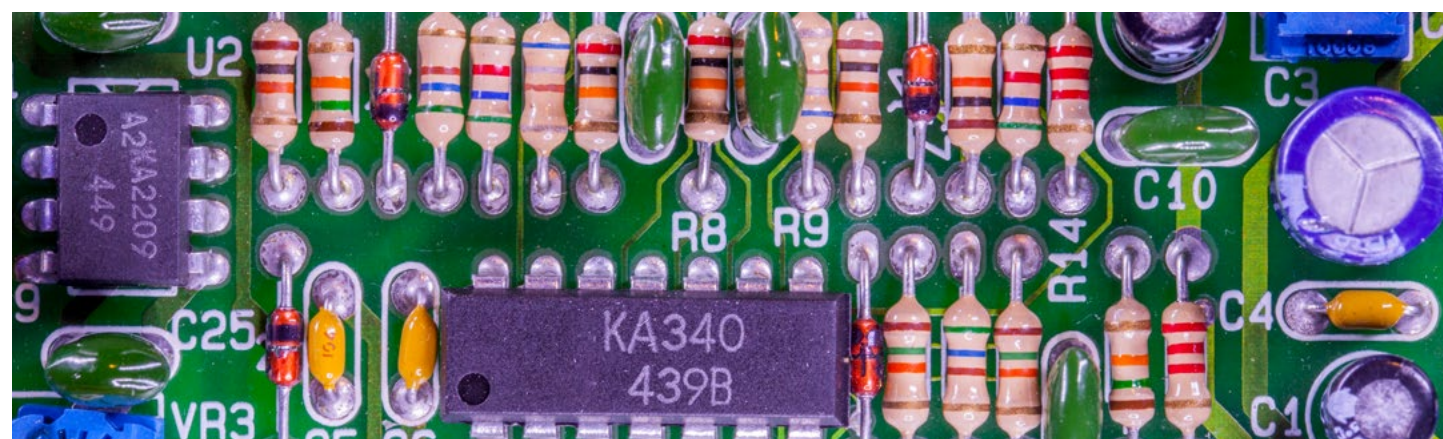


## CURING AGENTS & ACCELERATORS FOR ONE PART SYSTEM – IMIDAZOLES

Curing agent	Appearance	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Molecular Weight	Latency*	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Glass Transition Temp <sup>7</sup> (°F)	Gel Time (min, 150 g mix)	Typical Cure Schedule	Comments	Principal Applications
<b>CUREZOL® C17Z HARDENER</b>	White Powder	NA	MP 187- 190°F	NA	306	6 days	3-5	312 <sup>10</sup>	13 @ 212°F	elevated temp	Accelerator for dicyandiamide (DICY), anhydride and phenolic curing agents.	Structural adhesives; molding powders; powder coatings; structural laminates.
<b>CUREZOL® 1B2MZ</b>	Pale Yellow Liquid	6	700	1.07	172	10 h	4-6	310 <sup>10</sup>	5 @ 212°F	elevated temp	Liquid with high reactivity. Effective low-viscosity accelerator for anhydrides.	Casting, potting and encapsulation in electrical and electronic applications.
<b>CUREZOL® 2E4MZ</b>	Pale Yellow Liquid	<5	NA	NA	110	9 h	1-4	313	4 @ 212°F	elevated temp	Accelerator for dicyandiamide, anhydride and phenolic curing agents.	Filament winding, electrical laminates, powder coatings, molding powders and structural adhesives.
<b>CUREZOL® 2MA OK</b>	White Powder	NA	MP >480°F	NA	384	6-12 mo	5	293	108 @212°F 200g mix	elevated temp	Best combination of latency and low-temperature cure. Accelerator for dicyandiamide, anhydride and phenolic curing agents.	Electrical and electronic insulation; solder-resistant inks; structural adhesives.
<b>CUREZOL® 2MZ- AZINE UNGROUND</b>	Course powder	NA	MP 480°F	NA	219	> 60 days	6-8	313 <sup>10</sup>	> 30 @ 212°F	elevated temp	Accelerator for dicyandiamide and anhydride curing agents.	Electronic applications such as solder-resistant inks and insulating powders; structural adhesives.
<b>CUREZOL® 2MZ- AZINE 5/7</b>	Fine White Powder	NA	MP 480°F	NA	219	30-40 days	6-8	313 <sup>10</sup>	30 @ 212°F	elevated temp	Micronized version of Curezol® 2MZ-Azine Unground. >90% less than 7 microns particle size.	Electronic applications such as solder-resistant inks and insulating powders; structural adhesives.
<b>CUREZOL® 2PHZ-PW</b>	Light Pink Powder	NA	MP 415- 491°F	NA	204	100- 150 days	5-10	374	8 @ 302°F	elevated temp	A substituted imidazole that can be used as an epoxy curing agent or as an accelerator for dicyandiamide and anhydride curing agents.	Electronic applications such as solder-resistant inks and insulating powders; structural adhesives.
<b>CUREZOL® 2P4MZ</b>	White Powder	NA	MP 325- 360°F	NA	158	3 days	3-6	309	NA	elevated temp	Accelerator for dicyandiamide, anhydride and phenolic curing agents.	Electrical laminates; molding compounds; potting compounds.
<b>IMICURE® AMI-1 curing agent</b>	Pale Yellow Liquid	NA	NA	1.04	82	8 h	2-4	NA	NA	elevated temp	Accelerator for dicyandiamide, anhydride and phenolic curing agents.	Prepreg composites; adhesives; electronic encapsulation.
<b>IMICURE® AMI-2</b>	Pale Yellow Powder	NA	MP 284°F	NA	82	3.5 h	1-4	300 <sup>10</sup>	2 @ 212°F 200g mix	elevated temp	Accelerator for dicyandiamide, anhydride and phenolic curing agents.	Electrical laminates; powder coatings; molding powders; structural adhesives.
<b>IMICURE® EMI-24®</b>	Pale Yellow Liquid	8	6,500	0.990	110	9 h	1-4	313 <sup>10</sup>	4 @ 212°F	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 115°F returns material to a stable liquid form.	Filament winding; electrical laminates; molding powders; structural adhesives.
<b>IMICURE® IMIDAZOLE</b>	White Powder	NA	MP 194°F	NA	68	9 h	1-4	297	3 @ 212°F	elevated temp	Accelerator for dicyandiamide, anhydride and phenolic curing agents.	Prepreg composites; adhesives; electronic encapsulation.

\* Latency as given on this page 44 is defined as the time required for a 200 g mass of liquid epoxy resin mixed with curing agent to gel at room temperature (~77°F).

NA - Not Applicable





## CURING AGENTS & ACCELERATORS FOR ONE PART SYSTEM – SUBSTITUTED UREAS

Curing agent	Physical Form	Melting Point (°F)	Use Level <sup>3</sup> (PHR) <sup>4</sup>	DSC Activation Temp (°F)	Heat Deflection Temp <sup>10</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
AMICURE® UR	White Powder	268	0.5-3.0 parts with 4-8 parts dicyandiamide	284	270	30 min @ 356°F	Substitute for chlorophenyl ureas; co-curing accelerator for dicyandiamide-cured epoxy resins. Exceptional latency and rapid cure above activation temperature.	One-component paste and film adhesives; high-performance composites; prepregs.
AMICURE® UR2T	White Powder	360-374	0.5-3.0 parts with 4-8 parts dicyandiamide	284	270	1-2 h @ 355°F	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® UR 7/10	White Powder	130-133	0.5-3.0 parts with 4-8 parts dicyandiamide	284	270	1-2 h @ 356°F	Fine ground version of Amicure® UR, 90% less than 10 micron particle size. Rapid cure above activation temperature.	One-component paste and film adhesives; high-performance composites, especially in aerospace applications.

NA - Not Applicable

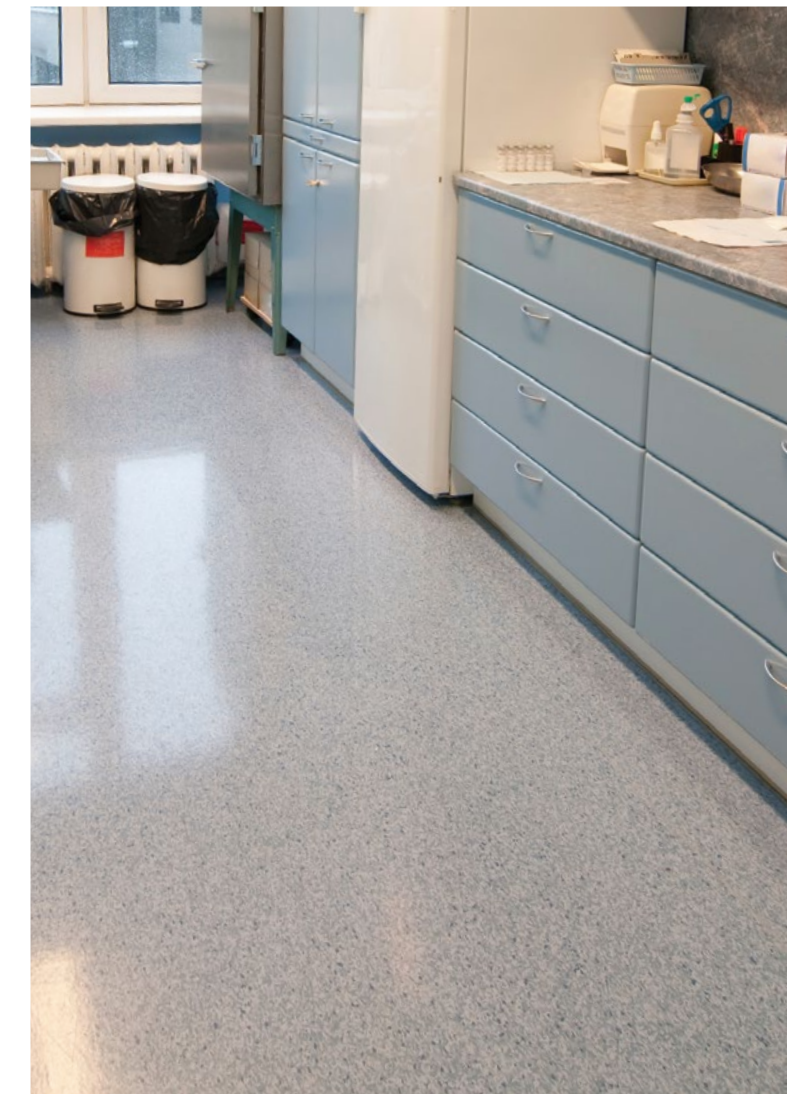
Note: Substituted urea latency is formulation dependent.



## CURING AGENTS & ACCELERATORS FOR ONE PART SYSTEM – DICYANDIAMIDES

Curing agent	Physical Form	Melting Point (°F)	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Latency (mo)	DSC Activation Temp (°F)	Heat Deflection Temp <sup>10</sup> (°F)	Typical Cure Schedule	Comments	Principal Applications
AMICURE® CG-NA	Granular	405-412	4-8	6	330	250	30 min @ 356°F	Unpulverized dicyandiamide with no inert flow control agent.	Electrical laminates; adhesives and powder coatings, where the total resin system is pulverized prior to extrusion. Compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
AMICURE® CG-325G	<44 Micron Powder	405-412	4-8	12	330	250	30 min @ 356°F	Dicyandiamide pulverized to 90% less than 44 micron particle size. Contains 1.5% of an inert flow control additive. Dicyandiamide pulverized to 90% less than 30 micron particle size.	Structural laminates; one-component adhesives. Compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
AMICURE® CG-1200G	11 Micron Powder	405-412	4-8	6	330	250	30 min @ 356°F	Dicyandiamide pulverized to 90% less than 30 micron particle size. Contains 1.5% of an inert flow control additive.	Structural adhesives, powder coatings; structural laminates including solvent-free prepreps. Compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>
AMICURE® 1400B	<10 Micron Powder	405-412	4-8	12	330	250	30 min @ 356°F	Dicyandiamide pulverized to 90% less than 10 micron particle size. Contains 3% of an inert flow control additive.	Structural adhesives, powder coatings; structural laminates including solvent-free prepreps. Compliant with 21CFR 175.105 and 21CFR 175.300. <sup>8</sup>

NA - Not Applicable  
 Note: Ancamine® 2014AS and Ancamine® 2014FG are excellent accelerators for dicyandiamide. (See Latent Curing Agents section.)



## TERTIARY AMINES

Curing agent	Appearance	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Molecular Weight	Latency	Use Level <sup>3</sup> (PHR) <sup>4</sup>	Glass Transition Temp <sup>5</sup> (°F)	Gel Time (min, 150 g mix)	Typical Cure Schedule	Comments	Principal Applications
ANCAMINE® 1110	Pale Brown Liquid	6	20	1.03	370	NA	1-15	NA	100	ambient temp	Dimethylaminomethylphenol. Reduced-reactivity variant of Ancamine® K54.	Concrete adhesives and coatings in combination with polysulfide and polymercaptan curing agents; electrical castings in combination with anhydrides.
ANCAMINE® 2910	Amber Liquid	Max 8	30-60	0.93	137	10 h	20	202	600-700 min at 25 °C	ambient and elevated temp	Long pot life with good low temperature (65 °C) cure conversion. Low peak exotherm during cure.	CIPP, electrical potting and encapsulation, filament wound pipe and larger composite casting.
ANCAMINE® K54	Amber Liquid	6	200	0.980	630	NA	1-15	NA	45	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.	Coatings; flooring; adhesives; castings; potting; encapsulation. FDA-compliant with 21CFR 175.105 and 21CFR 175.300 (with restrictions). <sup>8</sup>
ANCAMINE® K61B	Amber Liquid	5	700	0.970	230	NA	10-12	72 <sup>10</sup>	35 @ 149°F	elevated temp	2-Ethylhexanoic acid salt of Ancamine® K54. Extended pot life version designed to give less exothermic cure. DOT noncorrosive.	Small- and medium-sized castings; potting; impregnation varnishes. Compliant with 21CFR 175.105 and 21CFR 175.300 (with restrictions). <sup>8</sup>
AMICURE® DBU-E	Light Yellow Liquid	1	14	1.11	152	NA	1-5	NA	NA	elevated temp	High-purity, electronic grade of 1,8-diazabicyclo [5.4.0] undec-7-ene. Highly efficient accelerator for phenolic novolac and other epoxy cures, including those cured with anhydrides. Amicure® DBU-E has a low tendency to yellow over time, making it ideal for LED applications.	Electrical encapsulation; transfer molding powders.

## BORON TRIFLUORIDE: AMINE COMPLEXES

Curing agent	Appearance	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Use Level (PHR) <sup>4</sup>	Latency	DSC Onset Temp (°F)	HDT	Gel Time (min, 150 g mix)	Typical Cure Schedule	Comments	Principal Applications
ANCHOR® 1040 AMINE	Orange-Red Liquid	12	20,000	1.13	7-12 <sup>11</sup>	6-10 wk	212	266	4 h @ 266°F	elevated temp	These liquid grades are modified amine complexes of BF <sub>3</sub> with reduced hygroscopicity and good solubility in epoxy resins. They vary in latency and activation temperature. Cured mechanical properties and heat resistance properties are dependent upon the chosen grade, concentration and post-cure schedule employed. Complexes exhibit opposite behavior with non-standard epoxies, such as glycidyl esters, and cycloaliphatic and alkyl epoxides, that gel within minutes to hours at room temperature.	In prepregs with solid or liquid epoxy resins; molding powders.
ANCHOR® 1115	Dark Liquid	17	1,700	1.15	5-10 <sup>11</sup>	6-10 wk	205	275	4 h @ 284°F	elevated temp		Same as Anchor® 1040 but also used in heat-cure insulating varnishes.

NA - Not Applicable





## REACTIVE DILUENTS

Diluent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Wt per Epoxide (EEW)	Moisture Content (% max)	Residual ECH (ppm, max)	Hydrolyzable Chloride (wt%, max)	Comments	Principal Applications
EPODIL® 741	Butyl Glycidyl Ether	1	2	0.91	150	0.2	10	0.1	The best glycidyl ether for viscosity reduction with good retention of properties. High vapor pressure.	Tooling; electrical applications; flooring; highly filled coatings. Compliant with 21CFR 175.105 (with restrictions). <sup>8</sup>
EPODIL® 742	Cresyl Glycidyl Ether	2	12	1.08	182	0.2	25	0.1	Good chemical resistance, especially against acids and solvents. Good maintenance of physical performance. Low volatility. Moisture tolerant. Assists in water displacement.	Tooling; electrical applications; coatings; flooring.
EPODIL® 746	2-Ethylhexyl Glycidyl Ether	2	9	0.91	220	0.1	10	0.1	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.	Flooring and mortars; potting.
EPODIL® 748	Alkyl (C12-C14) Glycidyl Ether	1	12	0.89	290	0.1	10	0.1	General-purpose diluent. Low toxicity and low vapor pressure. Slows reactivity. Good viscosity reduction. Improves flexibility. Improves adhesion to non-polar surfaces.	Flooring and mortars; coatings. Compliant with restrictions on all of the following: 21CFR 175.105, 21CFR 175.300, 21CFR 176.180, and 21CFR 177.1650. <sup>8</sup>
EPODIL® 749	Neopentyl Glycol Diglycidyl Ether	1	18	1.04	138	0.2	10	0.1	Low volatility. Low reduction in physical properties and reactivity.	Civil engineering applications; electrical potting and encapsulation. Compliant with 21CFR 175.105 (with restrictions). <sup>8</sup>
EPODIL® 750	1,4-Butanediol Diglycidyl Ether	1	18	1.10	130	0.2	10	0.3	Good dilution efficiency of difunctional glycidyl ethers. Low volatility. Minimal impact on reactivity.	Electrical potting, casting and encapsulation. Compliant with 21CFR 175.105 (with restrictions). <sup>8</sup>
EPODIL® 757	1,4-Cyclohexanedimethanol Diglycidyl Ether	2	65	1.10	166	0.2	10	0.2	Good maintenance of physical properties combined with moderate dilution efficiency. Good creep resistance.	Laminates; civil engineering applications.
EPODIL® 761	p-Tertiary Butyl Phenol Glycidyl Ether	2	24	1.03	224	0.1	200	0.5	Excellent compatibility with epoxy resin. Good retention of physical properties.	Coatings; flooring; mortars.
EPODIL® 762	Trimethylol Propane Triglycidyl Ether	60 APHA	90-180	1.17	141	0.1	8	0.3	Alternative for Glycerol Triglycidyl Ether.	Adhesives; composites.
EPODIL® 781	Neodecanoic Acid Glycidyl Ester	50 APHA	6	0.95	250	0.1	200	0.3	Performance alternative for Epodil® 748.	Coatings; flooring; mortars.

\* Product may crystallize at room temperature storage, resulting in turbidity, haziness or separation. Warming will re-establish clarity.

## EPOXY RESIN MODIFIERS

Diluent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Equivalent Weight	Moisture Content (% max)	Typical Cure Schedule	Comments	Principal Applications
ANCAREZ® 2364	Acrylate-Functional Urethane Resin	<2	30,000	1.10	470	NA	ambient temp	100% reactive flexibilizer for epoxy systems. For use with epoxy resin on "A" side of formulation for high elongation, tear resistance and toughness while maintaining high strength and hardness. Excellent retention of properties at low temperatures, and good moisture resistance.	Applications where greater flexibility, toughness and elongation are required such as crack bridging, secondary containment membranes and impact-resistant coatings. Compliant with 21CFR 175.105. <sup>8</sup>
EPODIL® LV5	Hydrocarbon Resin	2 max	50	1.02	NA	0.2	ambient temp	Improves adhesion to most substrates, including oily metal, at addition levels of 5-10 PHR. Minimal effect on HDT and chemical resistance up to 15 PHR. Low toxicity. Improves trowelability of epoxy mortars. Add to resin or curing agent.	Solvent-free coatings and flooring; general-purpose, low-toxicity diluent; improves trowelability of epoxy mortars; may be incorporated in epoxy resin or hardener components; used to adjust mix ratios. Compliant with 21CFR 175.105. <sup>8</sup>

NA - Not Applicable

# POLYCARBAMIDE TECHNOLOGY

Amine curing agent technology for curing polyisocyanate resins. Amicure® IC series of products are specifically designed for use with polyisocyanate resins and other standard HDI trimer based polyisocyanates for industrial and institutional flooring. Clear and pigmented coatings based upon Amicure® IC curing agents exhibit very rapid hardness development, excellent low temperature cure, very good color and UV stability and excellent surface appearance.



Curing Agent	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Specific Gravity (@ 77°F)	Amine Equivalent Weight	Use Level (PHR) <sup>3</sup>	Viscosity Build (min @77°F, to 12,000 cP)	Thin Film Tack Free Time (min @ 77°F)	Thin Film Through Cure (h, @ 77°F)	Glass Transition Temp <sup>7</sup> (°F)	Typical Cure Schedule	Category	Comments	Principal Applications
AMICURE® IC-20	Polycarbamide	<2	500-1500	1.06	276-282	130-140	10	20-30	1	NA	ambient temp	Polycarbamide	Rapid property development at ambient and low temperature, excellent aesthetics and UV durability, great abrasion and chemical resistance, solvent free. Can be formulated with slow cure Amicure® IC40 to tailor the balance of cure speed and working time, and viscosity.	Commercial, industrial and decorative flooring; direct to metal coatings, protective coatings, OEM and refinish coatings.
AMICURE® IC-40	Polycarbamide	<2	500-1500	1.06	288-295	130-140	180-240	480-600	24	NA	ambient temp	Polycarbamide	Slow cure, excellent aesthetics and UV durability, great abrasion and chemical resistance, solvent free. Can be formulated with ultra fast cure Amicure® IC20, solvents and plasticizer to tailor the balance of cure speed and working time, and viscosity.	Commercial, industrial and decorative flooring; direct to metal coatings, protective coatings, OEM and refinish coatings.
AMICURE® IC-221	Modified Amine	≤215 APHA	350	1.06	376	185-195	22	45	2.5	118	ambient temp	Polycarbamide	Excellent aesthetics and UV durability. Rapid property development at ambient and low temperature; great abrasion and chemical resistance. Solvent free.	Commercial, industrial, and decorative flooring.
AMICURE® IC-321	Modified Amine	≤215 APHA	225	1.05	379	185-195	55	102	6-7	104	ambient temp	Polycarbamide	Excellent aesthetics and UV durability. Rapid property development at ambient temperature; Longer working time; great abrasion and chemical resistance. Solvent free.	Commercial, industrial, and decorative flooring.
AMICURE® IC-322	Modified Amine	≤215 APHA	105	1.08	379	190	60	75	7	104	ambient temp	Polycarbamide	Low gloss finish (satin) can be achieved with the addition of recommended matting agent. Excellent aesthetics and UV durability. Rapid property development at ambient temperature. Low viscosity and long working time; great abrasion and chemical resistance.	Commercial, industrial, and decorative flooring.

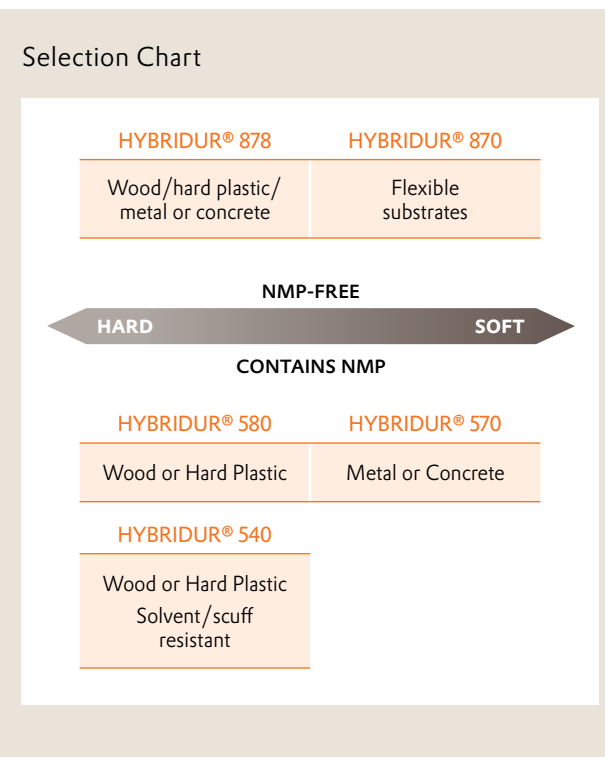
NA - Not Applicable

# High Performance Waterborne Urethane Coatings Resins

HYBRIDUR® Polymer Dispersions are a line of anionically stabilized urethane-acrylic hybrid polymers from Evonik Corporation. These innovative materials have been found to exhibit excellent wetting, adhesion, barrier and film properties when used in air dry, baked or crosslinked high-performance coatings on a wide variety of metal, wood, plastic and previously painted substrates. HYBRIDUR® dispersions offer the formulator a cost-effective alternative to standard polyurethane dispersions (PUDs) without sacrificing performance, and enhanced performance properties over blends of PUDs and acrylic emulsions in coatings for primer, topcoat, and clear coat applications.

HYBRIDUR® dispersions are easy to formulate and offer rapid dry times. They provide the same ease of use and VOC compliance of typical waterborne dispersions with the added benefits of outstanding barrier properties, durability and UV resistance in both air dry and baked systems.

These hybrid polymers are prepared by a proprietary process technology that leads to an intimacy of interaction between the polyurethane and acrylic structures that cannot be achieved by blending. They are targeted for use in high-performance, VOC-compliant coatings and ink applications.



Resin	Solids (%)	Viscosity Brookfield (cP)	pH	Freeze-Thaw Stability Cycles	Mechanical Stability	Hot Box Stability	Density (lb/gal)	Particle Size	Particle Charge	VOC lb/gal (g/L)	Comments	Principal Applications
HYBRIDUR® 540	40	50-250	7.5-9.0	10+	Good	Good	8.7	Colloidal	Anionic	0.54 (60)		Wood or hard plastic applications. Offer high solvent and scuff resistance.
HYBRIDUR® 570	40-42	50-150	7.5-8.5	10+	Good	Good	8.6	Colloidal	Anionic	1.35 (150)	Anionically stabilized urethane-acrylic hybrid polymers. Exhibit excellent wetting, adhesion, barrier and film properties when used in air dry, baked or crosslinked high performance coatings.	Metal or concrete applications
HYBRIDUR® 580	40-42	50-150	7.5-8.5	10+	Good	Good	8.7	Colloidal	Anionic	1.35 (150)		Wood or hard plastic applications. Compliant with 21CFR 175.105. <sup>8</sup>
HYBRIDUR® 870	40	<150	7.5-9.0	5	Good	Good	8.7	Colloidal	Anionic	0.25 (30)	NMP FREE. Anionically stabilized urethane-acrylic hybrid polymers. Exhibit excellent wetting, adhesion, barrier and film properties when used in air dry, baked or crosslinked high performance coatings.	Metal, concrete or more flexible applications. Compliant with 21CFR 175.105. <sup>8</sup>
HYBRIDUR® 878	40	<150	7.5-8.5	5	Good	Good	8.7	Colloidal	Anionic	0.20 (24)		Metal, concrete or more rigid applications. Compliant with 21CFR 175.105. <sup>8</sup>

NA - Not Applicable

# Adhesion Promoters for PVC & Acrylic Plastisols

The Evonik Corporation's Nourybond® binding agent product line is the broadest range of high-performance adhesion promoters for automotive PVC and acrylic plastisols in the world. The Nourybond® polyamidoamine and blocked isocyanate technologies provide solutions to the most demanding performance requirements.



Resin	Type	Color <sup>1</sup> (Gardner)	Viscosity <sup>2</sup> (cP @ 77°F)	Amine Value (mg KOH/g)	Recommended Loading (parts)	Typical Cure Schedule	Comments	Principal Applications
<b>NOURYBOND® 272</b>	Modified Polyamidoamine	10	15,000-35,000	185-250	1-4	30 min @ 130°C	Provides adhesion to a wide variety of automotive electrodeposition primers.	Underbody coatings and nonvisible seam sealers used in the manufacture of automobiles, trucks and buses.
<b>NOURYBOND® 276</b>	Modified Polyamidoamine	10	8,000-28,000	110-135	1-2	30 min @ 120°C	Provides adhesion to a wide variety of automotive electrodeposition primers after low-temperature bake. Excellent color stability and low viscosity.	Anti-chip primers, visible seam sealers and low-bake PVC plastisols used in the manufacture of automobiles, trucks and buses.
<b>NOURYBOND® 289</b>	Blocked Isocyanate	<2	30,000-50,000	NA	4-6	30 min @ 120°C	Provides adhesion to automotive electrodeposition primers. Excellent color stability, superior plastisol rheological performance and wet-on-wet paint capability.	Visible seam sealers and anti-chip primers used in the manufacture of automobiles, trucks and buses.
<b>NOURYBOND® 301</b>	Modified Polyamidoamine	< 12	1,000-1,500 @ 75°C	380-400	0.5-2.0	30 min @ 130°C	Provides adhesion to a wide variety of automotive electrodeposition primers.	Underbody coatings, nonvisible seam sealers, and anti-chip primers used in the manufacture of automobiles, trucks and buses.
<b>NOURYBOND® 368</b>	Modified Polyamidoamine	< 12	2,000-8,000	225-245	0.5-2.0	30 min @ 130°C	Provides adhesion to a wide variety of automotive electrodeposition primers.	Underbody coatings and sealers and nonvisible seam sealers used in the manufacture of automobiles, trucks and buses.

NA - Not Applicable



# Additives for Epoxy Systems

Evonik Corporation provides a diverse line of additives for the formulation of epoxy systems. Substrate wetting, defoaming and dispersion additives are common to many coating formulations, and other additives can be found at [www.coating-additives.com](http://www.coating-additives.com), including surface control, antistatic, rheology modification, anti-settling, and many more for a full range of effects and functionality.

## SUBSTRATE WETTING

Substrate wetting agents are specialty surface active products designed to provide consistent wetting of different surfaces and eliminate defects such as retraction, edge pull, craters, fish-eyes, orange peel and poor leveling. Evonik Corporation's TEGO® Wet, TEGO® Twin, and SURFYNOL® lines of surfactants and superwetters offer a full range of performance for all formulation types, substrates, and application methods.

## DEFOAMING/DEAERATION

Defoamers and deaerators are formulated additives designed to eliminate or reduce macro- and micro-foam during production, manufacture and application and prevent voids or bubbles in the finished product. Evonik Corporation's TEGO® Foamex and Airex lines of defoamers and deaerators offer a wide range of performance and foam control chemistries for all formulation types and application methods.

## WETTING AND DISPERSING

Wetting and dispersing additives provide stabilization of pigments and other solids in coating formulation, enabling the optimization of rheology, color development and color stability. Evonik Corporation's TEGO® Dispers line of wetting and dispersing additives offer performance for all system types providing the formulation of stable, low viscosity dispersions and direct grinds.

## LEVELING AND FLOW

Surface control additives are designed to optimize coating surface properties for improvement of appearance, elimination of poor leveling and defects such as craters and orange peel, as well as offer other attributes such as slip and anti-scratch properties. Evonik Corporation's TEGO® Flow and Glide additives provide excellent performance for the mitigation and control of surface properties in all epoxy coating applications.

## MATTING

Evonik Corporation's line of ACEMATT® matting agents provides efficient and effective control of sheen and gloss properties in all types of epoxy coatings

# SPECIALTY ADDITIVES FOR EPOXY SYSTEMS

Additive	Waterborne	Solventborne	100% solids	Activity	Chemical Description	Attributes
<b>DEFOAMERS/DEAERATORS</b>						
AIRASE® 4500	+++		+	100%	organic based concentrate, contains hydrophobic particles	Effective defoaming with a good balance of compatibility for all applications.
AIRASE 8070	+++	+	+	100%	polyether siloxane copolymer	Effective micro-foam control and highly suitable for spray applications. Recommended for medium- to high-viscosity formulations.
TEGO® FOAMEX 810	+++	+	+	100%	polyether siloxane copolymer, contains fumed silica	Universal grind stage defoamer preventing micro and macro foam.
TEGO® AIREX 901W	+++			100%	polyether siloxane copolymer, contains fumed silica	Effective micro-foam control and highly suitable for spray applications. Recommended for high-viscosity formulations.
TEGO® AIREX 900		+	+++	100%	organo-modified polysiloxane, contains fumed silica	Highly suitable for high build and high-viscosity applications for fast and efficient foam break. Excellent for 2k epoxy coatings.
TEGO® AIREX 922		+	+++	100%	formulation based on deaerating polymers, silicone free	Silicone free deaerator with excellent compatibility and strong defoaming. Ideal for high-build epoxy coatings. Efficient in low-shear applications.
TEGO® AIREX 931		+++	+	~ 1%	solution of a fluorosilicone in diisobutylketone	Suitable for a broad range of coating systems for inhibition of foam stabilization. Excellent in flooring applications.
TEGO® AIREX 944		+++	+++	100%	formulation based on deaerating organic polymers, with a tip of silicone	Suitable for a broad range of coating systems with excellent defoaming of micro and macro-foam. Ideal for high solid and 2k solvent-free formulations.
TEGO® AIREX 990		+++	+++	100%	formulation based on deaerating organic polymers, with a tip of silicone	Excellent for crater-sensitive applications and clear coats. Highly compatible deaerator for all application types
<b>WETTING AGENTS</b>						
SURFYNOL® 420	+++	+++	+++	100%	ethoxylated acetylenic based gemini surfactant	Suitable for all applications, providing wetting and foam control. Excellent compatibilizer and leveling agent for 100% epoxy systems.
TEGO® WET 270	+++	+++	+++	100%	polyether siloxane copolymer	Suitable for all applications, providing excellent anti-crater properties with flow promotion
DYNOL™ 980	+++	+	+++	100%	polyether siloxane copolymer	Suitable for all applications, providing exceptional dynamic substrate wetting and good flow and leveling properties.
TEGO® TWIN 4100	+++	+++		100%	siloxane-based gemini surfactant	Highly compatible and suitable for all applications, providing substrate wetting and anti-crater effects.
<b>FLOW AND LEVELING</b>						
TEGO® FLOW 425	+++	+++	+++	100%	polyether siloxane copolymer	Highly compatible flow and anti-crater additive
TEGO® GLIDE 450	+++	+++	+++	100%	polyether siloxane copolymer	Flow promotion, leveling and strong slip properties for all coating types.
TEGO® GLIDE 496	+++	+++	+++	100%	polyether siloxane copolymer	Anti-crater, leveling, and slip effect properties without compromising recoatability and compatibility for all coating types
TEGO® GLIDE B 1484		+++	+++	100%	polyether siloxane copolymer	Flow promotion, leveling and deaeration properties in solvent-free and solventborne coatings. Excellent in 2k epoxy flooring coating systems.
<b>ANTISTATIC</b>						
TEGO® ADDID 230	+++	+++	+++	100%	Formulation of solid salts and quaternary nitrogen compounds	Solvent-free anti-static additive used to increase the conductivity of coating formulations. Very good compatibility even at high dosages. Excellent suitability for clear coatings
<b>MATTING</b>						
ACEMATT® TS-100	+++	+++	+++		untreated thermal silica	Highly efficient matting for a broad range of coating types. Very high transparency.
ACEMATT® 3300	+++	+++	+++		after-treated thermal silica	Strong matting efficiency with high transparency and soft-feel effect. Suitable for a broad range of applications.
ACEMATT® OK 520	+++	+++	+		wax-treated, precipitated silica	Medium particle sized precipitated silica with very high compatibility for a broad range of industrial coatings
<b>PIGMENT DISPERSION</b>						
TEGO® DISPERS 652	+	+++	+++	100%	concentrate of a fatty acid derivative	Viscosity reduction and dispersion of inorganic pigments. Excellent for elimination of color float in epoxy coatings
TEGO® DISPERS 670		+++	+	40%	solution of a high molecular weight polymer	Fast pigment wetting, newtonian flow behavior and outstanding viscosity reduction for all kinds of pigments
TEGO® DISPERS 685		+++	+++	100%	high molecular weight polymer	Suitable for solventborne and 100% solids formulations. Stabilization of all pigment types.
TEGO® DISPERS 1010		+++	+++	100%	high molecular weight polymer	Outstanding color development for 100% solids epoxy flooring formulations.
TEGO® DISPERS 755W	+++			40%	aqueous solution of a copolymer with groups of high pigment affinity	Suitable for the dispersion of all types of pigments in waterborne coatings.
ZETASPERSE® 3800	+++			40%	aqueous solution of a copolymer with groups of high pigment affinity	Suitable for the dispersion of all types of pigments in waterborne coatings.
ZETASPERSE® 179	+++			70%	alcohol ethoxylate	Steric stabilizing additive for all types of pigments in waterborne coatings. Particularly effective in highly filled and high viscosity systems.

+++ Primary Recommendation

+ Alternative Recommendation

(Blank) May or may not be acceptable

NA - Not Applicable

## PRODUCT INDEX

### EPOXY ADDITIVES

AMICURE® 101	24-25
AMICURE® 1400B	48-49
AMICURE® CG-1200G	48-49
AMICURE® CG-325G	48-49
AMICURE® CG-NA	48-49
AMICURE® DBU-E	50-51
AMICURE® IC-20	56-57
AMICURE® IC-40	56-57
AMICURE® IC-221	56-57
AMICURE® IC-321	56-57
AMICURE® IC-322	56-57
AMICURE® UR	46-47
AMICURE® UR 10/30	46-47
AMICURE® UR 7/10	46-47
AMICURE® UR2T	46-47
ANCAMIDE® 2050	26, 30-31
ANCAMIDE® 2137	16-17
ANCAMIDE® 220	28-29
ANCAMIDE® 220-IPA-73	28-29
ANCAMIDE® 220-X-70	28-29
ANCAMIDE® 221	26, 28-29
ANCAMIDE® 221 IPA73	28-29
ANCAMIDE® 221-X-70	28-29
ANCAMIDE® 2349	16-17
ANCAMIDE® 2353	26, 30-31
ANCAMIDE® 2386	14, 16-17
ANCAMIDE® 2396	14, 16-17
ANCAMIDE® 2424	27, 30-31
ANCAMIDE® 2426	14, 16-17
ANCAMIDE® 2443	14, 16-17
ANCAMIDE® 2444	30-31
ANCAMIDE® 2445	30-31
ANCAMIDE® 2447	14, 16-17
ANCAMIDE® 2482	30-31
ANCAMIDE® 2830	30-31
ANCAMIDE® 260A	28-29
ANCAMIDE® 260TN	26, 28-29
ANCAMIDE® 261A	26, 28-29
ANCAMIDE® 350A	28-29
ANCAMIDE® 351A	26, 28-29
ANCAMIDE® 375A	28-29
ANCAMIDE® 400	28-29
ANCAMIDE® 500	16-17
ANCAMIDE® 501	16-17
ANCAMIDE® 502	16-17
ANCAMIDE® 503	14, 16-17
ANCAMIDE® 506	16-17
ANCAMIDE® 507	16-17

ANCAMIDE® 512	16-17
ANCAMIDE® 700-B-75	27-29
ANCAMIDE® 702-B-75	27-29
ANCAMIDE® 805	28-29
ANCAMIDE® 805	28-29
ANCAMIDE® 903MAV	16-17
ANCAMIDE® 910	26-27, 30-31
ANCAMIDE® 2634	26, 30-31
ANCAMIDE® 2652	26, 30-31
ANCAMIDE® 2767	30-31
ANCAMIDE® 2769	30-31
ANCAMIDE® 2781	16-17
ANCAMIDE® 2832	30-31
ANCAMIDE® 2864	30-31
ANCAMIDE® 2886	16-17
ANCAMIDE® 3200	30-31
ANCAMIDE® 3201	30-31
ANCAMINE® 1110	50-51
ANCAMINE® 1608	7, 8-9
ANCAMINE® 1618	20-21
ANCAMINE® 1637	7, 8-9
ANCAMINE® 1638	8-9
ANCAMINE® 1693	20-21
ANCAMINE® 1767	7, 8-9
ANCAMINE® 1768	7, 8-9
ANCAMINE® 1769	8-9
ANCAMINE® 1784	6, 8-9
ANCAMINE® 1856	6, 8-9
ANCAMINE® 1884	20-21
ANCAMINE® 1895	20-21
ANCAMINE® 1916	8-9
ANCAMINE® 1922A	12-13
ANCAMINE® 2014AS	40, 42-43
ANCAMINE® 2014FG	40, 42-43
ANCAMINE® 2049	24-25
ANCAMINE® 2071	8-9
ANCAMINE® 2072	20-21
ANCAMINE® 2074	20-21
ANCAMINE® 2089M	7, 8-9
ANCAMINE® 2143	18, 20-21

ANCAMINE® 2167	24-25
ANCAMINE® 2264	24-25
ANCAMINE® 2280	18, 20-21
ANCAMINE® 2286	18, 20-21
ANCAMINE® 2334	18, 20-21
ANCAMINE® 2337S	40, 42-43
ANCAMINE® 2390	6, 8-9
ANCAMINE® 2410B75	8-9
ANCAMINE® 2422	6, 8-9
ANCAMINE® 2423	18, 20-21
ANCAMINE® 2432	6, 8-9
ANCAMINE® 2441	40, 42-43
ANCAMINE® 2442	40, 42-43
ANCAMINE® 2450	24-25
ANCAMINE® 2458	8-9
ANCAMINE® 2481	10-11
ANCAMINE® 2489	18, 20-21
ANCAMINE® 2505	18, 20-21
ANCAMINE® 2519	18, 22-23
ANCAMINE® 2526	6, 10-11
ANCAMINE® 2557	10-11
ANCAMINE® 2579	18, 22-23
ANCAMINE® 2605	19, 22-23
ANCAMINE® 2609	6, 10-11
ANCAMINE® 2638	10-11
ANCAMINE® 2641	10-11
ANCAMINE® 2659	22-23
ANCAMINE® 2672	22-23
ANCAMINE® 2678	10-11
ANCAMINE® 2686	22-23
ANCAMINE® 2710	7, 12-13
ANCAMINE® 2719	10-11
ANCAMINE® 2726	18, 22-23
ANCAMINE® 2735	18, 22-23
ANCAMINE® 2738	10-11
ANCAMINE® 2739	6, 10-11
ANCAMINE® 2746	10-11
ANCAMINE® 2748	18, 22-23
ANCAMINE® 2749	22-23
ANCAMINE® 2764	18, 22-23



ANCAMINE® 2765	10-11
ANCAMINE® 2785	10-11
ANCAMINE® 2791	22-23
ANCAMINE® 2800	6, 10-11
ANCAMINE® 2803	6, 10-11
ANCAMINE® 2811	10-11
ANCAMINE® 2812	22-23
ANCAMINE® 2814	6, 10-11
ANCAMINE® 2836	6, 10-11
ANCAMINE® 2844	12-13
ANCAMINE® 2849	12-13
ANCAMINE® 2850	12-13
ANCAMINE® 2870	22-23
ANCAMINE® 2903	22-23
ANCAMINE® 2904	22-23
ANCAMINE® 2910	50-51
ANCAMINE® 2914UF	12-13
ANCAMINE® AD	8-9
ANCAMINE® AEP	12-13
ANCAMINE® DETA	12-13
ANCAMINE® K54	50-51
ANCAMINE® K61B	50-51
ANCAMINE® MCA	20-21
ANCAMINE® SUR-WET R	10-11
ANCAMINE® T	8-9
ANCAMINE® T-1	8-9
ANCAMINE® TEPA	12-13
ANCAMINE® TETA	12-13
ANCAREZ® 2364	54-55
ANCAREZ® AR555	39
ANCHOR® 1040	50-51
ANCHOR® 1115	50-51
ANQUAMINE® 100	32-37
ANQUAMINE® 287	32-37

ANQUAMINE® 360	32-37
ANQUAMINE® 401	32-37
ANQUAMINE® 419	32-37
ANQUAMINE® 701	32-37
ANQUAMINE® 721	32-37
ANQUAMINE® 728	32-37
ANQUAMINE® 731	32-37
CUREZOL® 1B2MZ	44-45
CUREZOL® 2E4MZ	44-45
CUREZOL® 2MA OK	44-45
CUREZOL® 2MZ-AZINE UNGROUND	44-45
CUREZOL® 2MZ-AZINE 5/7	44-45
CUREZOL® 2P4MZ	44-45
CUREZOL® 2PHZ-PW	44-45
CUREZOL® C17Z	44-45
EPODIL® 741	52-55
EPODIL® 742	52-55
EPODIL® 746	52-55
EPODIL® 748	52-55
EPODIL® 749	52-55
EPODIL® 750	52-55
EPODIL® 757	52-55
EPODIL® 761	52-55
EPODIL® 762	52-55
EPODIL® 781	52-55
EPODIL® LV5	52-55
HYBRIDUR® 540	58-59
HYBRIDUR® 570	58-59
HYBRIDUR® 580	58-59
HYBRIDUR® 870	58-59
HYBRIDUR® 878	58-59
IMICURE® AMI-1	44-45
IMICURE® AMI-2	44-45
IMICURE® EMI-24	44-45

### SPECIALTY ADDITIVES

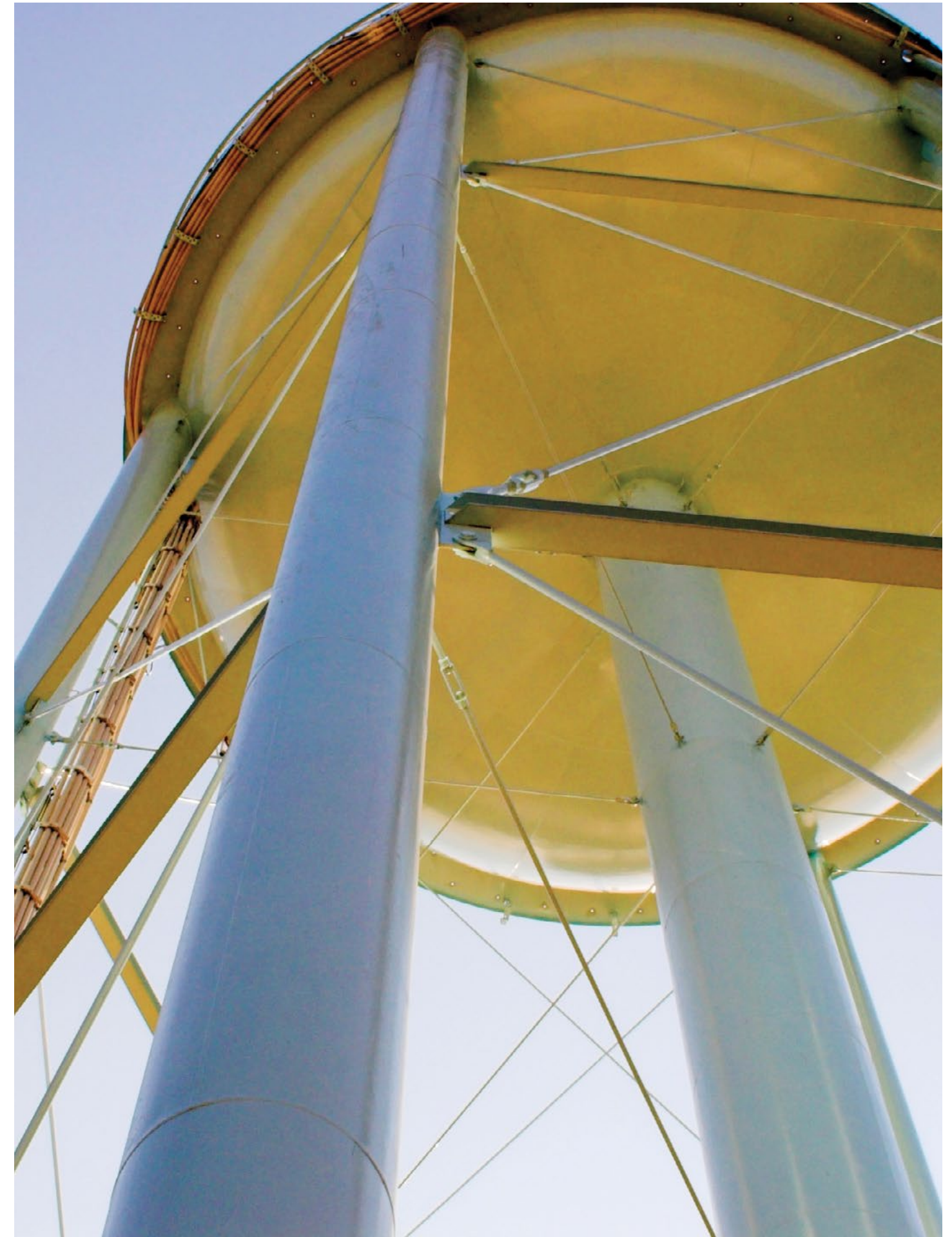
IMICURE® IMIDAZOLE	44-45
NOURYBOND® 272	60-61
NOURYBOND® 276	60-61
NOURYBOND® 289	60-61
NOURYBOND® 290	60-61
NOURYBOND® 301	60-61
NOURYBOND® 312	60-61
NOURYBOND® 346	60-61
NOURYBOND® 368	60-61
SUNMIDE® CX-1151	10-11
VESTAMIN® PACM	24-25
AIRASE® 4500	62-63
AIRASE® 5100	62-63
AIRASE® 5500	62-63
AIRASE® 5600	62-63
CARBOWET® 109	62-63
CARBOWET® GA100	62-63
CARBOWET® GA211	62-63
DYNOL™ 360	62-63
DYNOL™ 607	62-63
DYNOL™ 810	62-63
DYNOL™ 960	62-63
DYNOL™ 980	62-63
SURFYNOL® 420	62-63
SURFYNOL® DF110C	62-63
SURFYNOL® 107L	62-63
SURFYNOL® DF62	62-63
ZETASPERSE® 179	62-63
ZETASPERSE® 3100	62-63
ZETASPERSE® 3800	62-63

# Product Trademarks/Owners

Amicure®	Ancarez®	Curezol®*	Imicure®	Evonik Corporation * Curezol® is a registered trademark of Shikoku Chemical Corporation.
Airase®	Anchor®	Dynol™	Sunside®	
Ancamide®	Anquamine®	Epodil®	Surfynol®	
Ancamine®	Carbowet®	Hybridur®	ZetaSperse®	

## FOOTNOTES

1. ASTM D1544-80.
  2. Brookfield viscosity. ASTM D2196-10.
  3. Concentration with standard, undiluted, liquid Bisphenol A epoxy, EEW 182-192, e.g., Epon® 828 resin (Hexion), DER 331 resin (Olin).
  4. PHR: part by weight per 100 parts by weight of epoxy resin.
  5. Gel time or pot life in 150 g mass in air at 77°F for room temperature cures. Shelf life or working life at 77°F 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. Glass transition temperature (T<sub>g</sub>) per ASTM D3418-82. A stoichiometric amount of curing agent has been used with Bisphenol A (EEW=190) epoxy resin and cured for 7 days at 25°C and 50% relative humidity except for the unmodified cycloaliphatic amines (p 24) which used Epon® 826 (EEW=179-186) resin. Measurement has been done by differential scanning calorimetry (DSC) using a heating rate of 10°C/minute.
  8. 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 Corporation 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. Please see our publication number 125-06-013-GLB for food contact information. Contact Evonik Corporation for further assistance.
  9. With standard, solid Bisphenol A epoxy, EEW 450-575, e.g., Epon® 1001F resin (Hexion), DER® 661 resin (Olin) or Araldite® GT 7071 resin (Huntsman).
  10. Heat deflection temperature (HDT) to ASTM D648 at 264 psi after curing 7 days at 77°F only for room temperature curing systems. Longer cure times and particularly higher temperature post-cures yield much higher values. Results given for elevated-temperature (E.T.) curing systems are based on various E.T. cure schedules.
  11. Typical concentration range. Data given based on Anchor® 1040 curing agent (10 PHR), Anchor® 1115 curing agent (7.5 PHR).
  12. Cure schedule will depend on accelerator used with dicyandiamide.
  13. ASTM D1640
- NA = Not Applicable.



**EVONIK CORPORATION**

7201 Hamilton Blvd.  
Allentown, PA 18195  
+1 800 345-3148  
Outside U.S. and Canada +1 610 481-6799

**For Technical Information and Support:**

Americas: [CrosslinkersProdInfo@evonik.com](mailto:CrosslinkersProdInfo@evonik.com)  
Europe, Middle East, Asia:  
[apcse@evonik.com](mailto:apcse@evonik.com)

**For Samples:**

Americas: [Crosslinkers-Samples@evonik.com](mailto:Crosslinkers-Samples@evonik.com)  
Asia: [picasia@evonik.com](mailto:picasia@evonik.com)  
Europe, Middle East, Asia:  
[apcse@evonik.com](mailto:apcse@evonik.com)

**For Customer Service:**

US/Canada  
[crosslinkerscs@evonik.com](mailto:crosslinkerscs@evonik.com)

Latin America/South America  
[lachem@evonik.com](mailto:lachem@evonik.com)

Japan  
[pmdcsojp@evonik.com](mailto:pmdcsojp@evonik.com)

Asia  
[pmdcso@evonik.com](mailto:pmdcso@evonik.com)

APCS PMGP (Korea)  
[apcskr@evonik.com](mailto:apcskr@evonik.com)

Europe, Middle East, Asia  
[apcsep@evonik.com](mailto:apcsep@evonik.com)

The information contained herein is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto.

