

## Product information

# ANCAMINE<sup>®</sup> 2390

## Curing Agent

### DESCRIPTION

Ancamine 2390 curing agent is a low viscosity modified amine designed to be used with liquid epoxy resin. It is designed to give 1:1 mix ratios when used with standard liquid epoxy resins. It yields formulations with high elongation, strength, and hardness.

### TYPICAL PROPERTIES

Property	Value	Unit	Method
Appearance	Clear Liquid		
Color	2	Gardner	ASTM D1544-80
Viscosity @ 77°F	1,170	cP	ASTM D 445-83, Brookfield, RVTD, Spindle #4
Amine Value	213	mg KOH/g	Perchloric Acid Titration
Equivalent Wt/{H}	204		

### ADVANTAGES

- One-to-one mix ratios in dilute formulations
- Rapid thin film set
- High tear resistance, tensile strength, and elongation
- Good chemical and moisture resistance

### APPLICATIONS

Ancamine 2390 curing agent is especially suited for civil engineering applications such as joint sealants, crack bridging, and secondary containment membranes. It is also suitable for other applications requiring toughness such as potting compounds.

### SHELF LIFE

At least 24 months from the date of manufacture in sealed containers at ambient temperatures. Store away from excessive heat and humidity in tightly closed containers.

## STORAGE AND HANDLING

Refer to the Safety Data Sheet on Ancamine 2390 curing agent.

## TYPICAL CURE SCHEDULE

2-7 days at ambient temperatures.

## RECOMMENDED FORMULATIONS

Formulation* (Parts by Weight)	A	B	Method
<b>Resin Side</b>			
Bisphenol A-based Epoxy Resin (EEW=190)	80.00	100.00	
Epodil 748	20.00		
<b>Hardener Side</b>		107.37	
Ancamine 2390	100.00		
<b>Handling Properties</b>			
Formulation Mix Viscosity, cP	1,080	1,908	ASTM D 445-83, Brookfield, RVTD, Spindle #4
Gel Time, min. (150g mass)	30	19	Techne GT-4 Gelation Timer
Thin Film Set Time, hr, 75°F/ 50% RH	7.0	4.0	BK Drying Recorder
<b>Physical Properties @ 77°F</b>			
Shore D Hardness	55	70	ASTM D 2240-86
Tensile			ASTM D 638-86
Strength, psi	1,530	3,236	
Modulus, psi	33,800	120,563	
Elongation, %	55	54	
Tear Strength, lb/in.	82		ASTM D 1938
Tg, °F, DMA	-31/ 127		Glass Transition Temperature, Tan * maxima of Dynamic Mechanical Analysis, DMA
Cured Appearance	Clear	Opaque	
<b>Low Temperature Properties</b>			ASTM D 638-86
Strength, psi @ 14°F	3,240		
Modulus, psi @ 14°F	87,840		
Elongation, % @ 14°F	22		

\*Note: Samples cured for 7 days at 77°F before testing

Low viscosity in formulation A is achieved by using Epodil 748 epoxy diluent. Formulation B shows that without diluent, Ancamine 2390 gives a strength and modulus increase of two to three times while maintaining an elongation of greater than 50%. Formulation B shows an opaque appearance on cure.

Some of the proposed applications for Ancamine 2390 formulations may be exposed to extremely low temperatures where embrittlement is a concern. Formulation A was tested at 14°F to determine the impact on physical properties of this type of exposure. Tensile testing shows that formulation A retains a significant amount of its room temperature flexibility even at 14°F.

For applications requiring other than 55% elongation, refer to “Flexibilizing Epoxy Formulations“. This bulletin describes materials available from Air Products that give a wide range of flexibilized performance to meet a variety of application requirements.

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