

# Ancamine® 2759 Curing Agent

## DESCRIPTION

Ancamine 2759 curing agent is a modified cycloaliphatic polyamine intended for use as an ambient curing agent for liquid epoxy resin. Systems based on Ancamine 2759 curing agent deliver fast cure speed and high resistance to carbamation and water spotting. Ancamine 2759 curing agent can be used to formulate solvent-free topcoats or self leveling and screed floorings where high chemical resistance is required. The product is free of nonyl phenol.

## ADVANTAGES

- Fast cure speed at low temperature
- High resistance to carbamation
- High chemical resistance

## APPLICATIONS

- Industrial flooring, screeds, topcoats, primers and grouts
- High solids coatings

## SHELF LIFE

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

## PACKAGING AND HANDLING

Refer to the Safety Data Sheet for Ancamine 2759 curing agent.

## TYPICAL PROPERTIES

<b>Appearance</b>	Yellow liquid
<b>Colour<sup>1</sup> (Gardner)</b>	max 2
<b>Viscosity<sup>2</sup> @ 25°C, [mPa.s]</b>	250-400
<b>Amine Value<sup>3</sup> (mg KOH/g)</b>	290-320
<b>Specific Gravity @ 21°C</b>	1.04
<b>Equivalent Wt/{H}</b>	95
<b>Recommended use Level<sup>4</sup> [PHR]</b>	50

## TYPICAL HANDLING PROPERTIES<sup>4</sup>

<b>Gel Time<sup>5</sup> @ 25°C (min)</b>	20 - 25
<b>Thin Film Set Time<sup>6</sup> @ 25°C (h)</b>	4.0
<b>Hardness Shore D<sup>7</sup> 24 h / 7 d @ 25°C</b>	80 / 85
<b>Hardness Shore D<sup>7</sup> 24 h / 7 d @ 10°C</b>	78 / 82
<b>Typical cure schedule</b>	2-7 days

## TYPICAL PERFORMANCE PROPERTIES<sup>4</sup>

<b>Compressive Strength<sup>8</sup> (MPa)</b>	85
<b>Carbamation Resistance<sup>9</sup> @ 25 °C</b>	5

Footnotes:

- (1) ASTM D 1544-80
- (2) Brookfield RVTD, spindle 4
- (3) Perchloric Acid Titration
- (4) Cured with bisphenol-A based epoxy resin (EEW=190)
- (5) Techne GT-3 Gelation Timer, 150 g mix
- (6) ASTM D 5895 — BK Drying Recorder, Phase 3
- (7) ASTM D 2240
- (8) ASTM D 695
- (9) ISO 2812 (wet patch method), Scale 1-5, 5=best

## SUPPLEMENTARY DATA

### Ancamine 2759 Curing Agent Characteristics and Applications

For use over Epoxy Primers and midcoats, providing a unique combination of fast return to service, low temperature cure, good carbamation resistance and good chemical resistance for industrial floor applications.

The supplementary data outlines several product features of Ancamine 2759 curing agent in combination with diluted and undiluted epoxy resin. As a point of reference, performance of Ancamine 2759 curing agent is benchmarked against incumbent cycloaliphatic amine curing agents, "Cyclo-B" and "Cyclo-C". Cyclo-B is an industrial standard cycloaliphatic curing agent for ambient temperature conditions; Cyclo-C is an accelerated cycloaliphatic curing agent, allowing low temperature cure down to 10°C while offering working time, aesthetics and cure speed. Starting point formulations for flooring application using Ancamine 2759 curing agent are included at the end of the technical datasheet. Tables 1 and 2 summarize the basic properties of the curing agents evaluated in this technical datasheet.

### Handling and cure speed properties

The coating and self-leveling flooring systems based on Ancamine 2759 curing agent offer fast property development, allowing for a rapid return to service. The property development is demonstrated at 23 °C and 10 °C indicating that even at low temperatures the system will produce quick hardness build. Clear coatings based on Ancamine 2759 curing agent provide good cure at both ambient and sub ambient conditions (15°C) and are comparable to Cyclo-C. This is supported by cure speed results using a BK Drying Time Recorder as shown in Table 1. In addition, the cure speed also results in rapid mechanical property build in both coatings and thick castings. This is demonstrated by the Persoz pendulum hardness development and Shore D build compared to Cyclo-A.

**TABLE 1: HANDLING AND CURE SPEED PROPERTIES OF ANCAMINE 2759 CURING AGENT IN COMBINATION WITH UNDILUTED DGEBA EPOXY RESIN**

DGEBA, EEW187, $\eta$ 12 Pa.s			Ancamine 2759	Cyclo-B	Cyclo-C
AHEW/{H}			95	115	95
<b>Ambient Temperature (23°C – 60% RH)</b>					
Gelation Time	150g mix	minutes	23	50	25
Mix Viscosity		mPa.s	1750	2950	1700
TFST	Phase 2 / Phase 3	h	3.5 / 4.5	6.0 / 7.5	3.5 / 4.5
Persoz Pendulum	Day 1 / Day 7	s	230 / 340	270 / 350	220 / 330
Shore D Build	16h / 24h / Day 7		82D/85D/86D	80D/83D/84D	82D/85D/86D
Carbamation	Day 1	1-5, 5 best	5	4	5
<b>Low Temperature (10°C – 60% RH)</b>					
TFST	Phase 2 / Phase 3	h	6.5 / 10	13 / 18	6.5 / 10
Persoz Pendulum	Day 1 / Day 7	s	175 / 300	100 / 300	160 / 290
Shore D Build	24h / 48h / Day 7		84D/85D/86D	30D/71D/80D	83D/85D/86D
Carbamation	Day 2	1-5, 5 best	2	1	1

**TABLE 2: HANDLING AND CURE SPEED PROPERTIES OF ANCAMINE 2759 CURING AGENT IN COMBINATION WITH EPODIL 748 REACTIVE DILUENTS DILUTED DGEBA/F EPOXY RESIN**

DGEBA/F/Epodil 748, EEW195, $\eta$ 900 mPa.s			Ancamine 2759	Cyclo-B	Cyclo-C
AHEW/{H}			95	115	95
<b>Ambient Temperature (23°C – 60% RH)</b>					
Gelation Time	150g mix	minutes	30	80	30
Mix Viscosity		mPa.s	450	600	425
TFST	Phase 2 / Phase 3	h	6.5 / 7.5	8.5 / 11	7.0 / 7.5
PersoZ Pendulum	Day 1 / Day 7	s	75 / 240	90 / 290	75 / 220
Shore D Build	16h / 24h / Day 7		65D/75D/81D	70A/55D/71D	55D/67D/81D
Carbamation	Day 1	1-5, 5 best	5	4	5
<b>Low Temperature (10°C – 60% RH)</b>					
TFST	Phase 2 / Phase 3	h	16 / 20	24 / 30	16 / 20
PersoZ Pendulum	Day 1 / Day 7	s	40 / 100	50 / 210	35 / 100
Shore D Build	24h / 48h / Day 7		50D/75D/81D	—/42D/70D	40D/73D/75D
Carbamation	Day 2	1-5, 5 best	3	1	1

## TRADEMARK REFERENCE

Ancamine® 2759 Curing Agent Ancarez™ RZ4305 Epoxy Resin Dynol 980™ Surfactant Tego® Airex 990	Evonik
Kronos® 2160	Kronos International, Inc.
Bayferrox® 318M	Bayer
Elfex® 415 Pigment Black	Cabot Corporation
Barytmehl F Blanc Fixe Micro®	Sachtleben Chemie GmbH

## STARTING POINT FORMULATIONS

### FORMULATION 1: GREY TOPCOAT

Part A	Parts by Weight	Supplier
1. Ancamine 2759	22.1	Evonik
Part B		
2. Ancarez RZ4305	44.2	Evonik
3. Tego Airex 990	0.2	Evonik
4. Kronos 2160	22.2	Kronos
5. Elfex 415	0.2	Cabot
6. Blanc Fixe Micro	11.1	Sachtleben Chemie
<b>Instructions:</b>		
• Add components 2-3 and mix until homogeneous;		
• Charge 4-6 at low shear following by grinding at high shear rate		
<b>TOTAL PARTS</b>	100.0	

### Mixing and Application Instructions

Add component A to component B and mix for 1-2 minutes using moderate shear mechanical mixing equipment to produce a homogenous liquid. The primer can be applied by brush, roller or squeegee.

### TECHNICAL DATA

Mix Ratio A/B (wgt)	22:78	Potlife by double viscosity (min.)	25-30
Mix Ratio A/B (volume)	32:68		
Density (g/ml)		Dry Times (h)	
- Part A	1.0	- Dry to Touch	6.5
- Part B	1.6	- Hard Dry	8.5
- Total Mix A/B	1.4	- Thumb Twist Dry	9.0

**Ancamine® 2759** Curing Agent**FORMULATION 2: GREY SELF-LEVELLING FLOOR**

Part A	Parts by Weight	Supplier
1. Ancamine 2759	10.0	Evonik
Part B		
2. Ancarez RZ4305	20.0	Evonik
3. Tego Airex 990	0.2	Evonik
4. Dynol 980	0.8	Evonik
5. Kronos 2160	6.0	Kronos
6. Bayferrox 318M	2.0	Lanxess
7. Barytmehl F	16.0	Sachtleben Chemie
<b>Instructions:</b>		
<ul style="list-style-type: none"> <li>• Add components 2-4 and mix until homogeneous;</li> <li>• Charge 5-7 at low shear following by grinding at high shear rate</li> </ul>		
Part C		
8. Quartz M34	45.0	Sibelco
<b>TOTAL PARTS</b>	<b>100.0</b>	

**Mixing and Application Instructions**

Add component A to component B and mix for 1-2 minutes using moderate shear mechanical mixing equipment to produce a homogenous liquid. Add component C to the mixture and continue to mix at low shear for another 1-2 minutes to complete the mixture preparation.

**Application Instruction**

Primed substrate is recommended for optimum flow and leveling. Following the mixing instructions, the self-levelling floor system is ready to apply onto (primed) concrete substrates using a squeegee or similar tool to spread the material. A subsequent spike rolling to promote de-aeration is optional.

**TECHNICAL DATA**

Mix Ratio A/B/C (wgt)	22:78	Potlife by double viscosity (min.)	25-30
Mix Ratio A/B/C (volume)	32:68		
Density (g/ml)	1.0	Walk-on time (h)	<16
- Part A	1.6	- By Shore D (3 mm, 23°C)	24
- Part B	1.4	- By Shore D (3 mm, 10°C)	
- Total Mix A/B			

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