Ancamine® 2735 Curing Agent

Description

Ancamine 2735 curing agent is a modified cycloaliphatic polyamine. This low viscosity, low color curing agent is intended for ambient cure of liquid epoxy resin, but can cure resin systems down to 5 °C.

Advantages

- Outstanding yellowing resistance
- Low color
- Fast cure speed and hardness build at ambient and low temperature
- Low viscosity
- Very good chemical and mechanical resistance
- Good carbamation resistance

Applications

- Industrial and decorative self leveling flooring
- High solids and solvent free coatings

Storage 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. Do not freeze.

Handling Precautions

Refer to the material safety data sheet for Ancamine 2735 curing agent.

Typical Properties	
Appearance	Light yellow liquid
Color [1] (Gardner)	1-2
Viscosity 2 @ 25 °C (cPs)	<100
Amine Value (mg KOH/g)[3]	300
Specific Gravity, 21 °C	0.99
Equivalent Wt/{H}	95
Recommended use level (PHR) [4]	50

Typical Handling Properties*	
Gel Time,150 g mix, 25 °C (min)[5]	25
Thin Film Set Time, 25 °C (h) [6]	4.5
Hardness Shore D, 25 °C (24 h) [7]	85
Hardness Shore D,10 °C (24 h) [7]	75

Typical cure schedule: 2-7 days at ambient

1 ASTM D 1544-80
2 ASTM D 2196-05, Brookfield RVTD, Spindle 4
3 Perchloric Acid Titration
4 Bisphenol A diglycidyl ether resin (EEW=190)
5 Techne GT-3 Gelation Timer
6 BK Drying Recorder Phase III
7 DIN 53505

Supplementary Data

This supplementary data outlines several product features of Ancamine 2735 curing agent in combination with standard bisphenol A diglycidyl ether resin (BADGE) resin (EEW=190). Table 1 provides basic handling properties of Ancamine 2735 curing agent with BADGE resin at ambient and low temperatures. As shown, the product can provide very good cure at ambient conditions with very low blush. The rate of cure slows at 10 °C, but can still provide for complete cure at this low temperature with a 16 hour walk on time. Ancamine 2609 or Ancamine 2432 curing agents can be utilized as co curing agent to facilitate faster hardness build, if necessary at lower temperatures. Films cured with Ancamine 2735 curing agent can also exhibit very good color stability when exposed to UV light. As shown in Figure 1, films cured with Ancamine 2735 curing agent can have improved color stability over Ancamine 1618 curing agent, a standard cycloaliphatic, and compare favorably to an industry standard color stable cycloaliphatic like Ancamine 2074 curing agent.

Table 1 –
Properties of Ancamine 2735 curing agent with BADGE resin (EEW=190).

Cure Temperature		23 °C	10 °C
Thin film set time (hr)		4.5	11
Carbamation Resistance[1]	24 hr	5	2
Gloss on Glass 20 °/60 °	24 hr	181/157	32/55
Shore D	16h/24h/Day 7	84/85/85	60/73/85

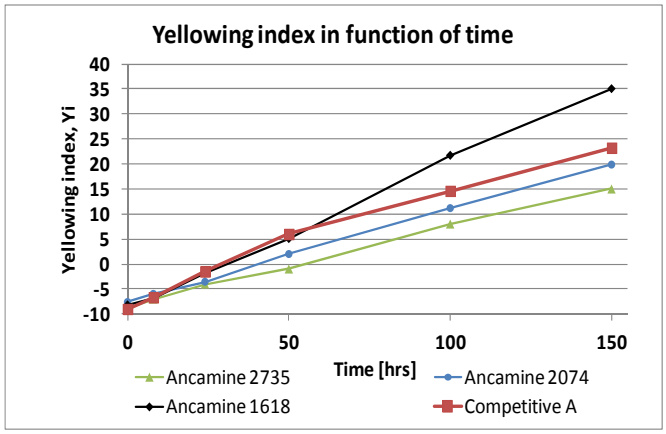

Figure 1. *Yellowing index versus time of clear coats over white standards.*

Formulating tips for improved surface appearance and leveling

Coatings and castings based on Ancamine 2735 curing agent show improved performance when utilizing diluted resin systems and additives for surface appearance and leveling. Utilizing 5-10% Epodil® 748 reactive diluent will improve carbamation resistance of films. A surface appearance additive that demonstrates good performance in combination with Ancamine 2735 curing agent is Surfynol® DF-62 defoamer, but similar additives may be used. To eliminate additive incompatibility issues, it is important to thoroughly mix the additive with epoxy resin or curing agent. A starting point formulation for a clear coat using Ancamine® 2735 curing agent is provided in Table 2.

Table 2 –
Clear coat formulation based on Ancamine 2735 Curing Agent

	Parts by Weight
Part A	
Bisphenol-A Epoxy Resin, EEW 190	90
Epodil 748 Reactive Diluent, EEW 290	10
Part B	
Ancamine 2735 curing agent, AHEW 95	47.5
Wetting agent	0.7
Total	148.2

Chemical Resistance

A study testing resistance to spilled chemicals was conducted with curing agent formulated with a 90% bis-A resin (EEW=190) and 10% Epodil 748 diluent (C12–C14 alkyl glycidyl ether) blend. Samples were cured for sevenseven days at 23 °C; two samples were tested for each reagent. The immersion/recovery schedule for the testing is shown in Table 3. Percentage weight change and Shore D hardness were measured after each of the immersion periods. The samples were then allowed to recover before re-immersion for the next time period. Hardness retention is relevant in flooring applications, where it indicates the ability of the floor to support traffic after exposure to chemical spills. Results of this study are presented in Figures 2 and 3 on next page.

Table 3 –
Test Method Schedule

Castings of 1/8" thickness are immersed for specified time period.
Sample is then removed, weighed, and hardness tested immediately.
Sample is then allowed to recover for specified time before re-immersion.
3 hr imm → test → 24 hr recover → 24 hr imm → test → 24 hr recover → 3 day imm → test →3 day recover → 7 day imm → test → 7 day recover

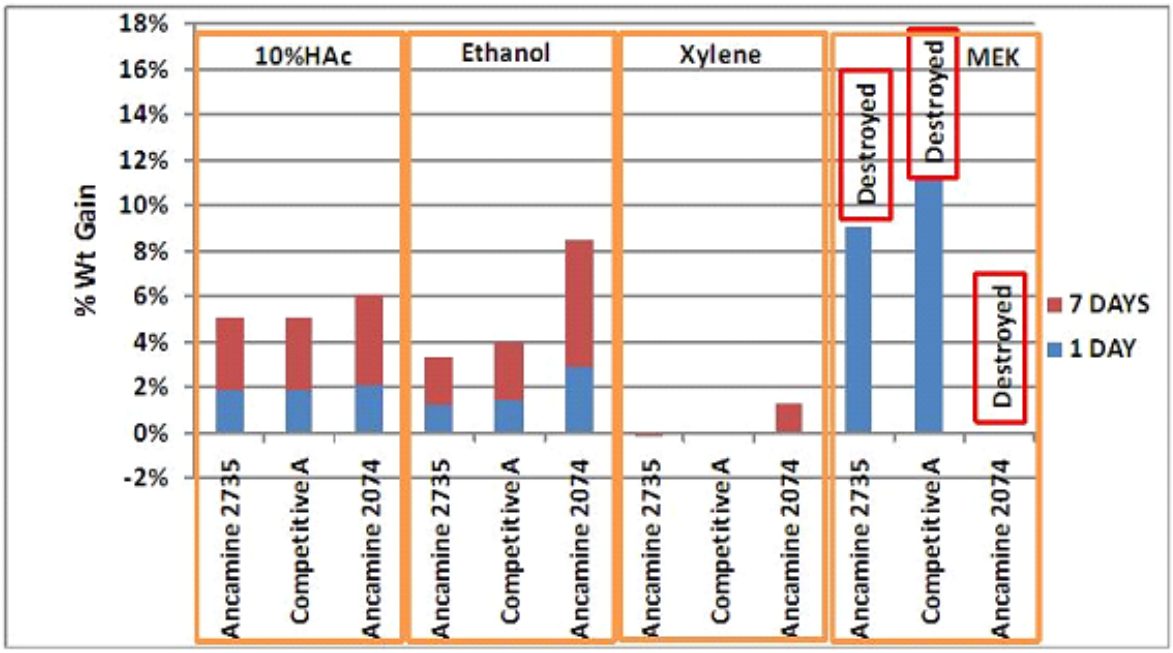

Figure 2: *Immersion chemical resistance, percent weight gain*

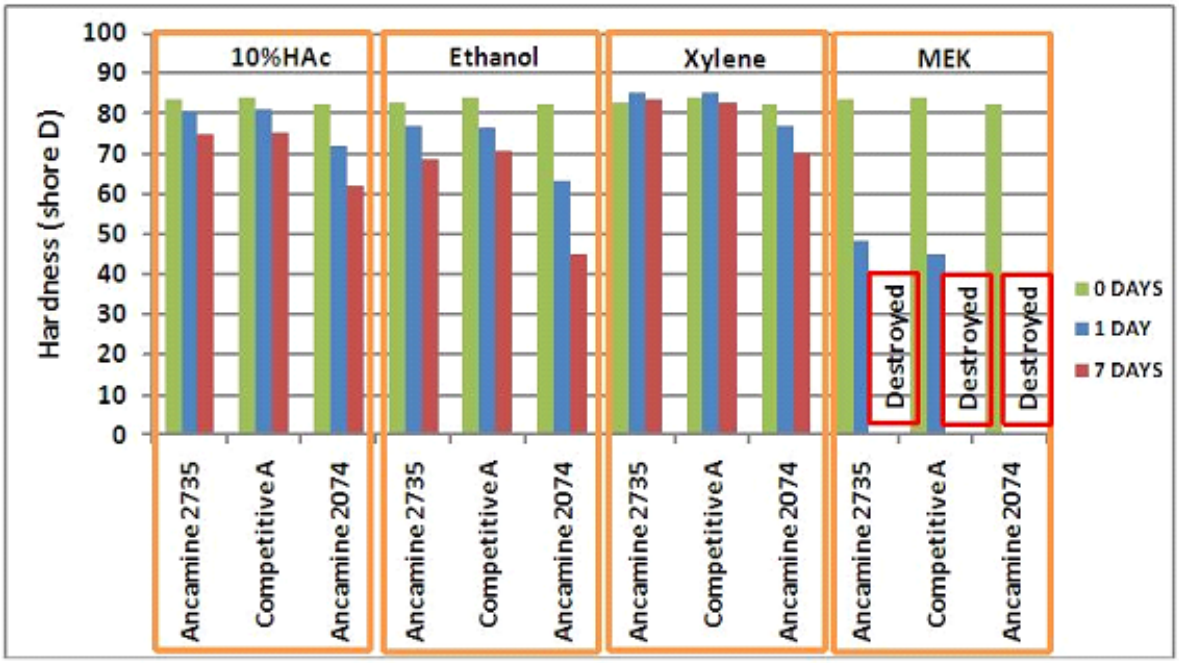

Figure 3: *Immersion chemical resistance, shore D hardness*

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