

Product information

ANCAMIDE[®] 2652

Curing Agent

DESCRIPTION

Ancamide 2652 curing agent is a special polyamide adduct designed for use with liquid epoxy resins in two-part, ambient-cure coatings specifically developed to provide Long overcoatability with epoxy and alternative resin technology.

TYPICAL PROPERTIES

Property	Value	Unit	Method
Appearance	Clear amber liquid		
Colour	7+	Gardner	ASTM D 1544-80
Viscosity @ 25°C	1,740	mPa.s	ASTM D-445-83, Brookfield, RVTD, Spindle 4
Amine Value	132	mg KOH/g	Perchloric Acid Titration
Specific Gravity @ 21°C	0.98		ASTM D 1475-85
Flash Point (closed cup)	37	°C	Seta Flash Closed Cup
Theoretical Equivalent Wt/{H}	250		
Recommended Use Level	90	PHR	EEW=190*

* Preferred loading of 90 phr (70% stoichiometry) for optimum overcoatability

ADVANTAGES

- Long overcoatability
- Good corrosion resistance
- Fast dry and cure
- Moderate viscosity
- Good flexibility

APPLICATIONS

- High-solids marine and maintenance coatings
- High-solids lining 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.

STORAGE AND HANDLING

Refer to the Material Safety Data Sheet for Ancamide 2652 curing agent.

TYPICAL CURE SCHEDULE

7 days at ambient temperature.

TYPICAL HANDLING PROPERTIES (1*)

Property	Value	Unit	Method
Use Level	90	phr	
Thin Film Set Time			BK Drying Recorder
Tack Free @ 25°C	5	h	
Hard Dry @ 25°C	13	h	
Pencil Hardness @ 25°C	F		

TYPICAL PERFORMANCE

Property	Value	Unit	Method
Use Level	90	phr	
Thin Film Set Time			BK Drying Recorder
Tack Free @ 25°C	5	h	
Hard Dry @ 25°C	13	h	
Pencil Hardness @ 25°C	F		

1* Ancamide 2652 curing agent formulated with DGEBA (EEW=190) liquid epoxy resin.

2* DGEBA (EEW=190) based Paint: DGEBA/Cardura E-10/Talc/TiO₂/Xylene/n-Butanol =39.2/9.8/36.7/4.1/5.1/5.1

Testing Method:

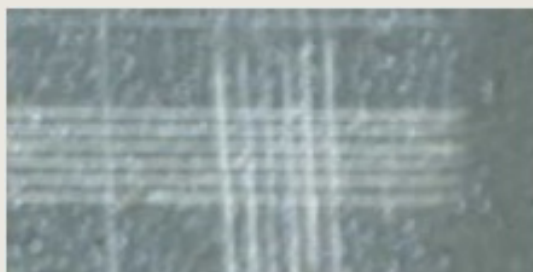
- 1)Apply coating on sand blasted steel (200μ-wet)
- 2)Place in Weathering (1 day-84 days)
- 3)Overcoat with coating after exposure (200μ-wet)
- 4)Age system at 25 °C, 7 days
- 5)Immersion test in water at 25 °C, 7 days
- 6)Assess damage area

Rating: 0%→10, 20%→8, 40%→6, 60%→4, 80%→2, 100%→0

SUPPLEMENTARY DATA

OVERCOATABILITY: Ancamide 2652 is specifically formulated for long overcoatability. Per the data on the previous page, for both epoxy on epoxy and polyurethane on epoxy, the overcoat window is longer than 3 months.

The below test gives an example of epoxy on epoxy overcoatability with a standard crosshatch adhesion test and compares to a standard polyamide.



Ancamide 2652
12 weeks exposure
Recoatability = 10



Standard Polyamide
12 weeks exposure
Recoatability = 1

Recoatability scale 10 = best, 0 = worst.

CATHODIC DISBONDMENT: The increased use of cathodic protection in pipelines, ships, and other structures places additional demands on coating systems.

Cathodic disbondment is a phenomenon during which a coating used in a cathodic protection service loses adhesion with the substrate metal. Cathodic disbondment can be affected by the coating formulation (including the curing agent), the extent of cure and coating thickness.

Cathodic protection prevents corrosion by converting the asset from an anode to a cathode using a connected sacrificial material to act as the anode. An electrical current may also be necessary.

Evonik used industry standard ASTM G 42 to challenge Ancamide 2652 in a primer formulation for cathodic disbondment. Designed to simulate pipeline coatings under elevated temperature, ASTM G42 calls for a standard coating formulation at 30-35 mil thickness to be immersed in an electrolyte solution for 28 days at 60°C. During the test, the reference and applied voltages were recorded along with the impressed current. After immersion, the panels were then washed, visually inspected, and attempts were made to remove the coating. The extent of disbondment was measured.

The results were as follows, indicating suitability of formulations using Ancamide 2652 for cathodic protection service.

Property	ANCAMIDE 2652
Delamination	None
Blistering	None
Observed corrosion	None
Recommendation	Recommended for CD applications

ANCAMIDE 2652 BEFORE AND AFTER RADIAL DISBONDMENT TEST



APPENDIX 1: The formulation parameters were as follows:

- Standard LER (EEW 190; DER 331 or Epon 828)
- PVC=18-23%

Part A	Weight (kg)	Volume (gal)
Epon 828	327.30	33.74
Nuosperse 657	5.24	0.68
Xylene	70.04	9.68
MIBK	32.73	4.89
Aromatic 100	72.01	9.88
TiO ₂	130.92	3.93
Talcron MP 10-52	399.31	17.10
Part B	Weight (kg)	Volume (gal)
Ancamide 2652	294	3850

TEST PARAMETERS: Test parameters included both formulation parameters and cathodic disbonding test parameters.

The cathodic disbonding test parameters:

- 28 days of immersion at a constant 60°C
- Coating thickness of 30-35 mil
- Panel construction: hot rolled sand blasted steel
- Reference voltage: 1.5V
- 3% electrolyte solution comprised of 1 wt % each of: NaCl, Na₂SO₄, Na₂CO₃
- Reference electrode: Ag/Cl
- Holiday diameter: 1/4 inch

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