

Accelerator 3130

Product Description

Accelerator 3130 is used to accelerate the reaction (cure time) between epoxy resins and amine hardeners. It is recommended for solvent-free, solvent based, and waterborne coatings cured at ambient and low temperatures. The activity of Accelerator 3130 is system selective.

Applications

Accelerator 3130 generally shows good compatibility with amine hardeners and should be added to the hardener component. When using this unique accelerator, there is no need to adjust the resin to hardener ratio. Therefore, it is ideal for use as a drop-in accelerator, and it allows a formulator to easily adjust an existing system for colder weather. Accelerator 3130 is effective in solvent-free and high solids coatings based on selected cycloaliphatic, polyamine, phenalkamine, and polyether urethanamine curing agents. It is also very effective in accelerating the cure of "Type-1" epoxy resin crosslinked with polyamides. Curing times are drastically reduced at 23°C and 5°C. To obtain shorter through cure, a combination of Accelerator 3130 with Accelerator 960-1 (tridimethylaminomethyl phenol) is recommended. Tertiary amine accelerators, when used as the sole accelerator, tend to increase the brittleness and reduce adhesion of the coating film. Accelerator 3130, however, has little negative effect on mechanical properties and corrosion resistance when used at recommended levels. Resistance to alcohols and acids is decreased slightly, otherwise chemical resistance is unaltered and well within what is required of coatings to protect against atmospheric corrosion. In coatings containing Accelerator 3130, surface tackiness is eliminated. In thick coatings (>5 mm) exotherms could occur at high levels of accelerator.

Features

- Good compatibility with amine hardeners
- Can be used as a drop-in accelerator
- Reduce surface tackiness
- Good for low temperature and waterborne systems

Typical Properties*

Property	Value
Appearance	Clear or slightly hazy with a trace of white deposit
Color, Gardner, max	3
Viscosity @ 25°C, cP	10 - 100
Solids content, %	38 - 41
Solvent	Ethanol and traces of water
Density @ 20°C, g/cm ³	1.17
Flash point, closed cup, °C	19

*Typical properties are based on Huntsman's test methods. Copies are available upon request.

Processing and Typical Physical Properties

Unless otherwise stated, the data were determined with typical production batches using standard test methods. They are typical values only, and do not constitute a product specification.

Coating properties, such as pencil hardness, x-cut adhesion, and impact resistance, were tested on 10-mil samples, exposed 7 days @ 23°C / 50% relative humidity.

Accelerator 3130 in Phenalkamine, Solvent-based Coating

Product/Property	Formulation 1	Formulation 2	Formulation 3
Araldite [®] GZ 471 KX 75 Resin, ¹ pbw	100	100	100
Aradur [®] 3460 Curing Agent, pbw	25	25	25
Accelerator 3130, pbw	-	1	3
Mixed viscosity, ² 25°C, cP	> 4000	> 4000	> 4000
Gel time, ³ 100 g, 23°C, min	270	165	62
Tack-free time, ⁴ h			
@ 23°C / 50% RH	4.5	2.0	1.5
@ 5°C / 80%	11.0	8.0	7.0
Cure-through time, ⁴ h			
@ 23°C / 50% RH	6.0	3.5	2.5
@ 5°C / 80%	17.0	15.0	11.5
Film appearance ⁴			
@ 23°C / 50% RH	Glossy	Glossy	Glossy
@ 5°C / 80%	Semi-gloss	Semi-gloss	Semi-gloss
Blushing ⁵			
@ 23°C / 50% RH	None	None	None
@ 5°C / 80%	None	Slight	Slight

Pencil hardness ⁶	B	B	B
X-Cut adhesion ⁷	5A	5A	4A
Impact resistance ⁸ (Direct/Rev.), in·lb	>160 / 140	140 / 120	70 / 30

¹Solid bisphenol-A epoxy resin solution (epoxy equivalent weight: 450 – 530)

²ASTM D4440 (ICI Cone & Plate)

³Tested by TECAM[®] gelation timer

⁴Tested by Gardner[®] Circular Drying Time Recorder on a 10 mil wet coating

⁵Visual

⁶ASTM D3363

⁷ASTM D3359

⁸ASTM D2794

Accelerator 3130 in Cycloaliphatic, Solvent-free Coating

Product/Property	Formulation 1	Formulation 2	Formulation 3
Araldite [®] GY 6010 Resin, ⁹ pbw	100	100	100
Aradur [®] 2975 Curing Agent, pbw	60	60	60
Accelerator 3130, pbw	-	1	3
Mixed viscosity, 25°C, cP	> 4000	> 4000	> 4000
Gel time, 100 g, 23°C, min	86	34	14
Tack-free time, h			
@ 23°C / 50% RH	5.0	2.0	1.5
@ 5°C / 80%	8.0	5.0	2.5
Cure-through time, h			
@ 23°C / 50% RH	7.0	3.0	2.0
@ 5°C / 80%	15.0	12.0	7.0
Film appearance			
@ 23°C / 50% RH	Glossy	Glossy	Glossy
@ 5°C / 80%	Semi-gloss	Semi-gloss	Semi-gloss
Blushing			
@ 23°C / 50% RH	None	None	None
@ 5°C / 80%	None	None	None
Pencil hardness	H	H	H
X-Cut adhesion	5A	3A	3A
Impact resistance (Direct/Rev.), in·lb	16 / 0	16 / 0	14 / 0

⁹Standard bisphenol-A liquid epoxy resin (epoxy equivalent weight: 182 – 192)

Accelerator 3130 in combination with Accelerator 960-1 in Polyamidoamine Coating

Product/Property	Formulation 1	Formulation 2	Formulation 3	Formulation 4
Araldite® GZ 471 X 75 Resin, pbw	100	100	100	100
Aradur® 825-2 Curing Agent, pbw	20	20	20	20
Accelerator 3130, pbw	-	3	-	3
Accelerator 960-1, pbw	-	-	3	3
Mixed viscosity, 25°C, cP	> 4000	> 4000	> 4000	> 4000
Gel time, 100 g, 23°C, min	413	361	215	185
Tack-free time, h @ 23°C / 50% RH @ 5°C / 80%	8.0 15.0	4.0 7.0	3.5 7.0	1.5 5.0
Cure-through time, h @ 23°C / 50% RH @ 5°C / 80%	9.5 > 24.0	7.5 > 24.0	5.0 20.0	4.5 16.0
Film appearance @ 23°C / 50% RH @ 5°C / 80%	Glossy Glossy	Glossy Glossy	Glossy Glossy	Glossy Glossy
Blushing @ 23°C / 50% RH @ 5°C / 80%	None None	None None	None None	None None
Pencil hardness	HB	H	H	H
X-Cut adhesion	5A	5A	5A	5A
Impact resistance (Direct/Rev.), in·lb	120 / 100	80 / 20	40 / 18	80 / 20

Storage

Accelerator 3130 should be stored in a dry place, in the sealed original container, at temperatures between 2°C and 40°C (36°F and 104°F). Under these storage conditions, the shelf life is **1 year** (from date of manufacture).

At temperatures below 5°C, white crystals may develop. Mild heating (40°C) will eliminate the deposit and restore the original condition. On exposure to sunlight, a yellow or brown color can develop. These discolorations will not affect the color of coatings nor have any adverse effect on performance. Do not store in metal containers. When combined with amine hardeners, storage in metal containers is acceptable. Do not store near oxidizable materials

Precautionary Statement

Huntsman Advanced Materials Americas LLC maintains up-to-date Safety Data Sheets (SDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

First Aid!

Refer to SDS as mentioned above.

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Main Offices:

Huntsman Corporation
10003 Woodloch Forest Dr
The Woodlands, TX 77380
888-564-9318

Huntsman Advanced Technology Center
8600 Gosling Rd.
The Woodlands, TX 77381
281-719-7400