HUNTSMAN

Advanced Materials

DATA SHEET

Accelerator 3130

A Non-Amine Accelerator for Epoxy Resin Systems

General

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 (>5mm) exotherms could occur at high levels of accelerator.

Typical Properties*

Visual Appearance	Clear or slightly hazy with a trace of white deposit
Color Gardner, max.	3
Viscosity @ 25°C (77°F), cPs	10-100
Solids Content, wt %	38.0-41.0
Typical Solvent	Ethanol and traces of water
Density @ 25°C (77°F), g/cm^3 (lb/gal)	1.17 (9.75)
Flash Point, °C (°F)	19 (66)

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

Formulations

1. Accelerator 3130 in phenalkamine / "Type 1" solvent based coatings.

System (parts by weight)	1	2	3
Araldite® GZ 471 X-75(1)	100	100	100
Aradur™ 3460	25	25	25
Accelerator 3130	-	1	3
Mix viscosity(3) @ 23°C, cPs	>4000	>4000	>4000
Gel time(4) 100g, 23°C, min	270	165	62
Curing Properties(5)			
(@ 23°C / 50% Relative Humidity)			
Dust-free time, hour	4.5	2	1.5
Cure-through time, hour	6	3.5	2.5
Film appearance	Glossy	Glossy	Glossy
Blushing(6)	None	None	None
(@ 5°C / 80% Relative Humidity)			
Dust-free time, hour	11	8	7
Cure-through time, hour	17	15	11.5
Film appearance	Semi-gloss	Semi-gloss	Semi-gloss
Blushing(6)	None	Slight	Slight
Coating properties after 7 day cure at 23°C			
Dry film thickness, 10-11 mil			
Pencil hardness(7)	B	B	B
Cross hatch adhesion(8)	5	5	4
Impact (direct/reverse),(9) in-lb	>160/140	140/120	70/30

2. Accelerator 3130 in cycloaliphatic, solvent-free coatings.

System (parts by weight)	1	2	3
Araldite GY 6010(2)	100	100	100
Aradur 2975	60	60	60
Accelerator 3130	-	1	3
Mix viscosity(3) @2 3°C, cPs	>4000	>4000	>4000
Gel time(4) 100g, 23°C, min	86	34	14
Curing Properties(5)			
(@ 23°C / 50% Relative Humidity)			
Dust-free time, hour	5	2	1.5
Cure-through time, hour	7	3	2
Film appearance	Glossy	Glossy	Glossy
Blushing (6)	None	None	None
(@ 5°C / 80% Relative Humidity)			
Dust-free time, hour	8	5	2.5
Cure-through time, hour	15	12	7
Film appearance	Semi-gloss	Semi-gloss	Semi-gloss
Blushing(6)	None	None	None

Formulations (continued)

Coating properties after 7 day cure at 23°C				
Dry film thickness, 10-11 mils				
Pencil hardness[7]	H	H	H	
Cross hatch adhesion[8]	5	3	3	
Impact (direct/reverse),[9] in-lb	16/0	16/0	14/0	

3. Accelerator 3130 in combination with Accelerator 960-1 in polyamidoamine based coatings.

System (parts by weight)	**1**	**2**	**3**	**4**
Araldite GZ 471 X-75[1]	100	100	100	100
Aradur 825-2	20	20	20	20
Accelerator 3130	-	3	-	3
Accelerator 960-1	-	-	3	3
Mix viscosity[3] @ 23°C, cPs	>4000	>4000	>4000	>4000
Gel time[4] 100g, 23°C, min	413	361	215	185
Curing Properties[5]				
(@ 23°C / 50% Relative Humidity)				
Dust-free time, hour	8	4	3.5	1.5
Cure-through time, hour	9.5	7.5	5	4.5
Film appearance	Glossy	Glossy	Glossy	Glossy
Blushing [6]	None	None	None	None
(@ 5°C / 80% Relative Humidity)				
Dust-free time, hour	15	7	7	5
Cure-through time, hour	>24	>24	20	16
Film appearance	Glossy	Glossy	Glossy	Glossy
Blushing[6]	None	None	None	None
Coating properties after 7 day cure at 23°C				
Dry film thickness, 10-11 mils				
Pencil hardness[7]	HB	H	H	H
Cross hatch adhesion[8]	5	5	5	5
Impact (direct/reverse),[9] in-lb	120/100	80/20	40/18	80/20

(1) Solid epoxy resin solution (equivalent weight: 450 – 530)
(2) Standard bis A liquid epoxy resin (equivalent weight: 182 – 192)
(3) ASTM D 4440 (ICI Cone & Plate)
(4) Tested by TECAM® gelation timer
(5) Tested by Gardner® Circular Drying Time Recorder on a 10 mil wet coating
(6) Visual
(7) ASTM D 3363
(8) ASTM D 3359 (0 = worst, 5 = best)
(9) ASTM D 2794

Packaging & Storage

Accelerator 3130 should be stored in a dry place at 18-25°C, preferably in the sealed original container.

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.

Handling/Safety Precautions

Warning! Flammable liquid. Severe eye irritant. May cause sensitization, irritation and dermatitis.

Keep away from heat, sparks and open flame.
Avoid contact with eyes, skin and clothing.
Avoid breathing vapor, mist or spray.
Use only with good ventilation.
Wash after handling.
Store in closed containers in cool, well ventilated area.
Ground and bond metal containers for liquid transfer to avoid static sparks.

Read Material Safety Data Sheet Before Using.
For Industrial Use Only.

First Aid

In case of contact:

Eyes: Promptly flush with water for at least 15 minutes

Skin: Promptly wash thoroughly with mild soap and water. Remove clothing.

Inhalation: Remove to fresh air. Give oxygen if breathing is difficult.

Ingestion: If conscious, give plenty of water. Get medical attention. Immediate life support.

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