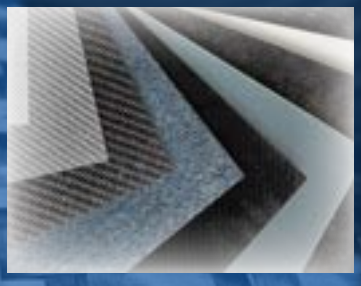


PATCHAM

COMPOSITES ADDITIVES AND ACCELERATORS

Additives for Composites

Wetting and Dispersing Additives

Product Name	Composition	Active Content	Viscosity	Appearance	Recommended for							Features & Benefits
					Unsaturated Polyester						Vinyl Esters/ Epoxies	
					Gel coats	SMC/BMC	Pultrusion/ Filament Winding	Casting	Contact Molding/ Laminating	Puttiest		
Pat-Add DA 2250	Copolymer with acidic groups	100%	50-2000 cp	Clear to sl. hazy yellowish liquid	■	■	■	■	■	□	■	Wetting and dispersing agent commonly used for fillers, Calcium Carbonate, ATH, and inorganic pigments.
Pat-Add DA 2257	Solution of copolymer with acidic groups	52%	<150 cp	Clear yellowish liquid	■	■	■	■	■	□	■	Universal and cost-effective wetting and dispersing agent.
Pat-Add DA 2704	Unsaturated polyamides with acid polymers	52%	50-700 cp	Clear amber liquid						■		Wetting and dispersing agent commonly used for fillers and inorganic pigments. Reduces compound viscosity for higher filler loading. Used for UPR putties.
Pat-Add DA 2708	Unsaturated polyamides with acid polymers	80%	300-2000 cp	Clear amber liquid						■		Wetting and dispersing agent commonly used for fillers and inorganic pigments. Reduces compound viscosity for higher filler loading. Used for UPR putties.
Pat-Add DA 2709	Polyester	10%	<15 cp	Clear colorless to pale yellow liquid				■	■			Green chemistry. Wetting and dispersing agent that provides anti-settling properties even at lower viscosity.
Pat-Add U 7510	Unsaturated carboxylic acid polymer with Polysiloxane copolymer	50%	250 cp	Clear amber colored liquid	■	■	■	■	■	■	■	Wetting and dispersing agent to prevent floatation and flooding. Improves gloss and surface smoothness.
Pat-Add DA 3225	HIA Polymeric - Solventfree	100%	Viscous flowable liquid	Yellowish colored clear to slightly hazy	■						■	Excellent pigment deflocculation, achieving high color strength. For UPR pigment dispersions.
Pat-Add FW 1065	Polyether polysiloxane compound	51%	<50 cp	Clear pale – Yellow Liquid	■	■	■	■	■	■	■	Green chemistry. Effective wetting of multiple layers of reinforcements. Excellent compatibility with UPR, VE hybrids and most common hybrids.

Air Release Additives

Product Name	Composition	Active Content	Viscosity	Appearance	Recommended for										
					Unsaturated Polyester						Vinyl Esters/Epoxies				
					Gel coats	SMC/BMC	Pultrusion	Casting	Laminating	Putties	Gel coats	Pultrusion	Casting	Laminating	Flooring/ Lining
Pat-Add AF 75	Organic polymer compound in hydrocarbon solvent	38%	<75 cp	Clear colorless liquid	■	■	■	■	■	■	■	■	■	■	■
Pat-Add AF 76	Organic polymer compound in hydrocarbon and ester solvents		<25 cp	Clear colorless liquid	■			■	■		■		■	■	
Pat-Add AF 86	Organic polymer compound in hydrocarbon solvent	25%	<25 cp	Clear amber Liquid	■	■	■	■	■	■	■	■	■	■	■
Pat-Add FL 12	Organic polymer compound in hydrocarbon solvent		<15 cp	Clear colorless liquid	■	■	■	■	■	■	■	■	■	■	■

Rheology Modifier

Product Name	Composition	Active Content	Viscosity	Appearance	Recommended for										
					Unsaturated Polyester						Vinyl Esters/Epoxies				
					Gel coats	SMC/BMC	Pultrusion	Casting	Laminating	Putties	Gel coats	Pultrusion	Casting	Laminating	Flooring/ Lining
Pat-Add Rheol 253	Organic polymer compound in hydrocarbon solvent	55%	<15000 cp	Clear amber liquid	■	■	■	■	■	□	■	■	■	■	□

UPR Accelerators

PATcure

Patcham offers a full range of metal based accelerators for the efficient curing of unsaturated polyester, vinyl ester and (meth)acrylate resins.

General UPR Information

Unsaturated Polyester Resins UPRs are the most commonly used thermoset resins in the world. It is one of the major composite materials used in automotive, marine and construction applications. It combines several advantages such as a light weight, high strength, corrosion resistance at relatively low cost.

Accelerators

Accelerators allow UPR to be cured relatively quickly at ambient temperatures. They can be incorporated into the resin monomer (pre-accelerated resin) or post-added before the addition of peroxide initiators (often called "catalysts").

Gel-time drift suppressors

Pre-accelerated resins are very practical because only one additional component, the peroxide catalyst, must be added to cure the resin at room temperature.
However, pre-promoted resins can be susceptible to a shelf life stability problem known as gel-time drift. Gel-time drift is defined as a change in the resin's measured gel time compared to the original gel time measured at the time of its manufacture.

PATcure Cobalt 21%	Neodecanoate High Flash Point 2-EHA free

Cobalt free Accelerator

The toxicity of cobalt carboxylates is not yet fully known. Test results might result in more stringent hazard classifications. Anticipating increasing environmental pressure, Cobalt-free accelerators have been developed that endevour to maintain existing cycle times and mechanical properties for the end products.

PATcure 2516	High Flash Point

Economical Cobalt Alternative

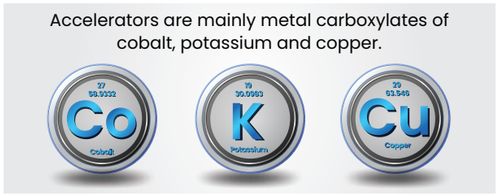
These products can be used in place of cobalt accelerators that are being used by themselves

PATcure 2720	Economical replacement for Cobalt 12%
PATcure 2721	Economical replacement for Cobalt 10%
PATcure 2722	Economical replacement for Cobalt 6%

Colorless Cobalt

These products provide similar gel and cure times to cobalt accelerators but without residual discoloration

PATcure 2725	Non Pinking Cobalt Equivalent to Cobalt 12%
PATcure 2716	Non Pinking Cobalt Equivalent to Cobalt 6%



PATcure Accelerators are available in various metal concentrations and carriers

Potassium Accelerators improve the efficacy of cobalt improving discoloration. Assists in polymerization.

Product	Description
PATcure Potassium Octoate 15%	High flash point. Aromatic free
PATcure 2801	Water white 15% potassium. High flash point
PATcure Potassium Acetate 10%	High flash point. Aromatic free. 2-EHA free

Copper Accelerators reduce the peak exotherm. Improve shelf life.

Product	Description
PATcure Copper Naphthenate 8%	2-EHA free
PATcure Copper Neodecanoate 10%	High flash point. 2-EHA free
PATcure Copper Neodecanoate 12%	High flash point. 2-EHA free. Economical

Zinc Accelerators reduce the reaction rate allowing for clearer and more consistent polymers.

Product	Description
PATcure Zinc Naphthenate 8%	2-EHA free
PATcure Zinc Octoate 8% (D80)	High flash point
PATcure Zinc Octoate 16%	High flash point
PATcure Zinc Octoate 18%	High flash point
PATcure Zinc Octoate 23%	No VOC
PATcure Zinc Neodecanoate 19%	High flash point. No VOC. 2-EHA free

Calcium Accelerators improve the action of cobalt and reduce gel-time drift in pigmented systems.

Product	Description
PATcure Calcium 10%	High flash point. 2-EHA free
PATcure Calcium Octoate 6% (N)	High flash point. Neutral

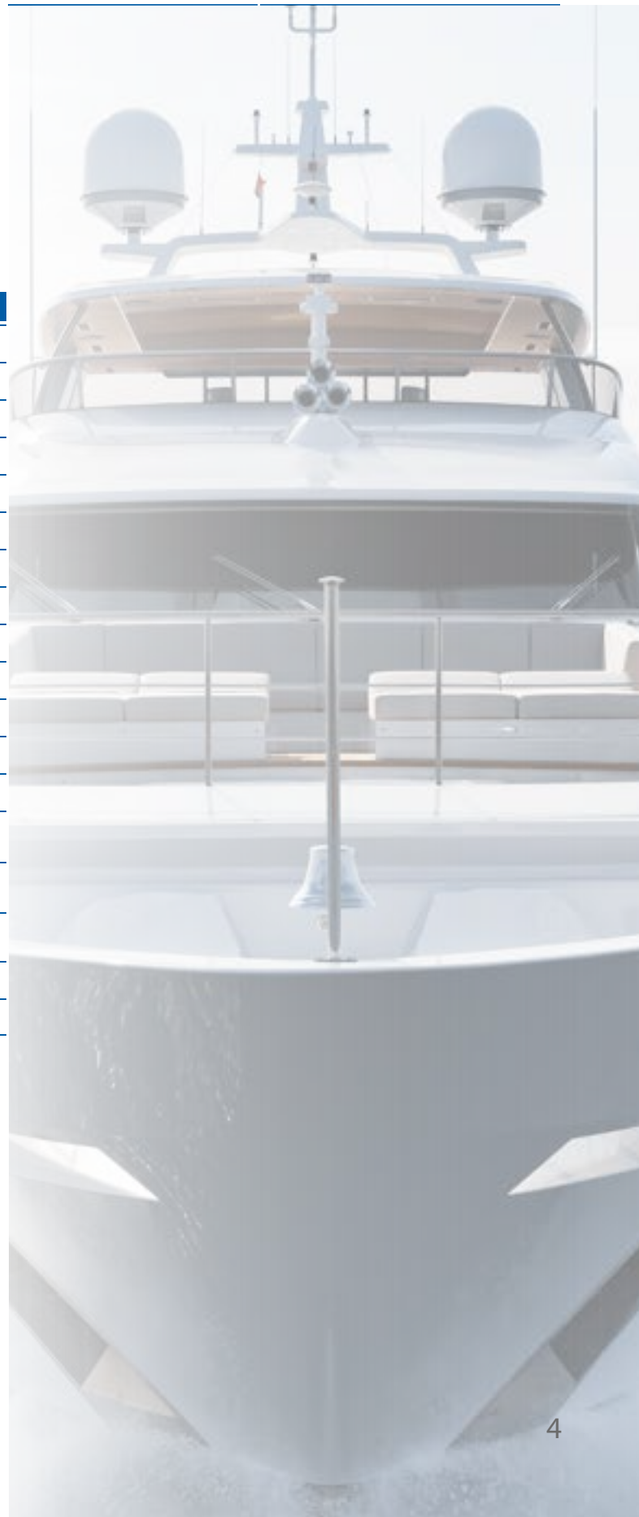
Cobalt Accelerators, effectively, decompose organic peroxide initiators to form the free radicals that promote cross-linking of unsaturated resins. Cobalt may be used on its own or in conjunction with other metals listed below. Cobalt is typically used at 0.005 to 0.020% based on weight metal / binder solids.

Product	Solvent Medium
PATcure Cobalt Octoate 12%	White spirits
PATcure Cobalt Octoate 10%	White spirits
PATcure Cobalt Octoate 8%	White spirits
PATcure Cobalt Octoate 6%	White spirits
PATcure Cobalt Octoate 12% (Xylene)	Xylene
PATcure Cobalt Octoate 8%	Xylene
PATcure Cobalt Octoate 6%	Xylene
PATcure Cobalt Octoate 12% (D80)	High flash point. Aromatic free
PATcure Cobalt Octoate 10%	High flash point. Aromatic free
PATcure Cobalt Octoate 6%	High flash point. Aromatic free
PATcure Cobalt Neodecanoate 12% (D80)	High flash point. Aromatic free. 2-EHA free
PATcure Cobalt Neodecanoate 10%	High flash point. Aromatic free. 2-EHA free
PATcure Cobalt Neodecanoate 21%	High flash point. 2-EHA free
PATcure 2720	Low discoloration. Economic replacement for cobalt 12%
PATcure 2721	Low discoloration. Economic replacement for cobalt 10%
PATcure 2722	Low discoloration. Economic replacement for cobalt 6%
PATcure 2725	Non pinking cobalt. Equivalent to cobalt 12%
PATcure 2716	Non pinking cobalt. Equivalent to cobalt 6%

Do not premix cobalt accelerators with peroxides as it could cause an explosion hazard.

Sodium Accelerators produce slightly less discoloration than Potassium Accelerators.

Product	Description
PATcure Sodium Octoate 8%	High flash point



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The information given in this booklet is intended for technical guidance without obligation.

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