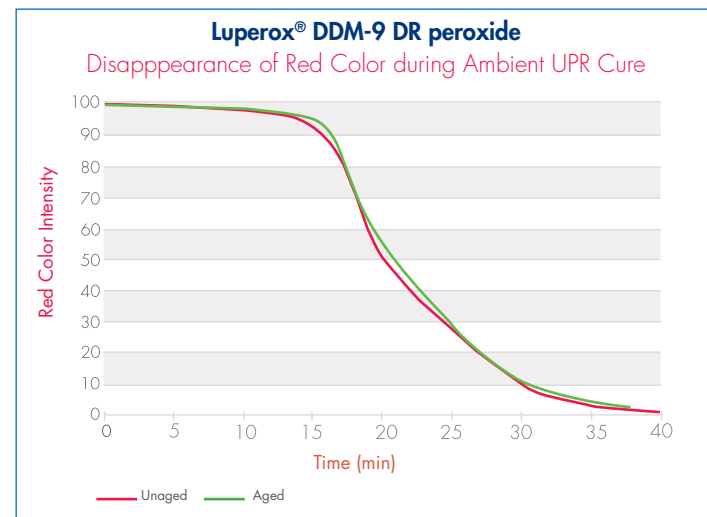
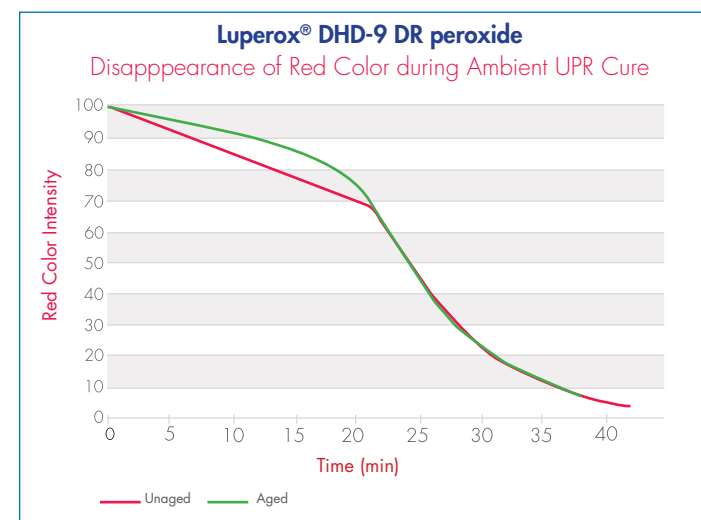
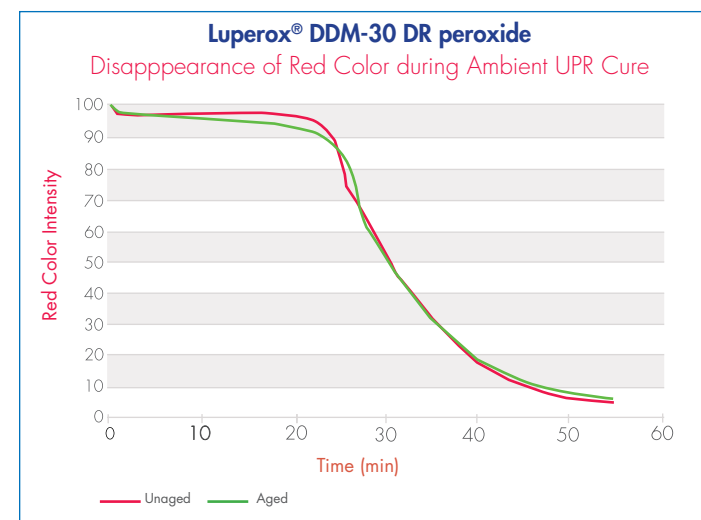


## DISAPPEARING RED METHYL ETHYL KETONE PEROXIDES

### Performance

Arkema's "DR" products feature a red color that disappears during use. As the following graphs show, the same red color provided by Arkema's current red products is introduced during mixing and spray-up of the catalyzed resin. During cure, the DR products provide the same overall performance, but the red disappears. As shown below, the performance of the DR material is the same, regardless of the age of the product. The graphs show how the red disappears when either unaged or aged catalyst is used.



### DR MEKPs in a Typical Application

Luperox® DDM-9 DR peroxide was compared in an Arkema lab with both colorless and permanent red formulations in the 75°F SPI Gel-Cure Test using promoted, commercially available, unsaturated polyester resin and 2.0 phr initiator. The results are presented in the table below and show the comparable performance of DR and permanent red formulations.

Initiator	Gel Time	Gel-to-Cure time (min)	Cure Time (min)	Peak Temp (°F)	Barcol Hardness
Luperox® DDM-9-DR	36.1	8.4	44.5	245	25 - 30
Luperox® DDM-9 RED	35.9	8.9	44.8	245	20 - 25
Luperox® DDM-9	35.0	9.3	44.3	249	20 - 30

### Summary

Arkema's Luperox® DR peroxides provide the flexibility and control that you need to work quickly, economically, and safely; while meeting your customers' expectations for your product's final color.



## LUPEROX® ORGANIC PEROXIDES WORLDWIDE



- Organic Peroxides Plants
- ▲ Research Centers

- Piffard, NY
- Franklin, VA
- Crosby, TX
- Coatza, MX
- Rio Claro, BR

- ▲ King of Prussia, PA

- Gunzberg, DE
- Spinetta, IT
- Anagni, IT
- Jubail, KSA
- Cuddalore, IN
- Jinhae, KR
- Fukuoka, JP
- Changshu, CN

- ▲ Pierre-Benite, FR
- Changshu, CN

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**LUPEROX®**  
BY ARKEMA

NORTH AMERICA  
ORGANIC PEROXIDES

# Traditional & advanced composites



	CAS-No.	Active Oxygen (%)	Available Dye	Solvent			Gel Coats & Top Coats	Open Mold	Vinylesters	Acrylic Resins	Casting & Synthetic Marble	RTM & Vacuum Assist	Filament Winding	SMC /BMC	Pultrusion	Adhesives	Polymer Concrete	Continuous Panel Casting	
<b>LUPEROX® METHYL ETHYL KETONE PEROXIDES</b>																			
Luperox® DDM-9	1338-23-4	8.70 - 9.0	Red, Disappearing Red	Proprietary	High quality and consistency, standard grade MEKP for a wide range of applications. Works well with cobalt, DMA, or amine promoters.		■	■				□	■			■	■		
Luperox® DDM-30	1338-23-4	5.5 - 6.05	Red, Disappearing Red	Proprietary	Dilute form of Luperox® DDM-9, used for spray-up where very accurate metering is required.		■	■			■	■	■						
Luperox® DHD-9	1338-23-4	8.70 - 9.0	Red, Disappearing Red	Proprietary	Special blend best suited to vinylester systems. Slower exotherm in polyester resins, best for curing of large, thick sections.		□	■	■		■	■	■			■	■		
Luperox® Delta-X9	1338-23-4	8.70 - 9.0	None	Proprietary	Faster form of Luperox® DDM-9, spiked with hydrogen peroxide for faster curing at room temperatures and in colder climates.			■		■	□		■				■		
<b>LUPEROX® ACETYL ACETONE PEROXIDE</b>																			
Luperox® 224	37187-22-7	4.0 - 4.15	None	None	Recommended for short curing cycles at medium and high temperatures from 65°C to 120°C even without cobalt accelerator. Mostly used for the manufacture of flat and corrugated sheets in continuous processes.			□				■	■						■
<b>LUPEROX® PEROXIDE BLENDS</b>																			
Catalyst 730 Red	1338-23-4 80-15-9	8.8 - 9.2	Red only	Proprietary	Low exotherm blend for laminates and RTM. Helps prevent warping and cracking in thicker articles.			■				□	■						■
Red Catalyst 11	1338-23-4 80-15-9	8.63 - 9.12	Red only	Proprietary				■					□	■					
<b>LUPEROX® HYDROPEROXIDES</b>																			
Luperox® CU80	80-15-9	8.4 - 8.82	None	Organic	Used for medium and high temperature curing where slow gel and cure times are preferred. Recommended with high reactivity resins.		□	■	■				□						■
<b>LUPEROX® PEROXYESTERS</b>																			
Luperox® 10M75	26748-41-4	4.85 - 4.98	None	OMS	Very fast peroxide with high energy radicals, best for continuous panel casting													□	■
Luperox® 546M75	68299-16-1	4.58 - 4.71	None	OMS	Very fast peroxide with lower energy radicals, best for batch panel casting														■
Luperox® 26	3006-82-4	>7.18	None	None	Easy to mix into any solvent, best for fast cures at 250-300°F. Can be mixed with other peroxides to lower mold temperatures or make faster cures.					■					■				■
Luperox® 26M50	3006-82-4	3.70 - 3.85	None	OMS							■					■			
Luperox® 575	686-31-7	>6.67	None	None	More efficient than Luperox® 26 peroxide with same blending options									■	■				□
Luperox® 575M75	686-31-7	5.14 - 5.28	None	OMS											■	■			
Luperox® 256	13052-09-0	>6.69	None	None	Difunctional peroxyester with highest efficiency. Up to 50% reduction in required dosing vs. Luperox® 26 or 575 peroxide.									■	■				
Luperox® P	614-45-9	>8.07	None	None	Standard peroxyester for use at 280-320°F. High purity and low volatility.			■	■		■	■	■						
Luperox® PNP25	1931-62-0	2.13 - 2.3	None	Proprietary	Phthalate-free paste product for solid surface acrylics. Alternative to BPO for non-yellowing in transparent articles.					■									■
<b>LUPEROX® PEROXYCARBONATES</b>																			
Luperox® TBICM75	2372-21-6	6.72 - 6.9	None	OMS	Effective for reduction of residual styrene, typical use at 250-310°F. Recommended choice for food contact applications.									■	□				
Luperox® MC	70833-40-8	>5.65	None	None	Recommended choice for SMC/BMC. Offers shortest gel to cure time of any product.									■					
<b>LUPEROX® PEROXYKETALS</b>																			
Luperox® 231	6731-36-8	>9.73	None	None	Pure product for use with high filler or pigment content applications. Most reactive ambient storage product for pultrusion.						□	□		■	■				
Luperox® 331M80	3006-86-8	9.59 - 9.83	None	OMS	More reactive than Luperox® P peroxide to increased temperature, but with longer pot life. When blended with other peroxides, offers reduced cure cycles.						□	□		■	□				
Luperox® 531M80	15667-10-4	8.76 - 8.99	None	OMS	Second most reactive ambient storage product to increased temperature. Also offers increased pot life.						□	□		■	□				
<b>LUPEROX® PEROXYDICARBONATES</b>																			
Luperox® 223V75	16111-62-9	3.46 - 3.56	None	Proprietary	Fastest peroxides with special solvent for longer shelf-life and increased safety features										■				■
Luperox® 225V60	19910-65-7	4.03 - 4.17	None	Proprietary												■			
<b>LUPEROX® BENZOYL PEROXIDES</b>																			
Luperox® A98	94-36-0	>6.47	None	None	Anhydrous benzoyl peroxide for hybrid polyurethanes or specialty adhesives.			■			□					■	□		
Luperox® A75	94-36-0	4.82 - 5.09	None	Water	Standard benzoyl peroxide for room temperature curing with accelerators.					■	■	■	■			■	■		
Luperox® ATC50	94-36-0	3.3 - 3.44	None	Plasticizer	Anhydrous benzoyl peroxide paste with tricresyl phosphate plasticizer.			■			□					■			
Luperox® APF55	94-36-0	3.63 - 3.83	None	Plasticizer	Non-cresol, non-phthalate formula anhydrous benzoyl peroxide paste.											■			
Luperox® ANS55	94-36-0	3.63 - 3.83	None	Plasticizer	Phthalate-based hydrous benzoyl peroxide paste.					■			■			■	□		
Luperox® AIR55	94-36-0	3.63 - 3.83	None	Plasticizer	Non-phthalate plasticizer benzoyl peroxide paste optimized for adhesives.											■			
Luperox® AFR40	94-36-0	2.64 - 2.77	None	Plasticizer	Pourable, pumpable benzoyl peroxide paste with phthalate plasticizer.					■		■	■						

## ➤ BLOCBUILDER® RC-50 REACTIVITY CONTROLLER

- **Extend Pot Life**
- **Control Fast Curing Systems**
- **Replace Inhibitors**
- **Master Partial Cures**
- **Advance Your Technology**

The controller can be used in two primary functions: first as an inhibitor replacement, allowing for delayed curing while not affecting overall cure; and second as a true B-stage controller for applications similar to prepregs.

### Product Description

BlocBuilder® RC-50 controller is an innovative reactivity controller used in closed-mold methods including pultrusion, vacuum infusion, resin transfer molding, and SMC/BMC.

BlocBuilder® RC-50 controller is designed to block the reaction between unsaturated vinyl or polyester resins and organic peroxides at room temperature up to 60°C. Above 60°C, BlocBuilder® RC-50 controller will unblock and allow the peroxide to initiate the reaction.

For inhibitor types of applications (i.e. pultrusion, molding compounds, filament winding, etc.) the correct use of BlocBuilder® RC-50 controller is to add an amount between 0.2 parts per hundred resin weight (phr) and 0.8 phr, depending upon the length of time needed for pot life and room temperature or elevated (below 140°F) stability. The controller can be added along with the radical initiator and added to the resin simultaneously. (Note: BlocBuilder® RC-50 controller is NOT an initiator, but an initiator controller, and will not work in the absence of a radical initiator.)



## ➤ LUPEROX® MC INITIATOR

### Product Description

Luperox® MC initiator is offered specifically to fabricators of sheet molding compounds (SMC) and bulk molding compounds (BMC) in North America. For efficient production of automotive items, door skins, electrical boxes, bath fixtures, water craft, and appliance housings, Luperox® MC initiator is a smart choice.

When used to cure SMC and BMC, users solve problems like non-fill, dull surface, edge chips, knit lines, pregel, and undercure.

Luperox® MC initiator is very efficient, providing shorter gel-to-cure-times compared to other room-temperature- stable products currently used in SMC/BMC.

The following table shows a comparison conducted in an Arkema lab of Luperox® MC initiator with other common products on an equal weight basis in the same resin formulation. Cure characteristics were measured dielectrically using a Micromet instrument to gather cure data at 300°F.

Curing Data	Luperox® MC Initiator	t-butyl peroxybenzoate, 99% Luperox® P Initiator	00-(t-butyl) 0-isopropyl monoperoxydicarbonate Luperox® TBICM75 Initiator
Gel Time (sec)	14.0 ± 0.8	16.0 ± 0.6	12.8 ± 0.6
80% Cure Time (sec)	20.2 ± 0.0	31.8 ± 0.5	24.0 ± 0.6
Cure Time (sec)	25.9 ± 0.2	40.8 ± 0.3	31.0 ± 0.5
Gel-to-Cure Time (sec)	<b>11.5 ± 0.8</b>	24.8 ± 0.7	18.2 ± 0.8
Max Cure Temp (°F)	302.4 ± 0.1	301.8 ± 0.4	302.6 ± 0.2
Gel Time /Cure Time	0.56 ± 0.03	0.39 ± 0.01	0.41 ± 0.02

