

Hand Lay-Up

EPIKOTE™ / EPONOL™ Resin Systems and EPIKURE™ Curing Agents and Catalysts



Hexion Inc.'s (Hexion) epoxy and phenolic resin hand lay-up systems are suitable for the production of high-performance composites used in a range of applications from wind turbine blades to gliders and small planes to oil storage tanks. When combined with glass or carbon fibers, these resin systems may be used to produce laminates, or in combination with honeycomb, to make high strength lightweight construction elements.

We offer systems with the following features:

- Higher service temperatures
- Lower viscosity
- Longer pot life
- Variable cure rates
- Superior chemical resistance
- Good thermal conductivity
- Flame retardance
- Excellent mechanical properties
- GL or LBA approval
- Colored or colorless
- Halogen free
- Ambient temp cure

Whichever system you choose, Hexion backs it with ongoing R&D, an experienced technical support team and the global production infrastructure of one of the world's leading specialty chemical companies. You can be assured of reliable supply and consistent product quality wherever you do business.

An Overview of Hand Lay-Up

Manual lamination is a labor intensive but low investment process. It is suitable for production of very large or complex parts in limited numbers, such as new molds or prototypes. First, a release agent is applied to a mold made of wood or pattern construction compound. Then, to avoid telegraphing, a smooth surface is created by spraying or brushing a finishing layer onto the mold. The laminate itself is built up on this gel coat: the fiber is applied, then impregnated with epoxy resin using a brush and a laminating roller. The product is generally cured at ambient temperature without application of pressure. Subsequent heat treatment is required to enhance the laminate's properties. When a fabric is used for reinforcement, fiber levels of around 50% by volume can be achieved.

EPIKOTE™ Epoxy Resin Systems / EPIKURE™ Curing Agents / EPONOL™ Phenolic Resin Systems											
	Curing conditions		Pot life at RT [min]	Service temp. [°C]	Notes	EINECS (Europe)	TSCA (USA)	DSL / NDSL	ECL (Korea)	ENCS (Japan)	IECSC (China)
	Time [h]	Temp. [°C]									
Standard Hand Laminating Systems											
EPIKOTE Resin MGS LR 135 EPIKURE Curing Agent MGS LH 133 – 138	4 – 10 + 5	25/70	various	70	GL approval, pot life from 20 min to 8 hours, medium viscosity.	• •	+ +	+ +	+ -	+ -	+ -
EPIKOTE Resin LR 235 EPIKURE Curing Agent MGS LH 233 – 238	3 – 24 + 8	25/80	various	80	GL approval, pot life from 20 min to 10 hours, low viscosity.	• •	+ +	+ +	+ -	- -	+ -
EPIKOTE Resin MGS LR 285 EPIKURE Curing Agent MGS LH 285-LH 287	3 – 24 + 15	25/80	various	80	LBA approval, good mechanical properties, used in gliders and small aeroplanes.	• •	+ +	+ +	+ -	- -	+ -
EPIKOTE Resin LR 418 EPIKURE Curing Agent MGS LH 418	8 + 5	25/120	300	120	LBA approval, excellent hot wet performance.	• •	+ -	+ -	+ -	+ -	+ +
Hand Laminating Resins for Tooling											
EPIKOTE Resin MGS RIMR 935 EPIKURE Curing Agent MGS RIMH 936	5	130	240	120	Pot life from 1.5 to 3.5 h, low viscosity. Used as standard tooling resin system.	• •	+ +	+ +	+ +	+ +	+ +
EPIKOTE Resin MGS RIMR 9000 EPIKURE Curing Agent MGS RIMH 9180	24 / 3	25/180	350	180	High glass transition temperature, good chemical resistance, unfilled, transparent.	• •	+ +	+ +	+ +	+ +	+ +
Hand-Lay-Up Resin with Flame Retardant Properties											
EPIKOTE Resin LR 940 EPIKURE Curing Agent MGS LH 286	3 – 24 + 15	25 / 80	45	90	Halogen-free, composite housing parts.	• •	- +	- +	- -	- -	- -
EPIKOTE Resin 05492 EPIKURE Curing Agent 05476	5	80	120	75	Flammability according to UL94 V0	+ +	+ +	+ +	+ +	+ +	+ +
Epoxy System for Pipe Repair (CIPP)											
EPIKOTE Resin 260 EPIKURE Curing Agent 3203	1	70	480	60	CIPP, excellent fibre wetting, very good mechanical properties.	• •	+ +	+ +	+ +	+ +	+ +
EPIKOTE Resin 260 EPIKURE Curing Agent 105	1	70	various	60	CIPP system with variable pot life.	• •	+ +	+ +	+ +	+ +	+ +
Phenolic Resin Systems											
EPONOL Resin 2509 EPONOL Resin 2501/B	2	60	2	80	Ambient temperature cure, fullfills FST requirements.	• •	+ +	+ +	- -	+ -	- -
Cellobond Phenolic Resin J2027X Phencat Catalyst 10	1 + 3	60 - 80	20	-	Ambient cure, oven post-curing. Fullfills FST requirements. For the manufacture of flat panels.	+ +	+ +	+ +	+ +	+ +	+ +
Cellobond Phenolic Resin J2027X Phencat Catalyst 382	1 + 3	60 - 80	various	-	Ambient cure, oven post-curing. Fullfills FST requirements. For the manufacture of flat panels. Potlife from 25 min to 8 hours.	+ +	+ +	+ +	+ +	+ +	+ +
Cellobond Phenolic Resin J2042X Phencat Catalyst 10	1 + 3	60 - 80	20	-	Ambient cure, oven post-curing. Fullfills FST requirements. Thixotropic to minimize sagging in steep sided moulds.	+ +	+ +	+ +	+ +	+ +	+ +
Cellobond Phenolic Resin J2042X Phencat Catalyst 382	1 + 3	60 - 80	various	-	Ambient cure, oven post-curing. Fullfills FST requirements. Thixotropic to minimize sagging in steep sided moulds. Potlife from 25 min to 8 hours.	+ +	+ +	+ +	+ +	+ +	+ +

• listed, non-excluding polymers, + listed, - not listed



World Headquarters

180 East Broad Street
Columbus, OH 43215-3799

© 2015 Hexion Inc. All rights reserved.
© and ™ denote trademarks owned or licensed by Hexion Inc.

Reach our Global Customer Service network at:

U.S., Canada and Latin America

+1 888 443 9466 / +1 614 986 2497

4information@hexion.com

Europe, Middle East, Africa and India

+800 836 43581 / +40 212 534 754

4information.eu@hexion.com

China and Other Asia Pacific Countries

+800 820 0202 / +60 3 9206 1551 / +60 3 9206 1543

4information.ap@hexion.com

Please refer to the literature code when contacting us.

HXN-507 02/15

The information provided herein was believed by Hexion Inc. ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. HEXION MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.