

# MFE 707N Epoxy Vinyl Ester Resin

MFE 707N is epoxy vinyl ester resin is a brominated novolac-epoxy based vinyl ester developed for the application where need both corrosion resistance and high temperature resistance with excellent fire retardance <sup>(1)</sup>.

## Benefits & Properties

- MFE 707N combines the novolac backbone typical of MFE 770 and MFE 780 with a brominated epoxy resin backbone, so MFE 707N own excellent corrosion resistance and high temperature resistance properties with good toughness and reduced flammability.
- Laminates made with MFE 707N resin meet ASTM E-84 Flame Spread “Class 2” rating (less than 75). 3% of antimony oxide (Sb<sub>2</sub>O<sub>3</sub>), Class 1 ratings can be achieved <sup>(1)</sup>.
- MFE 707N owns best performance against wet or dry chlorine gas, chlorine dioxide, bleach, and hot, wet flue gas environments within MFE series vinyl ester resins. Corrosion resistance quit similar or equals to MFE 770 and MFE 780.

## Applications and Fabrication Techniques

- When fire retardance, heat resistance and / or corrosion resistance are required at the same time.
- Widely used to produce FRP ductwork, stacks and stack liner applications, equipment specified to handle mixtures of air and hot gases or potentially flammable and corrosive liquids, and floorings compounds where a high degree of heat and / or fire resistance is needed.
- FRP fabrication processes such as filament winding, hand lay-up, spray-up, pultrusion and infusion (RTM).

## Typical Liquid Resin Properties

Property <sup>(2)</sup>	Value
Density, 25°C	1.15g/ml
Viscosity, cps 25°C	300-450
Styrene Content	36-40%
Shelf Life <sup>(3)</sup> , Dark, 25°C	4 months

(1) The fire retardancy and flame spread data were obtained from controlled and/or small scale bench tests and the results apply specifically to the specimens tested, in the manner tested. They are not necessarily predictive of product performance in a real fire situation. MFE resins are organic materials and the fabricated products constructed from them will burn under the right conditions of heat and oxygen supply. This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(2) Typical property values only, not to be construed as specifications

(3) Unopened drum with no additives, promoters, accelerators, etc. added. Shelf life specified from date of manufacture

## Typical Properties <sup>(2)</sup> Resin Clear Casting <sup>(4)</sup>

Property	Value	Test Method
Tensile Strength/ MPa	70-80	
Tensile Modulus/ GPa	3.3-3.6	ASTM D-638/
Elongation at break	3.5-5.0%	
Flexural Strength/ MPa	125-135	ASTM D-790
Flexural Modulus / GPa	3.4-3.8	
Heat Distortion Temperature <sup>(5)</sup>	128-137 °C	ASTM D-648 Method A
Barcol hardness	40	ASTM D2583

(2) Typical property values only, not to be construed as specifications.

(4) Cure schedule: 24 hours at room temperature; 2 hours at 120°C (250°F)

(5) Maximum stress: 1.8 MPa (264 psi)

## Safety and Handling Consideration

This resin contains ingredients which could be harmful if mishandled.

Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.

The specification is 2010 edition and may change with the technological improvement.

Huachang Polymer Co., Ltd. of ECUST maintains Material Safety Data Sheets on all of its products. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers.

Our Material Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Huachang's products in your facilities.

## Standard package:

Non-returnable steel drums, net weight is 200kg per drum

## Recommended Storage:

Drums - Store at temperatures below 25°C. Storage life decreases with increasing storage temperature. Avoid exposure to heat sources such as direct sunlight or steam pipes. To avoid contamination of product with water, do not store outdoors. Keep sealed to prevent moisture pick-up and monomer loss. Rotate stock. For more information, please contact us at [huachang@hchp.com.cn](mailto:huachang@hchp.com.cn)

**MFE**<sup>®</sup>

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Gel Time Formulations: The following table provides typical gel times for MEKP. "Starting point" formulations for MEKP, non-foaming MEKP alternatives, and BPO peroxides are available in separate product bulletins. These and other information are available at [huachang@hchp.com.cn](mailto:huachang@hchp.com.cn)

## Typical Gel Times<sup>(3)</sup> Using NOROX<sup>(4)</sup> MEKP-925H<sup>(5)</sup> and Cobalt Naphthenate-6%<sup>(6)</sup>

Temperature	15 +/-5 Minutes	30 +/-10 Minutes	60 +/-10 Minutes
15°C/59°F	1.5% LPT	1.5% LPT	1.5% LPT
	2.0% NL-49P	1.5% NL-49P	1.0% NL-49P
20°C/68°F	1.0% LPT	1.0% LPT	1.0% LPT
	1.5% NL-49P	1.0% NL-49P	1.5% NL-49P
			0.02% 2,4-P
25°C/77°F	1.0% LPT	1.0% LPT	1.0% LPT
	1.0% NL-49P	1.0% NL-49P	1.0% NL-49P
		0.01% 2,4-P	0.02% 2,4-P
30°C/86°F	1.0% LPT	1.0% LPT	1.0% LPT
	0.8% NL-49P	0.7% NL-49P	0.6% NL-49P
		0.03% 2,4-P	0.05% 2,4-P
35°C/95°F	1.0% LPT	1.0% LPT	1.0% LPT
	0.5% NL-49P	0.4% NL-49P	0.4% NL-49P
	0.03% 2,4-P	0.05% 2,4-P	0.07% 2,4-P

(3) Thoroughly test any other materials in your application before full-scale use. Gel times may vary due to the reactive nature of these products. Always test a small quantity before formulating large quantities.

(4) Registered trademark of Norac Inc.

(5) Materials: NOROX MEKP-925H Methyl ethyl ketone peroxide (MEKP) or equivalent low hydrogen peroxide content MEKP, Cobalt Naphthenate-6% (CoNap6%), Diethylaniline (DEA), and 2,4-Pentanedione (2,4-P). Use of other MEKP or other additives may result in different gel time results.

(6) Use of cobalt octoat

(7) Phr=parts per hundred resin molding compound

e, especially in combination with 2,4-P can result in 20-30% slower gel times.