

Liquid Molding Process Resins

FOR LIGHTER,
STRONGER
COMPOSITE PARTS



| aliancys

LIQUID MOLDING PROCESS CLOSED MOLD TECHNOLOGY

Liquid molding processes (LMP) can economically produce high-quality closed mold parts in any shape or volume. With improved consistency and speed over traditional processes, LMP helps manufacturers produce better parts, faster by offering the following advantages:

- Lower labor
- Better reproducibility
- Clean environment
- Faster cycle times
- Low VOC emissions
- Less waste

AOC ALIANCYS PARTNERSHIP

AOC Aliancys' technical experts can work with both customers who already use LMP and those who want to convert to LMP from open mold processes. In addition to providing the right resin, AOC Aliancys can optimize product performance with recommendations for catalysts, fillers and molds. AOC Aliancys experts can also help customers customize production and assembly solutions to existing manufacturing processes, saving both time and money.



Liquid Molding Processes Comparison

How do you know if LMP is right for your project? Below is a comparison between open molding and several types of LMP.

	Open Mold	Resin Transfer Molding	Light Resin Transfer Molding	Infusion/ Silicone Membrane	Infusion/ Vacuum Bag
Finished Sides	1	2	2	1	1
Glass Content Under 35%	✓	✓	✓	✓	✗
Class Content Over 35%	✗	Up to 50%	✗	Up to 75%	Up to 75%
Parts / Day / Mold	1	12	8	4	1
Program Life Min (Years)	1	2-4	2-3	2-3	1
Part Dimension	Large	Medium	Medium	Large	Large
Core / Sandwich	✓	✓	✓	✓	✓
Inserts Molded	✓	✓	✓	✓	✓
Accurate Dimensions Dependent On	Labor Quality	Mold Design	Glass & Vacuum	Glass Loading	Glass Loading

PRODUCTS

LMP RESINS

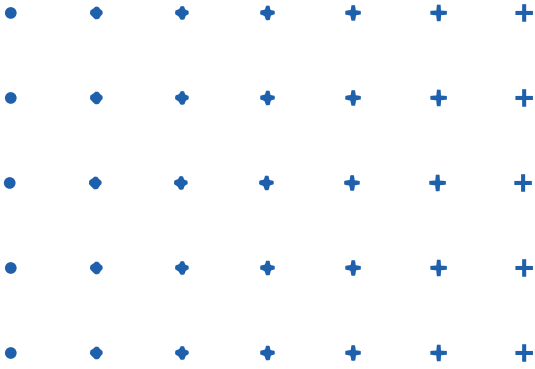
AOC Aliancys has developed unique technology to meet your needs for LMP manufacturing. From orthophthalic to vinyl ester products, AOC Aliancys can meet your large range of mechanical specifications. And, different chemistries can be blended to meet your specific requirements. AOC Aliancys can also adjust products to match any gel time requirements.

Category	Product Series	Description	Heat Distortion Temp. (°C/°F)	Elongation at Break (%)	Tensile Strength psi/MPa	Tensile Modulus, psi/GPa	Flexural Strength, psi/MPa	Flexural Modulus, psi/GPa
General Purpose - Ortho Based	R596	High reactive resin with superior physical properties. Uses range from RV parts to fan shrouds and other specialized applications.	62 / 144	3.6	12,000/83	590,000/3.9	20,000/138	560,000/3.9
	R559	Versatile resin delivering a balance of toughness, excellent secondary bonding and good surface aesthetics.	70 / 158	2.5	10,500/72	580,000/4.0	18,500/128	580,000/4.0
	R431	Good mechanicals and cosmetics for general purpose applications.	64 / 147	2.4	9,100/63	500,000/3.4	16,400/113	540,000/3.7
Low Shrink / DCPD Blends	R920	For manufacturing parts in the wind power market including nacelles, nose cones and medium sized blades.	95 / 203	3.8	12,000/82	522,000/3.6	20,500/141	566,000/3.9
	R937	Good mechanicals and fast hardness development. Versatile application for RVs and buses.	95 / 203	2.0	9,000/62	570,000/3.9	14,000/97	590,000/4.1
	R961	Developed for use in the marine market and where fast cure demolding time is required.	101 / 214	2.1	9,600/66	570,000/3.9	15,800/109	580,000/4.0
High Performance / Vinyl Ester	R015	Superior mechanical properties for high performance applications such as hulls and decks for yachts and high speed boats.	117 / 242	4.5	13,700/95	530,000/3.7	21,800/150	550,000/3.8
	R037	For use in manufacturing of marine parts. Good mechanical properties and cosmetics.	96/205	2.0	9,158/63	530,000/3.7	16,000/110	580,000/4.0
	R034	Low shrink, rapid cure and good cosmetics. For marine, RVs and automotive markets where excellent mechanical properties are a requirement.	110 / 231	2.4	10,700/73	531,000/3.7	17,100/117	578,000/4
Low Profile	R049	Excellent mold reproducibility for Class A applications with gel coat. Low exotherm extends mold life.	99 / 211	3.1	7,460/51	359,000/2.5	11,300/77.9	368,000/2.54
Corrosion Resistant	R701	Isophthalic resin resulting in good corrosion resistant properties. Excellent product for thin to medium parts.	120 / 248	3.0	12,900/89	580,000/4.0	21,800/150	620,000/4.3
	R736	Isophthalic resin with enhanced mechanical properties and corrosion resistance. Works well for wind blades.	92 / 197	4.0	12,400/85	490,000/3.4	20,500/141	570,000/3.9
	R071	Vinyl ester blend provides superior corrosion resistance and mechanical properties for structural parts.	98 / 208	5.0	12,910/89	507,000/3.5	22,000/152.6	590,000/3.75
Fire Retardant	R320	Designed to be blended with alumina trihydrate (ATH) for flame retardant applications such as mass transit.	128 / 262	2.1	9,100/63	538,000/3.7	13,800/95.2	593,000/4.1
	R010	High performance vinyl ester achieves DOC 90 flame and smoke requirements with addition of ATH.	117 / 242	4.5	13,700/94	530,000/3.7	21,800/150	550,000/3.8
Carbon Fiber	R058	Designed for carbon fiber composite market. No post-curing required.	148 / 298	4.5	13,700/94	530,000/3.7	21,800/150	550,000/3.8

Note: Cast mechanical properties listed above may vary by formulas within a product series.

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