

**WE'RE MOLDING  
THE FUTURE...>>>**



**METTON<sup>®</sup>**  
**LIQUID MOLDING RESIN**

# APPLICATION EXAMPLES

**METTON LMR** is a tough and durable engineering plastic (poly-DCPD).

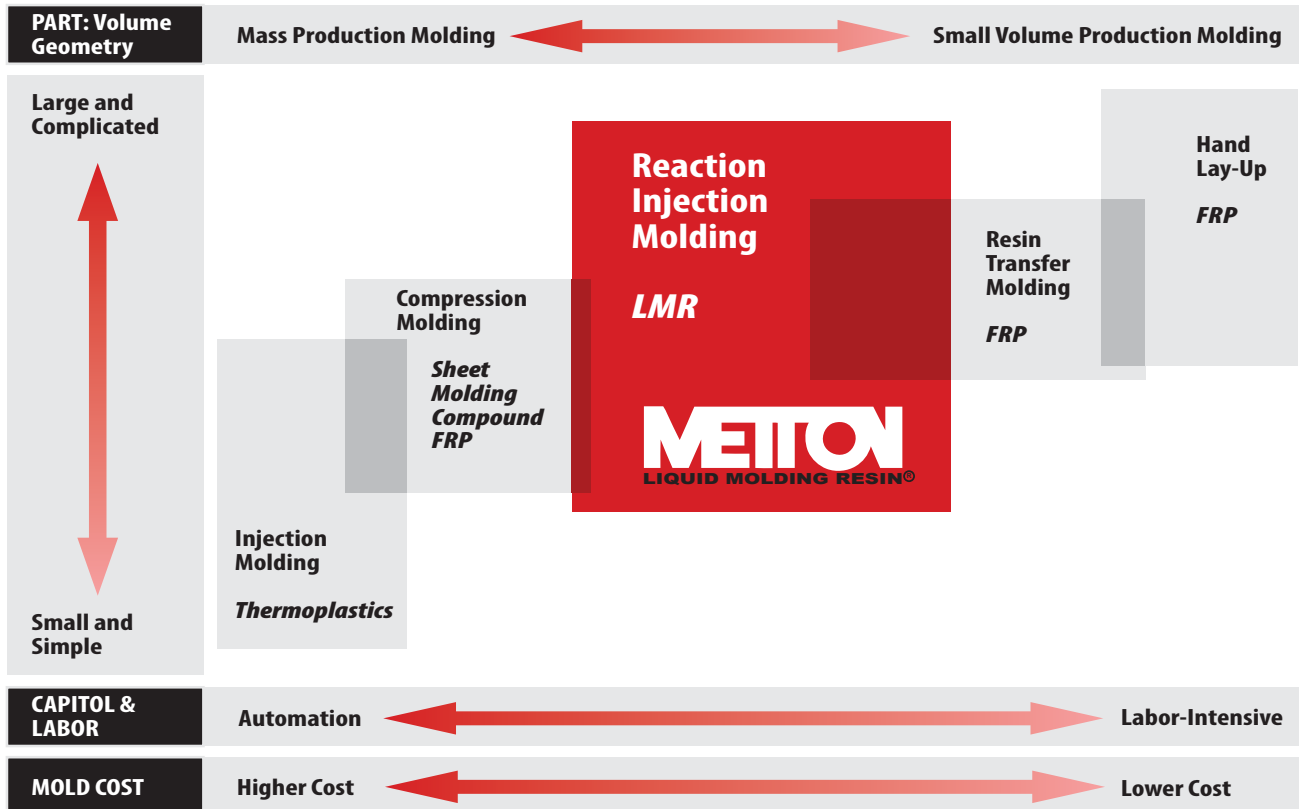
The low-pressure molding process is perfect for producing very large plastic parts used in **Heavy Truck, Agricultural, Construction, Military** and other industrial applications.

## Performance Benefits

- Excellent damage tolerance
- Large and light weight
- Chemical resistance
- Dimensional stability
- Electrical insulating properties
- Outstanding surface finish

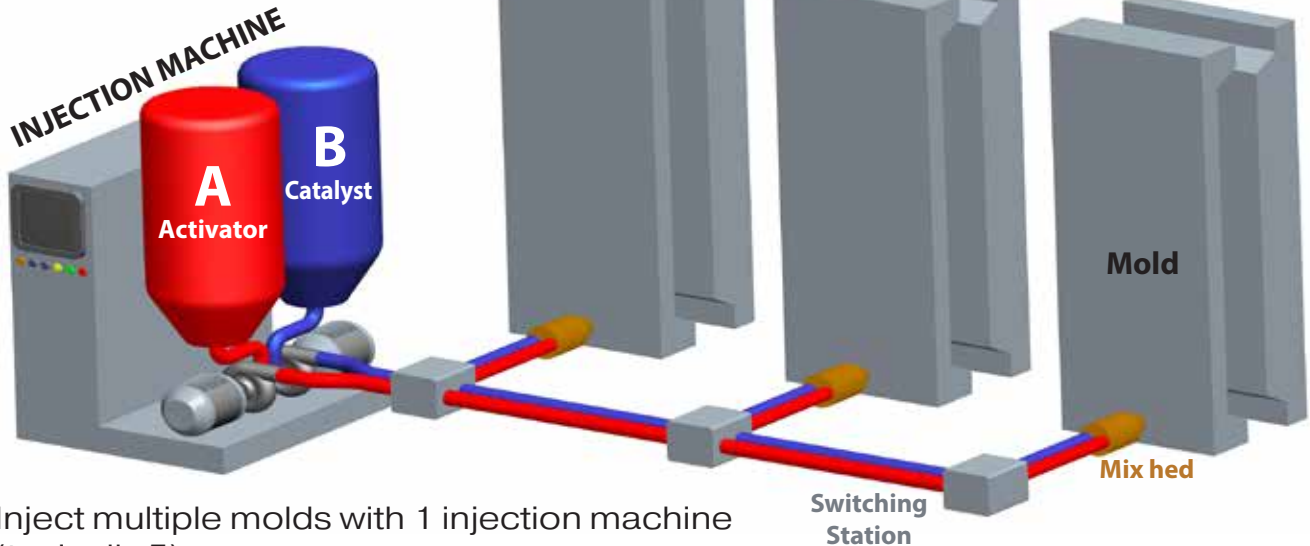


## PROCESS/MATERIAL COMPARISON



# RIM PROCESS (Reaction Injection Molding)

## Two-component Liquid Molding



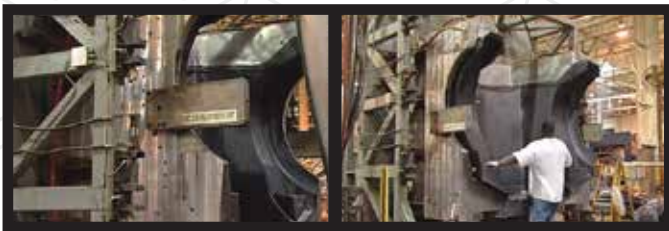
- Inject multiple molds with 1 injection machine (typically 5)
- Viscosity similar to motor oil @ 300 centipoise
- Inject parts up to 13 m<sup>2</sup> (140ft<sup>2</sup>) or > 100 kg (220 lbs)
- Cavity pressure of 15 to 30 psi (design mold to maximum 50 psi)

### Design and Processing Benefits

- Low pressure processing
- Design freedom
- Large & complex part capability
- No mold releasing agent
- Short cycle time
- Low capital investment
- No fiberglass
- Multiple Molds per Machine

## MOLDING PROCESS

### Molding



### Bonding



### Painting



# APPLICATIONS

## AUTOMOTIVE



## CONSTRUCTION/AGRICULTURE



## OTHER APPLICATIONS



# SERVICES

## MANUFACTURING

Manufacturing facility in Houston, Texas  
ISO 9001: 2018 Certified

## PACKAGING OPTIONS

- 55 gallon (200 L) Drums
- 550 gallon (2,000 L) Totes (Domestic)
- 5,000 gallon (19,000 L) ISO Containers



## TECHNICAL SERVICE

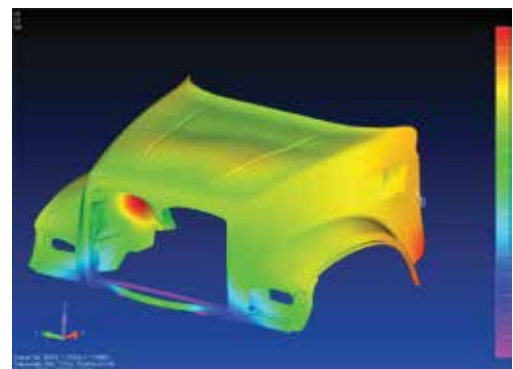
- Direct Molder Support for Molding and Secondary Operations
- Tool Design, Part Design, Process Control, Adhesives and Paint.
- Intensive technical documentation answers all your questions.



## APPLICATION ENGINEERING SUPPORT

Full support from the formula to final parts

- Design Review and Analysis for manufacturability
- Engineering Analysis (FEA Software)
- Mold Design
- Gate/Runner Design
- Moldability



# PROPERTIES

## Typical Design Properties of Metton (LMR) Polymer\*

PROPERTY	ASTM TEST METHOD	M15XX	M2100VO
Density, lbs/in <sup>3</sup> (g/cm <sup>3</sup> )	D792	0.03721 (1.030)	0.043 (1.20)
Tensile Strength@ yield, MPa (Kpsi)	D638	44.3 (6.43)	44.8 (6.5)
Tensile Modulus, GPa (Kpsi)	D638	1.80 (258)	1.98 (287.0)
Tensile Elongation @ yield, %	D638	4.7	4.0
Flexural Strength @ 5% strain, MPa (Kpsi)	D790	67 (9.8)	74.5 (10.8)
Flexural Modulus, GPa (Kpsi)	D790	1.88 (272)	2.01 (291)
Notched Izod Impact @23°C, J/m(ft lb/in)	D256	355 (6.7)	400 (7.5)
@ -40°C	-----	106 (2.0)	53.4 (1.0)
Rockwell Hardness	D785	R114	-----
Compression Strength, MPa (Kpsi)	D695	59.4 (8.61)	-----
Shear Strength, MPa (Kpsi)	D732	53.2 (7.71)	-----
DTUL @ 264 psi , °C (°F)	D648	113 (235)	105 (221)
CTE, 0 to 50°C; in/in/°F (m/m/°C)	E831	48.8x10 <sup>-6</sup> (87.8x10 <sup>-6</sup> )	-----
Shrinkage, in/in	-----	0.009	0.007
Water Absorption, %(RT, 24 hrs; freshly molded)	D570	0.12	-----
Flame Class Rating	UL	HB	V-0
Glass Transition Temperature, °C (°F)	DMA	>138 (>280)	-----
Poisson's Ratio	-----	0.39	0.39

\* Mechanical Properties are based on conservative values either long-term aged or freshly molded. More details on long-term aging performance available in Metton LMR Technical Bulletin Vol. 3, No. 7. Metton America, Inc. (MAI) cannot anticipate all conditions under which this information and its product or the products of other manufacturers used alone or in combination with its products, may be utilized. As such, MAI accepts no responsibility for results obtained by the application of this information or the safety and suitability of its Metton LMR products used either alone or in combination with other products. Users are advised to perform such test as they may deem appropriate to determine the safety and suitability of such product or product combination for their own purposes. Unless otherwise agreed in writing MAI supplies its products and other information without any expressed or implied warranty, and buyers and users assume all responsibility and liability for loss or damage from the application and/or use of the products, either alone or in combination with other products, or other information provided by MAI.

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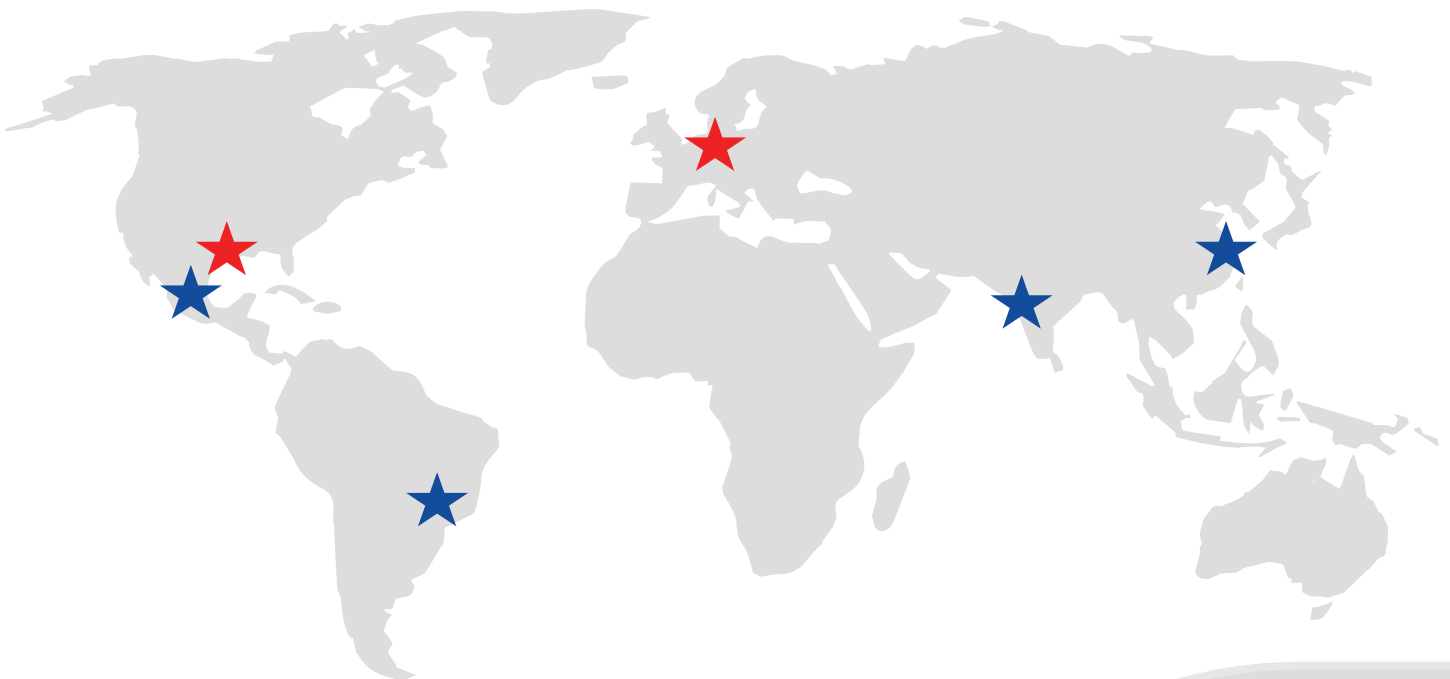
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**METTON LMR** (Liquid Molding Resin) is a tough and durable engineering plastic material used to produce large or thick molded parts for many diversified applications.

**METTON** provides part design freedom with integrated functionality and part consolidation opportunities similar to injection molding for replacement of traditional materials such as wood and metal.



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