Tooling Materials

EPMOLD 170LV

High Thermal Resistance Tooling Resin

Introduction

EPMOLD 170LV is an epoxy tooling resin designed for infusion process of glass or carbon parts. EPMOLD 170LV is an ambient cured and then capable for demoulding after mid-cure at elevated temperature (60°C for 12 hours recommended). It behaves good thermal resistance after post cure. EPMOLD 170LV is a long pot life system that suitable for large size or complex part making.

Features

• Low initial mixed viscosity for easier infusion

• Ambient curing

• Low shrinkage for accurate part manufacture

• High thermal resistance

• Long pot-life and gel time, capable of infusing large or complex parts

System information

Component Properties		
	EPMOLD 170LV Resin	EPMOLD 170LV Hardener
Aspect	Liquid	Liquid
Colour	Lightyellow	Clear
Densityat25°C	1.15 ~1.25 g/cm3	0.92 ~0.98 g/cm3
Viscosityat 25°C	1,200~1,600 mPa.s	10~ 30mPa.s
Mixratio byweight	100	26
Initialmixed viscosity at25°C	250~ 300mPa.s	
Cureddensity at25°C	1.12 ~1.20 g/cm3	
Geltime(500ginair at25°C)	200 ~250min	

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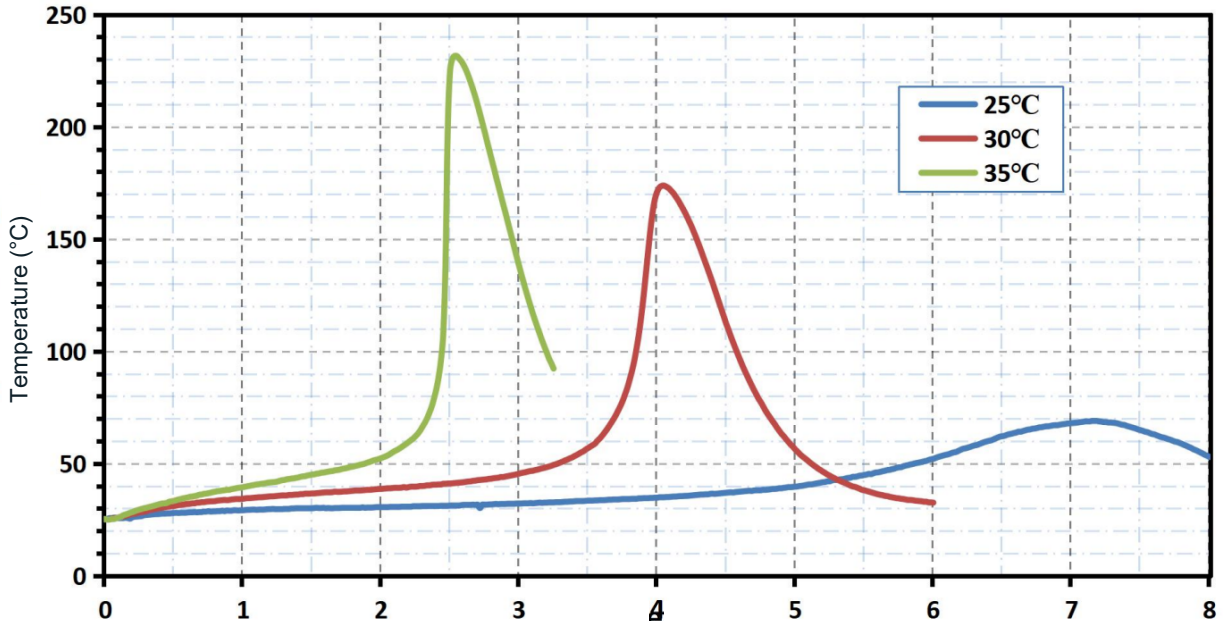
Working properties

Temperature vs Time at Centre of 100g/200ml Pot Life Test



Temperature (°C)

Time (h)

Exothermprofiles			
Temperature	25°C	30°C	35°C
TimetoPeakExotherm	430minutes	243minutes	153minutes
PeakExotherm	69°C	174°C	232°C

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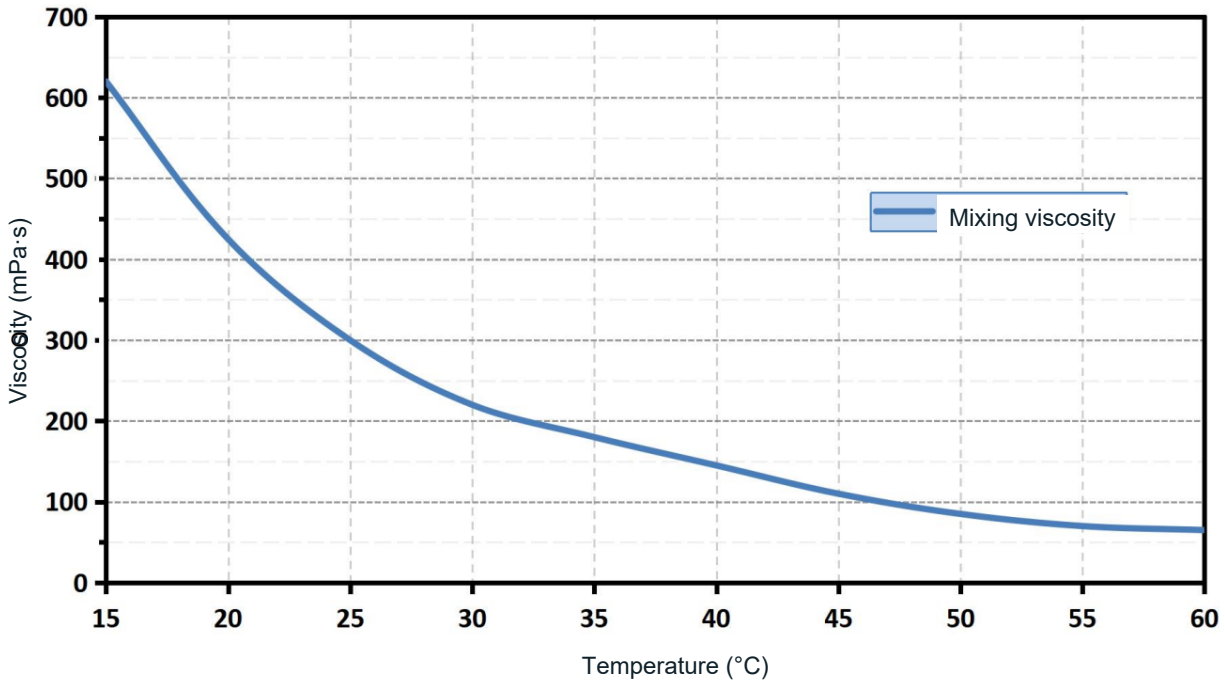
Mixing Viscosity

Mixing viscosity VS Temperature (Mixing quantity: 500g)

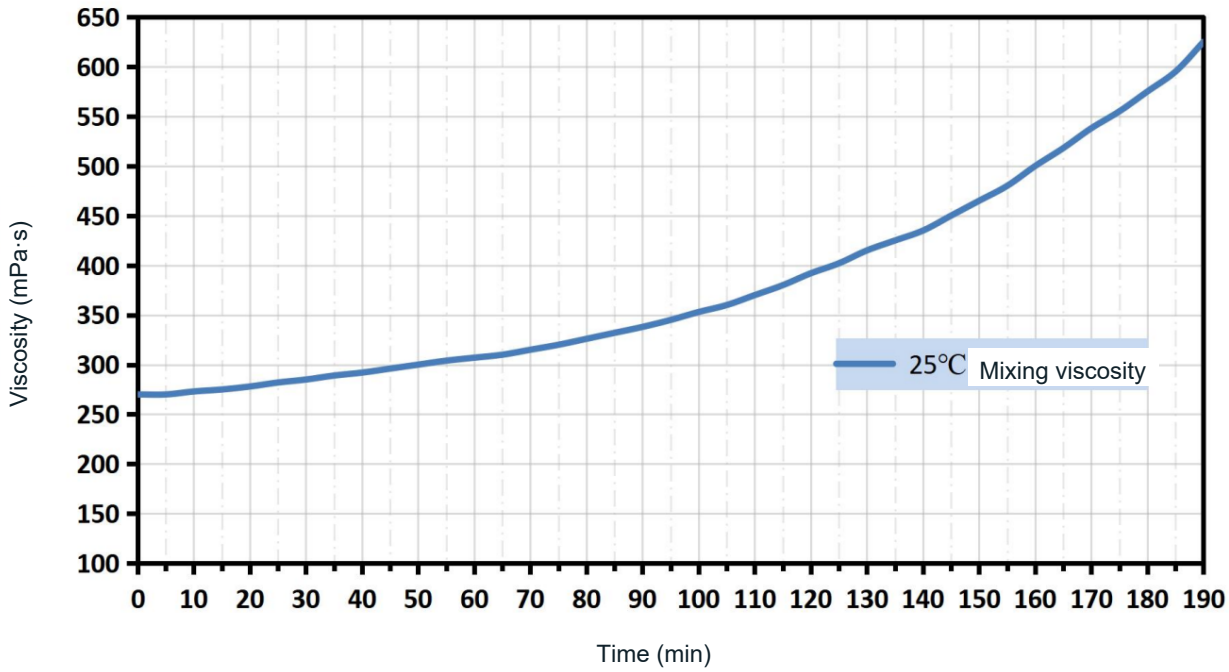


Viscosity (mPa·s)

Temperature (°C)

Mixing viscosity

Mixing viscosity VS Time at 25°C (Bathing temperature: 25°C, Mixing quantity: 500g)



Viscosity (mPa·s)

Time (min)

Mixing viscosity at 25°C

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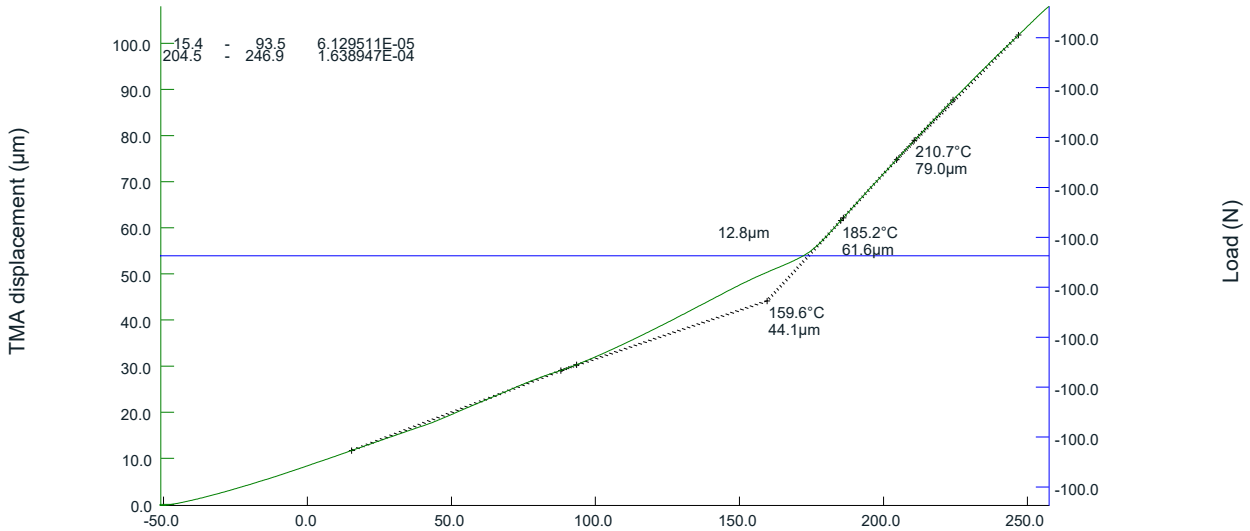
Mixingviscosity VS Time at25°C	
Initialviscosity at25°C	270mPa.s
Timeto600 mPa.s	185min

Cured system properties

To postcure the system, a mid cure at 60°C for 4 hours is recommended, then ramp at 0.1°C /min to 120°C and dwell for 12 hours. Higher temperature or longer time may be required to achieve full post-curing depends on different heating condition, heat loss and radiation for instance.

Cure schedules should be tailored to each specific application. Accordingly, times, temperatures, and ramp rates should be adjusted such that the entire composite mold receives sufficient heat history to attain full properties.

Average expansion coefficient (1/°C)



Mechanical properties

Prooerties	Test method	Typicalvalue
Flexural modulus	ASTMD-790	2.5~3.5Gpa
Flexural strength	ASTMD-790	120~135MPa
Tensilestrength	ASTMD-638	70~80MPa
Compression strength	ASTMD-695	100~120Mpa
Linear shrinkage	ASTMD-2566	0.4-0.6%
CTE(30°Cto 120°C)	ASTME831	6.12*10-5K-1
Glasstransitiontemperature(Ultimate)	ASTMD-3418 (DSC)	175°C

* Typical properties, not to be construed as specifications.

CTE Test result

Module: TMA DataName: EPMOLD170LV

MeasurementDate: 2018/1/4 SampleName: EPMOLD170LV

SampleLength: 3.891mm SampleCross-sectionArea: 0.000mm 2

Processing

Resin and hardener are weighed at given mixing ratio, and then mixed thorougly before use. To void slow infusion and poor impregnation to the glass fiber because of increased viscosity, recommended to consume the mixed material within 2/3 of the pot life. Demolding could be carried out after heating at 60°C for 12 hours. In order to avoid any risks of distortion or tooling shrinkage, and to improve the high temperature resistance, a precise curing cycle is to be observed. A conformer is recommended for complex shapes.

Packaging

EPMOLD 170LV Resin	EPMOLD 170LV Hardener
1,000kg	900 kg
220kg	180 kg

Shelf life and storage

While stored in dry place and in original unopened containers at temperature between 15°C and 25°C, the shelf life of resin is 24 months and the shelf life of hardener is 12 months. Exposure to low temperature for longer time might cause crystallization. In case crystallization occurs, heat it up to 60-80°C until it becomes to transparent liquid. Heating the product will not have any defective effect on the property of the product. Any open can must be tightly closed under dry air or nitrogen blanket. The remaining product should be used up as soon as possible.

Handling precautions

Avoid contact with skin while in application, wear mask, gloves and protection close when necessary; used in well ventilated area. For further information, please consult product safety data sheet.

Warranty information

T he information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer’s tests to ensure that our products are safe, effective and fully satisfactory for the intended end use.