

1. Introduction

MLCast 300 is an ultra-low viscosity casting resin with a relatively long pot life. Once mixed it cures to form tough bright white material with excellent mechanical properties.

Fully cured castings are tough, durable, machinable and paintable. The system is widely used to produce small to medium size castings, prototype models and special effect props.

2. Benefits

- Easy to use 1:1 ratio
- Ambient temperature curing
- Quick demould
- Excellent impact resistance
- Pigmentable
- Low Toxicity

3. Typical Properties (liquid)

Property	Units	MLCast 300 Part A	MLCast 300 Part B
Viscosity @25°C	Cps	150-300	80-100
Appearance	-	Translucent, thin white-coloured liquid	Translucent, thin amber-coloured liquid

4. Typical Properties (cured)

Property	Units	Test Method	MLCast 300
Durometer/Hardness	Shore A	-	~70 Shore D
Tensile strength	mPa	ASTM D638	~20-25
Elongation	%	-	~10
Heat Distortion Temp	°c		~55
Flexural Strength	mpPa	ASTM D790	~30

5. Typical Mixing ratios, curing times

Property	Units	Value
Mixing Ratio	By Weight	MLCast 300 Part A - 100
		MLCast 300 Part B - 90
Mixing Ratio	By Volume	MLCast 300 Part A - 100
		MLCast 300 Part B - 100
Mixed viscosity at 23°C	Cps	~150-200
Working time	Minutes	Minimum ~5 minutes
		Maximum ~7 minutes
Demould time at 23°C	Hours	~25-35 minutes

Description

Fast-cast rigid polyurethane resin

Form

Two-part very low viscosity pourable system

Cured Hardness

~70 Shore D

Mix Ratio

1:0.9 by weight
1:1 by volume

Typical Pot-Life

~5-7 minutes

Typical Demould Time

=~75 minutes

6. Instructions for use

i. **Mixing the two components**

MLCast 300 Part A and MLCast 300 Part B are mixed by weight in a fixed ratio given above.

The two components may be thoroughly mixed either by hand or using a low-speed electric or pneumatic mixer to minimise the introduction of air and to avoid any temperature increase.

ii. **Moulding**

The mixture should be degassed preferably at 30 to 50 mbar to eliminate any entrapped air. If a dispensing machine is used, the two components are degassed separately prior to mixing.

The mixture expands to 3 to 4 times of its initial volume and bubbles rise to the surface. The bubbles progressively disappear and the mixture returns to its initial volume after 5 to 10 minutes. Wait a few minutes to complete the degassing and then flash the vacuum. The mixture is ready for pouring, either by gravity or under low pressure.

iii. **Polymerisation**

The system, as indicated in the technical data, polymerises at 23 °C.

7. Working safely with Polyurethane materials

All polyurethane chemicals present certain hazards, and due care must be taken to ensure safe working practises are followed when using the materials.

Failure to follow safe working practise when dealing with polyurethane materials can result in injury.

Some sensible guidelines for working safely with polyurethane chemicals include, but are not limited to the following.

- i) You must carry out an appropriate risk assessment for the process you are carrying out. Useful guidance can be found at www.hse.gov.uk/risk/index.
- ii) You must read and understand the MSDS for the materials, ensuring that you follow the guidelines as indicated.

If in doubt, contact your Mouldlife representative who can put you in touch with experts who can assist.

8. Packaging, Storage and Shelf-life

MLCast materials are available in a range of kit sizes:- 1.9kg, 9.5kg and 38kg. Larger sizes can be provided upon request.

MLCast components should be stored between 18°C and 25°C. Under these conditions, shelf-life in the original, unopened containers is six months. MLCast materials are moisture sensitive system and thus due care should be taken to avoid contact with moisture; store in a dry place, and reseal containers after use.

At low temperatures MLCast Part B may show signs of crystallisation; contact Mouldlife for assistance if this occurs.

9. Disclaimer

While the information and recommendations herein are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are highly dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.