

## \*\*\*\*\* Hei-Cast 8035 \*\*\*\*\*

## 1. Description

Hei-Cast 8035 is a low viscosity solvent-free molded urethane resin developed for jigs and has the following characteristics.

- (1) It has lower viscosity and better fluidity than 8030 and good foam shedding.
- (2) It is highly curable and can be de-molded at 60°C x 8 minutes.
- (3) Since hardened materials are easy to cut, they are also suitable for molding production jigs by cutting out of blocks, etc.

## 2. Basic Properties

Item		Value	Remarks
Appearance	A Comp.	Colorless translucent	Polyols
	B Comp.	Yellow~Brown transparent	Isocyanates
Color of Article	—	White	
Viscosity (mPa·s,25°C)	A Comp.	140	Viscometer Type BM
	B Comp.	30	
Specific Gravity (25°C)	A Comp.	1.00	Standard Hydrometer
	B Comp.	1.16	
Mix Ratio	A : B	100 : 100	Ratio by weight
Pot Life	25°C	2 min.	Resin 100g
S.G. of Finished Article	25°C	1.12	JIS K-7112

## 3. Basic Physical Properties

Item		Value	Remarks
Hardness	Type D	73	JIS K-7215
Tensile strength	MPa	36	JIS K-7113
Elongation	%	15	
Bending strength	MPa	44	JIS K-7171
Young's modulus in flexure	MPa	1050	
Impact strength	kJ/m <sup>2</sup>	5	JIS K-6911 Izod V Notch
Shrinkage	%	0.8	Inhouse specification
Heat deflection temperature	°C	75	JIS K-7207(1.80 MPa)
		85	JIS K-7207(0.45 MPa)
Coefficient of thermal expansion	/°C	14×10 <sup>-5</sup>	JIS K-6911
Demold Time	Min.	15-20	Mold temperature 25°C
		8	Mold temperature 60°C

Curing condition : Mold temperature:60°C 60°Cx60 min.+25°Cx24 hrs.

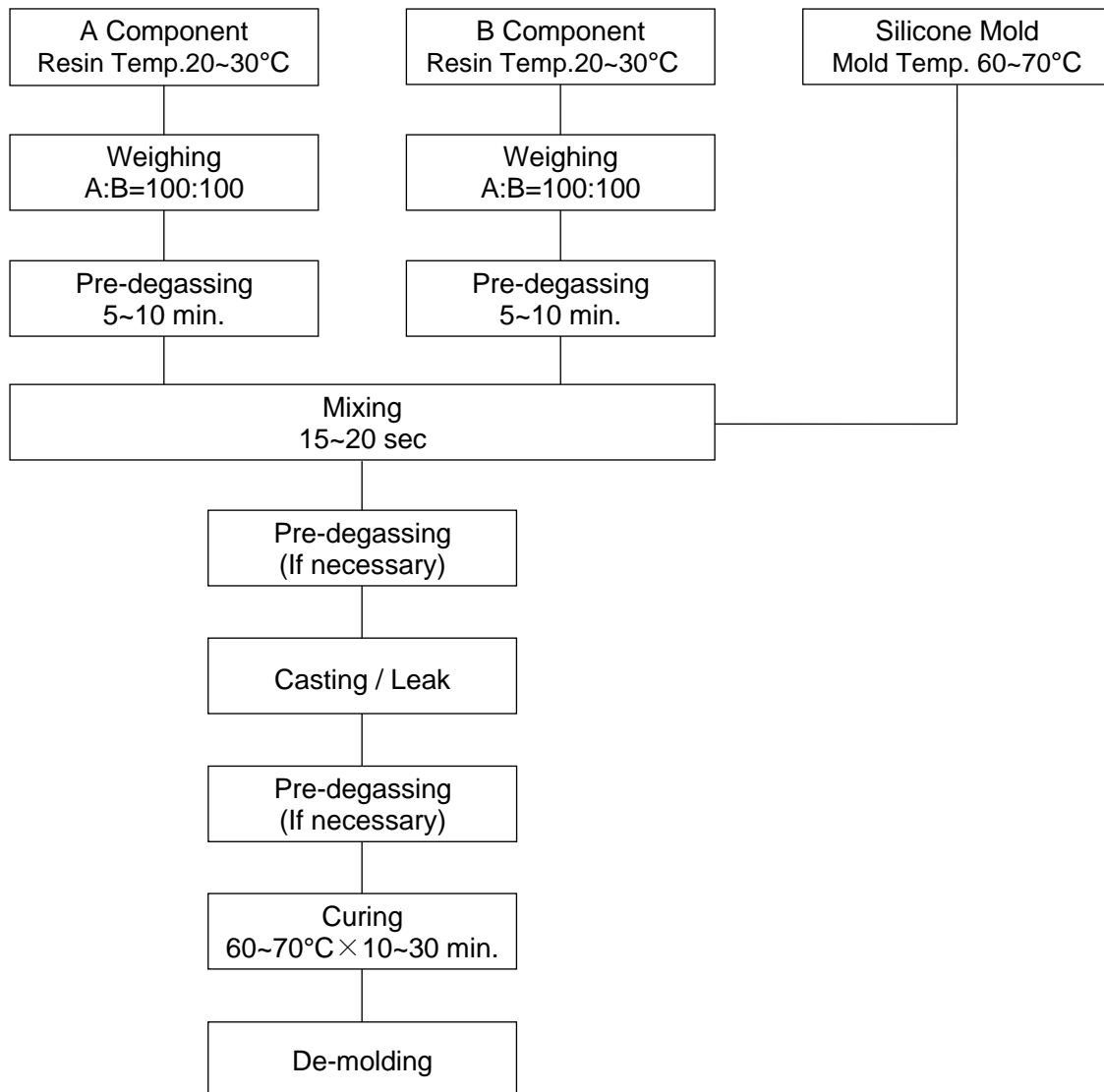
Physical properties listed above are typical values measured in our laboratory and not the values for specification. When using our product, it must be noted that physical properties of final product may differ depending on the contour of article and the molding condition.

\*1:10mm thickness \*2:12.7mm thickness

#### 4. Normal Pressure Casting Process

- (1) Pre-degassing  
Degass both A and B components in a de-gassing chamber for about 5~10 minutes. Degass material as much as you need.
- (2) Temperature of resin  
Keep a temperature of 20~30°C for both A and B components .  
Higher liquid temperature means shorter pot life and lower liquid temperature means longer pot life.
- (3) Mold temperature  
Keep the silicone mold at 60~70°C in advance. Too low mold temperatures may cause improper curing leading to lower physical properties. Mold temperatures should be controlled precisely as they will affect the dimensional accuracy of the article.
- (4) Weighing  
Mixing ratio is 100:100. Weigh necessary quantity of A- and B-component into the same cup/bucket within the accuracy of  $\pm 5\%$ .
- (5) Mixing  
Quickly mix both components weighed with a stirrer for 15~20 seconds taking care not to entrap air.
- (6) Degassing  
If necessary, degas in a vacuum degassing chamber for 20 to 30 seconds.
- (7) Casting  
Cast the mixture speedily into the silicone mold or the like.
- (8) Degassing  
If necessary, degas in a vacuum degassing chamber for 20 to 30 seconds.
- (9) Curing condition  
Place filled mold in thermostatic oven of 60~70°C for 30 to 10~20 minutes and then demold the article from the mold.  
Perform post curing at 60~70°C depending on the requirements.
- (10) Dispensing machine(Automatic casting machine)  
Moldings from PU cast resins can be mass-produced on a 2 component PU dispensing machine that performs the process from dosing and mixing with a stirrer to cleaning of mix-head automatically. More information on such dispensing machine is available from our sales staff.
- (11) Vacuum casting machine  
Through the mixing of A- and B-component under vacuum, you can secure the casting of articles which are free from entrapped air bubbles. More information on such vacuum casting machine is also available from our sales staff.

## 5. Flow chart of Normal Pressure Casting



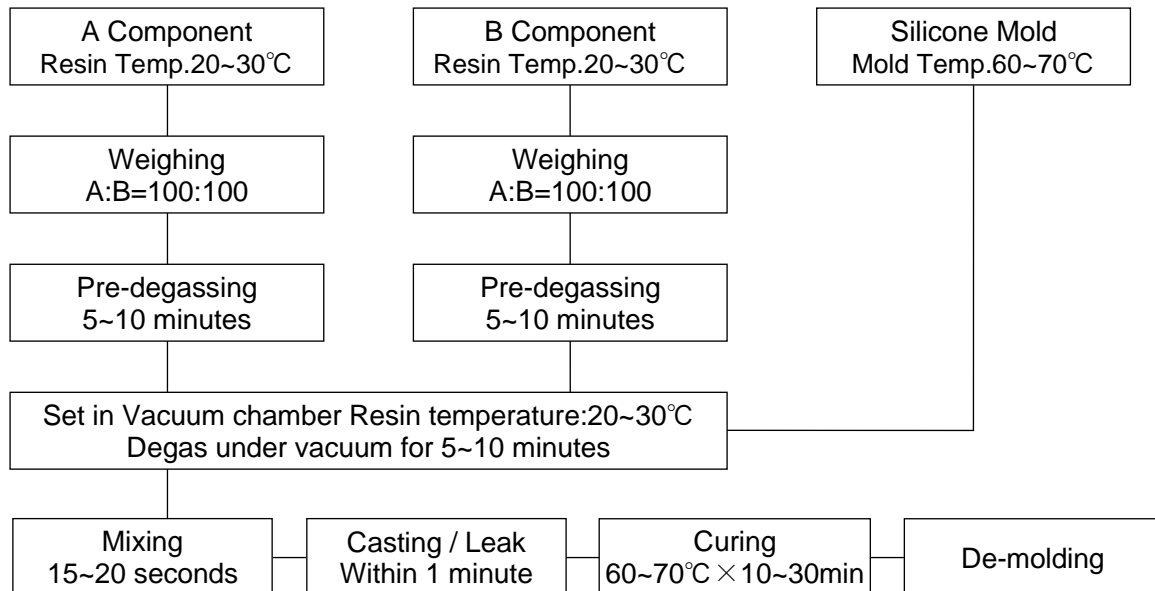
## 6. Vacuum Casting Process

- (1) Pre-degassing  
Degass in a de-gassing chamber for 5~10 minutes.  
Degass the volume as much as you need.
- (2) Temperature of resin  
Keep both A- and B- component at 20~30°C.  
The higher, the liquid temperature, the shorter is the pot life and the lower is vice versa.
- (3) Mold temperature  
Keep temperature of silicone mold to 60~70°C previously.  
Too low mold temperatures may cause insufficient mixing and improper curing.  
Precise control of mold temperature is important to achieve accurate dimension of the finished article.
- (4) Casting  
Containers are set in such a way that A component is added to B component.  
Apply vacuum to the chamber and de-gass B component for 5~10 minutes while it is stirred from time to time.  
Add A component to B component and stir for 15~20 seconds and the cast the mixture quickly into silicone mold.  
Release vacuum within 1 minute counting from the start of mixing.

## (5) Curing condition

Place filled mold in thermostatic oven of 60~70°C for 30 to 60 minutes and demold the article.  
(15-30 minutes at a mold temperature of 25°C)  
Perform post curing at 60~70 for 2-3 hours depending on the requirements.

## 7. Flow chart of vacuum casting



## 8. Precautions in handling

- (6) As both A and B components are sensitive to water, don't allow water get into material or don't allow moisture in the air come into prolonged contact with the material. Close container tight after use.
- (7) Penetration of water into A component may lead to generation of much air bubbles in the cured product. If this should happened, we recommend to heat A component to 80~90°C and degas it under vacuum for about 30 minutes.
- (8) A component in part or in whole may freeze when it is stored for longer period of time at temperatures below 10°C. Frozen material can be used after melting. Warm up container to 40 ~ 50°C for 1~2 hours and use the material after stirring it well.
- (9) B component is prone to deteriorate by the prolonged heating at temperatures over 50°C and the cans can be inflated by the increased inner pressure.

## 9. Precautions in Safety and Hygiene

- (10) B component contains more than 1% of 4,4'-Diphenylmethane diisocyanate. Install local exhaust within the work shop to secure good ventilation of the air.
- (11) Take care that hands or skin are not coming in direct contact with raw materials. In case of contact, wash with soap and water immediately. It may irritate hands or skin if they are left in contact with raw materials for longer period of time.
- (12) If raw materials get into eyes, rinse with flowing water for 15 minutes and call a doctor.
- (13) Install duct for vacuum pump to ensure that air is exhausted to the outside of the work shop.

## 10. Dangerous Materials Classification according to the Fire Services Act

A Component: Third Petroleum Group, Dangerous Materials Fourth Group.

In using our products based on the technical information contained herein, you are requested to thoroughly test our products as to their suitability for your intended application and determine their validity with your own responsibility. As the applications and processing conditions of our products to be applied by users are beyond our control, we can not bear any responsibility for this technical information in terms of accuracy, the results obtained from their use and the possible infringement of patent rights of any third parties.

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B Component: Fourth Petroleum Group, Dangerous Materials Fourth Group.