

Hei-Cast 8550

1. Description

Hei-Cast 8550 is a vacuum casting material developed for the manufacture of PE and PP proto-types which offers the following characteristics:

- (1) Hei-Cast 8550 is low in Young's modulus in flexure and high in elongation. It can produce moldings with a feel similar to that of PE and PP articles.
- (2) It provides a color shade similar to that of original PE and PP articles.
- (3) It offers a long pot-life and is therefore suited for the molding of large-sized articles.

2. Basic Properties

Item		Value	Remarks
Appearance	A Comp.	Colorless translucent/Black	Polyols
	B Comp.	Clear, pale yellow liquid	Isocyanates
Color of Finished Article		White translucent/Black	Yellows on exposure to sun light.
Viscosity (mPa.s, 25°C)	A Comp.	700	Viscometer Type BM
	B Comp.	600	
Specific Gravity (25°C)	A Comp.	1.06	Specific Gravity Cup
	B Comp.	1.19	Standard Hydrometer
Mixing Ratio	A : B	100 : 200	Parts by weight
Pot Life	25°C	7 minutes	Resin 100g
Specific Gravity of Finished Article	25°C	1.14	JIS K-7112

3. Basic Physical Properties

Item		Value	Remarks
Hardness	Shore D	76	Wallace Hardness Tester
Tensile Strength	MPa	34	JIS K-7113
Elongation	%	72	
Bending strength	MPa	39	JIS K-7171
Young's modulus in flexure	MPa	960	
Impact strength	kJ/m ²	10	JIS K-7110 Izod V Notch
Shrinkage	%	0.3	Own method
Deflection temp. under load		70	JIS K-7207(1.80 MPa)
Coefficient of thermal expansion	/	9.8×10^{-5}	JIS K-6911
Demold Time	Minute	60 ~ 90	Mold temp. : over 60°C

Remarks): Curing condition: Mold temperature: 60°C 60°C x 60 min. + 25°C x 24 hours.

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.

4. Vacuum Molding Process

(1) Pre-degassing

Degass both A and B components in a de-gassing chamber for about 10 minutes.
Degass material as much as you need.

(2) Temperature of resin

Keep a temperature of 30 ~ 40⁰C for both A and B components during casting.
When the temperature of material is high, the pot life of mixture will become short and
when the temperature of material is low, the pot life of mixture will become long.
Extremely too low temperatures may cause insufficient mixing and/or improper curing.
Avoid to heat the material too long, as it may cause shorter pot life.

(3) Mold temperature

Keep temperature of silicone mold pre-heated to 60 ~ 70⁰C.
Too low mold temperatures may cause improper curing to result in lower physical
properties. Mold temperatures should be controlled precisely as they will affect the
dimensional accuracy of the article.

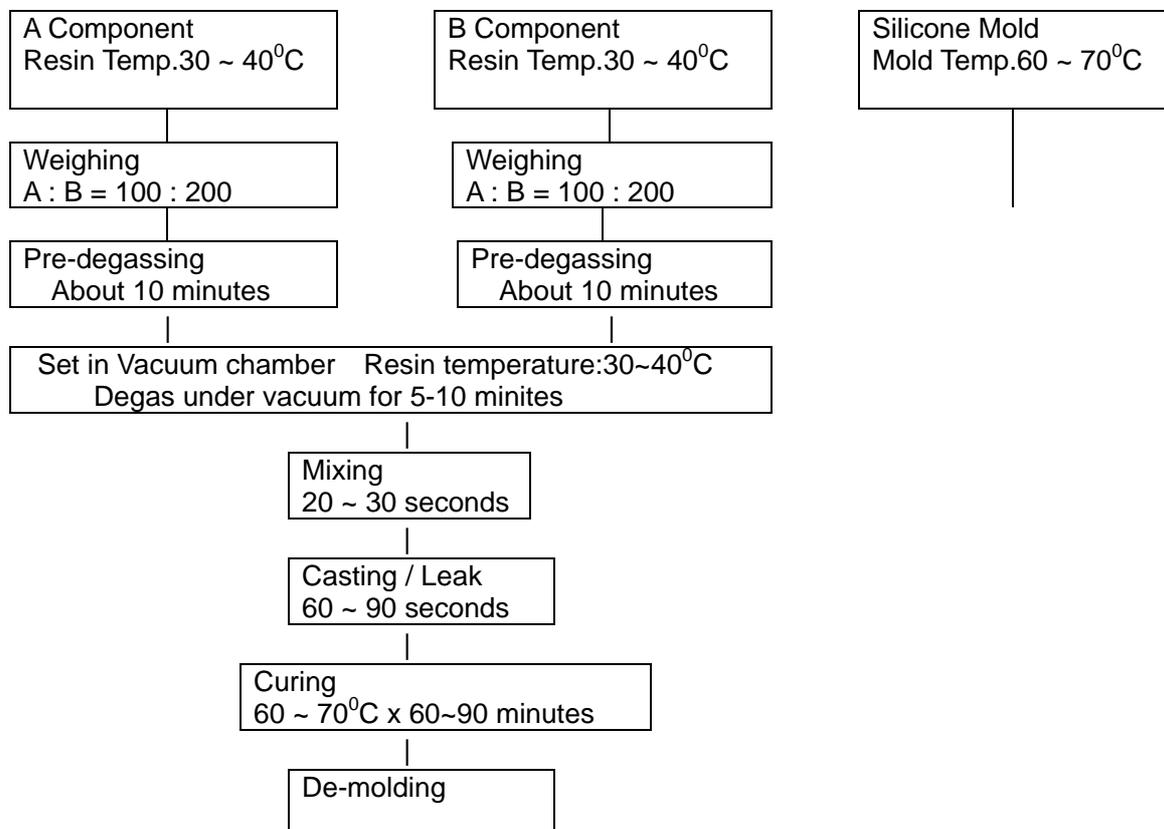
(4) Casting

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 20 ~ 30 seconds and then cast the
mixture speedily into silicone mold.
Release vacuum in 1 to 1 and half a minute after commencement of the mixing.

(5) Curing condition

Place filled mold in thermostatic oven of 60 ~ 70⁰C for 60 to 90 minutes and
demold the article.
Perform post curing at 60 ~ 70⁰C for 2 ~ 3 hours depending on the requirements.

5. Flow chart of vacuum casting



6. Precautions in handling

- (1) 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.
- (2) Penetration of water into A component may lead to generation of much air bubbles in the cured product and if this should happen, we recommend to add 1 to 2 % of dehydrating agent to A component to remove water.
- (3) Prolonged heating of A component may shorten the pot life. So,store it at room temperature.
- (4) B component will react with moisture to become turbid or to cure into solid material. Do not use the material when it has lost the transparency or it has shown any hardening as these materials will lead to much lower physical properties.
- (5) B component in part or in whole may freeze when it is stored for longer time at temperatures below 5°C. Frozen material can be made usable after melting. Warm up container to 60 ~ 70°C for 1~2 hours and stir thoroughly before use.

- (6) Prolonged heating of B component at temperatures over 50 will affect quality of B component and the cans may be inflated by the increased inner pressure.
- (7) When B component is stored in a frozen state, it deteriorates more quickly on age than a liquid material. We recommend to melt frozen material completely and store it at 20~25 .

7. Precautions in Safety and Hygiene

- (1) 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.
- (2) 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.
- (3) If raw materials get into eyes, rinse with flowing water for 15 minutes and call a doctor.
- (4) Install duct for vacuum pump to ensure that air is exhausted to the outside of the work shop.

8. Dangerous Materials Classification according to the Fire Services Act

A Component: No.4 Petroleum Group, Dangerous Materials No.4 Group.

B Component: No.4 Petroleum Group , Dangerous Materials No.4 Group.

9. Delivery Form

A Component: 1 kg Royal can.

B Component: 1 kg Royal can.

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