

***** Hei-Cast 8601 *****

1. Description

Hei-Cast 8601 is an urethane resin developed for low pressure cast molding application. Hei-Cast 8601 features for its well-balanced universal properties and offers the following characteristics.

- (1) Good in flow property so that resins are filled to every details of the mold.
- (2) Excellent cure property makes demolding in 20~30 minutes possible.
- (3) Tough layer of resin with excellent heat and impact resistance can be obtained.

2. Basic Properties

Item		Value	Remarks
Appearance	A Comp.	Black	Polyols
	B Comp.	Clear, pale yellow	Isocyanates
Color of Article		Black	
Viscosity (mPa.s,25°C)	A Comp.	1700	Viscometer Type BM
	B Comp.	160	
Specific Gravity (25°C)	A Comp.	1.02	Specific Gravity Cup
	B Comp.	1.19	Standard Hydrometer
Mixing Ratio	A : B	100 : 100	Parts by weight
Pot Life	25°C	30~40 seconds	Resin 100g
S. G. of Finished Article	25°C	1.13	JIS K-7112

3. Basic Physical Properties

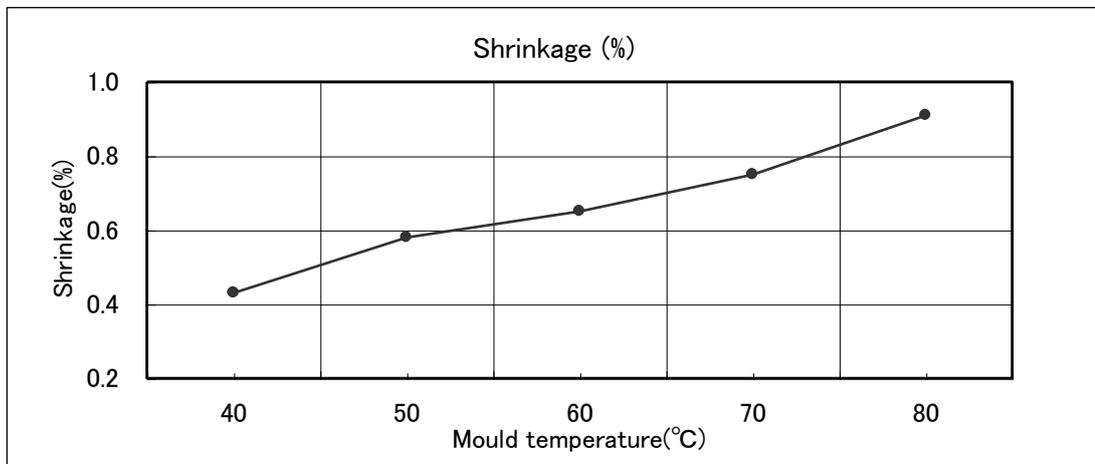
Item		Value	Remarks
Hardness	Shore D	70	Wallace Hardness Tester
Tensile Strength	MPa	32	JIS K-7113
Elongation	%	40	
Bending strength	MPa	35	JIS K-7171
Young's modulus in flexure	MPa	800	
Impact strength	kJ/m ²	5.9	JIS K-7110 Izod V Notch
Shrinkage	%	0.4	Inhouse specification
Deflection temp. under load	°C	75	JIS K-7191(1.80 MPa)
Coefficient of thermal expansion	/°C	7×10^{-5}	JIS K-6911
Demold Time	Minute	20	Mold temp. :over 25°C

Remarks:

Curing condition: Mold temperature:40°C 40°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.

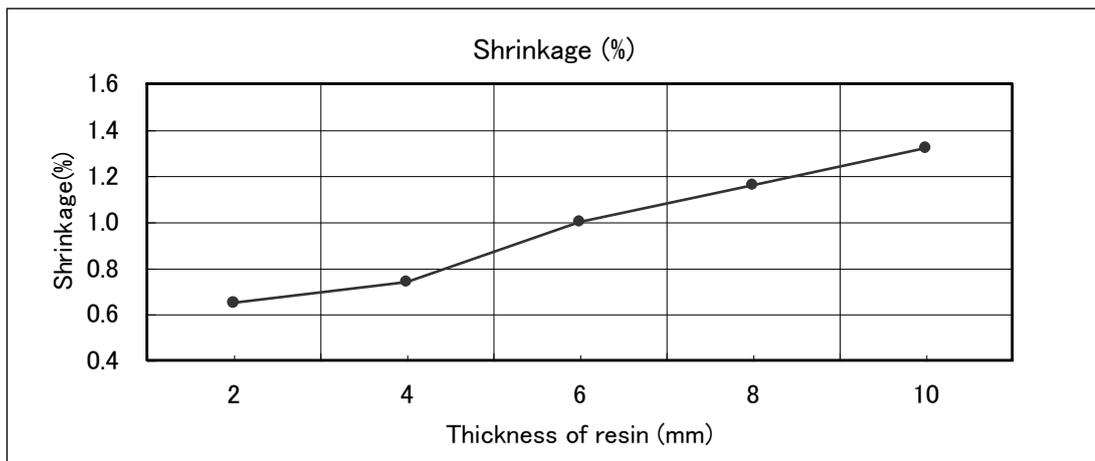
4. Shrinkage vs. mold temperature



Mold temperature (°C)	40	50	60	70	80
Shrinkage (%)	0.43	0.58	0.65	0.75	0.91

Liquid temp.= 25°C Size of mold = 210×150×2mm

5. Shrinkage vs. thickness of resin



Thickness of resin(mm)	2	4	6	8	10
Shrinkage (%)	0.65	0.74	1.00	1.16	1.32

Liquid temp.= 25°C Size of mold = 80φ×2~10mm Mold temp.= 60°C

6. Physical properties vs. Temperature

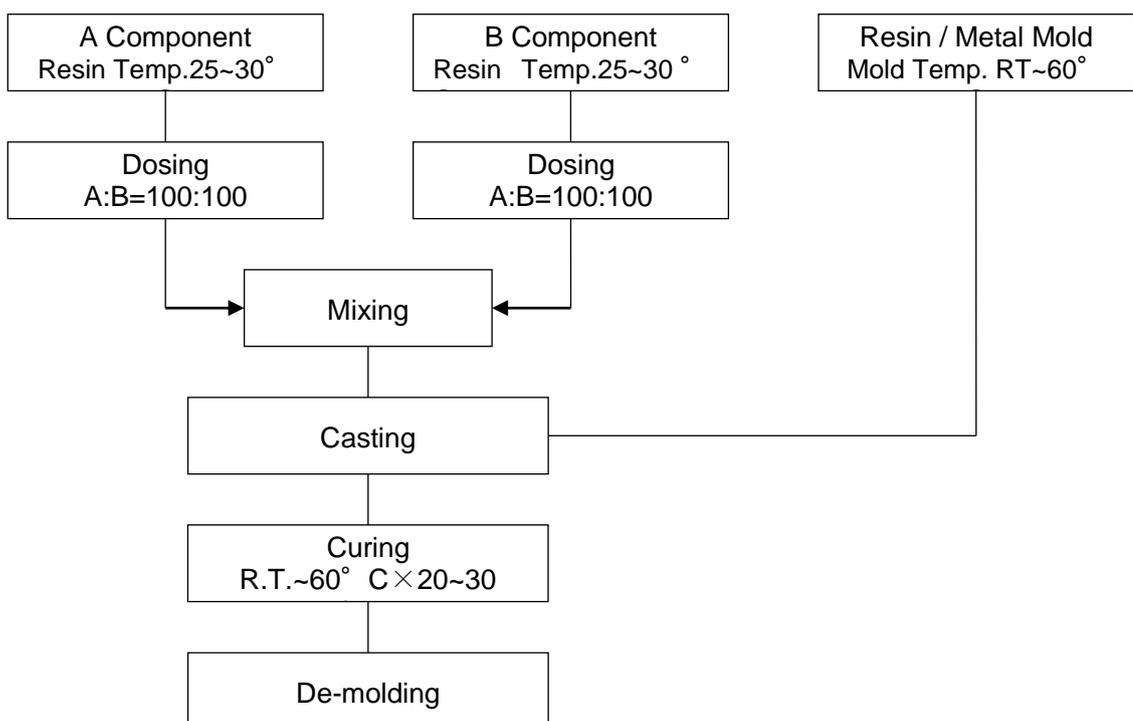
Temperature°C	Bending strength (MPa)	Young's modulus in flexure(MPa)	Impact strength (kJ/m ²)
-20	47	1020	7.7
0	38	860	6.3
20	29	800	7.5
40	22	670	6.4
60	8	270	6.2

Remarks: Measurement of physical properties at each environmental temperatures.

7. Low Pressure Casting Process

- (4) Dispensing machine(Automatic casting machine)
Use 2 component PU dispensing machine which can perform the process from dosing of A- and B-component and mixing with a stirrer to cleaning of mix-head automatically.
More information is available from our sales staff.
- (5) Temperature of resin
Keep a temperature of 25 ~ 30°C for both A and B components.
Higher liquid temperature means shorter pot life and lower liquid temperature means longer pot life.
- (6) Mold temperature
Keep the temperature of resin or metal mold at 40 ~ 60°C beforehand.
Extremely too low mold temperatures may cause improper curing to result in lower physical properties.
- (7) Dosing
Mixing ratio is 100:100. Adjust the output of dispensing machine to the tolerance of $\pm 5\%$.
- (8) Mixing
A- and B-component will be mixed on a static or dynamic stirring system. Mixing efficiency will differ depending on the quantity to be dispensed and the number of element and number of rotation of the dispensing machine. It is suggested to find optimum casting condition of the machine before casting.
- (9) Casting
Cast the resin into the mold which has been given a coat of mold release agent beforehand and prepared appropriately with air venting, seals for parting line, etc.
- (10) Curing condition
Place filled mold in thermostatic oven of 60 ~ 70°C for 20 to 30 minutes and demold.
Articles directly from demolding may deform depending on the shape when it is post cured at temperatures higher than the mold temperature. We ask you to place it in a suitable jig to avoid deformation during the post cure at high temperatures.

8. Flow chart of low pressure casting



9. Precautions in handling

- (1) Both A and B components are sensitive to water. Don't allow water get into material and don't allow moisture come prolonged contact with the material. Close container tight after use.
Let nitrogen gas or dry air flow in the working tank of the dispensing machine for A and B component to seal the moisture from the air.
- (2) Penetration of water into A component may lead to generation of much air bubbles in the cured product.
- (3) 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.
- (4) B component in part or in whole may freeze when it is stored for longer period of time at temperatures below 5°C. Frozen material can be used after melting. Warm it up to 60 ~ 70°C for 1~2 hours and use after stirring it well.
- (5) Prolonged heating of B component at temperatures over 50°C will affect quality of B component and the cans may be inflated by the increased inner pressure.
- (6) 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°C.

10. 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.

11. Delivery Form

- (1) A Component: 17 kg
- (2) B Component: 17 kg

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.

20020309