***** Hei-Cast 8095 *****

≪Heat resistant grade Flexural modulus 1800 MPa≫

1. Description

Hei-Cast 8095 is a polyurethane resin for vacuum casting with a heat resistant temperature of 140°C. This system supports a wide range of fields, including prototyping of heat-resistant parts such as internal parts of engine rooms, air-conditioning units, housings for vehicle lenses, and office automation equipment, as well as monitoring of strength and confirmation of assembly processes.

2. Basic Characteristics

Item		Numerical value	Remarks
Appearance	A Comp.	Clear, pale yellow / Black	Polyols
	B Comp.	Clear, pale yellow	Isocyanates
Color of Article		White to milky white/black	
Viscosity (mPa.s,25°C)	A Comp.	700	Viscometer Type BM
	B Comp.	200	
Specific Gravity (25°C)	A Comp.	1.11	Specific Gravity Cup
	B Comp.	1.20	Standard Hydrometer
Mixing Ratio	A : B	100:250	Parts by weight
Pot Life	25°C	4 minutes and 30 seconds	Resin 100 g
	35°C	2 minutes and 30 seconds	
S. G. of Finished Article	25°C	1.23	JIS K 7112

3. Basic Physical Properties

Item		Numerical value	Remarks
Hardness	Type D	85	JIS K 7215
Tensile strength	MPa	75	JIS K 7161
Tensile modulus	MPa	2000	
Elongation	%	10	
Flexural strength	MPa	85	JIS K 7171
Flexural modulus	MPa	1800	
Impact strength	J/m	112	JIS K 7110 Izod V Notch
Shrinkage rate	%	0.4	Internal standard
Heat resistance	°C	140	Tg TMA method
Coefficient of thermal expansion	/°C	7×10-5	JIS K 6911
Flame retardancy	UL94	HB conformance	UL94HB Equivalent
Demolding time		60 minutes	Mold temperature 70°Cor higher

Remarks: Test piece curing conditions: 70°C cure 70°C for 60 min. + 25°C for 24 hrs.
This property value is a representative value of our measurement and is not a standard value.The physical properties of the product differ depending on the shape and molding conditions. Use the product after thoroughly checking the product.

4. Heat Sag Test (Step-up Test) : mm

	80°C	90°C	100°C	110°C	120°C	130°C	140°C
3 hours after demolding 80°C start	0	0	0	2	6	15	24
One day later 90°C start	-	0	0	1	4	13	21

Remarks: Test piece curing conditions: 70°C Cure 70°C × 60 min.
Cured product shape: 150×25×2.5 mm
This property value is a representative value of our measurement and is not a standard value.
The physical properties of the product differ depending on the shape and molding conditions. Use the product after thoroughly checking the product.

5. Chemical resistance

	WEIGHT CHANGERATE (%)	Appearance change (visual)
Ion-exchanged water	0.3	None
10% sulfuric acid	0.3	None
10% hydrochloric acid	0.3	None
10% sodium hydroxide	0.2	None
10% aqueous ammonia	0.5	None
Acetone	32	Swelling crack
Toluene	0.1	None
Methylene chloride *	16	Swelling
Ethyl acetate	9.3	Swelling
Ethanol	1.2	None
Gasoline	<0.1	None
Benzine	<0.1	None
Engine oil	<0.1	None
ATF	<0.1	None

Remarks: JIS K 6911
3 mm thickness of the test piece
After immersion in each chemical solution for 24 hrs, the change is observed. However,* indicates immersion for 60 min.
The test results are based on our measurement results and are not standard values.

6. Vacuum casting method

(1) Pre-degassing
Degas both Part A and Part B components in a de-gassing chamber for about 5 minutes.
Degas material as much as you need.
Resin temperature

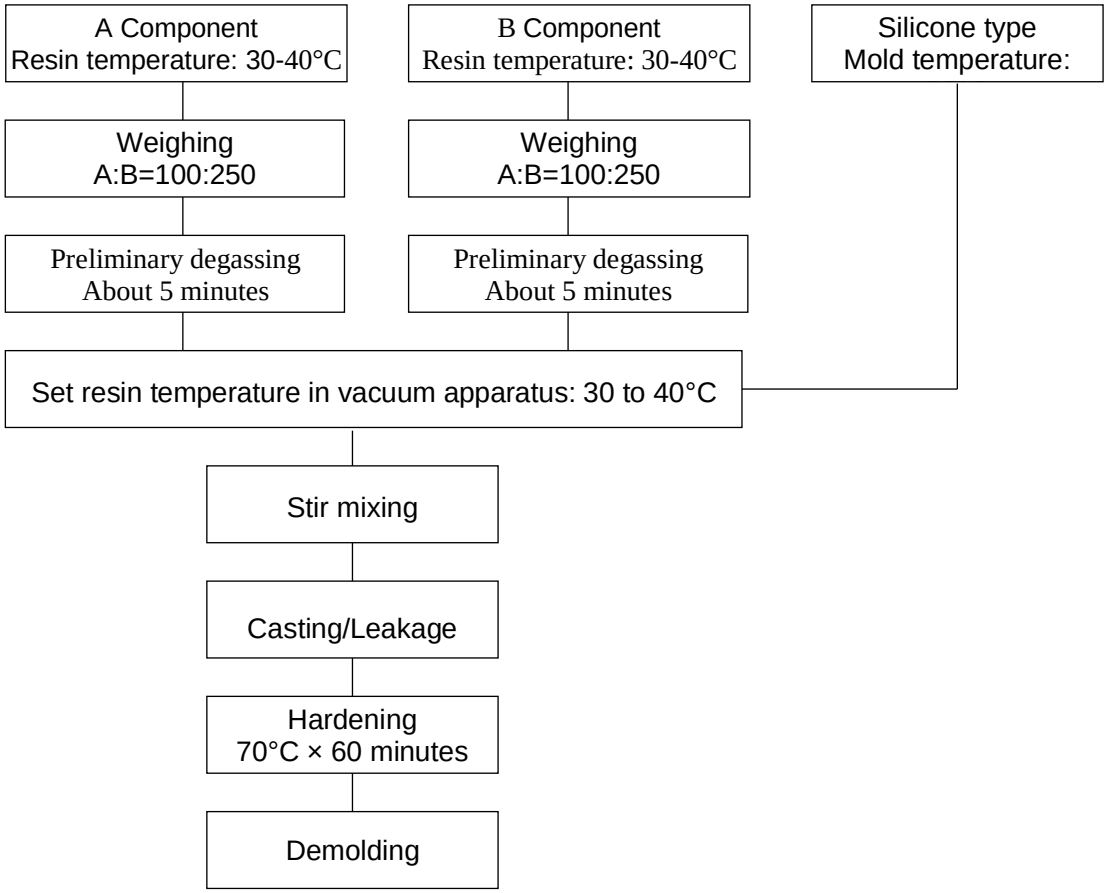
(2) Keep a temperature of 30~40°C for both Part A and Part B component during casting. The higher, the liquid temperature, the shorter is the pot life and the lower, the liquid temperature, the longer is the pot life. Extremely too low temperatures may cause insufficient mixing and improper curing.

(3) Mold temperature
Keep the silicone mold at 70°C beforehand.
Low mold temperatures can lead to poor curing and deterioration of physical properties.
Also, the mold temperature affects the dimensions of the product and should be carefully controlled.

(4) Casting
Containers are set in such a way that Part A component is added to Part B component. Apply vacuum to the chamber and degas Part B component for 5~10 minutes while it is stirred from time to time. Pour Part A component into Part B component and stir before casting into silicone mold. Leak vacuum at right timing.

(5) Curing condition
Keep mold at 70°C and cure for 60 minutes before demolding. If necessary, provide after cure using suitable holding jigs against deformation.

7. Vacuum casting flow chart



8.Precautions in handling

(1) Part A and Part B components stir well before use.
(2) Part A component don't be degas under vacuum for more than 10minutes.
(3) 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.
(4) If water is mixed in Part A component, a lot of air bubbles may be generated in cured article.
(5) Store Part A component in the room temperature.
(6) Part A component is oxidized by a long time heating.
(7) Part B component may become turbid or cured by reacting with moisture. If transparency is lost drastically or if it is already cured, physical properties may drop. Do not use if such being the case.
(8) Part B component may freeze in part or in whole if stored for a long time at below 5°C. Melt at 60 ~70°C for 1~2 hour and stir evenly before use.
(9) Part B component may be deteriorated if heat is applied for a long time at above 50°C, inflating container by increased inner pressure. Do not apply heat more than necessary and store at room temperature of 20 ~25°C

(10) If frozen and kept at room temperature, deterioration becomes faster. Store at 20 ~25°C after melting completely.

9. Safety and Hygienic Precautions

(1) Part B component contains more than 1% of 4,4'-Diphenylmethane diisocyanate. Provide local exhausting unit in workshop and take good care for ventilation.
(2) Ensure hands or skin do not come in direct contact with raw materials. In case of contact, wash with soap and water immediately. Skin irritation may occur if contact is kept for a long time.
(3) In case of contact in eyes, rinse immediately with running water for 15 minutes and seek for medical treatment by ophthalmologist.
(4) Install duct for vacuum pump to ensure that air is exhausted to the outside of the work shop.

10.Dangerous Goods Classification according to Fire Services Act

Part A Component:Dangerous Goods Class No. 4, Petroleum Class No. 3
Part B Component:Dangerous Goods Class No. 4, Petroleum Class No. 4

11. Appearance

Part A Component: 1 kg Royal can
Part B Component: 1 kg Royal can

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