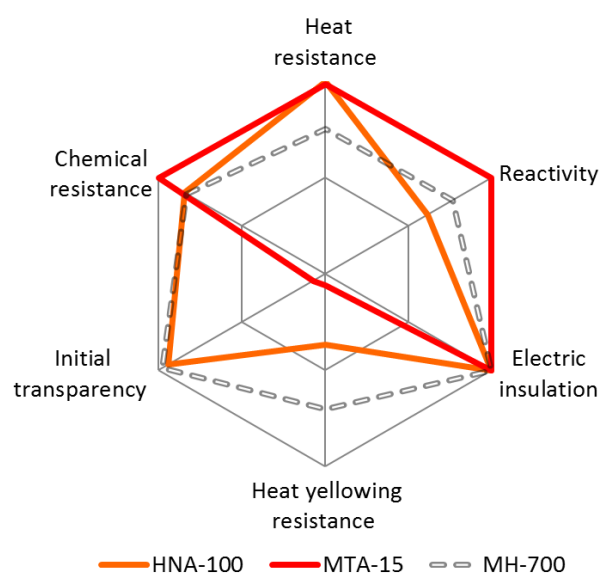
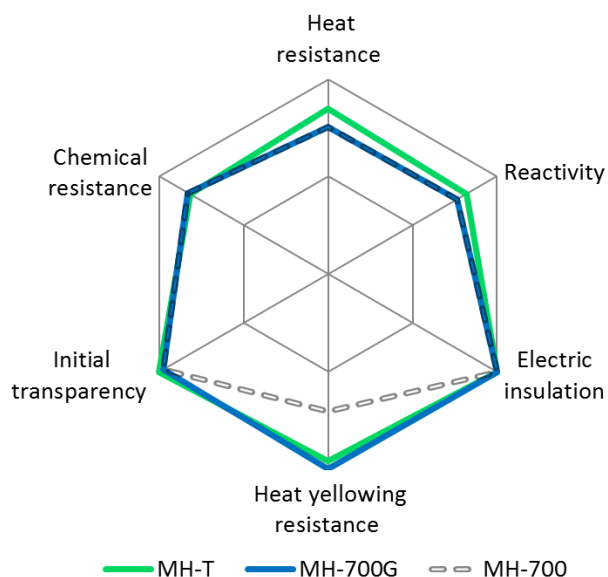


Epoxy resin curing agent of New Japan Chemical

Epoxy resin curing agent "RIKACID™" of New Japan Chemical shows the performance such as superior transparency, heat yellowing resistance, heat resistance, electric insulation and adhesion by heat-curing with epoxy resin.

■ Feature of cured epoxy resin using RIKACID™ series



**Superior transparency,
heat yellowing resistance**

- RIKACID™ MH-700G
- RIKACID™ MH-T

Expected uses : LED sealing agent, Artificial marble, etc.

Superior heat resistance

- RIKACID™ HNA-100
- RIKACID™ MTA-15

Expected uses : Insulation sealing agent, GFRP·CFRP, etc.

Standard grade

- RIKACID™ HH
- RIKACID™ MH-700

Expected uses : Resin raw material, LED sealing agent, etc.

■ Typical properties

Table. 1

	RIKACID™ HH	RIKACID™ MH-700·700G	RIKACID™ MH-T	RIKACID™ HNA-100	RIKACID™ MTA-15
Appearance	White solid	Colorless liquid	Colorless liquid	Colorless liquid	Brown liquid
Equivalent of acid anhydride	156	164	168	179	181
Viscosity [mPa·s] (25°C)	—	60	53	290	2000
Freezing point [°C]	34~38	≤-5	≤-5	≤-5	≤-5

※These values are not guaranteed.

■ Typical properties of cured epoxy resin

Table. 2

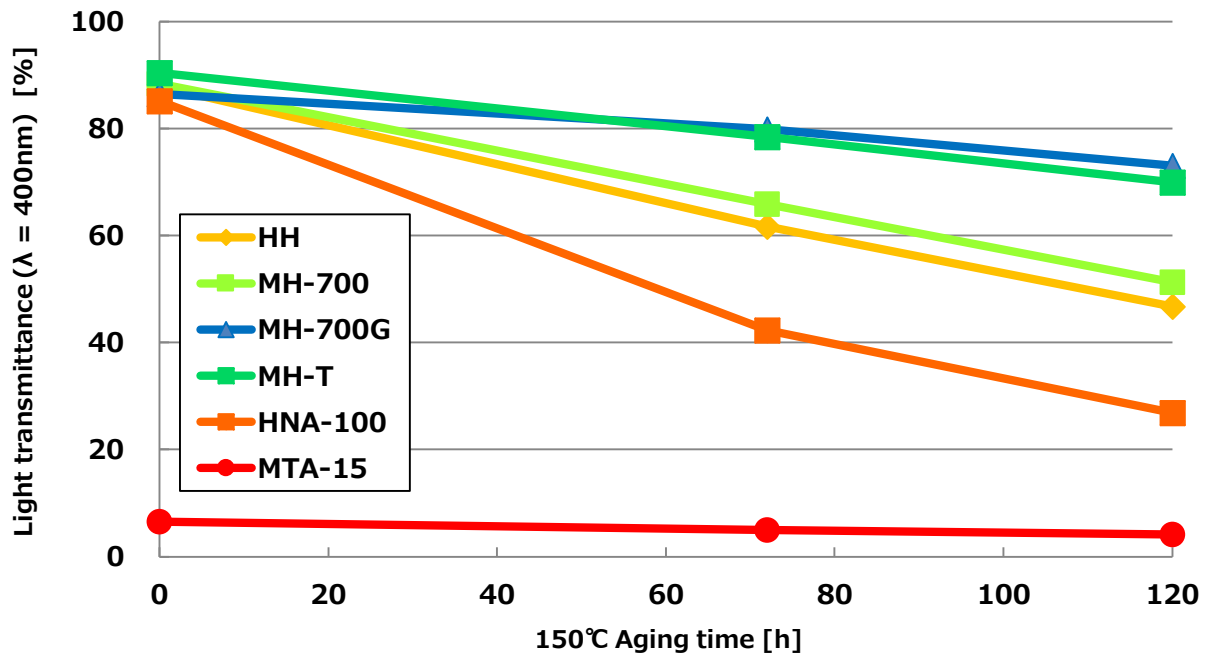
<Formulation> (parts by weight)		HH	MH-700	MH-700G	MH-T	HNA-100	MTA-15	Remarks	
Bisphenol A epoxy resin		100	100	100	100	100	100	Epoxy equivalent = 185	
RIKACID™ HH		84	—	—	—	—	—	The equivalent of acid anhydride is derived from table.	
RIKACID™ MH-700		—	89	—	—	—	—		
RIKACID™ MH-700G		—	—	89	—	—	—		
RIKACID™ MH-T		—	—	—	91	—	—		
RIKACID™ HNA-100		—	—	—	—	97	—		
RIKACID™ MTA-15		—	—	—	—	—	98		
Quaternary phosphonium salt		1.0	1.0	1.0	1.0	1.0	1.0	Accelerator	
Equivalent ratio (acid anhydride group/epoxy group)		1.0						—	
Curing condition ^{※1}		①	①	①	①	②	②	—	
<Epoxy Cured Product>		Measurement condition							
Gel time	[sec]	140°C	360	330	330	300	430	230	JIS C2105
Tg	[°C]	—	142	149	149	155	165	164	DSC (20°C/min)
Bending strength	[MPa]	25°C	120	118	118	119	134	121	JIS K6911
Bending modulus	[GPa]	25°C	2.7	2.6	2.6	2.7	3.0	2.9	
Volume resistivity	[Ω·cm]	25°C	1×10 ¹⁶	1×10 ¹⁶	1×10 ¹⁶	1×10 ¹⁶	1×10 ¹⁶	1×10 ¹⁶	JIS K6911
CTE	[ppm/K]	< Tg	56	55	55	55	61	57	TMA (5°C/min)
		> Tg	172	174	174	175	179	180	
Water absorption	[wt%]	100°C/1h	0.2	0.1	0.1	0.1	0.1	0.3	JIS K6911
Acetone resistance ^{※2}	[wt%]	25°C/1week	3.1	8.8	8.8	12.5	7.0	1.6	
Toluene resistance ^{※2}	[wt%]	25°C/1week	0.6	0.5	0.5	0.5	0.5	0.2	
Acid resistance (30% H ₂ SO ₄ aq.) ^{※2}	[wt%]	25°C/1week	0.4	0.5	0.5	0.4	0.5	0.6	
Alkali resistance (10% NaOH aq.) ^{※2}	[wt%]	25°C/1week	0.4	0.4	0.4	0.5	0.5	0.6	
Refractive index (nD)		20°C	1.56	1.55	1.55	1.55	1.55	1.55	JIS K7142
Light transmittance [%]	700 nm 150°C×0 h	—	94	93	93	93	93	92	3 mm thickness
		—	92	93	92	92	90	90	
	500 nm 150°C×0 h	—	92	93	92	93	91	67	
		—	77	79	84	81	62	53	
	400 nm 150°C×0 h	—	85	88	88	89	84	6	
		—	47	51	73	70	27	4	

※1 Curing condition ① 120°C/1h + 150°C/2h, ② 120°C/1h + 170°C/2h

※2 Weight growth rate after dipping.

Heat yellowing resistance of cured epoxy resin

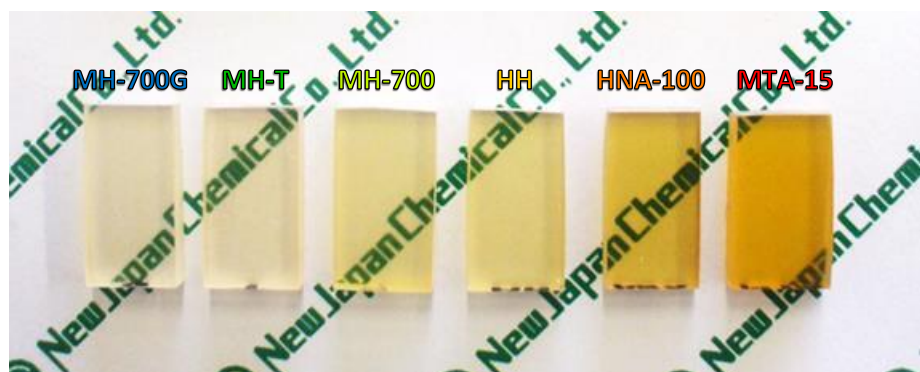
We show light transmittance in wavelength 400nm with an ultraviolet spectrophotometer. Formulation and the curing condition list it in Table 2.



After cured

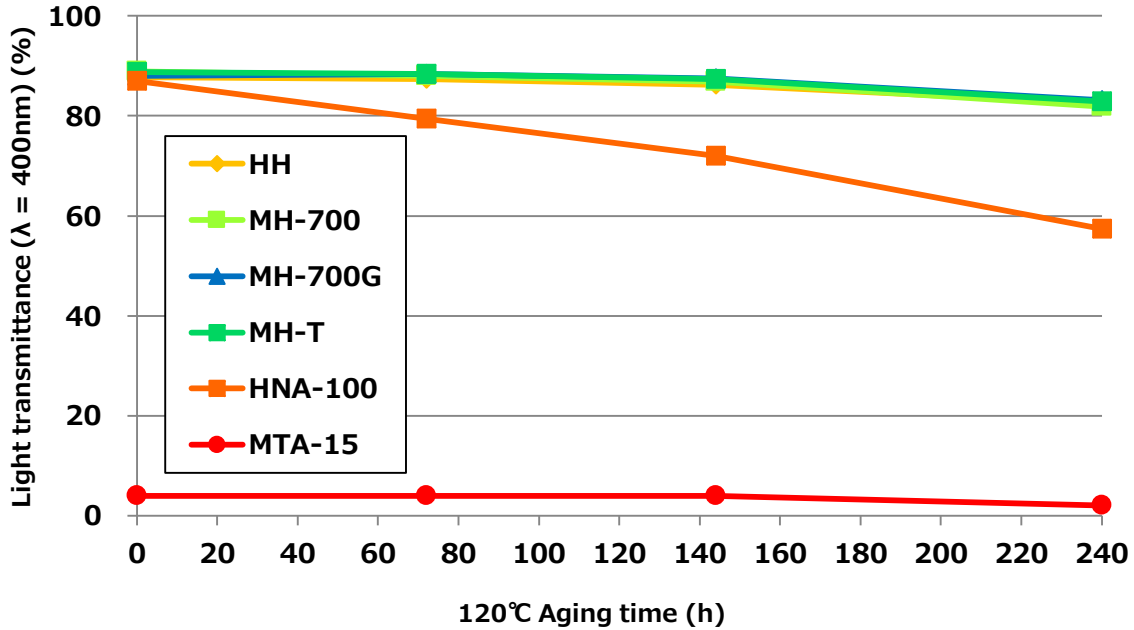


150°C / 120h aging

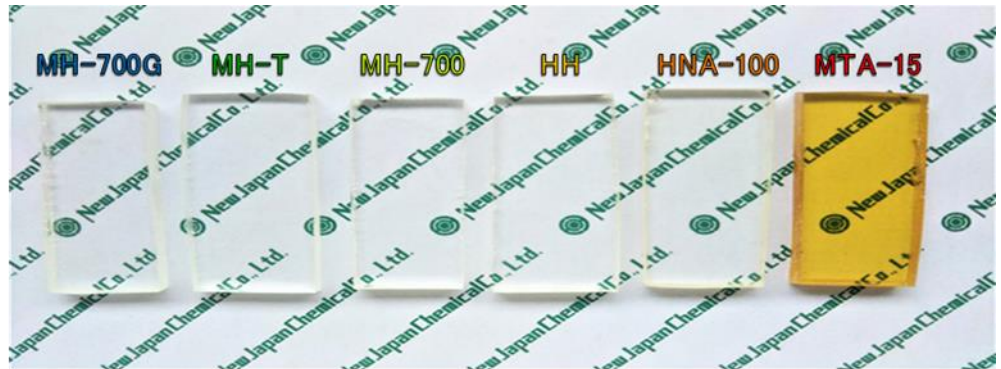


■ Heat yellowing resistance of cured epoxy resin

We change aging temperature from 150°C to 120°C. We show light transmittance in wavelength 400nm with an ultraviolet spectrophotometer. Formulation and the curing condition list it in Table 2.



After cured



120°C / 240h aging



■ Registration situation of law*

Table. 3

	RIKACID™ HH	RIKACID™ MH-700·700G	RIKACID™ MH-T	RIKACID™ HNA-100	RIKACID™ MTA-15
ENCS (Japan)	○	○	○	○	○
TSCA (USA)	○	○	○	-	-
EINECS (EU)	○	○	○	-	-
KECI (Korea)	○	○	○	-	-
IECSC (China)	○	○	○	-	-
TCSI (Taiwan)	○	○	○	○	-

○ : Registered - : Not registered

* Because the registration situation may be changed with law revision, please refer before export.

■ Attention points

- 1) Adequately ventilate room and local place.
- 2) Use protective gloves and goggles while handling.
- 3) When adhered to skin and cloths, clean it up.
- 4) When drop in eyes, clearly wash it with water then take medical examinations.
- 5) Completely seal a container to prevent from being exposed to water.

Because RIKACID™ series may be changed by moisture absorption, please avoid humidity as much as possible. Especially, at the time of storage of the remained portion, please completely seals the container and maintains the inside of the container at a dry state substituted with nitrogen gas , etc.