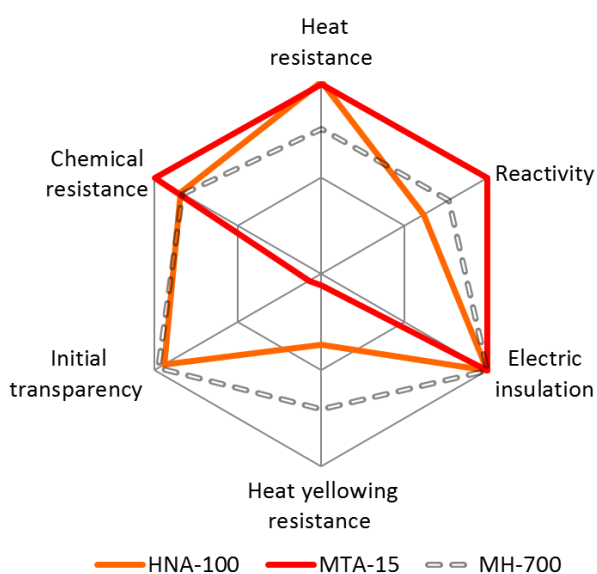
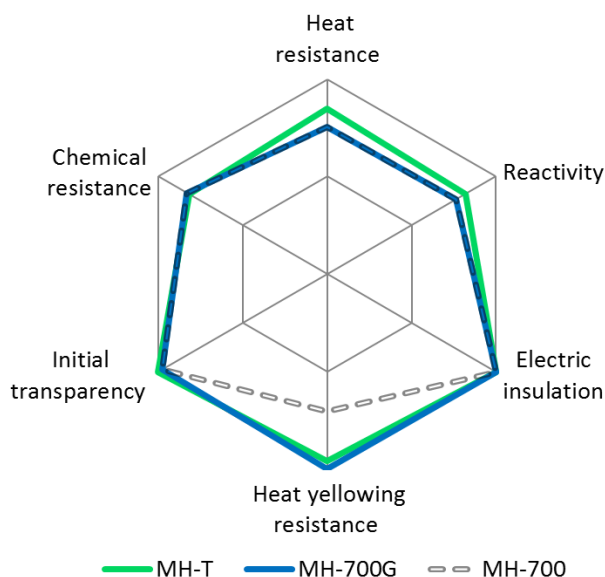


Epoxy resin curing agent of New Japan Chemical

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 : Die bond materials, Insulation sealing agent, etc.

Standard grade

- RIKACID™ HH
- RIKACID™ MH-700

■ Typical properties

Table. 1

	RIKACID™ HH	RIKACID™ MH-700·700G	RIKACID™ MH-T	RIKACID™ HNA-100	RIKACID™ MTA-15
Appearance	White vitreous 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

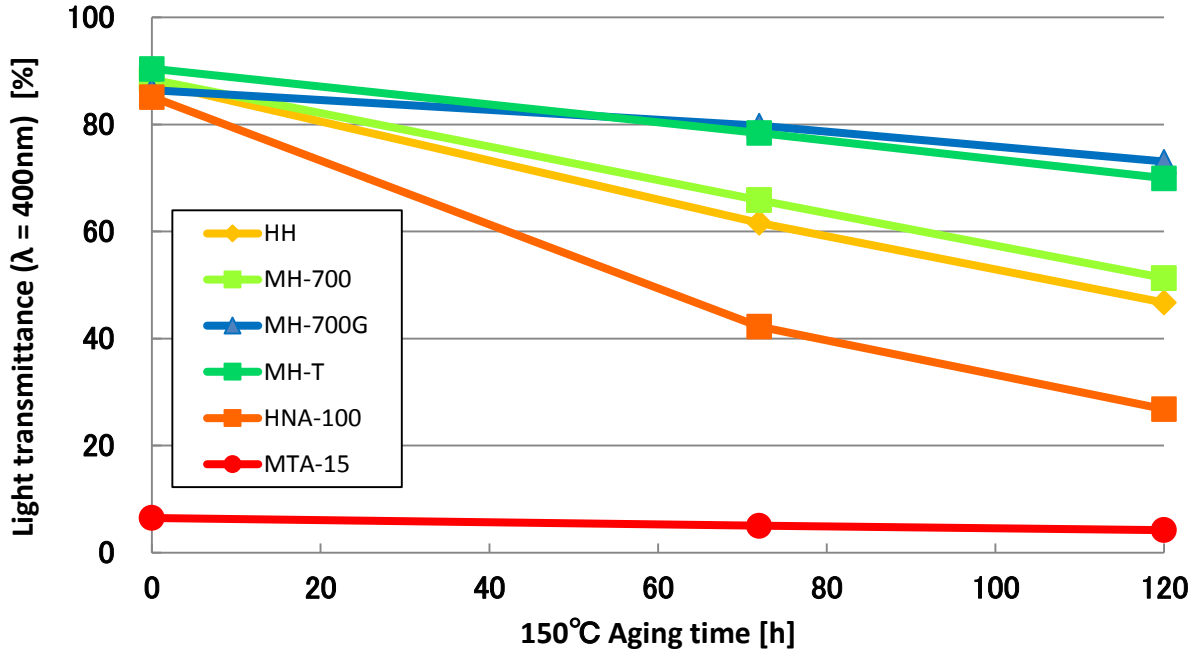
<Formulation> (parts by weight)		HH	MH-700	MH-700G	MH-T	HNA-100	MTA-15	Remarks		
Bisphenol A epoxy resin		100	100	100	100	100	100	Epoxy equivalent = 185		
RIKACID™ HH		84	—	—	—	—	—	The equivalent of acid anhydride is derived from table.		
RIKACID™ MH-700		—	89	—	—	—	—			
RIKACID™ MH-700G		—	—	89	—	—	—			
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	JIS K6911	
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		
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	JIS K6911	
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
		150°C×120 h	—	92	93	92	92	90	90	
	500 nm	150°C×0 h	—	92	93	92	93	91	67	
		150°C×120 h	—	77	79	84	81	62	53	
	400 nm	150°C×0 h	—	85	88	88	89	84	6	
		150°C×120 h	—	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

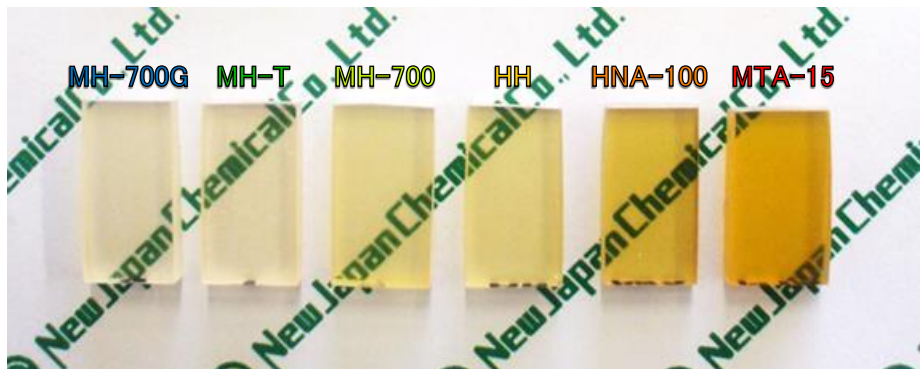
We show light transmittance in wavelength 400nm with an ultraviolet spectrophotometer. Formulation and the curing condition list it in Table 2.



After cured

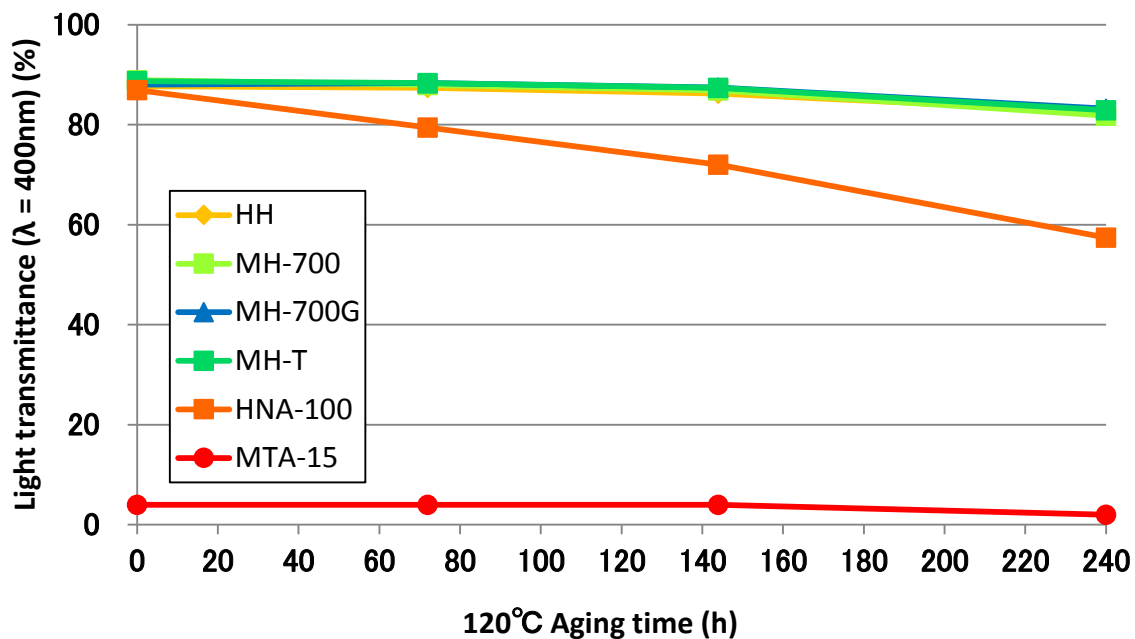


150°C / 120h aging

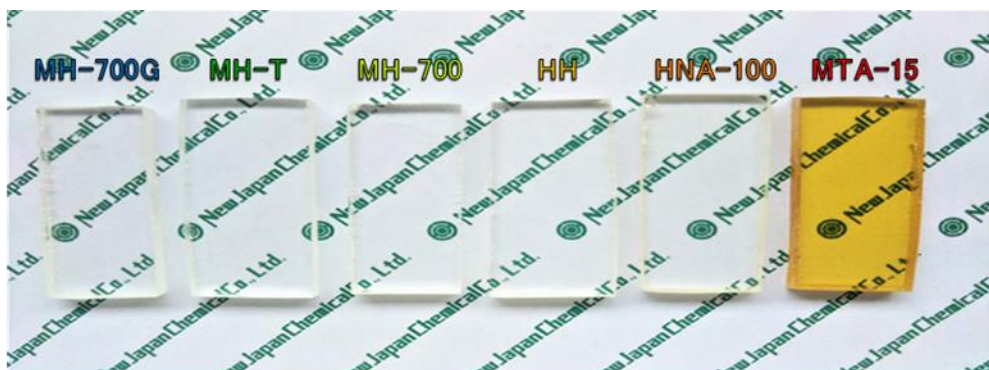


Heat yellowing resistance of cured epoxy resin

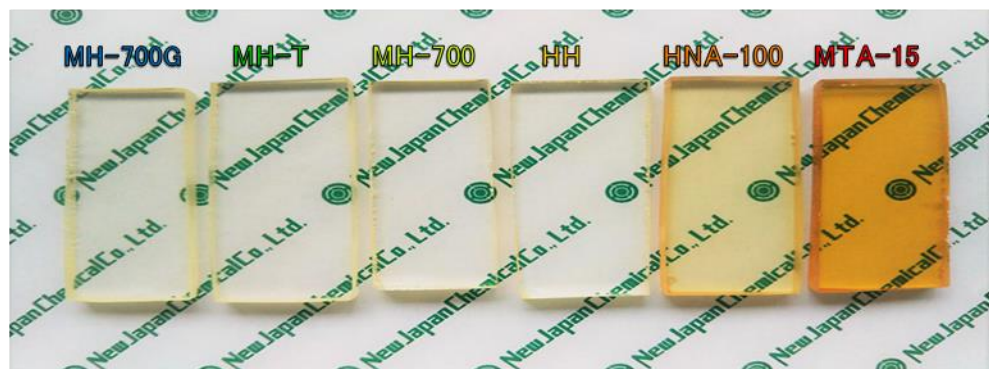
We change aging temperature from 150°C to 120°C. We show light transmittance in wavelength 400nm with an ultraviolet spectrophotometer. Formulation and the curing condition list it in Table 2.



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
MITI (Japan)	○	○	○	○	○
TSCA (USA)	○	○	○	-	○
REACH (EU)	○	○	○	-	-
ECL (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.

■ Inquiry

Please contact us at the following address, if you would like to ask about these Technical Bulletin.

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