SANHO CHEMICAL CO., LTD.
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TOHMIDE HR-11

TOHMIDE HR-11 is a high viscosity polyaminoamide of epoxy curing agent, it is provide good mechanical strength and heat resistance to 110℃, it is major applications, encapsulation, civil engineering, mold casting

1. SPECIFICATIONS

Appearance	：Brown viscous liquid.
Viscosity (25℃)	：8,000 ~ 15,000 mPa.s
Colour (Gardner)	：12 Max.
Amine Value	：400 ± 15(JIS method)
Specific Gravity	：0.98 (25 / 25℃)
A.H.E.W.	：95

2. RECOMMENDED MIXING RATIO

40 ~ 80 parts by weight to 100 parts of liquid epoxy resin whose epoxy equivalent weight is about 190.

3. CURING CHARACTERISTICS

Epoxy resin	：Employed Bisphenol-A type epoxy resin whose EEW is 190.
Total mass	：100g
Room temperature	：23℃

Epoxy resin / TOHMIDE HR-11	100 / 67		
Peak exothermic time	120		
Peak exothermic	43		
Gel time (min)	120		

(USE: PE CUP)

Remark: 100gram exothermic not complete cured after 24hr

4. PHYSICAL PROPERTIES

The mechanical properties of the cured products of the KINGMIDE 525and the same epoxy resin as employed above were measured(JIS K6911) as follow；

Epoxy resin / TOHMIDE HR-11		100 / 43	100 / 67	100 / 100
Tensile Strength	(kgf/㎟)	5.7	5.6	5.2
Flexural Strength	(kgf/㎟)	9.5	8.7	7.3
Flexural Modulus	(kgf/㎟)	--	--	--
Compressive Strength	(kgf/㎟)	8.7	7.7	6.9
Izod Impact Strength	(kgf/㎝-㎝)	1.6	1.7	2.1
Rockwell Hardness	(M-scale)	84	72	58
Heat Distortion Temp.	(℃)	55	55	46

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5. LAP SHEAR STRENGTH

Epoxy resin ：Employed Bisphenol-A type epoxy resin whose EEW is 190.

Curing Temperature ：23℃ for 7 days

Mild steel plates with sand blast treatment were employed whereon the lap shear strength of the mixtured resin of the epoxy resin and TOHMIDE HR-11 was measured.

Epoxy resin / TOHMIDE HR-11	100 / 43	100 / 67	100 / 100
Lap shear strength (kgf/cm^2)	163	173	163

6. CHEMICAL RESISTANCE

Percentage increase in weight of the cured products of TOHMIDE HR-11 and the same epoxy resin as employed above were measured as follow after being cured at 23℃ for 7 days, and immersing into respective chemical substances.

Unit：%

Epoxy resin / TOHMIDE HR-11	100 / 43			100 / 67			100 / 100		
Immersing time (days)	10	30	160	10	30	160	10	30	160
Tap water (23℃)	0.5	1.1	2.7	0.8	1.5	3.5	1.5	3.1	7.2
5% Salt solution	0.5	1.0	2.5	0.7	1.5	3.3	1.1	2.3	5.7
5% Hydrochloric Acid Solution	0.7	1.3	2.9	1.1	2.1	5.1	8.3	15	34
10% Hydrochloric Acid Solution	0.9	1.4	3.1	1.9	3.4	8.2	11	20	38
10% Caustic Soda Solution	0.4	0.8	2.0	0.6	1.2	2.7	1.1	2.2	4.9
20% Caustic Soda Solution	0.4	0.6	1.5	0.4	0.7	1.8	0.5	1.0	2.6
Isopropanol	0.7	1.2	2.4	1.5	2.8	9.2	9.9	19	29
Toluene	6.8	16	--	15	28	--	--	--	--