



SANHO CHEMICAL CO., LTD.

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KINGMIDE 581-60

KINGMIDE 581-60 is a solvent type epoxy curing agent of modified polyaminoamide, designed for such coating applications as tar-epoxy system and enamel type. KINGMIDE 581-60 provides its cured film with high orders of curing properties and superior anti-chemical resistance.

Following are data of clear varnish of KINGMIDE 581-60 with an epoxy resin.
 Epoxy resin employed : 70% solution of Epikote 1001 in xylene.

1. SPECIFICATIONG

Appearance	: Brown, viscous liquid
Solid content (%)	: 54 ± 2
Viscosity (Gardner Holdt/25°C)	: H ~ N
Amine value (JIS)	: 210 ± 20
Color (Gardner)	: 9 Max.
A.H.E.W.	: 150
Solvent (ratio)	: Xylene /Isobutanol = 75/25

(1) Drying properties of cured films (hour)

Adding weight (phr)	KINGMIDE 581-60			TOHMIDE 437			
	25.7	21.4	17.1	25.7	21.4	17.1	
35°C, 85% RH	: Set to touch	0.9	0.9	1.2	0.8	0.8	0.9
	: Tack Free	2.0	2.2	2.6	1.7	1.8	1.9
	: Dry Hard	3.8	4.4	8.4	3.1	5.1	6.8
23°C, 60% RH	: Set to touch	1.2	1.2	1.5	0.6	1.0	1.2
	: Tack Free	4.9	5.0	5.4	3.9	4.1	4.6
	: Dry Hard	10.2	12.1	13.9	7.7	13.2	15.8
15°C, 80% RH	: Set to touch	1.8	1.8	2.0	1.6	1.5	1.2
	: Tack Free	10.0	11.3	13.0	8.5	9.5	11.0
	: Dry Hard	20.0	24.0	26.5	16.5	31.0	36.5
10°C, 85% RH	: Set to touch	2.5	2.0	4.0	2.5	3.0	3.5
	: Tack Free	15.0	17.0	19.0	13.0	14.5	16.0
	: Dry Hard	28.5	31.0	35.0	31.0	36.7	43.0

Remarks : (a) Epoxy resin employed : 70% solution of EPIKOTE 1001 in xylene.
 (b) Thinner employed : Xylene / Isobutanol = 1 : 1

(2) Viscosity increase of mixtured resins of an Epoxy and KINGMIDE 581-60 varying with duration of time.

23°C, No.3 Roter, 12 r.p.m.

	** Mixing Ratio		Initial Viscosity
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KINGMIDE 581-60	150 / 32.1 / 12	194.1 gr.	1,020 mPa·s
TOHMIDE 437	150 / 32.1 / 25.5	207.6 gr.	1,050 mPa·s

** Mixing Ratio : 70% solution of an epoxy resin / KINGMIDE 581-60 / Thinner (EPIKOTE 1001)

by BM type viscometer

Duration of Time	KINGMIDE 581-60	TOHMIDE 437
Initial Viscosity	1,020 mPa·s	1,050 mPa·s
60 min. later	1,340	1,370
120 min. later	1,860	1,970
180 min. later	2,580	2,750
240 min. later	3,750	3,900
300 min. later	5,550	5,550

(3) Physical properties and Chemical resistance

Epoxy resin employed : 70 solution of Epidote 1001 in xylene.

Adding weight (phr)	KINGMIDE 581-60			TOHMIDE 437		
	25.7	21.4	17.1	25.7	21.4	17.1
Physical Properties						
Cross Cut (2 mm width)	25/25	25/25	25/25	24/25	25/25	25/25
Flexibility (φ 2 mm)	OK	OK	OK	OK	OK	OK
Du Pont Impact Test						
1 / 2" × 500gr × 50 cm (Face)	OK	OK	OK	OK	OK	OK
1 / 2" × 500gr × 50 cm (Back)	OK	OK	OK	OK	OK	OK
Pencil Hardness	HB	B	2B	HB	B	2B
Chemical Resistance						
Tap Water (7 days)	(7 days)	10	10	10	10	10
	(30 days)	10	10	10	10	10
40°C, Hot water (7 days)	(7 days)	10	10	10	9-VS	10
5% solution of salt water	(7 days)	10	10	10	10	10
	(30 days)	8-S	9-VS	10	9-S	9-S
40°C, 5% solution of salt water	(7 days)	9-VS	10	10	9-VS	9-VS
10% solution of caustic soda	(7 days)	10	10	10	10	10
	(30 days)	10	10	10	10	10
5% solution of sulfuric acid	(7 days)	10	10	9-S	10	9-VS
Salt spray test(50 hours) Scrape	(30 days)	10	10	9-S	10	9-VS
	width(mm)	3	3	2	2	2~3
						2~3

** 23°C, curing for 7 days.

** Dry film thickness = about 70μm