



SANHO CHEMICAL CO., LTD.

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KINGMIDE X-220B

KINGMIDE X-220B is a low viscosity, modified reactive polyamide resin designed for use with liquid epoxy resins to achieve cure at room temperature or high humidity conditions. KINGMIDE X-220B systems are suitable for use in civil engineering. adhesives, coatings and patch repair mortars, where excellent adhesion and good flow. and fast curing even in cold damp conditions are required.

1. SPECIFICATIONS

Appearance	: Brown-colored viscous liquid.
Viscosity (25°C)	: 450~600 mPa·s
Colour (Gardner)	: 10 Max.
Amine Value	: 320±15 (JIS method)
Specific Gravity	: 1.01 (25 / 25°C)
Flash Point	: 90°C

2. RECOMMENDED MIXING RATIO

40~60 parts by weight to 100 parts of liquid epoxy resin whose epoxy equivalent weight is about 190.

3 CURING CHARACTERISTICS

(1) Exothermic reaction

Epoxy resin	: employed bisphenol-A type epoxy resins whose EEW is 190.
Total mass	: 100g
Room temperature	: 23°C

Epoxy resin / X-220B	100 / 40	100 / 50	100 / 60
Peak exothermic time (min.)	63	50	40
Peak exothermic temp.(°C)	140	163	174
Gel time (min.)	55	46	35

(2) Drying characteristics

The drying characteristics of the coated films of the mixtured resin of X-220B and the same epoxy resin as employed above were measured by RCI drying recorder, as follow;

Epoxy resin / X-220B		100 / 50	100 / 40
23°C	Set to touch (hours)	2.8	3.2
	Tack free (hours)	5.6	6.3
	Dry through (hours)	7.3	8.1

© film thickness about 200 µm:



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4. PHYSICAL PROPERTIES

The mechanical properties of the cured products of the KINGMIDE X-220B and the same epoxy resin as employed above were measured as follow ; Cured at 23°C for 7 days

Epoxy resin / KINGMIDE X-220B		100 / 40	100 / 50	100 / 60
Tensile Strength	(kgf/mm ²)	5.2	5.6	6.4
Flexural Strength	(kgf/mm ²)	5.7	7.9	8.6
Flexural Modulus	(kgf/mm ²)	2.5×10 ²	2.5×10 ²	2.5×10 ²
Compressive Strength	(kgf/mm ²)	6.8	8.5	8.5
Izod Impact Strength	(kgf/cm-cm)	1.5	1.8	2.2
Rockwell Hardness	(M-scale)	69	96	98
Heat Distortion Temp.	(°C)	37	43	46

5. LAP SHEAR STRENGTH

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

Curing Temperature : 23°C for 4 days

Epoxy resin / KINGMIDE X-220B		100 / 40	100 / 50	100 / 60
Lap shear strength	(kgf/cm ²)	151	118	101

6. CHEMICAL RESISTANCE

Percentage increase in weight of the cured products of KINGMIDE X-220B and the same epoxy resin as employed above were measured as follow after being cured at 23°C for 7 days, and immersing into respective chemical substances.

Unit : %

Epoxy resin / X-220B	100 / 40			100 / 50			100 / 60		
	1	7	30	1	7	30	1	7	30
Tap water (23°C)	0.2	0.6	1.3	0.2	0.5	1.2	0.2	0.6	1.2
5% Salt solution	0.2	0.6	1.1	0.2	0.5	1.1	0.2	0.5	1.1
5% Caustic Soda Solution	0.3	0.6	1.1	0.3	0.6	1.1	0.3	0.6	1.3
5% Ammonia Solution	0.3	0.6	1.2	0.3	0.6	1.3	0.4	0.8	1.7
10% Sulfuric Acid Solution	0.2	0.5	0.9	0.2	0.4	0.9	0.2	0.5	1.0
10% Hydrochloric Acid solution	0.3	0.6	1.2	0.2	0.6	1.2	0.2	0.6	1.4
Kerosene	0.5	1.1	1.3	0.3	0.8	1.4	0.1	0.6	1.4
Isopropanol	12.8	BROKEN		6.2	17.7	BROKEN	1.4	6.1	13.7
Methyl-isobutyl-ketone	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2