

XH 111 A/B

Room temperature curing system based on bishenol A epoxy resin and modified aliphatic polyamine hardener for fast type, and aliphatic amine hardener for normal type.

Applications

Bonding agent for prefabricated concrete elements (e.g. segmental concrete bridge).
Bonding agent for external reinforcement (steel plate stiffeners to concrete / steel structural members).
Bonding agent for external marble wall finishes.
Bonding agent for tiles / bricks.
Sealant for tile joint pointing.
Anchoring grout for reinforcing steel and prestressing cables in concrete and rock (especially horizontal application).
Repairing material for concrete cracks.

Features & Benefits

Cold-curing two-component solvent-free thixotropic epoxy adhesive.
High mechanical strength.
Excellent adhesion to a wide range of substrate.
Outstanding resistance against water and chemicals.

Processing methods

Stir XH 111 A and XH 111 B respectively to eliminate sediment.
Empty XH 111 A and XH 111 B into a mixing pot.
Mix them thoroughly to a uniform colour by a simple stirrer.

Package

Each set includes XH 111 A (1.33kg) and XH 111 B (0.67kg)

Mixing Ratio

For XH 111 A/B Normal white A:B=2:1 by weight or 2.13:1 by volume
For XH 111 A/B Fast white A:B=2:1 by weight or 2.25:1 by volume

Yield Volume

1250 cm³ / set.

Preparation of substrate

Surface must be sound, free of laitance, loose particles, dust, oil and grease.
Concrete should be dry, not wet.

Application of Primer

No primer is required.

Application methods

Apply by steel spatula or similar.
Apply to both of the joining concrete surfaces for large areas such as segmental bridge construction.

Rebar anchoring

For anchoring, fill up the drill holes before anchoring the rebars.

For high yield bars with permissible direct tensile stress not less than 210N/mm² and concrete with permissible compressive and shear strengths not less than 20N/mm² and 0.67N/mm² respectively, embedded lengths and sizes of drill holes are listed below for reference.

Bar diameter, D (mm)	10	12	16	20	25	32	40
Drill hole diameter (mm)	13	16	20	24	30	38	48
Min embedded length (mm)	16D	16D	16D	16D	16D	16D	16D

Cleaning of Tools

Tools and equipment should be cleaned immediately after use.
Residual resin before curing can be scrapped off or washed off with solvents such as acetone.

XH 111 A

Formulated ARALDITE epoxy resin

Type	Fast	Normal
Appearance	natural colour (grey)	natural colour (grey)
Viscosity at 25°C ITM 004 (HBTD D10)	350,000-800,000mPas	350,000-800,000mPas
Filler content	52 - 57% by weight	52 - 57% by weight
Density at 25°C ITM 026	1.5 - 1.7gm/cm ³	1.5 - 1.7gm/cm ³
Shelflife at 18-25°C	12 months in sealed original container	
Hazardous decomposition products	Carbon monoxide and carbon dioxide when disposed of in fire	
Disposal	Regular procedures approved by national and/or local authorities	

XH 111 B

Formulated aliphatic amine

Type	Fast	Normal
Appearance	natural colour (white)	natural colour (white)
Viscosity at 25°C ITM 004	2,800 - 6,500mPas (RVF - 100A20)	28,000 - 63,000mPas (HBTD B10)
Filler content	70 - 75% by weight	65 - 70% by weight
Density at 25°C ITM 023	1.7 - 1.9gm/cm ³	1.6 - 1.8gm/cm ³
Shelflife at 18-25°C	6 months in sealed original container	
Hazardous decomposition products	Carbon monoxide and carbon dioxide when disposed of in fire	
Disposal	Regular procedures approved by national and/or local authorities	

Type	Fast White	Normal White
Appearance after mixing	natural colour (pale grey)	natural colour (pale grey)
Density at 25°C ITM 026	1.5 -1.7gm/cm ³	1.5 -1.7gm/cm ³
Geltime ITM 003	40-65min (at 25°C)	45-70min (at 40°C)
Initial viscosity (at 25°C) ITM 014 (HBTD B20) (at 5°C)	~ 58,000mPas ~ 960,000mPas	~ 65,000mPas ~ 1,600,000mPas
Pot life (at 25°C) ITM 022 (at 5°C) (batch size: 0.5kg)	~ 5min ~ 100min	~ 25min ~ 250min
Minimal Curing Time (at 25°C) (at 5°C)	~ 1 hours ~ 8 hours	~ 3-4hours ~ 16 hours

Technical Data

Type	Fast White	Normal White
Compressive 16 hr. at 5°C 6 hr. at 25°C 7 Day at 25°C ASTM D 695	37 N/mm ² 38 N/mm ² 86 N/mm ²	- 36 N/mm ² 80 N/mm ²
Tensile 16 hr. at 5°C 6 hr. at 25°C 7 Day at 25°C ASTM D638	4.7 N/mm ² 5.9 N/mm ² 10.8 N/mm ²	- 5.4 N/mm ² 9.5 N/mm ²
Flexural 7 Day at 25°C ASTM D790	27N/mm ²	22 N/mm ²
Bond with concrete 7 Day at 25°C 28Day at 25°C BS 6319: Slant Shear Method	24N/mm ² 28N/mm ²	21 N/mm ² 24 N/mm ²
Bond with blasted steel 7 Day at 25°C ASTM D1002: metal to metal	12N/mm ²	11N/mm ²
Modulus of Elasticity in Compression 7 Day at 25°C ASTM C 165	24000 N/mm ²	19700 N/mm ²
Coefficient of linear thermal expansion 7 Day at 25°C ASTM D696	20x10 m/mk ⁶	17x10 m/mk ⁶
Unrestrained linear shrinkage 7 Day at 25°C BS 6319	0.012 %	0.022 %

Epoxy resins and hardeners are chemicals. All mandated and recommended industrial hygiene procedures should be followed whenever they are being handled. For details, please consult "Hygienic precautions for handling plastics of Vantico" (Publication No. 24264/e)

Personal hygiene

Safety precautions at workplace

Protective clothing	Cover alls
gloves	essential
arm protectors	recommended when skin contact likely
goggles/safety glasses	yes
respirator/dust mast	-

Skin protection

before starting work	Apply barrier cream to exposed skin
after washing	Apply barrier or nourishing cream

Contaminated skin Dab off with absorbent paper, wash with warm water and alkalifree soap, they dry with disposable towels. Do not use solvents.

Clean shop requirements Cover workbenches, etc. with light coloured paper. Use disposable beakers, etc.

Spillage Soak up with sawdust or cotton waste and deposit in plastic-lined bin.

Ventilation

of workshop	Renew air 3 to 5 timer an hour.
of workbench areas, etc.	Exhaust fans. Operatives should avoid inhaling vapours.

First aid

Contamination of the **eyes** by resin, hardener or the mix should be treated immediately by flushing with clean, running water for 10 to 15 minutes. A doctor should then be consulted.

Material smeared or splashed on the **skin** should be dabbed off, and the contaminated area then washed and treated with a cleansing cream (see above). A doctor should be consulted in the event of severe irritation or burns. Contaminated clothing should be changed immediately.

Anyone taken ill after **inhaling** vapours should be moved out of doors immediately and a doctor summoned.