

# NUPLEX CORESET 300

## Thixotropic adhesive for bonding reinforcements

### DESCRIPTION

Nuplex Coreset 300 is a thixotropic adhesive mortar based on a 2-component solvent free epoxy resin. Nuplex Coreset 300 is used primarily to bond structural reinforcements to other substrates. It can also be used to bond and fill a wide variety of building and construction materials.

### USES

For structural bonding of:

- Nuplex TL to concrete, brickwork, stone, timber and blockwork.
- Steel plates to concrete.
- Concrete elements.
- Bridge segments.

For bonding of:

- Starter bars.
- Wall anchors.
- Fixings.

For vertical and overhead filling of:

- Holes
- Dimensional inaccuracies.

### ADVANTAGES

- Excellent green-strength – non sag in vertical and overhead applications.
- High creep resistance under permanent load.
- Good mechanical strength.
- Good chemical resistance.
- Low shrinkage during curing stage.
- Application at low temperatures.
- Excellent adhesion to most building material even when damp.
- High abrasion resistance.
- High early strength.
- High tensile and flexural strength.
- Supplied in factory proportioned units.

### STORAGE AND SHELF LIFE

Minimum shelf life is approximately two (2) years. Store under controlled conditions in original containers (minimum 5°C, maximum 35°C temperature range).

The Australian Trade Practices Act implies into contracts for the supply by a corporation of services as a "consumer" non-excludable warranties that, among other things, the goods provided will be of merchantable quality. Except to the extent that the Purchaser has non-excludable rights against the company under the Trade Practices Act, and because we cannot anticipate or control the many different conditions under which our products and information furnished relating to their use may be used, we do not guarantee the applicability or the accuracy of this information or the suitability of our products in any given situation.

In accepting our goods the customer acknowledges:

- (a) The materials are of a hazardous nature and that the customer is responsible for disposal of the container in accordance with the requirements and regulations of the relevant supervising government.
- (b) The materials have a limited shelf life and must be stored strictly in accordance with the guidelines and specifications relating to the particular product.
- (c) The company gives no warranty as to the applicability for the particular use by the customer and the customer shall be responsible for having to ensure that the materials are fit for the use by the customer.

## SURFACE PREPARATION

All surfaces must be clean, sound and free from dust, ice, oils, grease or other surface contaminants such as form release residues and curing membranes.

Concrete, Mortar, Stone: Mechanically abrade the surface with a needle gun, water blast, grit blast or grind. All surface laitance must be removed. Cement and concrete should be at least 3-4 weeks old (max. moisture content 4%).

Minimum adhesive tensile strength of the substrate 1.5MPa.

Metals: Remove any paints, oils, grease, rust and oxide films by grit blasting. Apply Nuplex Corset 300 without delay.

Timber: Sandblast the surface or grind the timber, leaving a rough surface on the substrate.

Epoxy: Abrade and rinse with Nuplex Epoxy Thinners.

## MIXING

Nuplex Coreset 300 is supplied in factory proportioned units comprising the correct quantities of Part A (Resin) and Part B (Hardener). Thoroughly stir both components separately using a slow running drill/stirrer with a helical paste mixer (max. speed 600 rpm). Decant all Part B into Part A and mix thoroughly until a uniform colour is achieved (typically 3 mins.). A streaky colouration is indicative of inadequate or incomplete mixing. Apply immediately. Small units may be hand mixed provided an even colour is achieved.

## APPLICATION

When using Nuplex Coreset 300 as a structural reinforcement adhesive, apply well mixed epoxy to the substrate, at maximum 1mm thickness, using a spatula, trowel, or float. Adhesive should then be applied to the Nuplex TL laminate or steel plate in a roof shape (minimum 1mm thickness at the sides, 2mm in the centre). Steel plates must be fixed to the concrete substrate using specially prepared supports.

Nuplex TL laminates are pressed into the substrate with hard rubber rollers by hand. It is important that laminates are evenly pressed onto the substrate until the adhesive is squeezed from both sides of the laminate.

## CLEANING

Uncured material may be cleaned from application tools, etc. by using Nuplex Epoxy Thinner (flammable solvent). Cured material can only be removed mechanically.

## TECHNICAL DATA (TYPICAL)

<b>Appearance</b>	Part A	White paste
	Part B	Black paste
	Part A + B	Light grey when mixed
<b>Mix Ratio</b>	A : B = 3 : 1 (parts by weight & volume)	
<b>Density</b>	1.3 kg/L	(A + B)
<b>Pot Life</b>	68 minutes	(at 35°C)
<b>Open Time</b>	30 minutes	(at 35°C)
<b>Sag Flow</b>	3 - 5mm (at 35°C)	
<b>Shrinkage</b>	0.04%	
<b>Glass Transition Point</b>	62°C	
<b>Static E-Modulus</b>	12,800 MPa	
<b>Adhesive Strength</b>	Concrete:	4MPa (Concrete Failure)
	Steel:	33MPa (Sandblasted Substrate)
<b>Shear Strength</b>	15 MPa (Concrete Failure)	

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## TECHNICAL DATA (TYPICAL) cont.

Consumption	Laminate Type	Nuplex Coreset 300
	TL510	0.50 kg/m
	TL515	0.50 kg/m
	TL520	0.50 kg/m
	TL1014	0.64 kg/m
	TL1214	0.77 kg/m
<b>Packaging</b>	25 kg tins Part A: 20 kg	Part B: 5 kg

## THEORETICAL ADHESIVE UNIT WEIGHT USAGE FOR LAMINATE

We use 500g/m of adhesive for a laminate when using 50mm width laminate. We consider that the applicator applies adhesive to rough surface such as 3mm bump and this adhesive volume is taken into consideration. No air to remain in the adhesive. Adhesive is applied to both the laminate and concrete substrate. The ratio is approximate 1:1 laminate to concrete.

Total weight/m = 500 (g/m) = Laminate 250 (g/m) + Concrete 250 (g/m)

Assuming as Adhesive's density 1.6 (g/cm<sup>3</sup>)

When section of adhesive on the laminate is A= 156 (mm<sup>2</sup>)

Therefore t= 6 (mm)

$$A = \frac{1}{2} W \times t$$

$$t = \frac{2A}{W}$$

Simple Model of resin mounting

Using other width type laminate, adhesive weight is in the following table.  
But, the above thickness is used,

width (mm)	thickness (mm)	Area (mm <sup>2</sup> )	Weight on the laminate(g/m)	weight on the concrete(g/m)	Total (g/m)
75	6	225	360	375	735
100	6	300	480	500	980
120	6	360	576	600	1176

According to the above table, adhesive volume depends on condition of surface of concrete. i.e. if the workers can make even surface, you can reduce adhesive volume.

For example, I assume that concrete surface is even, and adhesive thickness can be 1mm. When, adhesive unit weight is the following table.

width (mm)	thickness (mm)	Area (mm <sup>2</sup> )	Weight on the laminate(g/m)	weight on the concrete(g/m)	Total (g/m)
75	6	225	360	120	480
100	6	300	480	160	640
120	6	360	576	192	768

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