

Fire Retardant Epoxy Adhesive System Excellent Bond on Concrete or Steel Structural for Build Strip Type [Plate] & Build Seal Prepreg only

Introduction

Epo Adhesive Strip 765 is a filled fire retardant adhesive with high strength properties which makes it suitable bonding a wide range of materials, particularly metals, alloys, concrete, and FR composite components. It is particularly suitable where long working times are required. The product is highly thixotropic and thus can be applied to vertical surfaces in thickness up to 8mm without risk of sag or slump.

Directions or Use

The product is optimized for use at 15 - 25° C. At lower temperatures the components thicken and may eventually become unworkable. To ensure accurate mixing and good workability pre-warm the resin & hardener as well as the surfaces to be bonded before use, Resin is yellow; fast hardener is red and slow hardener is blue.

Surface Preparation

Before using the product ensure that surfaces to be bonded are clean, dry and dust-free. Prepare all surfaces by abrading with medium grit paper or other suitable abrasive, remove dust then wipe with acetone or Solvent A

Metals usually require a chemical pre-treatment to create the best bond (Contact LaMaCo System Sdn Bhd services)

Ensure that polyester or vinylester laminates are fully cured before bonding, then prepare as above.

When bonding epoxy laminates, the use of a suitable Peel Ply as the last stage in their manufacture is recommended, otherwise prepare as above. Trials may be required to test Peel Ply suitability. For ferrocement. Etch with 5% solution of hydrochloric acid, wash with fresh water, then dry.

For all timber, sand with abrasive paper across grain. Degrease oily timber with a fast evaporation solvent (e.g LaMaCo System Solvent A) For resinous or gummy timber. Etch with 2% caustic soda solution wash off with fresh water and dry.

Mixing & Handling

Use either fast or standard hardener, depending on speed of reaction and working time required in the ratio:-

**Epo Adhesive Strip 765 resin/2 part
with
Epo Adhesive Strip 765 hardener/1 part**

For small volumes use graduated plastic mixing cups available from LaMaCo System Sdn Bhd. For larger volumes industrial mixing/dispensing equipment should be used. Solvent-free epoxies have a limited pot life. Mix sufficient only for immediate use to avoid excessive heat build up and resin wastage

With **fast** hardener mix enough for up to 15 minutes use
With **slow** hardener mix enough for up to 60 minutes use

Resin is colored red and each hardener is white aids component identification and helps ensure an even and thorough mix. The mixed system has a terracotta color.

Mix thoroughly for at least one minute, paying particular attention to the sides and bottom of the mixing vessel to ensure a good cure. The system is quite "stiff" so be careful and thorough mixing is required. Use from pot quickly or spread mixed system over a large surface area (e.g paint roller tray) to dissipate heat and maximize resin working life (see Working Properties)

Availability

Resin Size	Order Code
10kg Resin	F656-005
Hardener Size	Order Code
5.0kg Fast	F656-011
5.0kg Slow	F656-008

Notes For details of other ancillary products that may be useful when using **Epo Adhesive Strip 765**, please see the separate Ancillary Products section.

Component Properties

	Resin	Hardener	
		Fast	Slow
Mix Ratio (by weight)	100	50	50
Mix Ratio (by volume)	100	50	50
Viscosity @ 15°C (cP)	n/a	36960	12720
Viscosity @ 20°C (cP)	113100	19440	6850
Viscosity @ 25°C (cP)	55680	12060	5130
Viscosity @ 30°C (cP)	24960	7660	2660
Shelf Life (months)	12	12	12
Colour	red	off-white	off-white
Mixed colour	-	terracota	Terracotta
Component Dens.(g/cm ³)	1,507	1.513	1.513
Mixed Density (g/cm ³)	-	1.512	1.513
Hazard Definition	Xi	C	C

Cured System Properties

	Room Temp.Cure		Cured 24 hours @ 21°C		Cured	
	(28 days @ 21°C)		+16 hours @ 50°C		5 hrs @ 70°C	
	Fast	Slow	Fast	Slow	Fast	Slow
Tg DMTA (Peak Tan) (°C)	85.1	72.3	97.9	87.9	108.0	102.3
Tg Ult - DMTA (°C)	108.7	123.1	108.7	123.1	108.7	123.1
Tg2 - DSC (°C)	64.3	60.0	77.4	71.8	86.9	82.9
Tg1 - DMTA (°C)	63.6	59.1	80.0	75.9	92.2	89.2
Cured Density (g/cm ³)	-	-	-	-	1.533	1.527
Linear Shrinkage (%)	-	-	-	-	1.112	0.992
Cleavage Strength (kN)	6.81	6.23	8.09	6.79	7.44	7.15
Shear Strength on Steel (MPa)	21.22	19.13	28.37	23.43	27.21	26.77
Shear Strength Wet Retention(%)	129.9	115.3	92.5	85.70	-	-

Working Properties vs. Temperature

	Resin/Fast Hardener				Resin/Slow Hardener			
	15°C	20°C	25°C	30°C	15°C	20°C	25°C	30°C
Initial Mixed Viscosity (cP)	99000	57900	30960	15960	64900	39060	23820	5760
Gel Time-500g mix in water(hrs.mins)	1:26	1:10	0:56	0:45	5:00	4:16	3:32	3:00
Pot life-500g mix in air (hrs.mins)	0:39	0:35	0:31	0:28	5:21	3:56	2:54	2:09
Clamp Time(hrs:mins)	4:39	3:30	2:36	1:57	17:38	12:55	9:12	6:44
Sag resistance (mm)	9.1	8.0	6.8	6.0	9.1	8.0	6.8	6.0

Usage

Gluing **Epo Adhesive Strip 765** has a higher shear strength and toughness than multipurpose epoxies which makes it more suitable for bonding both high strength materials and dissimilar materials. **Epo Adhesive Strip 765** is a filled system which gives it greater thixotropy than standard epoxy systems

Pigmenting Because of the strong color of the resin and hardener, this system cannot be pigmented using standard **Epo Adhesive Strip 765** pigments

Working Properties	Resin+Slow Hardener	Resin+Fast Hardener
Typical pot life 500g @ 20°C (mins)	240	35
Sag resistance @ 20°C (mm)	8	8
Typical clamp time @ 20°C (hours) ²	13	3.5
Mixed viscosity @ 20°C (cps) ³	≈39000	≈58000

- 1 - Depends on volume and surface area of mixed product and insulating properties of mixing vessel.
- 2 - Depends on thickness of film applied and insulating nature of surface being covered.
- 3 - Cannot be determined with accuracy due to thixotropic and filled nature.

Health and Safety

The following points must be considered:

1. Skin contact must be avoided by wearing protective gloves. LaMaCo System Sdn Bhd recommends the use of disposable nitrile gloves for most applications. The use of barrier creams is not recommended, but to preserve skin condition a moisturizing cream should be used after washing.
2. Overalls or other protective clothing should be worn when mixing, laminating or sanding. contaminated work clothes should be thoroughly cleaned before re-use.
3. Eye protection clothing should be worn if there is a risk of resin, hardener, solvent or dust entering the eyes. If this occurs flush the eyes with water for 15 minutes, holding the eyelid open, and seek medical attention.
4. Ensure adequate ventilation in work areas. Respiratory protection should be worn if there is insufficient ventilation. Solvent vapours should not be inhaled as they can cause dizziness, headaches, loss of consciousness and can have long term health effects.
5. If the skin becomes contaminated then the area must be immediately cleansed. The use of resin removing cleansers is recommended and to finish, washing with soap and warm water. The use of solvents on the skin to remove resins etc. must be avoided.

Washing should be part of routine practice:

- before eating or drinking
 - before smoking
 - before using the lavatory
 - after finishing work
6. The inhalation of sanding dust should be avoided, and if it settles on the skin then it should be washed off. After more extensive sanding operations a shower/bath and hair wash is advised.

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