

Spabond™ 400FR Adhesive

STRUCTURAL FIRE RETARDANT EPOXY ADHESIVE

- Fire-retardant, capable of meeting UL-94
- High shear and peel strength
- Halogen-free
- Excellent gap filling properties
- Low exotherm
- Simple 3 : 1 mix ratio
- Available in cartridge formats

INTRODUCTION

Spabond™ 400FR adhesive combines high performance with fire retardancy.

Spabond™ 400FR adhesive exhibits excellent handling properties without compromising on the high mechanical properties associated with high performance epoxy adhesives. This two-component adhesive is designed for bonding a variety of composite materials, metals and other dissimilar substrates.

PRODUCT INFORMATION

AVAILABILITY

The product is available in a number of formats please contact your local customer support or download the latest product catalogue available on www.gurit.com.

TRANSPORT & STORAGE

The resin and hardeners should be kept in securely closed containers during transport and storage. Any accidental spillage should be soaked up with sand, sawdust, cotton waste or any other absorbent material. The area should then be washed clean (see appropriate Safety Data Sheet). Adequate long term storage conditions will result in a shelf life of 1 year for both the resin and hardeners. Storage should be in a warm dry place out of direct sunlight and protected from frost. The storage temperature should be kept constant between 10°C and 25°C, cyclic fluctuations in temperature can cause crystallization. Containers should be firmly closed. Hardeners, in particular, will suffer serious degradation if left exposed to air.

COMPONENT	UNITS	10 – 25°C
Spabond™ 400FR Resin	months	12
Spabond™ 400FR Hardener	months	12

For more information on crystallization please refer to the Adhesives section on the Gurit website. (www.gurit.com)

INSTRUCTIONS FOR USE

The product is optimised 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.

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.

Metals - usually require a chemical pre-treatment to create the best bond. Please contact Gurit for a Guide to Surface Preparation and Pre-treatments.

Polyester or vinylester - ensure laminates are fully cured before bonding, then prepare as above.

Epoxy laminates - it is recommended to use a suitable Peel Ply as the last stage in their manufacture, otherwise prepare as above. Trials may be required to test Peel Ply suitability.

Ferrocement - etch with 5% solution of hydrochloric acid, wash with fresh water, then dry.

Timber - sand with abrasive paper across grain. Degrease oily timber with a fast evaporating solvent (e.g. acetone). For resinous or gummy timber, etch with 2% caustic soda solution, wash off with fresh water and dry.

MIXING & HANDLING

Solvent-free epoxies have a limited pot-life. Mix sufficient only for immediate use to avoid excessive heat build up and resin wastage.

CARTRIDGE USE

If dispensing product from a two component cartridge, first prime the cartridge by dispensing slowly until both resin and hardener are at the outlet of the cartridge. Secondly, clean the outlet and attach the mixing head. When starting a new cartridge, dispense and discard a small amount of adhesive (typically the length of a mix head) prior to applying adhesive to the substrate, in order to ensure thorough mixing of the system. If using a pneumatic gun, regulate supply air pressure to a maximum of 4 Bar. Relieve the pressure on the cartridge after use.

HEALTH AND SAFETY

The following points must be considered:

1. Skin contact must be avoided by wearing protective gloves. Gurit recommends the use of disposable nitrile gloves for most applications. The use of barrier creams is not recommended, but to preserve skin condition a moisturising 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 should be worn if there is a risk of resin, hardener, solvent or dust entering the eyes. If this occurs flush the eye 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. To finish, wash 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.

APPLICABLE RISK & SAFETY PHRASES

Gurit produces a separate full Safety Data Sheet for all hazardous products. Please ensure that you have the correct SDS to hand for the materials you are using before commencing work.

SPABOND 400FR RESIN AND FAST HARDENER

This 1 page product summary is intended for use in conjunction with further advice provided under the Instructions for Use section. All data has been generated from typical production material and does not constitute a product specification.

MIXING AND HANDLING

PROPERTY	UNITS	SP400FR RESIN	SP400FR HARDENER	MIXED SYSTEM	TEST METHOD
Appearance - colour	Description	Marbled Grey	Green / Brown	Marbled Grey	-
Appearance - form	Description	Thixotropic paste			-
Mix ratio by weight	Parts by weight	100	27	-	-
Mix ratio by volume	Parts by volume	3	1	-	-
Density at 21 °C	g/cm ³	1.31	1.06	1.25	Archimedes

COMPONENT & MIXED SYSTEM VISCOSITY

PROPERTY	UNITS	20 °C	25 °C	TEST METHOD
Spabond™ 400FR Resin Viscosity	P	-	55	-
Spabond™ 400FR Hardener Viscosity	P	-	38.5	-
Initial Mixed System Viscosity	P	-	tbc	-
Gel time (500g in air)*	hrs:min	0:25	-	-
Clamp Time**	hrs:min	2:30	-	BS 5350 Part C1
Sag resistance	mm	10 - 20	-	-

ADHESIVE PERFORMANCE

MECHANICAL PROPERTIES	SYMBOL	UNITS	5 HOURS AT 70°C***	TEST STANDARD
Cleavage on steel	F _{cleavage}	kN	6.6	BS 5350 Part C1
Lapshear on FR glass laminate	τ _{laminate}	MPa	33.5	BS 5350 Part C5

CURED MECHANICAL AND THERMAL PROPERTIES

MECHANICAL PROPERTIES	SYMBOL	UNITS	5 HOURS AT 70°C***	TEST STANDARD
Glass Transition Temperature	T _{g1}	°C	90	ISO 6721 (DMA)
Tensile Strength	σ _T	MPa	41	ISO 527-2
Tensile Modulus	E _T	GPa	3.6	ISO 527-2
Tensile Strain %	ε _T	%	1.82	ISO 572.2
Flexural Strength	σ _F	MPa	75	ISO 178
Flexural Modulus	E _F	GPa	3.5	ISO 178
Flexural Elongation	ε _F	%	2.6	ISO 178

CURED FST PERFORMANCE

PROPERTY	REPORT	RESULT	SAMPLE DESCRIPTION	TEST STANDARD
Flammability	Indicative result	V-0	Spabond™ 400FR 4mm RESIN CAST	UL 94

*working time properties are highly subjective to ambient conditions and should be used an approximate guideline

**Clamp time data shows the time taken to achieve a 2000N steel block cleavage strength..

***initial cure of 24 hours at 21°C

NOTICE

All advice, instruction or recommendation is given in good faith but the selling Gurit entity (the Company) only warrants that advice in writing is given with reasonable skill and care. No further duty or responsibility is accepted by the Company. All advice is given subject to the terms and conditions of sale (the Conditions) which are available on request from the Company or may be viewed at Gurit's Website: www.gurit.com/terms-and-conditions.aspx

The Company strongly recommends that Customers make test panels in the final process conditions and conduct appropriate testing of any goods or materials supplied by the Company prior to final use to ensure that they are suitable for the Customer's planned application. Such testing should include testing under conditions as close as possible to those to which the final component may be subjected. The Company specifically excludes any warranty of fitness for purpose of the goods other than as set out in writing by the Company. Due to the varied nature of end-use applications, the Company does, in particular, not warrant that the test panels in the final process conditions and/or the final component pass any fire standards.

The Company reserves the right to change specifications and prices without notice and Customers should satisfy themselves that information relied on by the Customer is that which is currently published by the Company on its website. Any queries may be addressed to the Technical Services Department.

Gurit is continuously reviewing and updating literature. Please ensure that you have the current version by contacting your sales contact and quoting the revision number in the bottom left-hand corner of this page.

TECHNICAL CONTACT INFORMATION

For all other enquiries such as technical queries:

Telephone + 44 1983 828000 (08:30 – 17:00 GMT)
Email technical.support@gurit.com

24-HOUR CHEMICAL EMERGENCY NUMBER

For advice on chemical emergencies, spillages, fires or exposures:

Europe +44 1273 289451
Americas +1 646 844 7309
APAC +65 3158 1412

All trademarks used or mentioned in this document are protected by law.

E customer.support@gurit.com

W www.gurit.com