

SPABOND 345

TOUGHENED GAP FILLING EPOXY ADHESIVE SYSTEM

- High strength and toughness
- Excellent gap filling properties
- Designed for cartridge and mixing machine dispense
- Three hardener speeds give a range of working times / clamp times
- Low exotherm and shrinkage
- Germanischer Lloyds certified
- Lloyds Register certified

INTRODUCTION

Spabond 345 is a toughened, high performance adhesive system ideal for bonding large structures where substrate surfaces have uneven geometry. The product has a thick, paste-like consistency, and can be applied without sag in thicknesses of over 30mm at 15°C, making it ideal where large, uneven vertical gluelines are required.

The product has a 2:1 mix ratio by volume. To aid mixing, the components are pigmented to give visual indication of mix quantity. The Fast hardener is coloured purple, but there is also a black version. This is useful for improving the cosmetic appearance of bondlines involving exposed carbon composites.

Spabond 345 is available in cartridges and straight-sided pails for machine mixing/dispense.

SYSTEM	Gel Time (150 g, mixed in water) at 25°C (hh:mm)	20°C CLAMP TIME* (hh:mm)	PAGE	
SP 345	Product Information, Instructions for Use and Health & Safety		2	
	Fast	00:28	00:17	3
	Fast Black (BL)	00:28	00:17	4
	Slow	03:50	12:10	5
	Extra Slow	06:00	19:25	6

**working time properties are highly subjective to ambient conditions and should be used as an approximate guideline for all SP 345 systems*

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).

COMPONENT	UNITS	10 – 25°C
Spabond 345 Resin	months	12
Spabond 345 Hardeners	months	12

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.

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 - requires 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

Gurit recommends mixing machine dispense. If mixing by hand, mix thoroughly for at least one minute, paying particular attention to the sides and bottom of the mixing vessel, to ensure no streaks remain. Once fully mixed the adhesive should have a uniform colour. Use from pot quickly to maximise resin working life.

CARTRIDGE USE

If dispensing product from twin cartridges with a mixing / dispensing head, please discard the first mix head length of resin and hardener components, prior to applying adhesive to the job, in order to ensure thorough mixing of the system.

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 345 & FAST HARDENER

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MIXING AND HANDLING

PROPERTY	UNITS	SP 345 RESIN	FAST HARDENER	MIXED SYSTEM	TEST METHOD
Appearance - colour	Description	Yellow	Purple	Brown	-
Appearance - form	Description	Thixotropic Paste			-
Mix ratio by weight	Parts by weight	100	48	-	-
Mix ratio by volume	Parts by volume	100	50	-	-
Density at 21 °C	g/cm ³	1.17	1.08	1.14	Archimedes

COMPONENT & MIXED SYSTEM VISCOSITY

PROPERTY	UNITS	15 °C	20 °C	25 °C	30 °C	TEST METHOD
SP 345 Resin Viscosity	P	1250	1050	950	700	-
SP345 Fast Hardener Viscosity	P	450	300	200	150	-
Initial Mixed System Viscosity	P	520	420	340	270	-
Gel Time (150 g, mixed in water)	hrs:min	00:39	00:28	00:20	00:15	-
Clamp Time* (time to 2kN cleavage strength)	hrs:min	00:20	00:17	00:13	00:10	BS 5350 Part C1
Sag resistance*	mm	17	16	15	14	-

ADHESIVE PERFORMANCE

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21 °C	16 HOURS AT 50°C**	5 HOURS AT 70°C**	TEST STANDARD
Cleavage on steel	F _{cleavage}	kN	12	12	13	BS 5350 Part C1
Lap shear on steel	τ _{steel}	MPa	37	37	42	BS 5350 Part C5

CURED MECHANICAL AND THERMAL PROPERTIES

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21 °C	16 HOURS AT 50°C**	5 HOURS AT 70°C**	TEST STANDARD
Glass Transition Temperature	T _{g1}	°C	57	68	76	ISO 6721 (DMA)
Cured Density	ρ _{ply}	g/cm ³	-	-	1.17	Archimedes
Volumetric Shrinkage		%	-	-	3.4	Archimedes

*working time properties are highly subjective to ambient conditions and should be used an approximate guideline for all SP 345 systems

**initial cure of 24 hours at 21°C

SPABOND 345 & FAST BLACK (BL) HARDENER

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MIXING AND HANDLING

PROPERTY	UNITS	SP 345 RESIN	FAST HARDENER	MIXED SYSTEM	TEST METHOD
Appearance - colour	Description	Yellow	Black	Dark Grey	-
Appearance - form	Description	Thixotropic Paste			-
Mix ratio by weight	Parts by weight	100	48	-	-
Mix ratio by volume	Parts by volume	100	50	-	-
Density at 21 °C	g/cm ³	1.17	1.08	1.14	Archimedes

COMPONENT & MIXED SYSTEM VISCOSITY

PROPERTY	UNITS	15 °C	20 °C	25 °C	30 °C	TEST METHOD
SP 345 Resin Viscosity	P	1250	1050	950	700	-
SP 345 Fast (BL) Hardener Viscosity	P	450	300	200	150	-
Initial Mixed System Viscosity	P	520	420	340	270	-
Gel Time (150 g, mixed in water)	hrs:min	00:39	00:28	00:20	00:15	-
Clamp Time* (time to 2kN cleavage strength)	hrs:min	00:20	00:17	00:13	00:10	BS 5350 Part C1
Sag resistance*	mm	17	16	15	14	-

ADHESIVE PERFORMANCE

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21 °C	16 HOURS AT 50°C**	5 HOURS AT 70°C**	TEST STANDARD
Cleavage on steel	F _{cleavage}	kN	12	12	13	BS 5350 Part C1
Lap shear on steel	τ _{steel}	MPa	37	37	42	BS 5350 Part C5

CURED MECHANICAL AND THERMAL PROPERTIES

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21 °C	16 HOURS AT 50°C**	5 HOURS AT 70°C**	TEST STANDARD
Glass Transition Temperature	T _{g1}	°C	57	68	76	ISO 6721 (DMA)
Cured Density	ρ _{ply}	g/cm ³	-	-	1.17	Archimedes
Volumetric Shrinkage		%	-	-	3.4	Archimedes

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**initial cure of 24 hours at 21°C

SPABOND 345 & SLOW HARDENER

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MIXING AND HANDLING

PROPERTY	UNITS	SP 345 RESIN	SLOW HARDENER	MIXED SYSTEM	TEST METHOD
Appearance - colour	Description	Yellow	Red	Pink	-
Appearance - form	Description	Thixotropic Paste			-
Mix ratio by weight	Parts by weight	100	48		-
Mix ratio by volume	Parts by volume	100	50	-	-
Density at 21 °C	g/cm ³	1.17	1.10	1.15	Archimedes

COMPONENT & MIXED SYSTEM VISCOSITY

PROPERTY	UNITS	15 °C	20 °C	25 °C	30 °C	TEST METHOD
SP 345 Resin Viscosity	P	1250	1050	950	700	-
SP 345 Slow Hardener Viscosity	P	1250	850	500	300	-
Initial Mixed System Viscosity	P	1060	870	750	640	-
Gel Time (150 g, mixed in water)	hrs:min	05:15	03:50	02:48	02:00	-
Clamp Time* (time to 2kN cleavage strength)	hrs:min	16:32	12:10	09:44	06:24	BS 5350 Part C1
Sag resistance*	mm	30	28	26	24	-

ADHESIVE PERFORMANCE

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21 °C	16 HOURS AT 50 °C**	5 HOURS AT 70 °C**	TEST STANDARD
Cleavage on steel	F _{cleavage}	kN	12	16	15	BS 5350 Part C1
Lap shear on steel	τ _{steel}	MPa	38	39	40	BS 5350 Part C5

CURED MECHANICAL AND THERMAL PROPERTIES

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21 °C	16 HOURS AT 50 °C**	5 HOURS AT 70 °C**	TEST STANDARD
Glass Transition Temperature	T _{g1}	°C	56	74	84	ISO 6721 (DMA)
Cured Density	ρ _{ply}	g/cm ³	-	-	1.17	Archimedes
Volumetric Shrinkage		%	-	-	5.7	Archimedes

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**initial cure of 24 hours at 21 °C

SPABOND 345 EXTRA-SLOW HARDENER

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MIXING AND HANDLING

PROPERTY	UNITS	SP 345 RESIN	X-SLOW HARDENER	MIXED SYSTEM	TEST METHOD
Appearance - colour	Description	Yellow	Blue	Green	-
Appearance - form	Description	Thixotropic Paste			-
Mix ratio by weight	Parts by weight	100	48		-
Mix ratio by volume	Parts by volume	100	50	-	-
Density at 21 °C	g/cm ³	1.17	1.01	1.12	Archimedes

COMPONENT & MIXED SYSTEM VISCOSITY

PROPERTY	UNITS	15°C	20°C	25°C	30°C	TEST METHOD
SP 345 Resin Viscosity	P	1250	1050	950	700	-
SP345 Extra-Slow Hardener Viscosity	P	120	70	50	40	-
Initial Mixed System Viscosity	P	740	440	360	240	-
Gel Time (150 g, mixed in water)	hrs:min	08:27	06:00	04:10	02:55	-
Clamp Time* (time to 2kN cleavage strength)	hrs:min	26:04	19:25	14:19	10:42	BS 5350 Part C1
Sag resistance*	mm	30	28	26	24	-

ADHESIVE PERFORMANCE

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21°C	16 HOURS AT 50°C**	5 HOURS AT 70°C**	TEST STANDARD
Cleavage on steel	F _{cleavage}	kN	11	13	13	BS 5350 Part C1
Lap shear on steel	τ _{steel}	MPa	29	37	36	BS 5350 Part C5

CURED MECHANICAL AND THERMAL PROPERTIES

MECHANICAL PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21°C	16 HOURS AT 50°C**	5 HOURS AT 70°C**	TEST STANDARD
Glass Transition Temperature	T _{g1}	°C	56	71	79	ISO 6721 (DMA)
Cured Density	ρ _{ply}	g/cm ³			1.13	Archimedes
Volumetric Shrinkage		%			0.9	Archimedes

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**initial cure of 24 hours at 21°C



NOTICE

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