WT93

SPRINT®

- **Award winning SPRINT® matrix**
- **Long outlife at room temperature**
- **Zero volatile/solvent content**
- **Improved health and safety: Diuron-Free**
- **Available with a range of reinforcements**
- **Suitable for a range of pressures**
- **Controllable in thick sections**
- **Low exothermic properties**
- **Recommended cure between 85ºC and 120ºC**
- **Excellent laminate quality, low bleed**

Introduction

WT93 is part of the WE and WT range of prepreg, SPRINT®, and AIRSTREAM™ products. This unique product range provides technically and commercially competitive engineering materials, ideal for use either solely, or in conjunction with other products from within the product range along with other Gurit products.

WT93 is a hot melt, Diuron free epoxy SPRINT® ideally suited to the manufacture of thick sections. It can be cured at temperatures as low as 85°C, but can also be used for the rapid manufacture of components through its 45-minute cure at 120°C. All of this can be achieved together with an out-life of 75 days at 21°C.

WT93 is designed for vacuum bag processing and offers excellent mechanical performance on glass fibre reinforcements. Currently WT93 is manufactured into a SPRINT® structure with E-glass fibres, which are manufactured into biax or triax materials, these are produced in large volumes in order to make it a cost-effective composite building block for a range of applications.

The biaxial SPRINT® is a ± 45º stitched E-glass fabric using a fibre weight of 300, 600, 100 or 1800g.

The triaxial SPRINT® is a ± 45º biaxial E-glass stitched to unidirectional fabric giving a total fibre weight of 900 or 1200g. This material can be used as a thick drapable fabric. The triaxial SPRINT® is available with a glass tissue on the biax side, which helps to prevent print-through.

Instructions for Use

WT93 SPRINT® materials can be used with both SPRINT® or prepreg products. It is supplied with a poly backer and can be applied to the substrate with either side against the tool.

In order to maximise the potential of WT93 product range please contact the Gurit Technical Department. Contact details are on the back of this Product Data Sheet.

General prepreg working practices apply to these products, details of which can be obtained from the Guide to Composites or by contacting the above department.

Matrix Properties

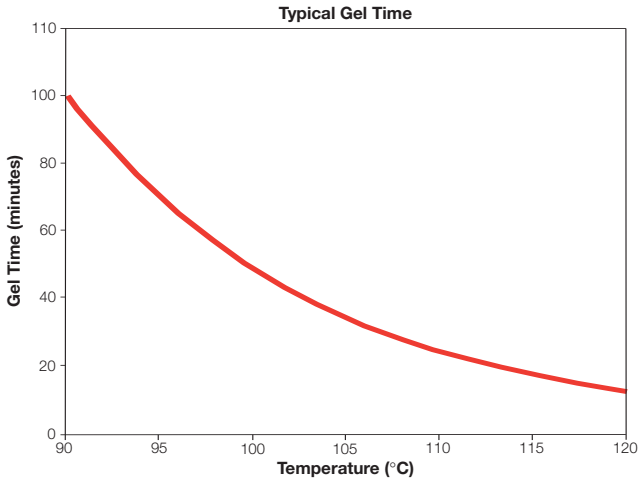
Uncured

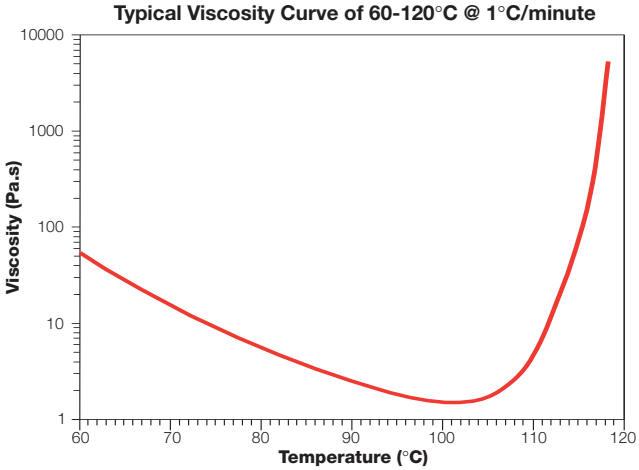
Thermal Properties (cure 20°C-250°C @ 10°C/minute)	
Enthalpy (J/g)	265

Time to 95°C	
Minimum Cure Temperature (°C)	85
Time @ minimum cure temp (hours)	10
90°C (minutes)	~400
100°C (minutes)	180
110°C (minutes)	90
120°C (minutes)	45

Colour	
Matrix	Translucent
Resin	Clear
Catalyst	White

Rheology		
	30-120°C @ 1°C/minute	**30-120°C @ 2°C/minute**
Temperature @ minimum Viscosity (°C)	102	112





Cured

Mechanical Properties	
Tensile Strength (MPa)	57
Tensile Modulus (GPa)	3
Tensile Strain (%)	3
Compression Strength (MPa)	125
Compression Modulus (GPa)	4
Matrix density (g/cm³)	1.2

Thermal Properties (cured between 90-120°C)	
DSC T_{g2} (°C)	110-120

Prepreg Properties

Uncured

Material Properties		
		Notes
Tack	2 (for SPRINT® Film)	Low Tack

Material Safety Information	
Hazard Code	Xi, N
Risk Phrases	36/38, 43, 51/53
Safety Phrases	24, 26, 28, 37/39, 57, 60
Solvent Content	0
Volatiles Content	0

Outlife	
At -18°C (months)	18
At 5°C (months)	6
At 21°C (days)	60

SPRINT® Reinforcement			
	600g Winding Biax	**900g Fleeced Triax**	**1200g Fleeced Triax**
Resin Content (%)	35	44	43
Fibre Weight (g/m^2)	600	900 + 50g/m^2 fleece	1200+ 50g/m^2 fleece
Aerial Weight (g/m^2)	923	1696	2193
Stitch Type	Polyester Stitch	Polyester Stitch	Polyester Stitch
Fleeced	No	Yes	Yes
Backer Type	100µm MDPE	100µm MDPE	100µm MDPE
Available Roll Length (m)	-	-	-
Available Roll Width (mm)	200	1250	1250
Packaging Type	Packaging Type is dependant on the length of roll requested		

Cured

SPRINT® Reinforcement				
	600g Winding Biax	**900g Fleeced Triax**	**1200g Fleeced Triax**	**Test Method**
Tg1 (°C) (Laminate)	108-112	108-112	108-112	DMTA
0° Tensile Strength (MPa)	170	540	461	BS EN ISO 527
0° Tensile Modulus (GPa)	13	27	22	BS EN ISO 527
0° Tensile Strain to Failure (%)	1.29	2.03	2.06	BS EN ISO 527
0° Compressive Strength (MPa)	-	640	503	ISO 14126
0° Compressive Modulus (GPa)	-	28	22	ISO 14126
0° Compressive Strain to Failure (%)	-	2.0	2.3	ISO 14126
0° ILSS (MPa)	-	48	51	BS EN ISO 14130
45° Tensile Strength (MPa)	484	362	200	BS EN ISO 527
45° Tensile Modulus (GPa)	27	22	16	BS EN ISO 527
45° Tensile Strain to Failure (%)	1.81	1.60	1.25	BS EN ISO 527
45° Compressive Strength (MPa)	460	-	-	ISO 14126
45° Compressive Modulus (MPa)	27	-	-	ISO 14126
45° Compressive Strain to Failure (%)	1.72	-	-	ISO 14126
45° ILSS (MPa)	49	39	34	BS EN ISO 14130

Health and Safety

The following points must be considered:

1. Skin contact must be avoided by wearing 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. If working in an enclosed area, local extraction and ventilation should be used.
3. Overalls or other protective clothing should be worn when laminating or sanding. Contaminated work clothes should be thoroughly cleaned before re-use.
4. Eye-protection should be worn. If contamination of the eyes occurs then flush the eye with water for 15 minutes, holding the eyelid open, and seek medical attention.
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. If it settles on the skin then it should be washed off. After more sanding operations, a shower/bath and hair wash is advised.

Gurit produces a separate full Material Safety Data Sheet (MSDS) for all hazardous products. Please ensure that you have the correct MSDS to hand for the materials you are using before commencing work. A more detailed guide for the safe use of Gurit resin systems is also available and can be found on our website at www.gurit.com. Note: safety datasheet legislation can vary with country of use.

CPDS are also available upon request

Applicable Risk & Safety Phrases

R 36/38, 43, 51/53
S 24, 26, 28, 37/39, 57, 60

Storage Conditions & Outlife

Storage time and temperature will have an affect on resin reactivity and fibre impregnation. When stored at –18°C SPRINT® can be stored for 18 months without detrimental changes to the product. Storage times at higher temperatures are a function of fabric construction, roll length and resin content. These can be obtained upon request. However, the WT93 matrix resin system has specific properties that enable most combinations of fabric construction, roll length and resin content to be stored at 20°C for up to 28 days.

Transport & Storage

All SPRINT® materials should be stored in a freezer when not in use to maximise their useable life, since the low temperature reduces the reaction of resin and catalyst to virtually zero. However, even at -18°C, the temperature of most freezers, some reaction will still occur. In most cases after some years, the material will become unworkable.

Notice

All advice, instruction or recommendation is given in good faith but Gurit AG (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 the Company's Website: www.gurit.com/termsandconditions_en.html.

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Gurit are continuously reviewing and updating literature. Please ensure that you have the current version, by contacting Gurit Marketing Communications or your sales contact and quoting the revision number in the bottom right-hand corner of this page.

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