



Method Statement

For the

Application of

Fiba WearPads

In

Pipe Support Areas



FTi Group
July 2010



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1. Material Case, advantages & Fiba WearPad overview

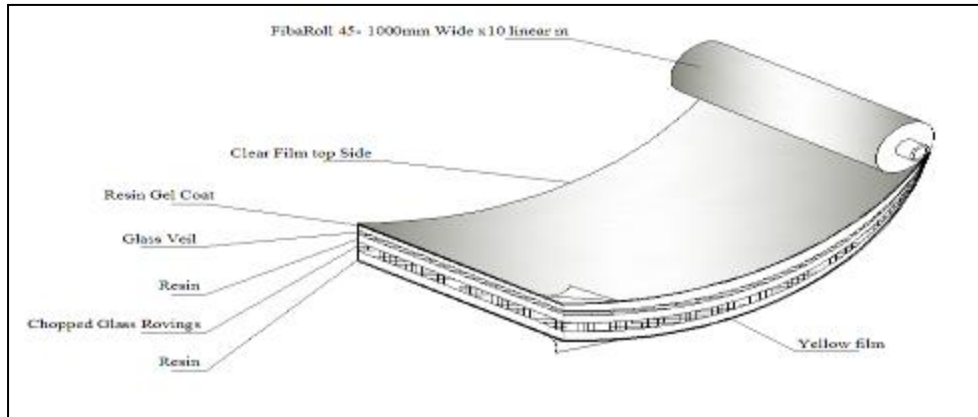
In pipe support areas there needs to be adequate isolation of the pipe from its support. Failure to protect the coating will lead to extensive corrosion due to abrasion of the original coatings and the resulting corrosion between two dissimilar metals in an area where water collects. To this end we have developed a non metallic wear pad made from FibaRoll that is bonded to the coated pipe. These then, preferably, sit on FibaRoll that is bonded to the pipe support however can be used independantly. Both materials are smooth, hard wearing non metallics that have a low coefficient of friction. This aids movement and therefore reduces abrasion.

Advantages over other 'WearPad' solutions:

- a) Often a Polyethylene (PE) or Teflon pad is inserted in between the pipe and support. This may serve its purpose for some time but usually they are not bonded to the pipe and therefore can migrate with pipe movement. This exposes the contact point to wear and corrosion.
- b) Pipe shoes are often welded to un-insulated pipes. This can work but unless the 'sole' of the shoe is protected the sole corrodes and will later require maintenance.
- c) A similar solution to Fiba WearPads is where an epoxy pipe is cut into sections and then glued to the pipe. This can also work as long as the pipes being fitted have an exact nominal size. When they are not water can enter behind the WearPad and cause corrosion problems. By moulding the Fiba WearPad either to the pipe being fitted or to a given sizing this poor fitting issue should not occur.
- d) Another WearPad idea is to weld a plate to the pipe. This will help but will itself corrode in time.

Fiba WearPads are made from FibaRoll and FibaRoll is technically known as a fully composed 'pre-preg'.

A typical construction of FibaRoll is shown below. The veil is of chemical resistant glass and ensures excellent weathering and performance in immersion conditions.



2.0 FibaRoll, FibaGel & FibaBond Products

Fiba Wearpads are preformed FibaRoll materials between 1.5mm to 6mm thickness that are specific to the diameter size of the pipes for which they are intended. They can be 90°, 120°, 180° & 220° degree sizing and have a standard length of 300mm although it is possible to specify a length.

FibaGel CC HB material is supplied as a two component high viscosity liquid system and is supplied with the appropriate amount of catalyst. This must be stirred into the FibaGel vigorously until fully mixed. The FibaGel CC HB is supplied in 1kgs cans and has a pot life of approx 30-40 minutes at 25°C.

FibaRoll VECR 2.0 mm is a UV curing GRP that can be cut and shaped with scissors/modeling knife. This is bonded to the pipe support as per the attached diagrams thus creating the non metallic, abrasive resistant interface that has low coefficient of friction properties i.e. they are both slippery materials that promote ease of movement between the pipe and support, creating the minimum friction.

FibaBond is a new type of elastomeric polymer sealant / adhesive (SMP) with high adhesive qualities, making it versatile in a range of applications. FibaBond is sag resistant and stays in situ without movement, with high initial tack to the surfaces.

FibaBond is primarily designed for the bonding of cured FibaRoll to cured FibaRoll. FibaBond also has high adhesion properties where cured FibaRoll is required to adhere to steel or painted finishes.



2.1 Fiba WearPad Adhesive Choice

Depending on the application requirement, Fiba wearPads can be adhered to the pipe using either FibaGel CC HB or FibaBond.

The FibaGel CC HB is a glassfibre reinforced gel providing a rigid, non flexible bond, often most suitable for use on GRP coated pipes.

The FibaBond is an elastomeric polymer adhesive that provides a strong bond whilst retaining a level of flexibility, possibly more suitable in dynamic applications where thermal stress is an issue.

3.0 Application methods and schedule

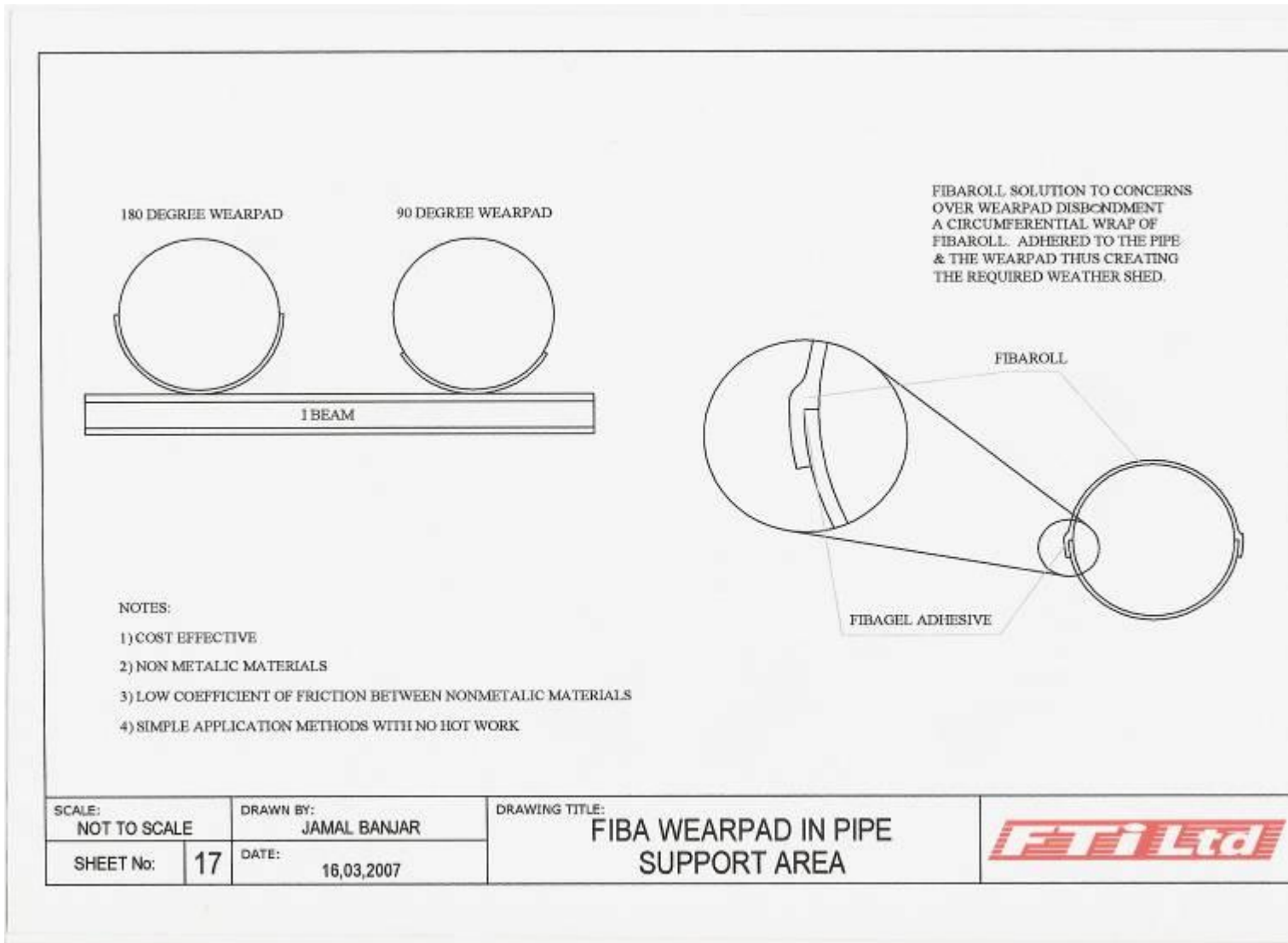
For the application of Fiba WearPads and FibaRoll onto pipe support areas.

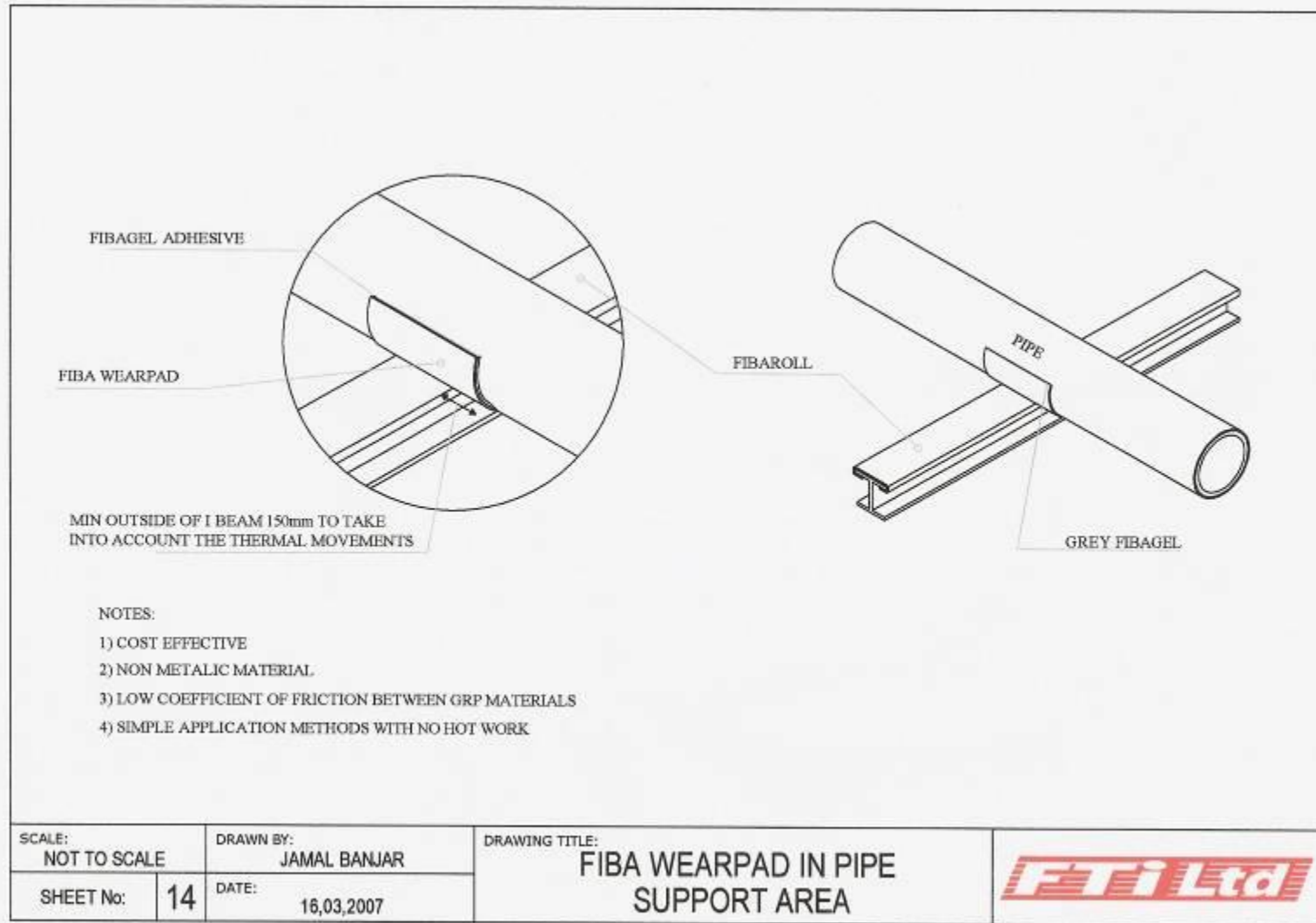
- 1) Lightly abrade the Fiba WearPad application area on the pipe
- 2) Remove dust and grease with a solvent wipe
- 3) Apply sufficient amount of the preferred adhesive, either catalysed FibaGel CC HB5 or FibaBond to the inside area of the wear pad so that when it is pushed against and fitted against the pipe, the gel material squeezes out.
- 4) Excess material must be smoothed away (with a gloved finger) from the edge of the wear pad thus sealing the pad against the pipe.
- 5) The 180° & 220° WearPad will clip and stay in position during the adhesive curing period however the 120° and 90° degree pads will require strapping to hold them in position whilst the adhesive cures.

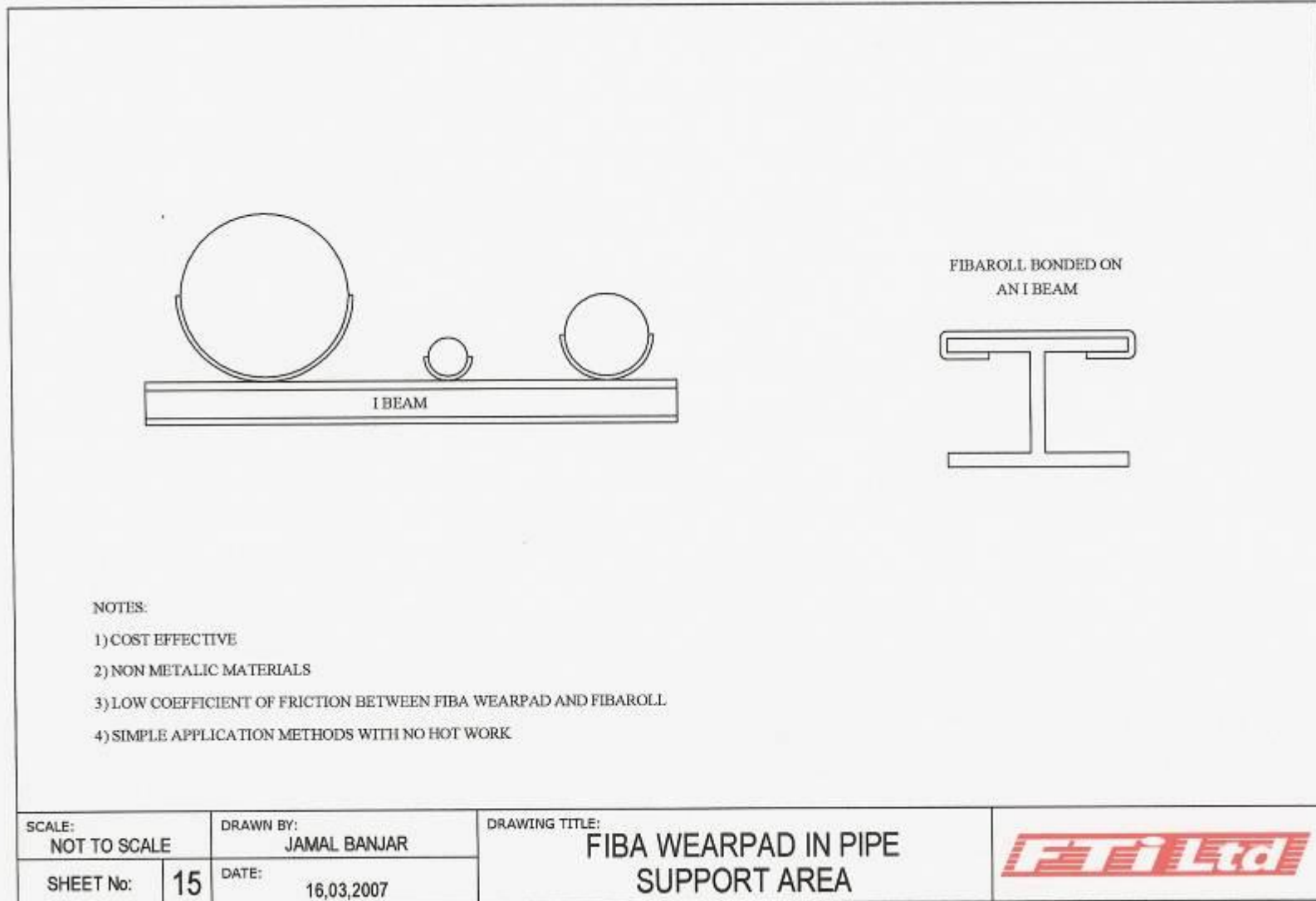
- 6) If FibaRoll is to be applied to the pipe support itself, abrade and solvent wipe the pipe support area, apply FibaGel primer and apply a flat layer of FibaRoll as per diagrams of pages 5 &6.
- 7) Fully cure the FibaRoll on the pipe support with natural or artificial UV light.
- 8) Lower the pipe onto its support.
- 9) Check that all areas around the Fiba WearPad are sealed.
- 10) Inspect wear pad a sufficient time after application to ensure that the FibaGel CC HB5 or FibaBond adhesive has fully cured.



Please note that 220°, 180°, 120° and 90° options are available.







Application using FibaGel CC HB5

The supplied catalyst is added to the FibaGel CC HB5 and is stirred until fully mixed. The FibaGel is supplied in 1Kg tins and the whole tin should be used by adding the whole bottle of catalyst, this ensures the correct ratio of resin to catalyst.



The wearpad area must be lightly abraded and solvent wiped to remove dust, debris and grease.

When fully mixed the FibaGel CC HB5 is liberally applied to the inside of the wearpad to ensure that excess material will be squeezed out when the wearpad is applied to the pipe.



The wearpad is pushed into position on the pipe. Any excess FibaGel can be then wiped away. This will leave a FibaGel seal along the edge of the wearpad. Both 120° and 90° WearPads will require strapping whilst the adhesive cures to hold the wearpad in place. Ensuring that the wearpad is tight and secure against the pipe, the pipe can then be lowered into place.



Application using FibaBond



The wearpad area should be solvent cleaned to remove dust, debris and grease. Apply the FibaBond using a caulking gun ensuring a continuous seal at the edges of the wearpad and then apply enough in the middle of the pad to ensure a secure bond to the pipe. The wearpad can then be positioned on the pipe.



A bead of FibaBond should be applied to the outer edge of the pad to ensure a full waterproof seal to the pipe.



The bead can then be smoothed using a damp gloved finger to create a good edge seal.



Both 120° and 90° WearPads will require strapping whilst the adhesive cures to hold the wearpad in place. Ensuring that the wearpad is tight and secure against the pipe, the pipe can then be lowered into place.

4.0 Health, Safety and the Environment.

FibaGel / FibaRoll materials contain Styrene and this is the chemical that one can smell when dealing with these materials. The emissions measured from FTi's materials are well within the prescribed OEL levels. However some people find the smell unpleasant and in confined spaces or areas with little air circulation it is necessary that extraction be used and that there is a free flow of fresh air. In confined spaces we further recommend that concentrations of styrene are monitored.

FibaGel materials are sticky and applicators are advised to wear gloves when handling.

FibaGell CC two component materials: these materials can get very hot if a large volume of material is catalyzed and left in a confined space. If a tin is catalyzed and the lid is replaced this will get hot, and the lid may blow off.

Any waste materials should be fully cured off and then this becomes inert and can be disposed of as non-hazardous materials.

Contact points for Technical Advice.

www.fti-group.co.uk

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Mobile +44(0)7957 873483

Technical Specification Data: Fiba WearPads

Fiba WearPads

Product description: a pre-cured, tough, Fibre reinforced Vinyl Ester wear pad.

These wear pads are made to size specifications and are designed to clip and hold in place whilst the FibaGel adhesive cures. For pipe sizes below 6" a Fiba WearPad thickness of 4mm is recommended, for 6 - 18", 6mm. Please contact FTi Ltd for sizes above 18".

Standard Colours : Natural (Opaque), White, Grey (RAL7040) and most other RAL colours are available

Typical Physical Properties	Units	Value	Method
Hardness	Barcol	61	ASTM D2583
Flexural strength	MPa	162	ASTM D790
Adhesion	MPa	>4	ASTM D5179
Tabor Abrasion 500 cycles	gms	0.0655	ASTM D4060-07
Tabor Abrasion 1000 cycles	gms	0.1363	ASTM D4060-07
Coefficient of Friction		0.34*	Satra TM 35:1994
Max.operating temp.	Deg°C	150	
Max. immersion temp.	Deg°C	80	

* Fiba WearPad on FibaRoll

For technical advice and sales please contact: FTi Head Office:

Fiba Tech Industries Ltd
 Willmott's Business Park
 Waterlip
 Somerset
 BA4 4RN
 United Kingdom





Technical Specification Data: FibaGel VECR CC HB5

Product description: a Fire retardant Vinyl Ester Resin with micro fibres added to aid adhesion to pipe coating.

Standard Colours : Natural (Opaque), White, Grey (RAL7040) and most other RAL colours are available to suit the colour of the Fiba WearPad.

Cures at temperatures above +5 Deg°C, generally within 2-4 hours.

Typical Physical Properties	Units	Value	Method
Hardness	Barcol	>50	ASTM D2583
Adhesion	MPa	>4 *	ASTM D5179
Max.operating temp.	Deg°C	150	
Max. immersion temp.	Deg°C	80	

* Adhesion to a painted surface

For technical advice and sales please contact: FTi Head Office:

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Somerset
BA4 4RN
United Kingdom



Tel: +44 (0) 1749 881920
Fax: +44 (0) 1749 880843
email: info@fibaroll.co.uk

Technical Specification Data for FibaRoll VECR

Product description: a glass reinforced laminate based upon an Epoxy Novolac vinyl ester resin system.

The glass fibre is randomly orientated and has a 'C' glass veil is used to extend weathering and chemical resistance.

Standard Colours : Natural (Opaque), White and Grey (RAL7040).
Special colours can be available please contact Fti Ltd.

Delivered in rolls 600 mm x 10 m or as slit reels - sizes dependant on application.
Thickness : 1000,1500 & 2000 micron as standard

Grade		FibaRoll VECR	
Typical			
Physical Properties :	Units	Value	Method
Tensile Strength	MPa	72	ISO 527
Elongation at break	%	1.0%	ISO 527
Flexural strength	MPa	162	ASTM D790-03
Flexural modulus	GPa	6.1	ASTM D790-03
Impact resistance (Izod)	kJ/sqm	60	BSEN ISO 180
Hardness	Barcol	61	ASTM D2583
Water absorption	%	0.36	ASTM D570
Adhesion to steel	MPa	>12	ASTM D5179
Coeff. of thermal expansion x 10 ⁻⁵ /°C		2.9	ASTM D696
Volume resistivity	x 10 ¹⁴ Ω.mm	5.9	IEC 93
Electrical resistance	kV/mm	17.2	IEC 243-1 1998
Styrene emission	PPM	4	
Max Operating temperature Deg °C		150 (peaks up to 220°C)	
Heat Distortion Temp.	Deg °C	>255	ASTM D648
Chemical resistance :		Excellent	Chem.Res.Chart

For technical advice and sales please contact: FTi Head Office:

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FibaBond™

TECHNICAL DATA

DESCRIPTION

FibaBond is a new type of elastomeric polymer sealant with high adhesive qualities, making it versatile in a range of applications.

FibaBond is sag resistant and stays in situ without movement, with high initial tack to the surfaces.

PRIMARY APPLICATIONS

FibaBond is primarily designed for the bonding and sealing of FibaClad sections and fittings where there may be a need for those items to be removed at a later date. FibaBond also has high adhesion properties where FibaClad is required to adhere to steel or painted finishes.

HEALTH & SAFETY IN USE

Observe good housekeeping practices. Refer to MSDS.

PRODUCT DATA

Resin – Modified Polyether

Colour – Grey

Specific Gravity 1.4 – 1.5

Operating Temp. Range.. - 40C to +100C

Application Temp. Range -5C to +35C

Tensile strength2.2mPa

Hardness - Shore A55 - 60

Elastic Quality ...50% joint movement

Cure RateTypical RH65- 3mm/day

Pack size.....290ml cartridge

Flash point.....>100C

The information contained herein is produced in good faith and is believed to be reliable, but is for guidance only. FTI Ltd and its' agents, cannot assume liability or responsibility for results obtained in the use of its' products by persons whose methods are outside or beyond the control of FTI Ltd. It is the users' responsibility to determine the suitability of any of the products and methods of use or preparation prior to use mentioned in our literature and furthermore the users responsibility to observe and adopt such precautions as may be advisable for the protection of personnel and property in the handling and use of any FTI Ltd products.

Revision Date: 19/6/2009**Revision Number:** 0**Material/Trade Name:** FIBACLAD, FIBAWEARPADS, FIBASHIELD/FIBAROLL (cured)

1 - Substance Identification

Material/Trade Name	: FibaClad, FibaWearpads, FibaShield (cured), FibaRoll (cured)
Material type	: Insulation Cladding/Corrosion Protection System
Company	: Fiba Tech Industries Limited
Address	: Willmotts Business Park Waterlip : SheptonMallet Somerset BA4 4RN
Telephone	: 01749 881920
Fax	: 01749 880843
Internet	: info@fibaroll.co.uk
Emergency Telephone	: 01749 881920

2 - Composition

Substance	% Wt.	CAS No.	EC No.
Cured Fibreglass resin systems. Classified as an article under the CHIP Regulations.		n/e	n/e

3 - Hazard Identification

Not classified as hazardous under CHIP Regulations 2002 as amended
Not Hazardous according to 67/548 EEC and subsequent amendments

4 - First-aid Measures

Inhalation:	Not Applicable When Intact
Eyes:	Not Applicable When Intact
Skin:	Not Applicable When Intact
Ingestion:	Not Applicable When Intact

5 - Fire-fighting Measures

Suitable Extinguishers:	Use extinguishers suitable for any other materials that may be involved in a fire
Unsuitable Extinguishers:	None
Hazardous Decomposition/ Special Procedures:	Toxic fumes may be generated if material is involved in a fire

Revision Date: 19/6/2009**Revision Number:** 0**Material/Trade Name:** FIBACLAD, FIBAWEARPADS, FIBASHIELD/FIBAROLL (cured)

6 - Accidental Release Measures

Exposure Controls:	Clean up as part of good housekeeping practice
Personal Protection:	No specific requirements when intact
Disposal Considerations:	No specific requirements when intact Dispose of in accordance with local regulations

7 - Handling and Storage

Handling:	No specific requirements
Storage:	Store in a cool, dry, well ventilated area

8 - Exposure Controls

Occupational Exposure Limit:	Not applicable when intact. OEL for nuisance dust may apply if exposed to significant levels of dust. No other specific requirements
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9 - Physical & Chemical Properties

Appearance	: Articles comprising of cured fibreglass resin and additional components
Odour	: None
pH	: n/e
Boiling point/range	: n/e
Melting point/range	: n/e
Flash point	: n/e
Flammability	: n/e
Autoflammability	: n/e
Explosive properties	: n/e
Oxidising properties	: None
Vapour pressure	: n/e
Relative density	: n/e
Solubility	: n/e
Vapour Density	: n/e
Viscosity	: n/e
Evaporation rate (Bu Ac = 1)	: n/e

(n/e = not established)

10 - Stability and Reactivity

Stable at normal temperatures
No hazardous decomposition products when stored and handled correctly

11 - Toxicological Information

No toxicological hazard when intact

Revision Date: 19/6/2009

Revision Number: 0

Material/Trade Name: FIBACLAD, FIBAWEARPADS, FIBASHIELD/FIBAROLL (cured)

12 - Ecological Information

Ecotoxicity:- Not expected to be harmful to aquatic life

13 -Disposal Considerations

Dispose through properly licensed contractors

14 -Transport Information

Not classified as hazardous for transport

15 - Regulatory Information

a) Risk & Safety

Not classified as hazardous under CHIP Regulations 2002 as amended

b) Other Regulations

Health & Safety at Work etc. Act 1974

Control of Substances Hazardous to Health Regulations 2002as amended

Environmental Protection Act 1990

Hazardous Waste Regulations 2005

16 - Other Information

The information in this Safety Data Sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. This information is believed to be reliable and updated at Revision Date, and represents the best information currently available and known by Fiba Tech Industries Ltd. However, Fiba Tech Industries Ltd. makes no guarantee or warranty, express or implied, with respect to such information and we assume no liability resulting from its use. The information related herein is based on proper handling and anticipated uses and is for the material without chemical additions or alterations. Users should make their own investigations to determine the suitability of the information for their particular purposes. It is the responsibility of the user to undertake a suitable risk assessment/COSHH assessment prior to using this material.