

# Technical Data Sheet

## Situclad VE Fibre- reinforced protective system



### DESCRIPTION:

Situclad VE is a GRP (glass reinforced plastic) vinyl-ester cladding system applied in situ to provide a smooth, jointless, chemical & impact resistant, hygienic surface, which follows the substrate contours, profiles etc.

Situclad VE has been specifically designed to provide excellent all-round chemical resistance at both ends of the pH scale.

I.e. Concentrated acids and alkali compounds.

### TYPICAL FEATURES | BENEFITS:

- Good stain and chemical resistance.
- Short application period.
- May be applied to a wide variety of surfaces.
- Excellent adhesion to properly prepared substrates.
- May be used in food safe areas.
- Easily repaired and maintained.
- Finish – Semi-gloss.
- Based on chemical resistant vinyl-ester resin.
- Very good abrasion and scuff resistance.
- Tolerant of application to a slightly damp surface.
- Resistant to peeling and flaking.
- Complies with Food environment regulations
- Easily cleaned.
- Cured Film is non-toxic.

### PERFORMANCE DATA:

Minimum Application Temperature: Air	+10°C
Maximum Application Relative Humidity: Air	80%
In-service temperatures:	-20 to +100°C
Laminate hardness:	Barcol (934-1) 45
Chemical Resistance:	Resistant to chemical spillage –cured 7 days at 25°C. Refer: Chemical resistance literature – see below

### COLOURS:

Standard colour: Clear (Amber)

\*\*\*\*Note\*\*\*\*

Tinting of this product is not recommended, as chemical resistance will be affected.

### RECOMMENDED USES:

- Chemical bunds – refer to chemical resistance chart.
- Construction and Mining Industry.
- Food storage and processing facilities.
- Pulp and Paper mills.
- Storage tanks / bunds. - walls and floors
- Commercial kitchen walls
- Chemical and Oil Industry.
- Pharmaceutical filling and processing areas.
- Sewerage treatment plants.
- Silos.

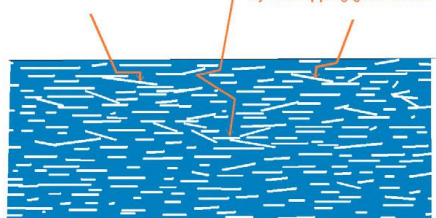
\*\*\*\*Note\*\*\*\*

For the ultimate in chemical resistance it is recommended to overcoat the Situclad VE with:

Situclad VE Glass Flake [http://www.allnexconstruction.com/pdf/Situclad\\_VE\\_Glass-Flake.pdf](http://www.allnexconstruction.com/pdf/Situclad_VE_Glass-Flake.pdf)

VE GF: Vinyl ester resin coating (blue) with embedded glass flake (white)

Chemical ingress is restricted by overlapping glass flakes



**NOT RECOMMENDED:**

- Application below +10°C.
- Application to green (uncured) concrete. Allow 28 days.
- Application within proximity of foodstuff (odour may contaminate food products).
- Application to unsound substrates.
- Application to incorrectly prepared surface.

**HEALTH & SAFETY: Refer safety data sheets (SDS).**

- Avoid skin contact.
- Provide adequate ventilation during application and cure.
- Wear safety equipment including clothing and respirators.
- Resin and catalyst fumes can contaminate adjacent foodstuffs.
- MEKP Catalyst is highly corrosive - protect eyes and skin.
- Solvents highly flammable. Erect "no smoking" signs.
- No welding or naked flames permitted during installation.
- Have fire extinguishers readily available.

**SUBSTRATE:**

All substrates shall be stable and solid.

**Concrete: New**

Shall have a surface which has been mechanically trowelled to AS3610:1995 U3/NZ/3114:1987U3 finish.

Concrete shall be cured for a minimum of 28 days prior to the installation of the Situclad VE.

Minimum Compressive Strength at 28 days cure: 25 MPa. (25 N/mm<sup>2</sup>)

The moisture content shall be less than: 75% RH.

Have a suitable vapour resistant membrane beneath the concrete.

**Concrete: Old**

Minimum Compressive Strength: 25 MPa. (25 N/mm<sup>2</sup>)

The moisture content shall be less than: 75% RH.

Have a suitable vapour resistant membrane beneath the concrete.

**Concrete Block:**

Concrete Block must be installed to the manufactures specifications and comply with current building codes.

Have a moisture content less than: 75% RH.

Pointing must be flushed and cured.

**Fibre Cement Sheet:**

Fibre cement sheet must be a minimum of 9mm with rebated edges that can be stopped to flush the joints.

Fibre cement is loose butted and is to be mechanically fastened by corrosion resistant screws (preferably 30mm 316 stainless screws) at 200mm centres around the perimeter and 300mm centres within the sheets. (All fastenings must be countersunk 0.5mm) Frame centres should be at a maximum 600mm. Centre nog joists at 1200mm. Refer to the Manufacturer's installation instructions.

All joints must be flushed in accordance with the Manufacturer's instructions.

All screw holes must be filled as per the Manufacturer's instructions.

**Plywood Sheet:**

Plywood must comply with AS/NZS2269 for structural plywood and be a minimum 12mm (walls) and 17mm (floors) H3.2 treated CCA (water-based treatment) with a square edge.

Plywood is loose butted and is to be mechanically fastened by corrosion resistant screws (preferably 50mm stainless screws) at 150mm centres around the perimeter and 200mm centres within the sheets. (All fastenings must be countersunk 0.5mm) Frame centres should be at a maximum 600mm. Centre nog joists at 1200mm.

All joints must be left with a uniform finish.

Install Situclad VE Reinforcement bandage to all plywood joints.

**QUALITY ASSURANCE:**

The allnex Licensed Contractor shall ensure all QA checks have been undertaken prior to the installation process and subsequently during the installation process. The completed documentation must be made available to allnex and the client/clients authorised personnel.

The product is to be installed within the required control range to ensure a fully cured hard wearing monolithic Protective Lining System.

Information to be recorded daily is:

- Concrete sub-base or prefill mix.
- Material batch numbers used.
- Sequence of mixing, ratios and quantities and formula.
- Substrate moisture content & Substrate temperature.
- Ambient temperature | Ambient relative humidity.
- Daily detail of licenced contractors on-site.

**PRODUCT PROPERTIES:**

Pot Life	+25°C ~50%RH	25 - 35 minutes 65 - 75 minutes *With the addition of Retarder
Touch Dry	+25°C ~50%RH	60 - 70 minutes 90 - 100 minutes *With the addition of Retarder
Hard Dry	+25°C ~50%RH	3 hours 3.5 hours *With the addition of Retarder
Recoat time ~ Minimum ~ Maximum	+25°C ~50%RH	60 minutes 48 hours: * Refer note #1 below
Light Use	+25°C ~50%RH	24 hours
Full Cure	+25°C ~50%RH	7 days
Laminate Thickness -approximately	1.75mm (0.070")	
Thinning	Not recommended	
Lubrication of tools	Styrene Monomer	
Clean Up	Acetone	
Dangerous Good Class ~ STZ Primer ~ Situclad VE Resin ~ Surechem VE Hardener	Hazard Class 3   Packing Group III Hazard Class 3   Packing Group III Hazard Class 5.2	
Packaging ~ STZ Primer ~ Situclad VE Resin ~ Surechem VE Hardener	20 kg Open top metal container 20 kg Open top metal container 5 kg Plastic Bottle	
Shelf life	3 months from date of manufacture. (After this period consult with allnex)	

**Note #1**

After this time severe abrasion of the surface followed by solvent swabbing with Styrene Monomer will be required to ensure satisfactory adhesion.

**SURFACE PREPARATION:****Concrete:**

Prepare concrete by mechanical abrasion method to: - **CSP3**. (Concrete Surface Profile Scale - International Concrete Repair Institute)

See technical literature: - [http://www.allnexconstruction.com/pdf/Floor\\_Preparation\\_Requirements.pdf](http://www.allnexconstruction.com/pdf/Floor_Preparation_Requirements.pdf)

Remove all concrete curing agents, contaminants and any other material likely to affect the adhesion of the Situclad VE.

Do not apply over existing coatings.

Prefill any large divots with allnex Surechem VE resin/aggregate and diamond grind to remove any highpoints or contaminants.

**FLOOR / WALL INTERNAL JUNCTIONS:**

Install Coves using:

- Surechem VE resin/aggregate

**STZ PREFILL:** (for adding falls, slope modification and floor angles)

Where required:

STZ prefill system types: See STZ technical literature. [http://www.allnexconstruction.com/pdf/stz\\_prefill.pdf](http://www.allnexconstruction.com/pdf/stz_prefill.pdf)

The falls must be specified pre-tender. (Situclad VE is medium build fibreglass laminate system and prefill may involve significant extra materials).

The quantities of materials required to raise the floor height at wall perimeters is often underestimated. To do this may involve significant extra costs and should be discussed and agreed. It is a very common for STZ prefill system to be used under Situclad VE to create falls to drains and other filling applications. Normally for new work falls are laid in the concrete and fall to drains. However, in refurbishment the drains and falls are incorrect. Sometimes new drains are installed. The Prefill create falls of at least 1: 50 to ensure no ponding water. (1:100 will fall but will have standing water in places).

**SITUCLAD VE COVERAGE:**

System Stage	Material	Coverage Rates   Usage M <sup>2</sup>
Primer	STZ Primer	0.166kg
Resin Body-coat	Situclad VE Resin/Hardener	1.2kg
Fibreglass Reinforcement	Chopped Strand Matt ~ 450 gsm	1 m <sup>2</sup>
Resin Body-coat	Situclad VE Resin/Hardener	0.8kg
Surfacing Finish	Surfacing Tissue	1 m <sup>2</sup>
Resin Body-coat	Situclad VE Resin/Hardener	0.4kg
Resin Topcoat	Surechem VE Topcoat/Hardener	0.166kg

**\*\*\*Note\*\*\***

In chemical Bunds Replace the Topcoat with Situclad VE Glass Flake – Refer Situclad VE Glass Flake Technical Data for Coverage

**MATERIAL PRE-PREPARATION: (Promotion of Situclad VE Resin)**

New Pails of Situclad VE resin are marked as un-promoted.

allnex supply the VE in pails with open top lids, thus enabling the Cobalt to be mechanically mixed into the resin base.

**\*\*\*\*Note\*\*\*\***

Use a separate catalyst dispenser and mark it for Cobalt use only.

The cobalt can be added up to 12 hours prior to use.

Always add Cobalt first, mix and then add catalyst.

**\*\*\*\*Never mix Cobalt and Catalyst\*\*\*\***

Pre-train staff..... The lids are marked as un-promoted – tick or mark once promoted.

**\*\*\*\*Good Trade Practice\*\*\*\***

Mix the cobalt into the resin in a separate operation on the same day as use away from the work area.

Then take the promoted material to the workface for catalyst addition.

**\*\*\*\*Note\*\*\*\***

**Check the Cobalt’s age and stability by doing a TRIAL prior to work start.**

Promote at the correct level, then add a 1.5% catalyst to check that the reaction starts.

Even if high catalyst levels are added, un-promoted resins will not cure.

This trial can also be used if confusion occurs about Cobalt addition.

Be well organised and train staff clearly in the promotion and catalysation process - Mistakes are costly.

**CATALYST:**

Use allnex M100 - VE Catalyst only.

**SITUCLAD VE | COBALT | HARDENER MIXING RATIO:**

Product	Cobalt Addition	Hardener
Surechem VE Resin	0.3% ~ 60 grams per 20kg	1.5 - 2.0% <b>**depending on temperature**</b>

**\*\*\*\*Note\*\*\*\***

Variations on the level added as stated above are permitted with allnex consent in certain environmental conditions.

Refer allnex Construction Products.

**RETARDER:**

Where extended working time is required allnex VE Retarder may be incorporated in the resin prior to the addition of catalyst.

The maximum recommended addition rates are 1% on weight of resin.

Refer allnex Construction Products.

**SITUCLAD VE MIXING:**

**Mixing:**

Measure correct quantities of resin and hardener and pour into a suitable container. Power mix at low speed (approximately 300rpm) for 2 minutes ensuring both compounds are homogeneously blended.

Note: ensure no unmixed materials remain on the sides, rims or lips of the containers.

**\*\*\*\*DO NOT THIN\*\*\*\***

## INSTALLATION:

### Primer:

Roller | Brush

Prime the correctly prepared areas with minimum, one coat of STZ Primer. Coverage rate and number of coats will vary depending on the porosity of the substrate. Maximum coverage 6m<sup>2</sup>/litre/coat.

## LAMINATE APPLICATION METHOD:

Roller | Brush | Laminating Rollers

Hand lay-up using laminating rollers to exclude air.

Apply evenly by way of roller/brush the resin body-coat across the area to be laid up.

A wet edge must be maintained across the work face to allow the next section of resin to be worked in without showing a ridge.

Install the pre -prepared 450gsm chopped strand matt into the wet resin body-coat.

***The salvage edge of the fibreglass matt must be "teased" prior to installation.***

The fibreglass is to have a 75mm minimum overlap.

The fibreglass matt is to be worked with a "Parsley Cutter" (laminating roller) to bring the resin through the matt thus ensuring a complete "wetting out".

When matt is completely "wetted out" apply more Situclad VE resin and immediately install the Surfacing tissue and subsequent coats of Situclad VE resin.

Allow to cure.

## OPTIONAL TOPCOAT: - RECOMMENDED

Situclad VE Glass Flake (GF)

The **fine internal glass flakes** self-reinforce the film and provide a tough, **chemical** and **heat resistant** coating. The flakes provide strong permeability resistance giving extra protection.

## MAINTENANCE:

### Repairs:

Chemically clean.

Mechanically abrade surface.

Solvent wipe with Styrene Monomer

Apply Situclad VE as per "Installation instructions".

## CLEANING:

### Smooth Surface:

Conventional cleaning procedures are normally adequate to maintain clean and hygienic surface.

\*\*\*\* Note\*\*\*\*

Ensure all detergent materials, dirt etc. is thoroughly rinsed from the surface following cleaning.

## CAUTION:

Situclad VE is a combination of resin/promotor/hardener that is mixed in the specified ratio. Only these ratios will produce a hard, non-softening product.

**Only the stated mix ratios will work and exhibit the stated performance data.**

\*\*\*\*Note well\*\*\*\*

The consequences of having soft Situclad VE due to poor mixing may be far reaching and costly to repair.

This is a job that must be done once and done right. Many people do not understand the consequences.

**CHEMICAL RESISTANCE CHART: @ +25°C Ambient**

Test procedure ~ Aqueous Solution applied to the surface of test samples.

Observation ~ Checked for chemical attack and hardness throughout the testing period

Results ~ Taken after 3 weeks exposure

Test Media	Concentration	Situclad VE	Test Media	Concentration	Situclad VE
<b>ACIDS</b>			<b>ALKALIS</b>		
Hydrochloric Acid	37%	NC*	Potassium Hydroxide	45%	NC*
Hydrofluoric Acid	20%	EF	Sodium Hydroxide (Caustic Soda)	50%	NC*
Sulphuric Acid	70%	NC	Sodium Hypochlorite		Refer allnex
Acetic Acid	70%	NC			
Hydrofluoric Acid	20%	EF			
Nitric Acid	30%	NC*			
Nitric Acid	40%	EF*			
Citric Acid	SAT SOLN	NC	<b>OTHERS</b>		
Lactic Acid	All	NC	Distilled Water	All	NC
Phosphoric Acid	85%	NC			
Hydrogen Sulphide	All	NC			
Hydrogen Peroxide	35%	NC*	<b>SALT SOLUTION</b>		
Oxalic Acid Sat N	Oxalic Acid Sat	NC	Brine	SAT SOLN	NC

**LEGEND:**

NC	No Corrosive	NR	Not Recommended
EF	Evaluate Further	*	Staining May Result

Solutions are Aqueous unless otherwise stated

**Note:**

The table represents a guide only. Variables which may under extreme conditions, influence the chemical or corrosion resistance are:

- Temperature of chemical concentration.
- Intermittent or continuous contact.
- Application in adverse conditions.
- Risks of evaporation from spillage causing concentration to rise adversely.
- Chemical resistance and general physical properties can be improved by post cure treatment.
- Good service may be expected where NR or EF is specified if exposure is intermittent or limited to occasional splash, spill or fumes.
  - Refer to allnex Construction Products Ltd for specific advice on this, or chemical contamination other than those listed.
- Chemical resistance and general physical properties can be improved by post cure treatment.
  - Refer to allnex Construction Products Ltd for specific advice on this.

**\*\*\*\*Note\*\*\*\***

Chemical spillages should be cleaned up immediately.

**FIXING OF PLANT AND MACHINERY:**

Mechanical fixings into the substrate must be resin fixed. This is to ensure that there is no water migration into the substrate.

Conventional expanding plugs, screws or anchors are not an acceptable fixing method.

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