resimac Ltd.

Repair Protect Upgrade



Tank Base Sealing—

flexible membrane system

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Introduction to Tank Base Sealing

Corrosion at the base of storage tanks is a common problem within all industries. As a result of rain or condensation, moisture can accumulate at the base of the tank leading to corrosion pitting, loss of wall thickness, leakage or ultimate tank failure. The cost of remedial work to overcome tank damage can be extremely high and the environmental impact of leakage can have even more serious consequences.

The Resimac Tank Base Sealing system is a cost effective and convenient way of mitigating against such problems. This involves the use of a flexible and UV resistant polymer composite to encapsulate and waterproof the circumference of the tank base whilst allowing any residual moisture under the tank to permeate through the polymer's micro-porous structure. The system is durable and tough, and combined with its high adhesion values will ensure long term asset protection.

Key Markets for this material—

Oil & Gas

Power

Chemical

Petrochemical







Surface Preparation for Tank Base Sealing System

All surfaces should be clean, dry and free from surface contaminants including, oil, chemicals and rust.

Surface preparation on the metallic tank base surface must be carried out by abrasive blast cleaning to a surface cleanliness standard of SA2.5, using angled grit or if this is not possible by using handheld mechanical grinders with coarse pads to a surface cleanliness standard of ST3.

Once the surface has been cleaned and washed down with an appropriate solvent such as MEK, any corrosion pitting must be filled. For small patches of corrosion use 101 Metal Repair Paste or for larger areas use 302 Epoxy Repair Cement.

Surface preparation on the concrete plinth can be carried out using handheld mechanical grinders, all loose material or deteriorated paint surfaces must be removed. Any moss or lichen on the concrete base should be treated with a proprietary fungicidal wash according to the manufacturer's instructions.

Any gaps between the tank and the concrete base should first be filled and sealed using expanding foam or backer rod. Mask the area to be treated around the circumference of the base of the tank and the circumference of the concrete plinth. The area to be treated will be typically 500-600mm, 300mm up the vertical tank wall surface and 300mm on the concrete plinth.

Application

Prime all surfaces with Resichem 506 Aluprime, apply the primer using a brush or medium pile roller at 100-150 microns wet film thickness. Once the primer coat of 506 Aluprime has cured apply a layer of 75 mm wide duct tape to act as a bond breaker over the joint between the tank and the concrete plinth.

Apply Resichem 550 WR Membrane to all primed surfaces using a medium pile roller at 750-1000microns wet film thickness. While the coating is still wet embed 806 reinforcement mesh into the surface of the coating. Force the sheet into the contours and carefully brush out any creases to give a smooth finish. Where the sheet is being joined allow a 25mm overlap.

Remove the masking tape while the coating is still wet and allow to dry/cure. Replace the masking tape and apply a second coat of the same 550 WR Membrane to encapsulate the tank base sealing system, ensure that the profile of the reinforcing sheet is completely covered.

Resimac Laboratory Testing

Elongation	ASTM D412	160%
Tensile Strength	ASTM D412	42kg/ cm^2 (600psi)
Direct Pull Adhesion	ASTM 4541	28kg/ cm^2 (400psi)
Corrosion Resistance	ASTM B117	Minimum 5000hrs
Water Vapour Permeability	ASTM E96-95	1 x 10^4 perm.cm
Tear Strength	ASTM D624	Reinforced 17.3kg/cm^2
Ozone Resistance	ASTM D1149	160hrs/ 110ppm No Cracking

Resimac System

Surface Preparation	**Mechanical** SSPC-SP-13 ASTM D4258 Abrade with coarse discs	**Abrasive Clean** SSPC-SP-13 ASTM D4258 Angled grit

Design Life	**Mechanical** up to 10 years	**Abrasive Clean** 10-15 years

Surface Preparation

Ideal surface preparation for this type of application is abrasive blast cleaning.

However mechanical abrasion using handheld grinders is suitable.

The design life of the system will be affected by the level of surface preparation performed

Surface rebuilding & filling

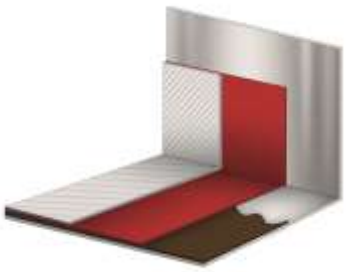
Steel surfaces must be filled using 101 metal repair paste or for larger areas 302 Epoxy Repair Cement

Concrete surfaces must be filled using 570 Concrete Patch Repair XF

Priming

Both steel and concrete surfaces must be primed using Resichem 506 Aluprime

Depending on the porosity of the concrete 2 coats of Resichem 506 Aluprime may be required

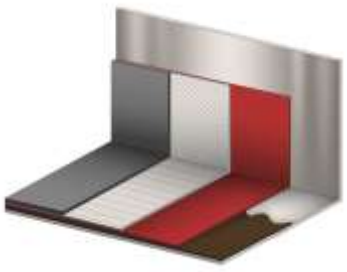


Embedment Coat

Once the primer layer has cured apply by brush or roller Resichem 550 WR membrane at a wet film thickness of 750-1000 microns

While the resin is still wet embed polyester mesh into the resin surface

Leave to cure for 2-3 hours



Encapsulation Coat

Once the embedment coat layer has cured apply by brush or roller Resichem 550 WR membrane at a wet film thickness of 400-500 microns

Leave to cure for 4-6 hours

Global Projects

Oil Refinery — Taiwan

PROJECT

Taiwanese oil refinery identified corrosion issues at the base of 13 tanks on their site

Reason for Choosing Resimac

The Resimac Contractor proposed using the Resimac tank base sealing system

The system once cured will stop any further ingress of moisture while allowing the coated surfaces to breath

Application Details

Steel and concrete surfaces were abraded using handheld mechanical grinders

All surfaces were primed with Resichem 506 Aluprime applied in 2 x coats

A coat of 550 WR Membrane was applied at 750 –1000 microns WFT and then 806 Reinforcement mesh was embedded into the surface

Once the system had cured a final coat of 550 WR Membrane was applied to the repair surface

Product Description

Metal surface rebuilding & filling

101 Metal Repair Paste—This material can be used for smaller surface areas and defects. The product is a 2 component high build epoxy repair paste that can fill corrosion pitting and defects up to 25mm in depth

302 Epoxy Repair Cement—is a lower viscosity solvent free epoxy repair paste ideal for larger surface areas and should be applied by trowel at thicknesses up to 20mm

Concrete surface rebuilding & filling

570 Concrete Patch Repair XF —is a 3 component epoxy repair screed designed for rapid repairs to concrete surfaces.

The product can be applied at thicknesses up to 80mm and will be hard dry within 2 hours (20˚C).

Priming of Steel and concrete surfaces

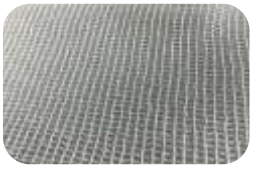
Resichem 506 Aluprime —is a 2 component solvent based epoxy coating that has been designed to be applied to mechanically prepared surfaces.

The mixed product is applied by brush or medium pile roller at wet film thicknesses of 100-150 microns

Embedment and encapsulation coat

Resichem 550 WR Membrane —is a single component water based acrylic membrane. It can be applied by brush or roller to primed steel and concrete surfaces.

Once cured the coating gives a tough and flexible finish to tank bases eradicating any further moisture ingress



Reinforcement mesh

806 Reinforcement mesh —is a polyester technical fabric which gives excellent flexural and tensile strength to 550 WR Membrane when used in an embedment system

Product Curing Times

	10˚C			*20˚C*			*30˚C*			*40˚C*		
	Pot life	**Touch dry**	**Hard dry**	**Pot life**	**Touch dry**	**Hard dry**	**Pot life**	**Touch dry**	**Hard dry**	**Pot life**	**Touch dry**	**Hard dry**
101	60mins	4hrs	16hrs	30mins	2hrs	8hrs	15mins	1hrs	4hrs	7.5mins	30mins	2hrs
302	1hrs	4hrs	48hrs	30mins	2hrs	24hrs	15mins	1hrs	12hrs	7.5mins	30mins	6hrs
506	4hrs	16hrs	48hrs	2hrs	8hrs	24hrs	1hr	4hrs	12hrs	30mins	4hrs	12hrs
550	N/A	4hrs	8hrs	Single Comp	2hrs	4hrs	N/A	1hrs	2hrs	N/A	30mins	2hrs
570	40mins	2hrs	4hrs	20mins	1hrs	2hrs	10mins	30mins	1hrs	5mins	15mins	1hrs

Resimac Technical Support and Expertise

Formed in 2009 and based in the North of England, Resimac manufactures a wide range of solvent free epoxy and polyurethane coatings and engineering materials for the Marine, Chemical, Water, Power, Oil and Gas Industries.

We are able to offer expert technical advice onsite or online 24 hours a day, 7 days a week in over 45 countries worldwide.

Contact us direct by email, telephone or by visiting our website.

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With over 50 contractors worldwide we are able to offer fast and effective solutions in many of the worlds major industrial areas.

Repair Protect Upgrade

Anti Slip Floor Coatings

Chemical Tank & Vessel Lining

Containment Areas

CUI Prevention

Drinking Water Tank Linings

Engine Blocks

External Surfaces

Filters

Flange Face Repair & Reforming

Floor Resurfacing

Heat Exchanger Repair

Heat Protection

HVAC Repair & Linings

Pipe Repair & Pipe Wrapping

Plate bonding

Pump & Process System Repairs

Roof & Gutters

Rudders & Bow Thrusters

Tank Base Sealing

Transformer Repairs

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