CONCRETE

CORROSION SOLUTIONS

SPECIALISTS IN CORROSION PROTECTION

MARGEL™

CORROSION SOLUTIONS

ProTech GLOBAL

ProTech Global™ are a UK based manufacturing company, creating innovative solutions for the Industrial, Marine, Structural and Chemical Markets.

From our Insulating Jacketing Solutions, Vapour Barriers and Sealing Systems we are tackling industry challenges from the outside in.

Our portfolio of products demonstrates the systems approach which offers our clients our high-quality, long-lasting solutions.

ProTech Global are working alongside the UK and Global governing bodies developing systems that can be trusted.

CORROSION OF STEEL REINFORCEMENT WITHIN CONCRETE STRUCTURES

Corrosion of steel reinforcement is a major durability issue in reinforced concrete structures worldwide. Although concrete normally provides an alkaline environment that protects embedded steel, this protection can be compromised by chloride ingress, carbonation, moisture, and aggressive exposure conditions. Once corrosion begins, the formation of expansive corrosion products causes cracking, spalling, reduced bond strength, and a loss of structural capacity.

These effects lead to significant economic and safety concerns, increasing maintenance costs and the risk of premature failure. As a result, enhancing concrete durability is a key focus in modern construction. Among available protection methods, corrosion inhibitors have gained attention for their effectiveness and ease of use.

Margel™ corrosion inhibitor offers the effective solution by improving the protective environment around steel reinforcement and slowing corrosion reactions, thereby extending service life and improving the long-term performance of concrete structures.

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INTRODUCING CORROSION SOLUTIONS

Margel™ VPI 580™ is widely used in the European concrete refurbishment industry to prevent further corrosion to rebars in reinforced concrete

Margel™ is inserted as a preventative measure into concrete structures that are showing corrosion problems

In the UK Margel™ has been used effectively for over 35 years

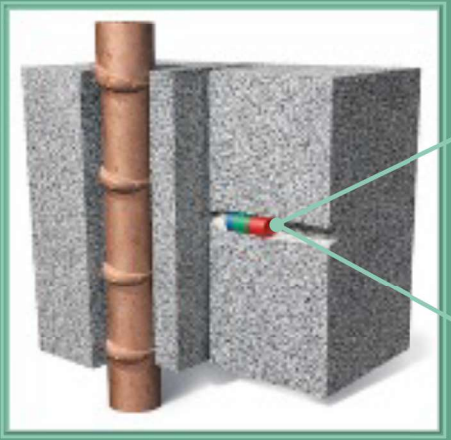
Worldwide use is growing year on year as people see the value of preventive maintenance

Green Credentials; Using Margel™ gives the building owner a proven, low-cost life span extension vs the cost of rebuild

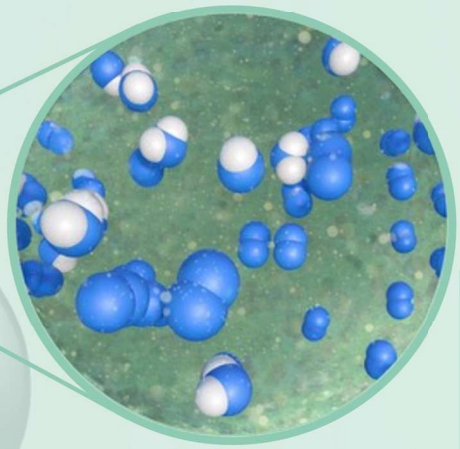
MARGEL™ WORKS WELL IN ALL TYPES OF CONCRETE AND AGAINST ALL LEVELS OF CHLORIDES

MARGEL™ TOTAL PROTECTION

The Margel™ formulation gradually releases corrosion inhibiting compounds within a sealed airspace. Not visible to the naked eye and detectable only by using an electron scanning microscope, these chemicals actively prevent surface corrosion by forming a microscopic layer blocking the electro-chemical process that causes corrosion.



VPI580 corrosion inhibitor Margel™ is inserted into 20mm holes which are drilled in the concrete structure to be protected



Pre-filled capsules engineered for use in storage containers, placement near pipe sections, or embedded in drilled concrete.

These capsules feature high-strength VPI formulations containing a measured amount of inhibitor, enabling accurate application and effective management of various corrosion challenges.

Each capsule provides coverage for 0.25 cubic metres

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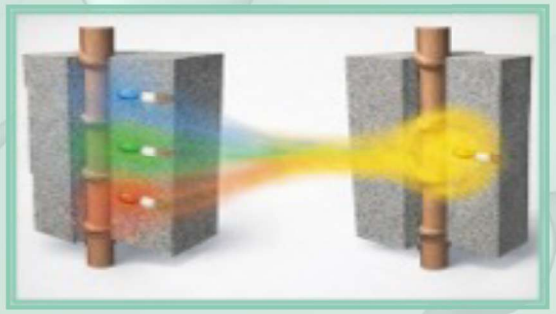


The three chemical elements within Margel are emitted as a vapour that saturate a given airspace, this vapour forms a mono-molecular coating on both exposed and embedded steel.

The vapour travels easily through concrete to coat embedded reinforcement, travelling at up to 1 metre per week, un-affected by the condition of the rebar, insertion temperature or weather.

HALF CELL TESTING

Margel™ has been tested using a Half-cell meter on multiple occasions on corroded rebar within concrete, both in laboratory conditions and from real-life job sites. Using a half-cell meter, engineers can obtain a localised corrosion reading which correlates to the corroded condition of the rebar.

Immediately following the insertion of Margel™ capsules, the corrosion rate started to drop and after a short period of 7-10 days the rate of corrosion dropped below the threshold of corrosion as identified by ASTM C 876. The rebar had ceased to corrode.

What happens when you add Margel™ to a structure that has high corrosion readings?

To further prove this was correct, steel rebar used in the test was extracted from the concrete and using a scanning electron microscope – the layer of corrosion inhibiting Margel™ can be seen layered on the steel surface of the corroded rebar.

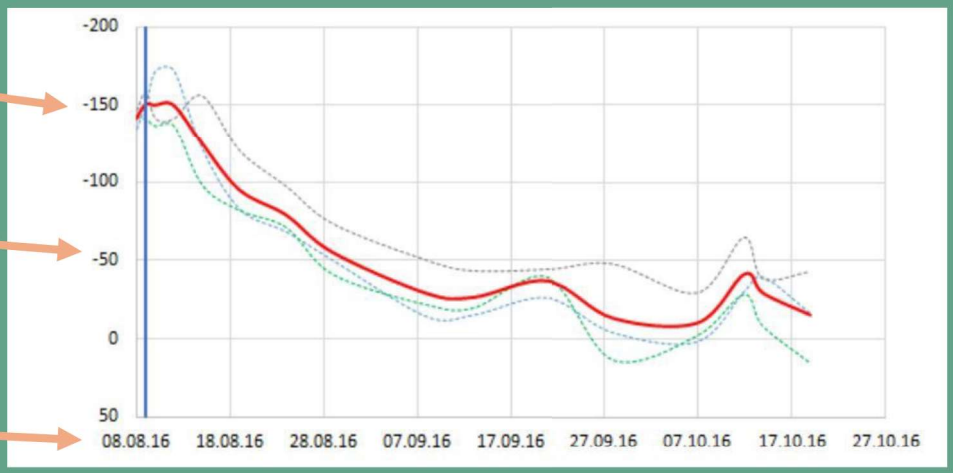
Using a half-cell test meter, engineers can accurately test the corroded state of rebar within concrete structures

HALF CELL CORROSION GRAPH

Concrete at -150mv at time of capsule insertion

Concrete reaches -50mv after just 21 days

Margel580 inserted on 08.08.16



Measurements of 4 samples all containing Margel580, insertion in concrete is the Blue line on 08.08.16. Testing by Russian Institute of Metallurgy.

Exclusive Nordic Distributor

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