WINN & COALES INTERNATIONAL LTD

Denso Digest

Denso Protal 7200 is used in the rehabilitation of a pipeline in the USA - see story page 4-5.

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Corrosion Protection - Pipeline Rehabilitation

Denso Protal 7200 Used To Rehabilitate Pipeline

Many oil & gas companies are creating pipeline integrity programs to inspect, monitor and repair their pipeline systems. If during inspection the coating is found to be disbonded or in need of repair, the pipeline will be excavated and recoated. Denso's Protal 7200 is the product of choice to recoat pipelines by hand or spray.

Williams Pipeline selected the Protal 7200 to recoat over 1 mile of 30" diameter pipe. The project consisted of excavating and exposing the 30" diameter pipe. Prior to coating, the pipe was sandblasted to a near white metal finish, SSPC SP-10 or NACE No. 2 standard. After the surface was prepared, Protal 7200 in (2 litre kits) was applied typically to a 50 foot pipe section in which the coating was applied in 25 minutes with low nap rollers. The coating was applied by Pilgrim Construction at an average thickness of 30-35 mils in one coat at 110 F (43°C). The tack-free time was approximately 15-20 minutes and the pipe was ready for holiday detection and backfill within 1 hour.

Above: Mixing the Protal 7200

Below: Sandblasting to a near white metal finish before applying the Protal 7200.

Once mixed and ready for use, the Protal 7200 is easily applied to 50' sections of pipe at a time with low nap rollers, to an average thickness of 30-35 mils.

Protal 7200 is a VOC free, 100% solids epoxy that exhibits excellent cathodic disbondment results with 4 mm at 150°F (65°C). In addition, the coating offers high impact resistance, fast curing, high abrasion resistance, high build (up to 50 mils in one coat) and environmentally safe.

Denso manufactures a full line of Protal liquid coatings to meet the demand of the pipeline industry. Protal liquid coatings are the coatings of choice by owners, oil and gas specifiers and contractors across North America.

Corrosion Protection - Gas Pipeline

Densoclad Protection on London Docklands Gas Line

National Grid are diverting 0.5 km of 450 mm gas line in London's former dockland, which is part of the Galleons Reach Dockland Development being carried out by prime contractor, Morrison Utility Services PLC.

For protection of all bends, joints and couplings in the gas line, National Grid have chosen Densoclad 70 Tape system. Denso Profiling Mastic is first applied where required to give an even contour on fittings to ensure rapid and effective application of the subsequent Densoclad 70 wrapping tape. National Grid have specified Densoclad 70 Tape because it meets their protection requirements including compatibility with the cathodic protection system on the gas line.

Densoclad Tapes consist of a thick polymer bitumen adhesive laminated to a tough plasticised PVC backing. These cold applied tapes are designed for the long-term protection of buried or immersed pipes and fittings.

Morrison Utility Services PLC protected all joints and bends on the gas line with Densoclad 70 Tape. Denso Profiling Mastic was used to fill voids etc before wrapping.

Linings - Hospital Water Supply Tanks

Nu-Tank 400E Lining Protects Hospital Water Supply

Although the two cold water tanks supplying water throughout Sunderland Royal Hospital, Tyne and Wear, are 30 years old, water purity is being assured through the use of the Nu-Tank 400E glass flake reinforced lining system. Corrosion Protection Services Ltd of Jarrow, Tyne and Wear, an approved Nu-Tank applicator has recently completed the lining of the second tank, following the successful performance of Nu-Tank 400E since the first tank was lined by CPS, 12 months ago.

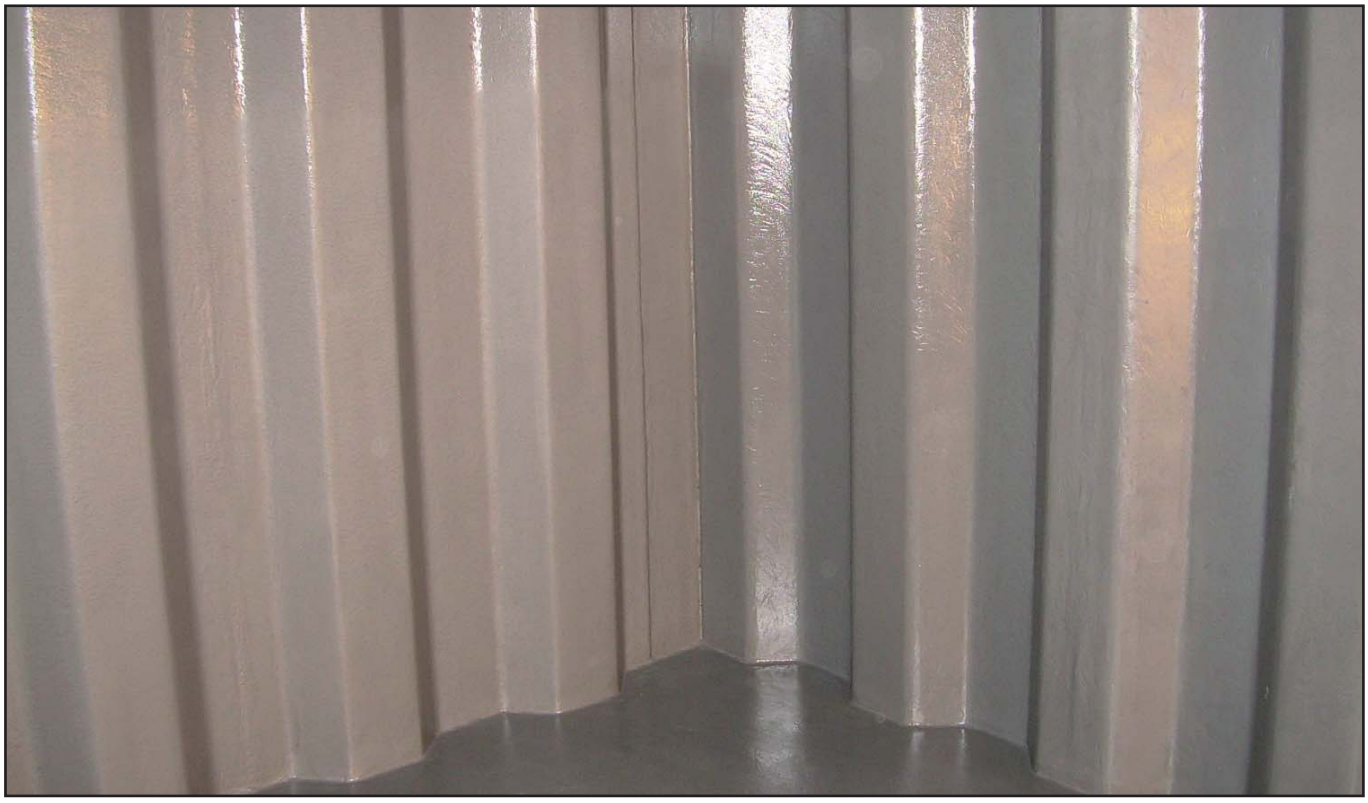
When it has cured (which is possible in four hours), Nu-Tank 400E meets all current regulations for drinking water. Importantly, where hospital and other public buildings are concerned, the finished lining provides a smooth substrate which eliminates areas where legionella pneumophilia (Legionnaires Disease) could multiply. As the lining conforms to BS 6920 requirements it will also resist growth of micro-aquatic organisms.

Being a high build epoxy lining system, Nu-Tank 400E gives long-term anti-corrosion protection. A further advantage of Nu-Tank 400E is that it employs mainly solventless materials and is ideal for use in confined spaces such as hospitals and residential care facilities where fumes could be a problem.

By using different colours for the two pack metallic anti-corrosion primer coat, the intermediate coat and the glass flake top coat, accurate coverage and freedom from permeation is assured under approved application conditions.

Accurate coverage is obtained by employing different coloured coats.

Nu-Tank 400E cures to a hard, smooth surface.



Corrosion Prevention - Stranded Cable Supports

Denso Protects the Rainbow Bridge at One of the Seven Wonders of the World

Niagara Falls is without a doubt one of the most impressive of the Seven Wonders of the World. Set between Lake Ontario and Lake Erie in Canada's Great Lakes, Niagara Falls separates the United States and Canada with a spectacular display of plunging, raging water that never fails to attract and impress the nearly 28 million tourists a year that visit the site!

Niagara Falls whilst not as high as others around the world, is certainly one of the widest and the waterflow is an amazing 6 million cubic feet/minute from a height of 173 feet!!

As a major border crossing between the two countries, there are several large suspension bridges that span the Niagara River flowing out from the Falls themselves, and crossing between Canada and the U.S.A.

Denso Canada recently was awarded a contract to supply Denso Void Filler to provide anti-corrosion protection on the stranded cable supports on the

Above: View of Niagra Falls from the bridge.

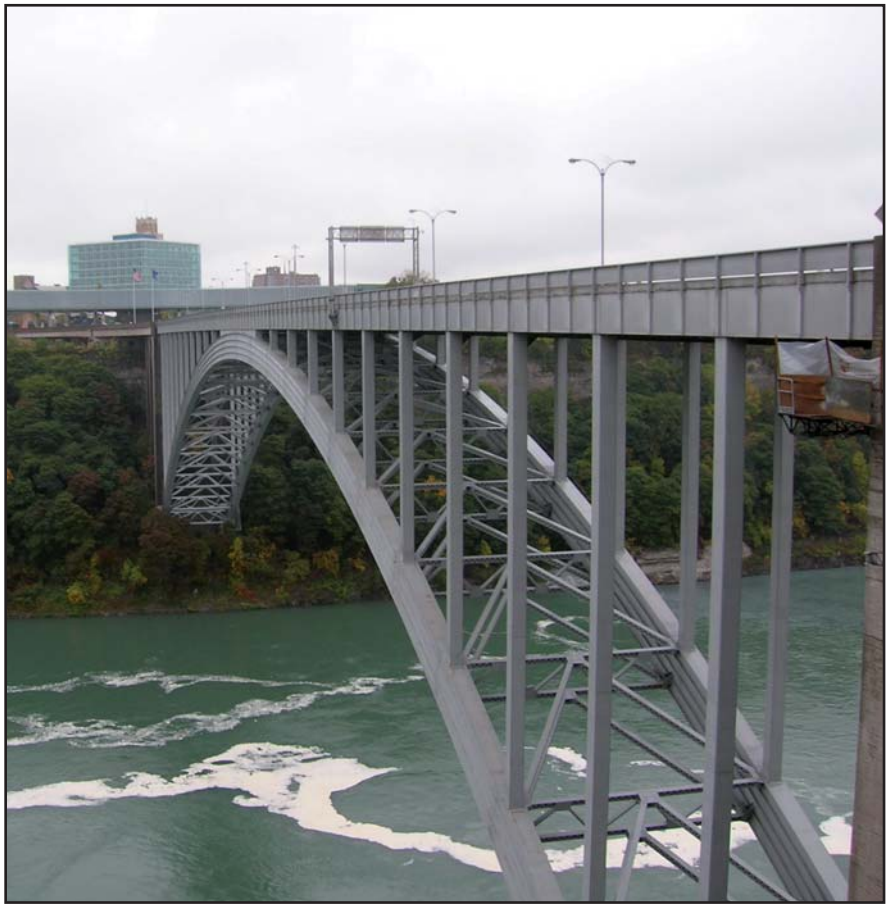
Below and opposite: Various views of the Rainbow Bridge that crosses from Canada to the USA.

Rainbow Bridge, a steel arched structure spanning the river for a distance of 950 feet.

From the accompanying photographs, it is clearly a spectacular view from the job site over the river, with the Falls in the background.

The job is now complete but overall involved a total of 10 x 200-litre drums of material.

Denso Canada was proud to have been selected as the key supplier to such a highly important and high-profile project and hopes that this work will be viewed as another fine example of Denso products protecting the worlds' infrastructure from the ravages of corrosion and future deterioration, in particular at one of the Seven Wonders of the World.



Corrosion Prevention - Exposed Welded Pipeline Joints

Lusip Project : Swaziland Denso Steelcoat 500 Protects Exposed Field Joints

Denso were called in to assist in a project consisting of a series of dams, canals and pipelines situated in the Siphofaneni district of Swaziland called The Lower Usuthu Smallholder Irrigation Project (LUSIP). The purpose of the project was to supply water for irrigation to large sugar plantations and smaller local agricultural developments.

A section of the project consisted of 3500m of dual above-ground pipelines ranging from 2m to 1.1m diameter. The pipes were supplied by Hall Longmore with new age Sintercoat as the external protection to the barrels.

The engineers on the project were looking for long term corrosion protection of the welded field joints as well as a product which would bond to the Sintercoat on either side of the weld. The Denso Steelcoat 500 System (Acrylic Pipeline Tape) was specified having a proven track record on various Sintercoated pipe bridges in South Africa.

The pipeline contractor, Shearwater Construction, applied the Steelcoat 500 system to the field joints after being trained by the Denso team.

Above: Application of the Denso Steelcoat 500 System to the exposed irrigation pipeline field joints.

Below: View of the LUSIP project during construction.

Corrosion Prevention - Steelwork in Marine Environments

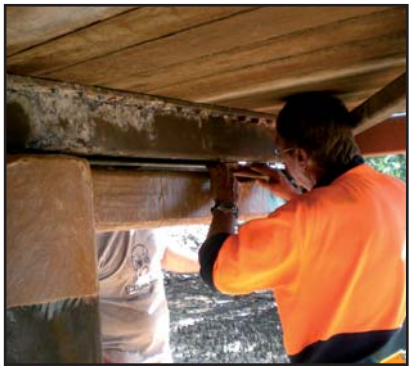
Denso Steelcoat 100 System Provides Totally Effective Corrosion Prevention in Aggressive Environments

Prevention of corrosion in marine environments can present a number of difficulties not always encountered in other locations. The presence of high humidity and air borne salt demand a greater degree of care with surface preparation and application procedures. Add to this the requirements of environmental controls, in particular the need to contain all abrasive medium and materials removed, and we find the cost of treating any structure is greatly increased over what was normal in past times. Denso Australia has been able to successfully promote a Steelcoat 100 System to capitalise on the increasing resistance to use abrasive blasting, particularly in marine environments.

The selected Steelcoat 100 system comprises Denso Hi-Tack Primer and Tape, applied over a suitable hand power tool cleaned steel substrate (ST2). The Hi-Tack Tape conforms intimately to the substrate regardless of the complexity of the profiles. The tape coating is then oversealed with a special Denso Elastomeric top coat applied by brush or roller to a nominal thickness of 1000 microns.

This liquid top coat wicks into the fibres of the Hi-Tack Tape and very quickly sets to form a tough but flexible monolithic armouring or membrane which is also highly resistant to UV and corrosive atmospheres.

Above: Priming with Denso Hi-Tack Primer after cleaning with hand power tools.



Above: Taping with Denso Hi-Tack Tape

The benefits of this protective coating system are summarised:

- No abrasive blast cleaning
- Controlled minimum coating thickness over all steel profiles
- Can be applied in extremely humid conditions over salt/chloride deposits and thin layers of rust
- Can tolerate water immersion immediately after application
- Good aesthetics with a flexible, tough, tack free finish
- Proven 30 year, maintenance free service life

Due to these major benefits, this Denso Steelcoat 100 system is quickly gaining acceptance in many areas of Australia.

Below: Application of the special Elastomeric top coat completes the job.