

# Denso® Digest



**Denso®**

LEADERS IN CORROSION PREVENTION  
& SEALING TECHNOLOGY

# WINN & COALES INTERNATIONAL LTD

Welcome to another selection of project stories from around the world demonstrating the versatility and effectiveness of Denso Anti-corrosion and Sealing Products in diverse, challenging environments.

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✓ Anti-corrosion and sealing systems

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Website: www.denso.net



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PROJECTS INVOLVING:	
PROTECTIVE COATINGS FOR.....	
BURIED PIPELINES & LPG VESSELS	
EXPOSED STEEL & PIPEWORK	
SUB SEA PIPELINES & JETTY PILES	
PROTECTIVE LININGS FOR.....	
STORAGE TANKS, PUMPS ECT	
SEALING & WATERPROOFING.....	
SEALING MASTICS	
MEMBRANES & FLASHINGS	
INDUSTRIAL TAPES	

Sealing Mastics - Road Repairs

# Densoband - Asphalt Joint Sealing strip Now Manufactured in the UK

After extensive modification and new development to our BS EN ISO 9002 accredited Chapel Road, London, manufacturing site Winn & Coales (Denso) Ltd are pleased to announce that they are now producing the asphalt jointing strip Densoband in the United Kingdom.

Densoband has become widely used in road maintenance and construction as an effective jointing material for asphalt. Approved by the Highways Agency and the British Airport Authority, the polymer modified bitumen compound in strip form makes a flexible watertight vertical joint between new hot rolled asphalt and existing asphalt,

concrete or steelwork surfaces.

Because water, salts, pollutants and weed seeds cannot penetrate the sealed joint it remains unaffected by extremes of temperature and further deterioration is avoided. A new clear primer is also available for use where appearance is important. The prudent use of Densoband greatly reduces future road



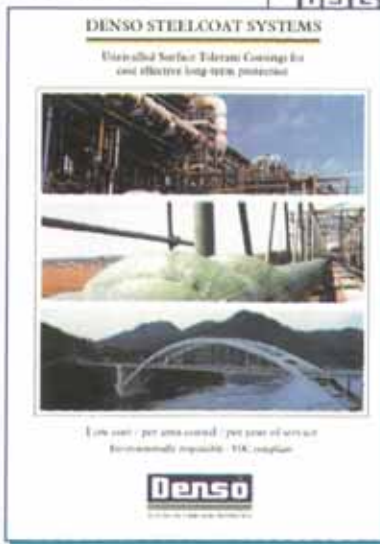
Densoband is applied to the joint face prior to laying the new asphalt wearing course.

maintenance costs and expensive unpopular repairs on our busy roads, making it a cost effective alternative to traditional jointing materials.

Corrosion Prevention - Exposed Steel and Pipework

## Denso Steelcoat Systems - New Literature Available

To compliment the launch of Denso Steelcoat Systems we have produced a new range of leaflets to provide basic information and help our customers choose the right system for their needs.



The range consists of a separate leaflet for each individual Steelcoat System giving an overview of its usage and all the relevant product information.

A four page 'System Selection Guide' has also been produced which is designed to identify the most appropriate Steelcoat System or combination of Steelcoat Systems by comparing type of surface preparation, Steelcoat System, problem area and length of service life in an easy to use table.

The leaflets are available on request.



## 14 Years On - Inspection of Oil pipes in Middle East

The photographs depict a 36 inch diameter pipe exhumed after a period of 14 years service, for routine inspection by a Middle Eastern oil company (for security reasons we are not permitted to disclose any details as to the owner/operator of the pipeline).



Inspection of the pipeline involved removal of the Densopol 80 HT Tape after 14 years burial in highly corrosive soil conditions.



Excessive ground water mixed with the high salt deposits of this region make the conditions very demanding for the Denso corrosion protection coating.

The pipes were protected against corrosion with a double wrapping of Densopol 80 HT Tape. This product was specially designed to deal with the very aggressive conditions associated with the "Sabkha" soil beds found in this part of the world.

Typically in this area the salt content of the soil was  $\pm 300$ gms/litre. The degree of moisture present in the ground is evident from the photographs and soil resistivities can be as low as 20Ohm-Cm. Ambient temperatures in the summer reach in excess of 40°C. The operating temperature of these pipes is in the region of +40°C to +60°C.

Once the tape was removed (after considerable effort by the inspection team) the condition of the pipe was found to be as good as the day it was wrapped.

## Corrosion Prevention - Exposed Pipelines

## Steelcoat Protects Water Supply To Nuclear Power Station

British Nuclear Fuels Ltd has recently recoated the mains water supply pipeline from the river Annan to its Chapelcross, Dumfriesshire, nuclear power station, following nearly forty years service.

Some 50 metres of the 24 inch pipeline that rises from the ground has been protected with a Denso Steelcoat 400 System, which is expected to give at least another thirty years protection from corrosion.

The recoating work was carried out by contractors W A Vallance.

Following hand wire brushing to remove the old bitumen coating, the fast applied acrylic backed wrapping system was applied, finished with Nato Green Denso Topcoat to complete the protection.

*The finished acrylic/rubber bitumen Steelcoat 400 System giving excellent protection against corrosion to the British Nuclear Fuels Ltd water supply pipeline.*



### Linings - Storage Tanks



*Application of the lining in progress.*

## Archco-Rigidon Lining Extends Life For Clay Slurry Tank

Part of the refining process for the production of china clays at the St.Austell, Cornwall, works of ECC International Ltd involves settlement in a slurry tank, fitted with a weir system to take away water. Over the years the 23m diameter x 3m deep concrete slurry tank had become pitted from the action of the acids and alkalis in the clay.

ECC International called in contractors B K Coatings Ltd of Tregrehan, near Par, to propose a coating system to protect the concrete. B K Coatings chose Winn & Coales Archco-Rigidon 723D for the project.

The Archco-Rigidon lining system consists of a filled vinyl ester resin base coat, a layer of reinforcing fabric and a final filled vinyl ester topcoat. After the application of the coating, tests were made with holiday detectors to ensure freedom from pinholes and holidays.

Archco-Rigidon 723D has a proven track record of long term protection in a wide variety of corrosive/erosive environments.



*The finished lining will protect the concrete from attack by the acids and alkalis present in the clay slurry.*

## Construction Starts on Alliance Pipeline System

The Alliance Pipeline System is becoming a reality as construction on the 2,990 kilometres (1,858 miles) mainline is about to start. Construction of the 762 kilometres (474) miles) lateral pipeline system is designed to initially offer 1.325 billion cubic feet per day of firm delivery service from the gas producing areas of Canada's northeastern British Columbia and northwestern Alberta to the distribution centre in Chicago, Illinois, USA. From Chicago the gas will be shipped to markets in the midwestern United States and eastern Canada.

The Canadian portion of the project will consist of about 2,320 kilometres (1,445 miles) of pipeline (mainline and laterals) and appurtenant facilities in Canada - at a direct capital cost of approximately C\$2.4 billion (US\$1.6 billion).

The American portion will consist of about 888 miles (1,429 kilometres) of pipeline (mainline and delivery) and appurtenant facilities in the US - at a direct capital cost of approximately US\$1.4 billion (C\$2.1 billion).

Mainline construction activities are on schedule and will start on May 15, 1999 in the United States and on June 1, 1999 in Canada. The total Alliance Pipeline System will be complete and in service by October 2000.



The Alliance Pipeline route from Canada to the USA.

Plant applied Fusion Bonded Epoxy (FBE) has been selected as the main coating for the project. Denso Protal Liquid Coatings, which are compatible

the plants, especially in the winter as Protal 7125 will cure to  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ). At this time, Protal 7000 has been selected as a field applied girth weld

coating for over 2,500 welds. As the project progresses, we are anticipating additional opportunities for our new Protal 7200, Brush Grade for coating girth welds and Protal 7250, Spray Grade for application to valve assemblies, bends and fittings. Denso petrolatum pastes, mastics and tapes have also been specified to coat buried flanges, valves etc.

The Alliance Pipeline System is a large project in which we look forward to meeting the many demands of our customers and exceeding their expectations.

Note: Further information on the Alliance Pipeline Project can be found at their web site:

<http://www.alliance-pipeline.com>

### Project Statistics

Mainline		Laterals	
Pipe length:	2,990 kilometres (1,858 miles)	Pipe length:	762 kilometres (474 miles)
Pipe diameter:	914/1067 mm (36/42")	Pipe diameter:	102-610 mm (4-24")
Pipe thickness:	14.275 mm (C) (0.622"(USA))	Compressor stations:	8 lateral
Max. operating pressure:	12,000 kpa (1,740psi)	Receipt points:	37 in British Columbia and Alberta
Compressor stations:	14 Mainline		

The Alliance Pipeline is a very large, state-of-the-art pipeline project that Denso North America Inc. is excited and pleased to be a supplier of various corrosion prevention coating systems.

with FBE, have been selected and will be used on the project.

Several of the FBE coating plants have selected Denso Protal 7125 Repair Cartridges as a quick and efficient way to repair FBE at

## Tokstrip Sealant Chosen For New Business Park Storage Tank

A large water storage tank has been constructed from precast concrete box culverts for the Pheonix Centre Business Park development at the former Babbington Colliery site in Nottinghamshire.

Tests supervised by the Building Research Station have shown that Tokstrip ogee pipe joints can withstand an internal hydrostatic pressure of 2.5 bar (37 psi) and retain a seal under shear loading, angular deflection and straight draw.



The first few Uniflow box culverts in position jointed with Tokstrip.

The contract for the construction of the storage tank involved 198 Uniflow box culvert units, laid as a twin run, from F C Precast Concrete Ltd of Derby. Internal dimensions of the culverts were 2400mm wide x 1635mm deep (maximum).

The box culvert units were installed by Quadro Services Ltd acting for Alfred McAlpine Ltd, who chose Winn & Coales Tokstrip as the jointing sealant.

Tokstrip is widely used in the UK and overseas for sealing the joints of precast concrete sectional units in drainage and sewerage construction. Under compression it deforms through the joints to provide a flexible watertight seal.

# Tokstrip®



The water storage tank nears completion.

## Corrosion Prevention - Buried Pipelines

## Air Products - 18.6 km Oxygen Pipeline

The South African based company, Air Products were recently awarded the overall contract to increase oxygen supply to the furnaces of ISCOR (the Iron and Steel Corporation of SA).

The pipeline stretches from Air Products manufacturing facility in Vanderbijlpark to Iscor in Vereeniging, approximately 18.6km.

Denso South Africa have won the order to supply a total of 105,000 linear metres of 6" wide Denso Ultraflex Tape, to protect the buried pipeline from corrosion.



The Denso protected oxygen pipeline under construction.



Denso Ultraflex Tape wrapped pipelengths ready for installation.

## Above Ground Steel - Roof Purlins and Metal Roofing

## Mozal Project - A New Aluminium Smelter in Mozambique

Billiton, the London based metals group and fifth largest producer of aluminium in the world, has commissioned a 245,000 ton per annum aluminium smelter to be built in Mozambique.

Mozambique, after years of civil war, is on the road to political recovery with the government legislating a range of generous incentives to attract new investors.

The project value is estimated to be US\$1,124 million and the first metal will be poured after 31 months of construction.

Denso South Africa were awarded the contract to supply the Cladseal range of tapes for purlin isolation and metal roof side and end lap sealing. This called for 800,000 linear metres of Cladseal 800 and 620,000 linear metres of Cladseal 1500 to be manufactured and sent via road freight to Mozambique.



Artists impression of the proposed smelter.



## Denso Protal 7125 Fast Cure Liquid Coating for Directional Drill in Cold Weather

Devon Energy was recently in a bind when they needed a pipe coating to cover 1,700 linear feet of 24" diameter pipe for a project in Douglas, Wyoming. They were in a bind because in mid-January in Wyoming the weather can be gruesome. The project was on a fast track and needed to be coated during a two week window where high winds and cold temperatures are the norm. With temperatures expected to range from 50°F (10°C) down to 0°F (-18°C), Protal 7125 (winter/brush grade) would be the perfect solution to the potentially brutal environmental conditions.

Protal 7125 is a fast cure, low temperature pipeline liquid coating. The product was packaged in 2 litre kits and was applied by roller in the field. The directional drill pipe was coated to 35 mils in one coat. Jomax Construction, the pipeline contractor who applied the coating, was thrilled with Protal 7125 for several reasons. First of all, the product cured very fast (at 0°F (-18°C) the coating cured in 45 minutes). The highest temperature reached during application was 50°F (10°C) where a cure was achieved in 15 minutes. The fast cure at cold temperatures was significant because with the cold weather there also existed high winds carrying dust and debris.

Another benefit with Protal 7125 on this project, was that it was easily applied at 35mils in one coat. This allowed the contractor to apply the product in a timely manner and well ahead of schedule.

Protal 7125 is easily applied by brush or roller.



Finally, all parties involved were very pleased with how smooth the product went on and how well it looked after curing.

Denso manufactures a full line of Protal Liquid Coatings that are considered the choice by owners, oil and gas specifiers and contractors across North America.

After 45 minutes at 0°F (-18°C) the Protal 7125 coating cures and the pipe is ready to be buried.

## Cromer RNLI Station - New Slipway Pile Protection

Following the successful performance of the SeaShield 100 System on the piles of the new lifeboat slipway at Angle in Wales, the consultants, Posford Duvivier, chose the same system for Cromer.

The new facility is supported on 47 tubular steel piles, 833mm in diameter, located at the end of the Cromer pleasure pier. As construction work continued through the busy summer season, access for materials and working were restricted. Interference with the normal activities of the pier was not permissible so the successful contractor, May and Gurney, used some ingenious methods to carry out their task. This included the use of an old US amphibious vehicle to transport construction materials from their site, located 2 miles down the beach, to the pier site.

To enable installation of the SeaShield to continue whatever the state of the tide, May Gurney constructed suspended platforms that encircled the piles and could be raised and lowered by winches.

These platforms allowed two operators to wrap the piles and install the jackets from the underside of the deck down to below low water.

The jackets were secured in place using a marine grade, 316 stainless steel banding and buckles.

This method of working with the materials supplied by sea, ensured that the installation went smoothly without delays.



Close up of SeaShield 100 System protected pile showing stainless steel banding in place.



Left and above: View of the new lifeboat house and slipway piles showing the installation of the SeaShield 100 System in progress from suspended platforms.



 The logo for SeaShield, featuring a stylized blue figure resembling a diver or a shield with a circular element on top, positioned above the word "SeaShield" in a bold, blue, sans-serif font.

## South West Pipeline -Lara to Iona

The South West Pipeline is an integral part of the National Gas Pipelines grid. De-regulation of utilities, and the need for increased competition for gas prices has resulted in an expansion of Gas Transmission Pipelines throughout Australia.

Running from the Iona gas field in South West Victoria this 508m F.B.E. coated pipeline travels for almost 153km through rugged national forest and prime farming properties to Lara on the outskirts of Melbourne.

Denso were able to secure specifications and the eventual supply of Raychem WPCT and WPC65m Heat Shrink Sleeves for the 8500 welded joints as well as Powercrete Epoxy/Concrete Coatings for directional drilled pipe for river crossings.



The pipe coating contractor Transfield Construction Pty Ltd applied the Heat Shrink Sleeves for Transmission Pipelines of Australia whilst the Powercrete coating was applied by Bredero Shaw in their Kembla Grange N.S.W. pipe coating plant.



Above:  
Preheating the pipe prior to application of the Raychem Heat Shrink Sleeves.

Left:  
Heat shrinking of Raychem-Ditax sleeves.



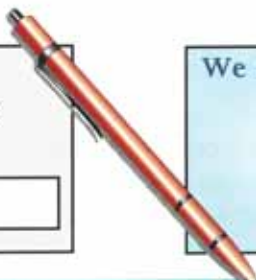
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Would you like more information about our long-term corrosion prevention and sealing systems?

If you are interested in any of the products featured in this issue of the Denso Digest please tick box:

Please indicate page number(s):



We also offer tried and tested systems to deal with all the problem areas listed below, simply fax back this completed page and we will supply you with more information.

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- Protection of mounded LPG vessels and fuel tanks.

**EXPOSED SURFACE COATINGS**

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- Corrosion prevention for metal roof purlins and metal roof sheets.
- Protecting pre-stressing and post tensioning bridge cables and ground anchorages.

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- Protecting and bonding

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