



**What Kind of  
Trenchcoat  
Could Look  
This Good  
in 100 Years?**

### **SUPERIOR ABRASION RESISTANCE.**

CSP coated with TRENCHCOAT protective film is able to withstand sandy clay run-off and gravel bedload without losing its adhesion to metal.<sup>1</sup>

An independent study was conducted by the Ocean City Research Corporation that used their most severe abrasion test methodology. The study showed that CSP coated with TRENCHCOAT film possessed superior abrasion resistance over metallic coatings, asphalt dipped coatings, and polymer-modified asphalt coatings.

### **SUPERIOR BONDING.**

TRENCHCOAT protective film bonds to steel both chemically and physically. Through this bonding, it becomes an integral part of the galvanized steel pipe, able to outperform asphalt coating materials. TRENCHCOAT film exhibits greater than 10 times the adhesive peel strength when compared to asphalt.

### **EASY INSTALLATION.**

TRENCHCOAT protective film adds virtually no weight to sections of CSP. As a result, pipe sections protected with this film can be handled more easily than heavier concrete or asphalt-coated corrugated pipe. TRENCHCOAT film also resists damage due to normal handling and installation — much more so than asphalt. And, unlike asphalt, TRENCHCOAT film is not affected by extreme cold or heat found during winter and summer installation.

**Even when TRENCHCOAT film is mechanically damaged, a study showed that the normal delamination is no more than one-eighth inch.**



# TRENCHCOAT<sup>®</sup> Heavy-Gauge Protective Film Withstands the Elements for Long-Term Protection of Storm Drains and Culvert Systems.

**THE STRENGTH OF STEEL. THE CORROSION RESISTANCE OF CONCRETE.**

The Dow Chemical Company provides a winning combination. You can have the strength, cost effectiveness, and the lighter weight of galvanized corrugated steel pipe (CSP), while also having the resistance to corrosion and abrasion of concrete. CSP that is manufactured with TRENCHCOAT heavy-gauge protective film combines the benefits of steel and plastic.

TRENCHCOAT film is a tough, heavy-gauge film with at least a 10-mil thickness. It can be laminated to the inside and outside surfaces of CSP by qualified laminators. The laminated steel coil is

corrugated and formed into pipe of various diameters to meet the needs of your specific application.

TRENCHCOAT protective film gives CSP resistance to corrosion and abrasion that is superior to aluminizing, fiber-bonded asphalt, PVC plastics, and coal-tar formulations. CSP coated with TRENCHCOAT film is lighter than concrete and asphalt-coated pipe, making it easier to transport, handle, and install. In addition, CSP that is protected with TRENCHCOAT film can withstand abuse during fabrication, handling, installation, and use.

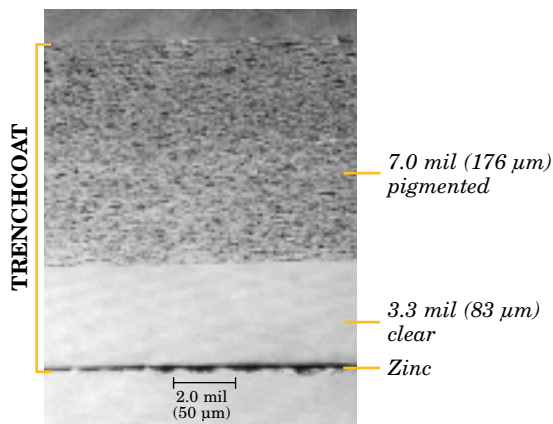
## THE PROOF IS IN THE TESTING.

For more than 20 years, Dow has conducted extensive performance testing on this heavy-gauge protective film.

One laboratory study<sup>2</sup> used microscopic and infrared microspectroscopic analysis of CSP samples coated with TRENCHCOAT protective films that had been in service for up to 22 years. The samples were examined for cracking with an optical microscope. In all samples, the majority of the TRENCHCOAT protective film coating (effluent side) was in good physical condition. None of the micrographs showed evidence of chemical degradation or cracking, although some of the samples did show evidence of physical abrasion to the exposed surface.

In the study, Don Waters, P.E., vice president of Corrpro Companies, Inc., states, "Since we have not seen any measurable degradation, we can only predict a long service life for CSP protected with the TRENCHCOAT polymer film. We cannot find any data to suggest that this pipe coating would not provide at least 100 years of service life."

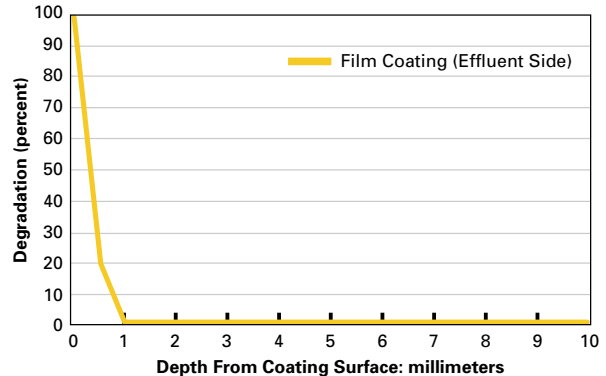
**Figure 1 — Micrograph of Pipe Cross-Section**



This micrograph shows a cross-section of TRENCHCOAT protective film taken from the invert of a 22-year-old installation in Michigan's Upper Peninsula. The two layers of film in the cross-section and the absence of any cracks or deformation show the excellent, long-term performance of the TRENCHCOAT protective film coating. (Note the presence of the zinc adhering / bonding to the film itself.)

<sup>2</sup>Study was conducted by PSG Corrosion Engineering, Inc., a subsidiary of Corrpro, the largest corrosion engineering firm in North America.

**Figure 2 — Coating Degradation Versus Depth of 10-mil Film**



Using the same sample as Figure 1, this chart shows the results of spectroscopic mapping. The horizontal axis of the graph shows the depth of the region being analyzed from the exposed coating surface. The vertical axis shows the percent of degradation of the film at each depth into the protective film. This sample specimen was very representative of the samples analyzed in the study and showed very little degradation over its first 22 years of service.

## SPECIFY TRENCHCOAT FILM.

To ensure that the corrugated steel pipe you specify for your next project is coated with TRENCHCOAT protective film, ask for: **"Corrugated steel pipe, coated on both sides with a protective polymer coating conforming to ASTM A 742 and AASHTO M-246. The polymer coating shall be a minimum 10 mils thick. The polymer shall be composed of polyethylene and acrylic acid copolymer — labeled TRENCHCOAT protective film."**

## START YOUR DECADES OF PERFORMANCE...TODAY.

For more information about TRENCHCOAT film, its physical properties, or the names of manufacturers who use TRENCHCOAT film on their corrugated steel pipe, contact Dow's Customer Information Group at 1-800-441-4369.

## SUPERIOR CORROSION RESISTANCE.

TRENCHCOAT protective film resists virtually all corrosion, such as acids, salts, and alkalines commonly found in today's storm drains and culvert systems.



*Reinforced Concrete*



*SRP/G210  
— invert*



*CMP/Aluminum  
— invert*



**TRENCHCOAT**  
*CSP/G210/  
Polymer — invert*

A test culvert in Butte County, California, features multiple types of pipes experiencing the same conditions. The environment there is very acidic, with a water pH around 3.3. At this pH, most damage would be expected from the pH and not abrasion or erosion. For the study, invert core samples (above) were taken. In general, all pipe sections showed internal degradation in the invert only. The reinforced concrete pipe was corroded enough to expose coarse aggregate. The galvanized G210 pipe sections were severely corroded on all surfaces on the immersed invert and were perforated numerous times at the crests of the corrugations. The aluminum alloy CMP was severely perforated. After seven years of service, the CSP section coated with TRENCHCOAT protective film was in excellent condition, showing no signs of delamination, abrasion, or film degradation.



**For additional information,  
call 1-800-441-4DOW (4369).**

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