

Welcome

This is Goodwest Linings & Coatings' first newsletter. Our goal is to provide information about the corrosion protection industry while showing real client examples of how our products are improving infrastructure.

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Technical Information

Elastomeric Polyurethane

Beneficial Properties:

- No solvents/100% solids
- Certified per NSF 61 for potable water
- High-build in a single spray-applied coat (.250" vs .050" max for most other linings)
- Elasticity (over 40%) that easily accommodates expansion & contraction due to thermal cycling where other materials crack
- Impact & abrasion resistance (often used on exteriors of large pipelines to reduce coating damage from handling)
- Low-temperature cure (-25° F for Endura-Flex 1988)
- Fast cure—can be immersed 24 hours after application
- UV resistance—discoloration occurs but with no loss of physical properties
- High dielectric strength/low conductivity

Limitations:

- High temperatures — polyurethane reverts at immersion temperatures over 120° F. or 180° F. dry.
- Chemical resistance — not intended for primary containment of concentrated acids, solvents and certain other chemicals.

Elastomeric Polyurethane Linings Extend Life Span of Pressure Vessels



Goodwest employee relining a severely corroded water filtration pressure vessel with thick film of elastomeric polyurethane.

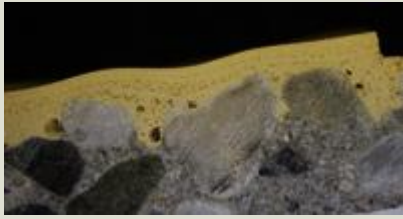
Ten years ago Goodwest Linings & Coatings decided to try something that had not been attempted before on the west coast – lining water filtration pressure vessels with elastomeric polyurethane. More than three hundred filtration vessels later, the verdict is in: elastomeric polyurethane linings ensure long-term, maintenance-free corrosion protection of vessels and significantly extend the lifespan of water filtration systems.

Elastomeric polyurethane linings can be applied as thick as ¼" in a single coat, virtually eliminating chances for pinholes to form over welds, sharp edges, corrosion pits, and other irregular surfaces where corrosion usually occurs. As one carbon filtration customer using Endura-Flex 1988 elastomeric polyurethane puts it, "We've tried different linings and elastomeric polyurethane is by far the most durable and reliable. We have a rental fleet and we're protecting our investment for the long term with this lining."

Goodwest has inspected hundreds of failed pressure vessel linings and we know first-hand how the electro-chemical environment inside most filtration vessels can dramatically increase the rate of corrosion at any pinhole location. It's therefore critical to use the lining that offers the least chance of a pinhole forming in the future. The thick, tough film of elastomeric polyurethane offers excellent abrasion resistance to media filling, removal, and back-flushing, while also providing impact resistance when internal piping is installed,

[CLICK HERE](#) for information on Endura-Flex 1988.

ECOSYSTEM®



Cross-sectional view of ECOSYSTEM® process application of solventless polyurethane applied over severely degraded concrete.

ECOSYSTEM PHYSICAL EXPANSION PROCESS WITH POLYURETHANE

The *ECOSYSTEM®* process with polyurethane involves injecting an inert gas into the stream of polyurethane components prior to the mix exiting the spray gun, thus resulting in physical expansion. The “expanded” polyurethane is evidenced by tiny closed cells and can be sprayed onto a surface in a non-stressed, lightweight, seamless monolithic condition. This process does not change the chemical resistance of the coating and has been shown to actually improve some properties, such as permeability, compared to the original solid (non-expanded) polyurethane.

While the *ECOSYSTEM* expanded materials have the visible characteristics of cellular products, they are distinguished from foamed products by the absence of any chemical reaction causing volume increase after application on the surface. Observed flow and spray capabilities remain very similar to standard liquid coatings, except that thicker films are possible due to less weight per unit of area (lower density). Seamless monolithic polyurethane linings can be applied and molded directly over earth and other extremely irregular surfaces such as degraded concrete or heavily pitted steel.

The cellular nature of the expanded polyurethane greatly enhances thermal properties when compared to the same material applied as a solid. This allows for the development of improved insulation materials without sacrificing chemical resistance. Goodwest can even apply an insulated lining surface to

inspected, or repaired.

Contact us to discuss new projects or refurbishment projects that may utilize this lining technology. [CLICK HERE](#) for more information about elastomeric polyurethane.

[CLICK HERE](#) for more information about water filtration system refurbishment.

Project Highlights

Activated Carbon Pressure Vessels

A water filtration company (we’ll call them “Clean Water Inc.”) contacted us seven years ago with severe corrosion problems in their entire Activated Carbon rental fleet. Activated carbon is highly conductive, which significantly increases the electro-chemical corrosion process when steel is exposed due to a failed lining.

They had tried several different linings with no success, partially due to problems with surface preparation and installation but also due to the use of thin-film lining systems.

Upon discovering their corrosion problems, Clean Water Inc. was advised to use a high-cost industry standard vinyl ester lining system reline their vessels. This system had numerous pitfalls unless it was installed perfectly, which is very difficult to achieve. Concerned about potential failure of a new system, they contacted Goodwest for another option. Goodwest extensively researched the GAC process and recommended the use of Endura-Flex 1988 polyurethane to refurbish their rental fleet of vessels.

They hired Goodwest, which installed pinhole-free linings in a single coat over EXTREMELY pitted steel (holes in the vessels were not uncommon). Seven years later, these same vessels that they almost scrapped are still in service with almost no lining maintenance. As one of the owners said, “We had a problem on our hands and were not even aware that a lining system could perform as well as elastomeric polyurethane has.”

More than a hundred vessels later, Clean Water Inc. is frequently utilizing Endura-Flex 1988 elastomeric polyurethane linings for both their rental fleet and for capital projects for customers, ensuring that their good reputation amongst customers lasts as long as their vessel linings.

About Goodwest

Goodwest has installed dependable protective lining and coating systems since 1961. Providers of water, oil, power, transportation, and other key infrastructures rely on Goodwest to ensure that critical equipment stays in service as long as possible.

Goodwest specializes in applying materials resistant to the most aggressive chemical, abrasion, and high temperature environments.

the inside of a vessel instead of the traditional exterior insulation.

Due to lighter weight and lower density, *ECOSYSTEM* applied products offer high build and hang characteristics unmatched by traditional solid film materials on vertical and inverted surfaces, while allowing for reduced raw material costs, elimination of CFC blowing agents, and the integration of filler products into the applied materials.

Contact Us

Goodwest Linings and Coatings

8814 Industrial Lane
Rancho Cucamonga, CA 91730
888-499-0085

sales@goodwestlining.com

www.goodwestlining.com

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