

APPLIED FELTS VERTICALLY-INTEGRATED CUSTOM CIPP LINERS & WET-OUT SERVICES

QUALITY MATERIALS & INSTALLATION SUCCESS SINCE THE 1970S

Applied Felts' custom-made CIPP **all-felt liners** are the industry's time-tested solution for the rehabilitation of gravity or pressure sewer and water pipes. Applied Felts needles the smallest of polyester fibers into felts and offers PU or PP polymer granules to coat its liners. Our proven, decades-long history of extending the life of sewer pipes using rigorously-tested, 100% in-house, vertically-integrated manufacturing process has allowed Applied Felts CIPP felt liners to lead the way in the trenchless pipeline rehabilitation market since its close involvement with the invention of CIPP liners in the 1970s.

Using the same process, Applied Felts reinforces **hybrid liners** with highly-engineered flexible fiberglass adding significant strength for both internal and external load applications.

Using only the highest quality raw materials available, products such as Applied Felts' **flame- or stitch-bonded** liners allow for greater flexibility in the field.

To make your job even easier, streamline your next job with **pre-impregnated liners** from anywhere in North America with **their 5 strategically-located regional wet-out facilities at FerraTex Solutions™**, including their newest flagship location in Martinsville, VA!

LATERAL LINER AND IN-BUILDING APPLICATIONS—Dependable, small diameter liner ranges for your every need



DURAFLEX LINERS—A wide range to accommodate varying bends, lengths and diameter changes. These single-layer felt liners with an array of polymer choices for your particular resin system, are best suited for on-site, vacuum impregnation in plumbing applications. These heat- or ambient-cured liners are highly flexible and available in custom lengths.

PVC FlexLiner®—Polyester fiber, flexible liner made with a styrenated resin-resistant Polyvinylchloride (PVC) coating to accommodate the requirement for liners of varying thicknesses and up to 45° bends.

SuperFlex®—Polyurethane (PU) coated fleece liner for use in pipes with up to 90° bends.

WovoLiner®—Circular-knitted PE fibers, uniquely bonded to a seamless, impermeable PU coating. This extremely flexible liner is ideal for use on multiple bends up to 90° with minimal wrinkling and a wide range of diameter transitions such as 4- to 6-inch.

CALIBRATION TUBES (CalTubes®)—Wide range for your lateral installation needs

Applied Felts' single-layer, PVC-coated, PE CalTubes are made in your choice of stitched, or innovative High Frequency (HF) seamed options. Their 2- to 12-inch diameter CalTubes can be used in inversion, pull-in and "blind-shot" installations.

HF-Tube—Ultra-flexible, light duty PE fabric with PVC coating and a HF welded overlap seam for use in open-end liner (blind-shot) and pull-in-place applications.

DuraTube—Flexible stitched CalTube designed to provide excellent resistance against tearing

and higher temperature resistance for heat-cured installation for use in open-end liner (blind-shot) and pull-in-place applications.

LightTube—Flexible, stitched or HF welded, these clear CalTubes are designed to provide excellent resistance against tearing and higher temperature resistance for heat-cured and LED-cured installations. For use in open-end liner (blind-shot) and pull-in-place applications.

SUPPORT—From start to finish, every time

Applied Felts supports its customers through its stringent QA/QC, ISO-certified process from purchase of the finest raw materials to continual testing throughout the manufacturing phase of every liner.

Applied Felts' most important support asset, however, is on-site customer service and technical support provided in the field.

GLOBAL

With Applied Felts locations around the world, we are standing by with the resources and solutions you need to achieve your unique business goals. Our global connections and understanding of cultural and environmental requirements allow us to deliver custom, quality CIPP liners that stand the test of time. Because after all, your success is our success.

Visit appliedfelts.com, ferratex.com and maxlinerusa.com for complete product listings and to download technical data sheets and more. •



AQUACURE RP®

Fiberglass reinforcement for inside-out strength, stitched

QUALITY MATERIALS
BRINGING QUALITY
RESULTS - SINCE THE 1970s!

No matter the type of fiber, coating, seam or cure needed for your project, Applied Felts - the leading global manufacturer of CIPP liners and CalTubes® - truly has you covered.

Now even easier with FerraTex!

Streamline your next job with pre-impregnated liners from our newly acquired regional wet-out facilities at FerraTex Solutions.

Ferratex.com
844.433.7728



AQUACURE®
Multiple-layer felt liner with impermeable coating/seams, flame-bonded



APPLIED FELTS®

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Ferratex Solutions & PCC Trenchless Install: Three, 65 ft, 72" Felt Liners and a TON of Rain...

Near Pensacola, FL, the residents of Santa Rosa County will tell you, Ward Basin Road is known for being very wet, even in times of drought. After Santa Rosa repaved the road, they found that the large, underlying 72" corrugated metal pipes (CMP) installed sometime in the 1970s were beginning to deteriorate, full of water from the Yellow River and Blackwater Bay. And, as the river and bay rise, so does the water level on Ward Basin Road.

Add to that, Ward Basin is a long, dead-end road surrounded by water. Replacing the pipes with open cut would have been an access nightmare for residents who live towards the end of the road, not to mention damage the brand-new asphalt paving.

Santa Rosa County sought bids for CIPP repair and awarded the contract to PCC Trenchless (PCC). PCC has been in Pensacola, Florida since 1963 and began their work with utilities in 1970. Previously named Pensacola Concrete Construction, PCC still stands as one of the oldest companies in the Pensacola area. PCC began spreading their utility services in 1999, and began providing all sorts of trenchless pipe repairs.

After one delay in the Notice to Proceed (NTP), due to COVID and it being a very hot start to the summer (resin-soaked liners don't do well in the heat), PCC was given the green light to proceed with the Ward Basin CIPP install in July. It was determined that three 72" felt liners were needed, each 65 feet in length. PCC purchased AquaCure PU coated liners, manufactured by Applied Felts and wet-out by Ferratex Solutions. Applied Felts/Ferratex was chosen due to their quality, customer service, price and ability to deliver. Ferratex wet-out the three liners in their facility in Tennessee, carefully packed ice in between the different layers, and shipped them in their refrigerator truck to PCC in early July 2021. The truck could not hold all three of these monstrous liners, PCC and Ferratex decided to ship 2 of the liners on the first shipment, then the 3rd shipped two weeks later.

Upon arrival, rain began in the area for a solid three weeks. Originally, PCC had planned to transfer the liners from Ferratex's rental trailer, into their own 53' refrigerator trailer, but after attempting to transfer the liners using their own CAT 938 loader with construction forks, they realized

they needed to find something larger to handle the 72" liners. Searching throughout Pensacola, they reached out to Cowin Equipment who had a Volvo L120 with forks. Cowin did not mind lending a hand, so PCC brought their reefer and the Ferratex reefer to Cowin's yard in Pensacola. When they attempted to make the transfer, the pallet holding the 2 72" liners began to crush due to the sheer weight of the two 72" liners. Each weighed 15,000 lbs. (200 lbs. per LF). "They were literally, the largest liners anyone has ever installed in Pensacola," said Ben Joyner, President, PCC. PCC was able to take over the rental from Ferratex for the trailer the liners were in. As it continued to rain, the liners ended up sitting in the refrigerator truck, in the PCC yard. "Because Ferratex did such a great job icing, the liners were saved, no issues whatsoever, in the summer, in Florida, for three weeks. Note, large diameter impregnated liners generate a lot of heat due to the sheer mass of resin and liner material involved," said Joyner.

With a break in the rain after three weeks after the liners were delivered (as well as the delivery of project manager, Drew Matthews and his wife Zoey's third baby boy!) PCC was able to set up on-site and start the dewatering process. As they attempted to divert/dewater using their normal techniques, it became apparent that they wouldn't suffice. "We explored using sheet piling but due to the distance from the usable Right-of-Way, existing underground utilities (phone, fiber optic and potable water), overhead powerlines, and thick vegetation/trees, sheet piling wasn't an option. A traditional cofferdam would require hauling in several hundred cubic yards of soil which the county would not allow to be dumped into the watershed. We had to improvise using "bulk bags" which hold a single cubic yard of dirt and are made of the same material as sandbags, to cofferdam and divert the water," said Matthews.

"It was very challenging from the start. Santa Rosa County employees were on site in the beginning. They saw the amount of water we were dealing with and shook their heads and wished us luck! It was like pushing water up a hill, as soon as we got ahead, another storm came," said Joyner.

Due to the three 72" diameter pipes being side-by-side, the water was diverted to flow through one pipe and the other two pipes were isolated in order to fit large scaffolding in front of the host pipes for installation. PCC used five 6" pumps to divert from the upstream side of the road through the discharge pipe, which ran into the woods. An additional 6" pump on the downstream side helped divert water out of the work area. Once the uphill battle against water diversion, rainstorms, and high tide was won, installation began.

A large excavator was brought in to lift each 15,000lb liner ten feet to the top of the scaffolding. Water curing was chosen over steam or UV. Ironically, there wasn't a hydrant close enough to fill the liner (which would take 10,000 gallons during the install for each liner). So, water was pumped from the basin that they were fighting to keep at bay! Win win.

In the end, all the liners came out beautiful, sandbags were taken out, and the site was restored to the point that no one would know it had been completely revitalized," said Matthews.

Ferratex Solutions: Ferratex.com, (844) 433-7728



Delivering CIPP Liner & Wet-Out Solutions

5 Strategically-Located Wet-Out Facilities: Virginia (NEW HQ), New Jersey, Tennessee, Florida and Texas

CIPP Wet-Out Services: Polyester, Vinylester or Epoxy resins – with ISO-certified QA/QC systems in place

All-Felt and Hybrid Fiberglass-Reinforced Liners: Flame bonded and sewn seams with a choice of PU or PP coatings, hybrid options for gravity sewer lines and highly demanding pressure pipes

Technical Services: Engineering, project estimating, project management/consulting and onsite technical support

Equipment Rentals: Loading device trailers, refrigerator trucks and shooters



Reliable solutions for your most demanding
trenchless rehabilitation projects

Ferratex.com



What is the Difference Between UV and Bluelight LED?

Light-cured lateral CIPP lining is one of the most popular trends in trenchless rehabilitation technologies and one of the questions we hear a lot is, "what's the difference between Bluelight LED and UV?"

All light-curing systems are based on photo-initiating resin, meaning the resin is specially formulated to cure only when exposed to a specific range of wavelengths of light within the electromagnetic spectrum.

Light penetration and exposure time are incredibly important for curing quality in all light-cured systems, and this fact shaped how our Bluelight system was developed. If the curing light does not fully penetrate the resin, or if the exposure time is too short, the outer layers of the CIPP may not cure properly where the liner meets the host pipe. This also affects the overall strength of the CIPP composite, which may not meet ASTM F1216 standards.

The biggest difference between Bluelight and UV lateral CIPP systems is the wavelength of the light used. UV systems cure using ultraviolet light which is a wide range of wavelengths from 100 to 400 nanometers. The Bluelight system cures using specifically blue light (hence the name!) which

is a very focused range of visible light: **444 to 457 nanometers (nm)**. This makes a huge difference in the quality and speed of the cure, and its why HammerHead's light-curing system uses Bluelight rather than UV.

The wide spectrum of UV light is less intense and lower in wattage than blue light, which can create issues penetrating the resin leading to an incomplete cure. UV-cured resins are typically used with liners constructed with fiberglass and a reflective outer foil to help refract the UV light and increase its ability to penetrate the resin. Even with these additions, cures are less consistent with UV light than with Bluelight due to the weakness of penetration.

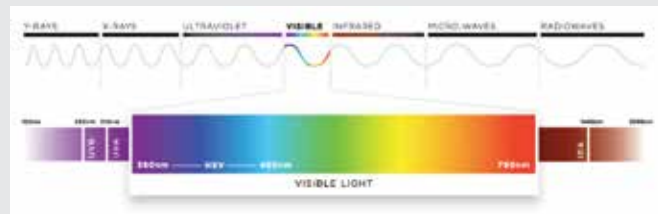
The Bluelight system's patented LED light head ensures deep penetration and a complete cure that does not rely on glass or foil in the liner. The static head design with 360-degree LED lights ensures the entire circumference of the liner is exposed to light throughout the cure. The Bluelight system's smart technology manages the light head travel speed based on the liner diameter and thickness. Taking the guesswork out of light head pullback speed ensures that light penetrates the resin fully to ensure an efficient and complete cure every time.

ABOUT HAMMERHEAD BLUELIGHT LED LINING SYSTEM

The Bluelight LED CIPP lining system from HammerHead® Trenchless is the most advanced light-curing system available for the rehabilitation of laterals and small drainpipes. The innovative technology empowers CIPP installers by alleviating the time pressures of other lining systems. The specially formulated resin only cures under light in the blue wavelength (444–457 nm) giving installers unlimited working time between liner wet-out and curing. Once the liner is in place, the automated curing system pulls the LED light head through the liner, curing the resin almost instantly – as fast as 5.4 feet per minute. Instead of waiting hours for the liner to cure, a 50' sewer line could be fully cured in under 10 minutes. The HammerHead Bluelight system features an intuitive touch-screen interface and three light head options to cure liners 3 to 10 inches in diameter. For more information, visit www.hammerheadtrenchless.com; 800.331.6653

ABOUT HAMMERHEAD TRENCHLESS

HammerHead® Trenchless, a Charles Machine Works Company, of Lake Mills, Wisconsin, USA manufactures and delivers a unique combination of rehabilitation, replacement and installation equipment and consumables for the underground construction market. Besides being a full solutions provider in rehabilitation and replacement, HammerHead also offers unmatched field support and project consultation to its customers worldwide. HammerHead products are proudly made in the U.S.A. and sold and serviced in more than 63 countries. For more information visit www.hammerheadtrenchless.com; 800.331.6653. •



LIGHT YEARS AHEAD

THE NEXT GEN
BLUELIGHT LED®
CURES UP TO
5X FASTER
THAN OTHER
CIPP CURING
METHODS.



Instead of waiting hours for a liner to cure, work at light speed with the exclusive, game-changing technology of the Bluelight LED® lateral lining system from HammerHead Trenchless. With its compact footprint and amazing speed, installers can instantly increase productivity and get more jobs completed faster.

The Bluelight system's enhanced features include intuitive touch screen interface, three light-head options, interchangeable reels, state-of-the art software, automated quality assurance, superior resin stability and more. Experience the next generation of lateral CIPP with Bluelight LED® only from HammerHead.



REHAB & REPLACEMENT. REDEFINED

Learn more: hammerheadtrenchless.com/bluelight

Introducing Hobas Manhole System

Hobas Fiberglass Reinforced Watertight Structural manhole system consists of Hobas pipe, t-base and now a cone to provide a complete corrosion resistant leak free system from the trusted name in the industry.

For over 30 years Hobas has manufactured pipe and fittings including tee bases and risers. All that was missing was a top.

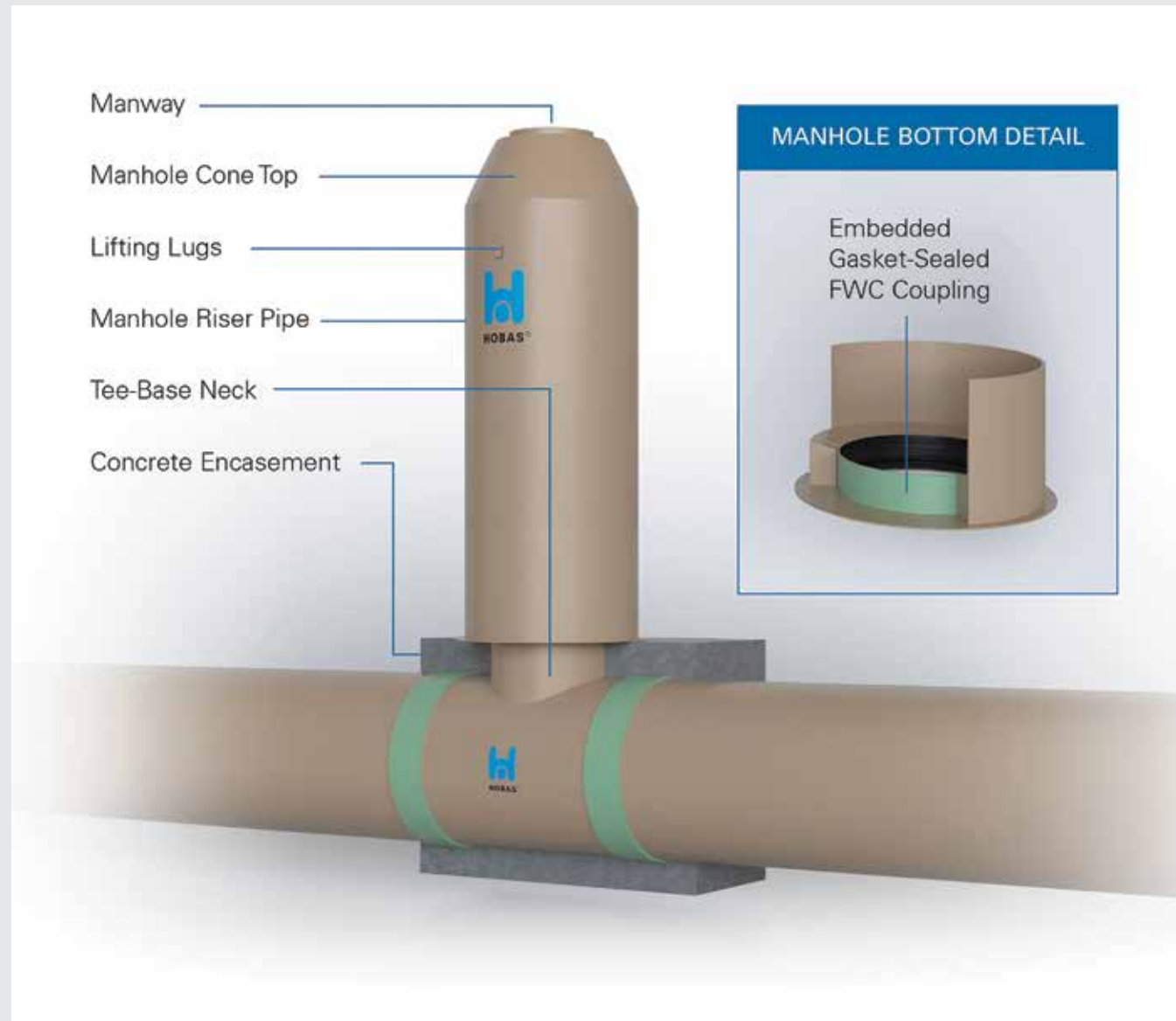
Finally, Hobas has topped it off by offering a complete system which includes a fiberglass cone made from the same materials as the corrosion resistant, leak free pipe our customers have become accustomed to. Since it is manufactured with the same corrosion resistant materials, a long maintenance free life can be expected just like the 100-year design of the Hobas pipe.

The manholes are manufactured to exceed AASHTO H-20/HS-20 loading design standards and are stiffer than the current minimum requirements of the ASTM manhole standards.

The hydraulic efficiency means that the flow will remain uninterrupted through the Tee Base structures, minimizing odor emissions as well as the release of hydrogen sulfide gases. The Hobas manholes offer ease of installation as they are much lighter weight than transitional systems and the couplings produce leak-free service. Hobas Pipe USA is now committed to being your full system supplier.

Boise, Idaho – A recent project, HP Trunk Sewer Rehab, installed the complete Hobas manhole system. You can watch the video at the following link:

<https://www.youtube.com/watch?v=0k3dRVwI12M> •



QUALITY is our **PRIORITY**

Proven by a History of Success

The HOBAS standard is based on supplying products which far exceed the minimum national standards. HOBAS Pipe USA's experienced staff will assist you from project inception through completion. To achieve success on your next project, specify HOBAS performance.

HOBAS PIPE USA | Home of the 100-Year-Life Design Pipe | 281-821-2200 | www.hobaspipe.com

The new TracStar 900i at a mining site in Morenci, Arizona



The original TracStar 500 makes its debut at the Morenci mine in 1997.

TRACSTAR® iSERIES – A NEW LEVEL OF PERFORMANCE & RELIABILITY FOR THE FUSION INDUSTRY

The story of the TracStar® began, in the early 1990s, with a wishful question. Chip McElroy was visiting the Morenci mine job site watching the fusion process and was struck by the ruggedness of the terrain and work environment. At that time McElroy machines were self-contained but rolling so they needed to be moved into position. A mining crew member asked whether we had considered a self-propelled machine. That question started the creative wheels turning! After much research, the TracStar design was sketched on a napkin during an Italian tradeshow visit, and the first TracStar was unveiled in the fall of 1997.

The TracStar line has been a highly successful and integral part of the McElroy offering. However, the McElroy DNA has always been to improve its products and the user experience. It's that perseverance that led McElroy to design the TracStar iSeries. It offers a platform for a new family of fusion machines that maintain TracStar's historically rugged, self-contained tracked vehicle while adding industry-changing technology for an improved user experience across the entire product line.

"The iSeries is an evolution inspired by the feedback we have received from those on the front lines of fusion and implements the latest technology to create a superior user experience," said McElroy Vice President of Product Development Geoff Koch. "We believe this will move the fusible pipe industry forward in the water, mining, and natural gas distribution sectors and all of the markets we serve that are seeking a long-term and reliable infrastructure solution."

Mechanical, hydraulic, electrical, and control systems on the iSeries have all been improved and integrated to meet job-site demands with intelligent communication capabilities with the operator and within the machine.

The FusionGuide control system offers three levels of con-

trol to guide operators through the fusion process. Whether choosing manual control or completely automatic, the machine automates those functions where the most common errors are found and allows the operator to focus on the critical functions. The DataLogger® 7 is integrated so fusion joints are automatically recorded providing a complete record of every fusion on the job.

The TracStar 630i, 900i and 1200i cover three size ranges from 8" IPS to 48" OD (225mm-1200mm), and all are equipped with a new, quieter Perkins engine to meet US Tier 4 and EU Stage V environmental regulations while providing greater torque. The increased system pressure brings more power to the ground drive, pipe lifts, and other functions that use higher levels of pressure.

Numerous changes were made to the internal layout to improve the ease of maintenance and the new cowling design offers operators the ability to fuse a tee without removing the carriage. Smart keypads and paddle levers are now used to provide more precise control and feedback to the operator. Overall, the improvements were made with both the operator and maintenance personnel in mind.

After 24 years, McElroy returned to the Morenci Mine to demonstrate the TracStar iSeries machines. It's both rewarding and humbling to see how this idea, from the summer of 1993, evolved and has been adopted into what is now the TracStar iSeries.



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PIPE FUSION AS EASY AS...



THE TRACSTAR® iSERIES

A new family of fusion machines builds on the TracStar's rugged, self-contained tracked vehicle while adding industry-changing technology for an improved user experience across three new models. Powered by the new FusionGuide™ Control System, integrated software guides the user through every step of the fusion process to ensure consistent fusions that adhere to industry standards.



LEARN MORE at mcelroy.com/iseries

"Since the 1940's, we have worked side-by-side with utility contractors singularly focused on making utility installations more productive. Through our unwavering commitment to innovation, production of American made best-in-class HDD tools, and providing unparalleled support, we have thrived in an industry we love for the past 75 years. Thank you to all the drillers, our distributors, and our family of employees that have helped steer our business and products in the best direction."

- Dick, Eric, & Peter Melsheimer
Owners, Melfred Borzall

1946



2021



An Endless Flow of Experience and Innovation



ONESTEP™ CIPP resin system is a patented system from Interplastic Corporation. It is designed to be a simpler, safer process for initiating a Cured-in-Place Pipe (CIPP) resin. This system offers the benefit of using a single, liquid initiator. The system provides mechanical properties, and corrosion resistance comparable to currently available CIPP resins. The ONESTEP system is available with several different resin formulations, both neat and enhanced. ONESTEP system benefits include; Comparable costs to currently available systems, Energy cost savings, Labor savings, safety benefits, no need for mixing a dust or flake, and system working time minimizes premature liner gelation. For more information contact Interplastic Corporation at 800.736.5497 or info@interplastic.com •

ONESTEP™

CIPP System



US Pat. 10,131,766

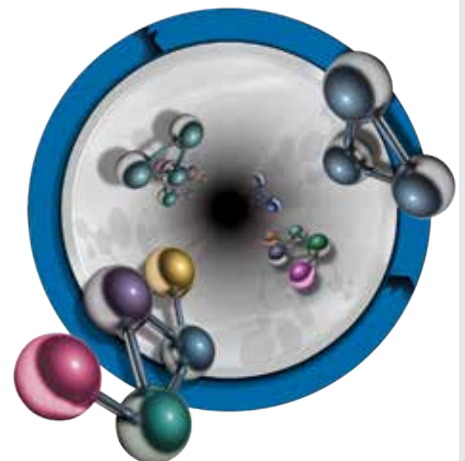
Experience a new way to Cure

ONESTEP resin system from Interplastic Corporation is designed to be a simpler, safer process for initiating a Cured-in-Place Pipe (CIPP) resin. The ONESTEP system is available with several different resin formulations, both neat and enhanced.

Benefits Include:

- Comparable costs • Easier introduction of initiator to resin
- Energy cost savings • Labor savings
- Safer to use with no need for mixing a dust or flake
- Minimizes premature liner gelation

Making quality CIPP resins for over 30 years.
1.800.736.5497
www.interplastic.com





Triflo MFS8000: 3-phase drill mud cleaning and mixing machine with 8200 Gallon capacity, water flow-rate of 1000GPM and 750 GPM of drill mud

Triflo International, Inc. – A Solids Control and Fluid Management Solutions company with over 40 years of custom Manufacturing & Fabrication Experience.

We began business in 1979 with a commitment to meet the fluid processing needs of drilling contractors and operators. Through design expertise and manufacturing know-how, Triflo developed a full line of quality solid separation products.

To View our product collection pages for the latest updates, please visit our website at www.Triflo.com



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