

# ENGINEERED COMPOSITE SOLUTIONS FOR REFINERIES AND PETROCHEMICAL



## SYNTHO-GLOSS™ XT

### Pipeline Integrity Restoration System

Syntho-Glass®XT is a custom engineered composite system designed and tested to repair defects such as internal and external corrosion, dents, gouges, cracks, leaks and fabrication defects in accordance with ASME PCC2 and ISO TS24817. Syntho-Glass XT is a bi-directional fiberglass wrap pre-impregnated with a moisture cured urethane resin. In conjunction with our proprietary load transfer and bonding technologies, this composite system is capable of making repairs that exceed the original burst strength of the pipe.



## VIPER-SKIN™

### Pipeline Integrity Restoration System

Viper-Skin™ is the first biaxial, hybrid carbon and glass fiber polyurethane prepreg system that blends the unsurpassed strength and stiffness of carbon with the ease of use of a moisture-cured prepreg. This carbon fiber reinforcement composite system uses a factory-controlled, wet-out process. As a result, consistent resin content and maximum, repeatable strength properties are obtained. The time and cost associated with field wetting of the composite is removed from the equation and the moisture-curing properties allow for underwater and wet environment applications. The Viper-Skin solution conforms to all shapes, welds, and irregular geometries, and one size can be used on a variety of pipe diameters.



## SYNTHO-GLOSS™ UP

### Repair Kit for Active Pipe and Joint Repair

Syntho-Glass®UP Repair System was specifically designed for under pressure repair applications on copper, steel, SS, PVC, FRP, clay, concrete, rubber, and more. By combining the original Syntho-Glass® product, with the extremely chemically resistant Syntho-Steel™ and unique Pressure Sealing Rubber Tape, this offers the geometric flexibility to repair joints, tees, couplings, and pinholes. This complete system simplifies the application process and is prepackaged to accommodate pipes up to 10 inches in diameter. Larger repair applications can be engineered to meet your requirements.



## SYNTHO-SUPPORT™

### Superior Protection for Pipes at Supports

Syntho-Support™ has been specifically designed to be a superior wrapping system for pipe support areas to prevent future corrosion and abrasion due to crevice corrosion, galvanic corrosion, HAZ corrosion, and vibration abrasion. This system, when used with a corrosion coating of your choice, provides exceptional mechanical and impact protection on steel (CS & SS), galvanized, concrete, FRP, iron, PVC, wood. Syntho-Support can be used underwater, underground or above ground pipes and piles. Syntho-Support is used for corrosion prevention only and is not intended for the repair of corrosion/abrasion damage.





## THERMO-WRAP™

### Composite Repair System for High Temperature and Process Piping

Thermo-Wrap™ is a custom engineered composite system utilizing a high strength, bidirectional, woven fiberglass tape in combination with NRI's proprietary Thermo-Poxy™HC epoxy system for the repair and restoration of pipe operating at elevated temperatures. This composite repair system was designed and tested to repair defects in accordance with the ASME PCC-2 and ISO TS-24817. Thermo-Wrap is specifically designed for repair applications which require the composite to maintain the high design strengths in high temperature environments, while still curing under room temperature conditions.



## COMPOSITE-GUARD™FP

### Composite Repair System for High Temperature and Process Piping

The Composite Guard™FP System utilizes nano-technology to create an integrated fire proofing system for application on high risk piping within fire proofing zones in refineries and on offshore platforms. The Composite Guard FP System protects the composite repair under extreme fire conditions by creating a barrier between the external flame temperature and the composite repair's outer substrate. The extremely low thermal conductivity of the barrier prevents the composite repair system from reaching temperatures exceeding the maximum temperature rating, preventing degradation or failure of the composite.



## SYNTHO-POXY™HC

### Two-Part Epoxy Compound

Syntho-Poxy™HC is a two part epoxy compound that cures quickly at room temperature. Its high compressive strength makes it very suitable for repairing pitted metal and steel surfaces that are subjected to high pressure. Syntho-Poxy HC's fast cure and extremely high bond strength make it ideal for many tough repair projects where normal epoxies won't hold up. The mix ratio of Syntho-Poxy HC resin to hardener is 1:1 by weight and volume. When fully cured, the material produces a durable, resilient bond that is resistant to many solvents and adverse environments.



## SYNTHO-SUBSEA™LV

### Low Viscosity, Self Leveling, Underwater Epoxy Mastic Sealant System

Syntho-Subsea™LV Epoxy is a unique blend of liquid epoxy, polymer, and aliphatic polyamine curing agents that is able to displace water from wet surfaces in order to make a permanent bond. The formulation is solvent-free to ensure safety and maximum technical performance. Kevlar® fibers are incorporated for reinforcement and viscosity management to achieve high-application rates – even underwater. While providing permanent protection under the most adverse conditions, the formula is uniquely field-friendly and uses advanced, low-toxicity ingredients in a high-build brushable/rollable product. Syntho-Subsea LV Epoxy can be shipped nonregulated by USDOT, IATA, and IMO.

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