

TECH NOTES

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Fiber Reinforced Plastic Pipe Vies With Steel

Pipelife Nederland B.V., (a subsidiary of Solvay S.A.), is supplying a number of energy companies with Soluforce — an innovative reinforced plastic pipe system for oil and gas that can handle pressures up to 2,175 psi, depending on the reinforcing material installed during manufacture.

Pipelife Nederland says its story started 10 years ago with the use of aramid fiber as a reinforcing material for plastic pipes. Then, in partnership with Shell Global Solutions (SGS) in the Netherlands more than six years ago, Pipelife Nederland developed a complete system, using electrofusion bonding to connect pipe to pipe, and steel flanges for connections to steel.

Arabian Gulf

Soluforce is now recognized, approved and systematically used by a variety of oil companies, predominantly in the Arabian Gulf. The company has a databank of photographic material, project references and third party certificates.

Soluforce says its pipe burns much more slowly than a steel pipe. The company said it recently conducted research at Newcastle University in the UK which proves this claim. Therefore, not only does the pipe not corrode, it is also much more resistant to fire than steel pipe, (a heat conductor) which makes it the perfect pipe for a fire-water application. Pipelife Nederland installed one in May 2004, at ADCO in the UAE.

Background

The idea behind non-corroding pipelines began more than 10 years ago with the development of aramid fiber as a reinforcement material for normal plastic pipes. Pipelife, as one of the world's leading producers of plastic pipes, was approached by some of the major oil companies to develop a Reinforced Thermoplastic Pipe (RTP) using aramid fiber as the reinforcement material.

Pipelife says aramid fiber is one of the strongest and most inert materials known by man. On a weight-per-weight basis it is 30 times stronger than steel. It is also used extensively today in bulletproof vests and



is therefore extremely tough.

Adapting this technology to the pipe industry, Pipelife developed a complete pipe system called Soluforce. In partnership with Det Norske Veritas (DNV) and SGS the complete process from design to manufacture was tested and qualified to the most stringent customer demands.

Pipelife was able to bring its own considerable expertise in the area of pipe systems to the project. The principle of electrofusion welding is used to connect the pipes together. In fact, Pipeline claims the Soluforce welding technique is foolproof as it is computer-controlled from start to finish. Today, after five years of installation projects throughout the world, Soluforce says it has a perfect track record. The complete installation process from start to finish conforms to international and European standards on



polyethylene piping systems. The benefits to the customer are:

- First, Soluforce does not corrode. All the problems associated with corrosion, cathodic protection, special coatings, inspections and emer-

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gency repair are eliminated. This in itself is a major cost saving.

- Second, the speed of installation is tremendously increased. Soluforce is supplied on coils of 400 meters in length. This means one can join

two pipes together within one hour, so a speed of 800 meters/hour is possible. The fastest project recorded so far was 22 km in 12 days. Whereas a traditional pipeline might take many months to install, a Soluforce pipeline only takes days, so the additional production revenue frequently pays for the initial investment.

UV Shield

The design life of Soluforce is 20 years. Pipelife says the special white anti-UV outer coating will protect the pipe from the harshest sunlight.

When the pipe is buried, the design life can increase to up to 50 years, as is required by the European gas industry.

There is now a German gas standard for RTP — DVGW VP 642 which authorizes the use of Reinforced Thermoplastic Pipes in gas networks up to 42 bars (610 psi).

Soluforce is now used and certified by many major oil and gas companies throughout the world, and in partnership with its customers, has developed a lower pressure-rated product range for water disposal, fire/water lines and dry gas distribution called Soluforce Light.

At the same time, it is also developing a new product, Soluforce Heavy for high-pressure water injection lines of up to 150 bars (2,175 psi).

Soluforce Classic — the original product range — is used extensively by oil companies for oil flow lines, injection lines and water disposal lines. **Circle #201 or click www.thru.to/pgj**

Editor's Note: Pipeline & Gas Journal does not endorse products or services.