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# Coating the World Over

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Protection for Pipelines  
Offshore and Onshore**

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*Offshore or Onshore —*  
Canusa-CPS Protects  
Pipelines Worldwide

By Bradley Kramer



**T**his is no one-trick pony. While famous the world over for its heat-shrinkable sleeves for the pipeline industry, Canusa-CPS provides a diverse range of products and services for a variety of segments.

As part of the ShawCor family of companies, Canusa tends to be viewed as only a producer of heat-shrinkable sleeves. On the contrary, the company also invests heavily in research and development and is active in a number of pipeline segments, providing a number of products and services for oil and gas, offshore, pre-insulated and water sectors, to name a few.

Headquartered in Toronto, with manufacturing facilities in Huntsville, Ontario, and Edmonton, Alberta, Canusa is active around the globe and has offices in the United States, South America, Europe, the Middle East and Far East. The company was founded as Canusa Coating Systems Ltd. in 1967, but its roots go back to

the early days of pipeline construction with the company's founders operating a pipeline construction company when pipe coatings were applied on site.

Back in the 1950s, Canusa's parent company founder, Leslie Shaw, developed the first plant-applied extruded polyethylene-based coatings, thus displacing the over-the-ditch coating of pipelines during construction. Shaw recognized that girth weld joints needed to be coated in the field with something that was close in performance to the main-line coating. With that in mind, the company developed heat-shrinkable technology as a means of getting an extruded type of polyethylene coating applied in the field. Many things have changed since the days of small diameter, low operating temperature pipelines and now pipelines are very large in diameter and can operate up to 150 degrees Celsius, thus creating incredible challenges, according to

Canusa Global Marketing Manager Bob Buchanan.

As the industry progressed, Shaw and his employees focused on plant-applied pipe coatings and eventually sold the construction company. The need for field-applied joint coating and the development of heat-shrinkable sleeve technologies spurred the creation of the company that is known today as Canusa-CPS.

The company plays an important role in maintaining pipeline integrity, no matter where it may lay. Canusa helps mitigate corrosion by providing its stout lineup of heat-shrinkable sleeves, liquid coatings, pipe wraps and a variety of other accessories for pipeline protection and repair to the offshore and onshore pipeline sectors.

"Corrosion control of pipelines is critical to the long-term viability of a pipeline asset," Buchanan says. "It is comprised of two fundamental things, coatings and cathodic

protection. Coatings are considered to be primary corrosion protection while cathodic protection is a back-up system in situations where a coating might be damaged.”

Coatings provide the frontline protection to pipelines.

“Coatings protect the steel from the elements that can corrode a pipeline, be it moisture, soil, electrolyte, water, oxygen, etc., plus act as an electrical insulator such that the required level of cathodic current in the cathodic protection system is manageable,” Buchanan says. “Most codes and standards site that a good coating should be an effective moisture barrier and good electrical insulator.”

## Offshore vs. Onshore Protection

It’s no secret that offshore pipelines lie in a much different environment than those onshore. Naturally, these settings — water vs. soil — provide alternate challenges. Protecting those assets, however, remains a stable constant.

“As a company, we look at each of our markets as unique, be it oil, gas, water, onshore, offshore, insulated or somehow differentiated. Protection, however, is pretty basic in as much as a good quality coating must be ap-



Applying heat-shrinkable sleeves on offshore pipelines must be completed on the lay barge before installation. The sleeves provide a frontline protection against corrosion in a fully submersed environment.

plied that survives the construction phase and performs given the service conditions,” Buchanan says. “The differentiators might be the pipeline coating type, the construction conditions, the service conditions, the contractor

needs or a combination of each of these factors. Onshore we have right-of-way challenges, transportation, handling and soil conditions to name a few. Offshore, we have logistics issues, fully immersed conditions of service and contractors who are working on very tight schedules. The products might be similar, but how we approach the markets are generally different.”

While the contrasting nature of offshore and onshore pipelines dictates the approach Canusa applies to each project, the protection of these assets does overlap.

“Each type of pipeline has unique challenges, but one overlap is when an offshore pipeline comes onshore,” Buchanan says. “The shore approach must be uniquely engineered in terms of coating type because that section is often directionally drilled so very robust coatings are required. Also, the cathodic protection system for the section is very challenging because the way that offshore and onshore cathodic protection systems are engineered is quite different, and the transition needs to be designed so that it works with both systems while not interfering with either.”

The company’s heat-shrinkable sleeves are the product of choice for



The complex process of field-applied corrosion protection requires working hand-in-hand with lay barge operators.

most pipelines that are laid around the world because three-layer polyethylene and polypropylene coating are most popular, but Buchanan says fusion-bonded epoxy (FBE) is an extremely popular pipe coating in the North American offshore sector, “although field application has unique challenges which cause some contractors to opt for sleeves,” he says.

“When we talk about sleeves, there isn’t just one type,” Buchanan continues. “The product design is based on a variety of backing and adhesive types with the combination of these

ucts more efficient so we offer that along with technicians or engineers to make everything work together.”

The application of heat-shrinkable sleeves and other offshore related products requires a logistical ballet between Canusa and the pipelaying contractor.

“As a manufacturer and supplier of the field applied product, we get involved after most of the pipeline is already coated with a corrosion coating and most probably an anti-buoyancy coating such as concrete,” Buchanan says. “That coated pipe is transported to a lay barge, welded

aren’t just laid in calm waters close to shore in the Gulf of Mexico. We’re talking about South America, West Africa, the Middle East, Asia and a host of difficult places to work. Shallow water pipelines are a part of the equation, but deep water pipelines are where the technical challenges really must be met.”

### The Safety Challenge

Corrosion protection plays a key role in integrity management and maintaining the safety of oil and gas pipelines, whether offshore or onshore. Public concerns about pipeline safety have encouraged governmental regulators to focus more on these assets. As a worldwide provider of pipeline products and services, Canusa must be up to date on the varying policies from region to region.

“Pipelines are laid all over the world,” Buchanan says, “so government regulations and pipeline owner requirements must be studied, understood and met to come up with a corrosion protection system that is functional in the different regions around the world.”

Furthermore, safety concerns could be quelled with a healthy dose of education.

“I think that if the general public really understood the level of engineering that went into pipeline construction, corrosion control engineering, ongoing maintenance and integrity management programs, then these concerns would be less of an issue,” Buchanan says. “A pipeline is a huge asset for a company to invest in and although code compliance and pipeline safety is a primary concern for the owner company, they also want to protect their asset such that it can perform for many years without interruption.”

### Challenges and Growth

While Canusa expects growth in both offshore and onshore business in the foreseeable future, the company also recognizes some challenges ahead as well. What are those challenges?

“Education and skilled workers,” Buchanan says. “Too often we see



Field-applied coatings play an important role in protecting onshore pipelines, maintaining public safety and allowing the asset to perform for many years without interruption.

brought together depending on the construction requirements and service conditions. We generally work with the pipeline specifiers and the contractors to determine which design of heat-shrinkable sleeve best suits the project. Aside from a product, we provide services and equipment as part of the package. Many times, specialized equipment makes applying the prod-

ucts more efficient so we offer that along with technicians or engineers to make everything work together.”

Adding to that complexity is the changing nature of the environment, providing contractors with unique challenges on a daily basis.

“Today’s environment changes tomorrow,” Buchanan says. “Pipelines



Every season is the right season for pipeline safety. Applying heat-shrinkable sleeves on pipelines sometimes requires technicians to work in all manner of climates to ensure pipelines are protected from corrosion.

examples of misinformation by some suppliers of coatings (yes, we are a coatings supplier too), but a specific er needs to really understand what is involved in the coatings, especially from a field-applied coating standpoint. They need to really understand coating selection then ensure that the contractor is applying it properly with skilled workers. Often this requires ensuring that pre-qualification programs are specified along with training and ongoing inspection.”

However, over the next two years, Buchanan sees opportunities in the oil and gas pipeline sector providing strong business and competition. The evidence is right there on TV.

“The oil and gas sector is extremely dynamic, just look at the top news stories and you will get a sense that the energy sector is very active,” Buchanan says. “As I sat in the dentist chair yesterday for 45 minutes, the television was on a news channel with stock tickers floating by constantly. I couldn’t help but notice that whether the scale was for Most Active, Gainers, Losers or Top 60, energy and mining stocks were dominantly displayed. We view that business will be strong over the next couple of years but so will competition. In the North American market, offshore is not as much of a focus for us so we look more at our base business onshore, but can’t ignore markets like the unconventional such as shale.”

Regardless of where the business comes from, Canusa will be prepared to supply the industry with protection from corrosion, whether offshore or onshore, in North America and beyond.

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