

New HDPE pipe standard to result in STRONGER, WATERTIGHT PRODUCT

C906-15 update includes high-performance polyethylene resin

BY ANDREW TOPF, EDITOR

New high-density polyethylene (HDPE) pipes installed by municipalities across North America are higher-performing than existing materials and water-tight, saving cities money in the long run, thanks to a new standard put out in the fall by the American Water Works Association (AWWA).

The C906-15 update, published on September 1, includes high-performance polyethylene resin, known as PE4710, which will improve the durability and reliability of HDPE pressure pipe over existing materials used in municipal water and wastewater systems.

“This is truly a significant event, pro-

viding great benefits to municipalities, businesses and citizens. The demands for installation of new pipelines, and revitalization of the deteriorating water pipe infrastructure are urgent and critical,” said Tony Radoszewski, president of the Plastics Pipe Institute (PPI), the Texas-based trade association representing all segments of the plastic pipe industry.

In a press release, Radoszewski said an estimated 2.5 billion gallons of drinking water are lost every day in the United States due to dilapidated pipes, which shows the urgent need for pipes that are durable and leak-free.

“PE4710 HDPE pipes provide zero-leakage, conserving water and preventing raw sewage from entering into waterways or watersheds, and they are ideal for both

trenchless and trenched installations,” said Radoszewski. “Standards around the world recognize the full benefits of HDPE pipe, and the AWWA and ANSI (American National Standards Institute)-approved standard now does too.”

Meeting the European standard

The AWWA updates its pipe standards every five years. Although HDPE pipes have been used in Canada and the United States for around 50 years, the new C906-15 standard puts North American HDPE pipe standards on par with those in Europe, which have included the higher-performing resin in their standards since 1990.

Pipes specified by Canadian utilities have both a CSA (Canadian Standards

Association) and an AWWA standard, but the AWWA standard is more commonly followed.

According to Camille Rubeiz, director of engineering for PPI’s Municipal and Industrial Division, the incorporation of the higher-performing materials into the U.S. standards reflects the important needs and challenges facing the U.S. and Canadian water industry.

“There’s a big change in attitude,” he says. “There’s a better understanding; there’s more awareness from the design engineers, from the utilities, because budgets are no more like they used to be – abundant. So I believe that engineers and owners are being more careful in the selection of pipe materials and are trying to learn so we don’t have to repeat the past mistakes by selecting outdated materials over and over.”

HDPE’s qualities of flexibility, high ductility (crack resistance) and anti-corrosion properties have made it a popular choice among water utilities for decades. High-density polyethylene is flexible and can be fused in long lengths, making it ideal for trenchless applications, compared to

ductile pipe which is rigid. HDPE’s high ductile strength makes it a safe material to use in the event of an earthquake. HDPE pipe is also resistant to corrosion, which is especially important for potable water and sewer applications.

A study published by the Water Research Foundation found that, compared to other pipe materials, HDPE has the least expensive lifecycle cost due to its low failure and low leakage rates.

Updates in C906-15 include:

- Zero-leakage allowance for improved water supply and water conservation
- Improved durability of resin
- Higher pressure class – up to 335 psi
- Larger internal diameter and increased flow capacity
- Enhanced surge capacity and fatigue life
- Covers additional sizes – up to 65 inches in diameter.

Although HDPE pipe standards and AWWA M55 manual specified a zero allowance for leakage, including PE4710 in the C906-15 update will result in “a major improvement in the resin and in its quality and durability,” says Rubeiz. The pipe

Above: Heat fusing sections of PE4710 HDPE pipe provide a leak-free system. Opposite page: Long runs of PE4710 HDPE pipe can be installed in a trench or by a number of trenchless methods.

with new resin was tested up to 10 million cycles – referring to surges in water pressure – meaning that the pipe has no practical limit when it comes to fatigue. It has also been designed to withstand high water pressures, up to 335 psi, used in cities at higher elevations.

Although the design criteria that went into the new standard are critical in creating a long-lasting, water-tight HDPE product, equally important is the way that the pipe is installed.

“It must be designed, inspected and installed properly,” Rubeiz emphasized. “There’s no magic, no silver bullet solution. Everything has to be done properly so we can achieve a 100-year life,” he said. **CUI**

For more information about the new HDPE pipe standard, visit the Plastics Pipe Institute’s website at www.plasticpipe.org.

