

## Background

Water and wastewater treatment plants using PVC pipe for their chemical systems often experience leaks at the joints. This is because the harsh chemicals in the system attack the solvent cement used to connect the pipe. Many plants have accepted the leaks as normal and continually replace the pipe, fittings and valves as they fail. But as one Colorado treatment plant

found, these costly and time consuming repairs aren't necessary.

The plant is comprised of two independently operating complexes providing treatment to a combined total of approximately 2 million people. The plant's disinfection building houses four sodium hypochlorite tanks and two sodium bisulfite tanks that feed two loops – one for each complex's pump house. The plant

treats about 130 million gallons of wastewater per day. The sodium hypochlorite is used to disinfect the treated water, and the sodium bisulfite dechlorinates the water before it's discharged into a nearby river. These two treatment processes are critical – without one or both running smoothly, the entire plant would have to shut down.

## Problem

From the time it was first installed, the disinfection building of this metropolitan wastewater treatment plant in Colorado was plagued with leaking and failing PVC and CPVC pipe. Originally, the plant thought the pipe was installed incorrectly, but after the second time the system was replaced, they knew they needed something different.

As they prepared to replace the system for the third time, a local distributor arranged a meeting between the treatment plant and Asahi/America. Asahi described the potential problems with using PVC in chemical applications – leaking joints, brittle pipe and failures. The plant got it. They were experiencing all of issues Asahi mentioned.

Given that it was a controlled environment with benign conditions and no temperature changes, the large PVC pipe connections to the plant's 15,000- and 20,000-gallon storage tanks were determined to be the root cause of their troubles. And because the plant uses \$12 million of bleach per year, it was essential to solve the problem quickly and completely.

## Solution

Asahi/America proposed their Chem Proline<sup>®</sup> Advanced PE piping system as the solution to the plant's leaking and failing pipe. Chem Proline<sup>®</sup> is welded together using thermal fusion, so there's no solvent cement for the chemical in the system to attack, and therefore, no leak paths for the chemical to follow. Advanced PE is resistant to stress cracks and slow crack growth. It's ductile, UV resistant,

and a great value over metal, FRP, lined steel or other thermoplastics.

The plant installed its first Chem Proline<sup>®</sup> skid in the chemical building in 2013, and it's still operating without issues today. Over the next several years, the plant continued to install Chem Proline<sup>®</sup> as the PVC failed. The plant purchased a bench socket welding tool from Asahi/America and the maintenance staff was trained on socket welding so that they could perform the installations as needed.

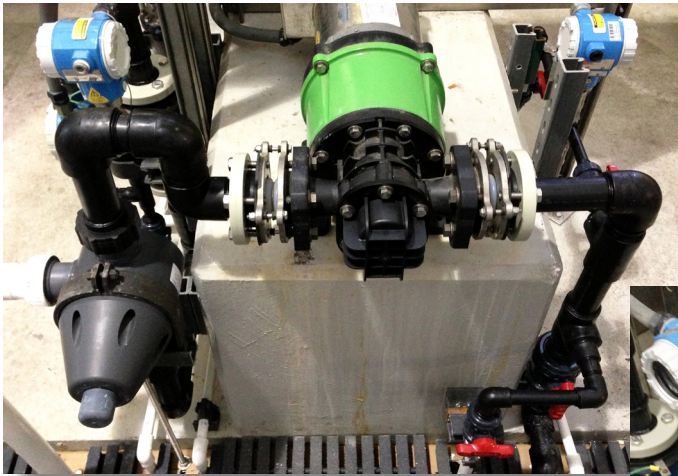
## Asahi Advantage

- Custom fabrication options
- Onsite weld training
- IR/butt, socket, electrofusion welding technology
- Start-to-finish project assistance

**Before**



**After**



**Another  
Corrosion  
Problem  
Solved.™**



## Chem Proline® Advanced PE Piping System

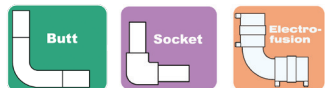
### Features and Benefits

- Advanced PE chemical compatibility
- Fused system eliminates cement and threads
- Saves time by installing directly in rough trenches
- Resistance to crack propagation
- Butt fittings and valve with butt end connectors are available
- Superior stress cracking and abrasion resistance
- High pressure load resistance of 150psi at 68°F
- Wide temperature range (-40°F to 140°F)
- High impact resistance and ductility

### Pipe and Fittings

- 20 - 315mm (1/2" - 12") 150psi

### Welding Methods



### Valves

- Type-21 ball valves: 20 - 110mm (1/2" - 4")
- Type-57P butterfly valves: 50 - 315mm (1-1/2" - 12")
- Check valves: 20 - 315mm (1/2" - 12")
- Diaphragm valves: 20 - 255mm (1/2" - 10")
- Regulator valves, relief valves, gauge guards

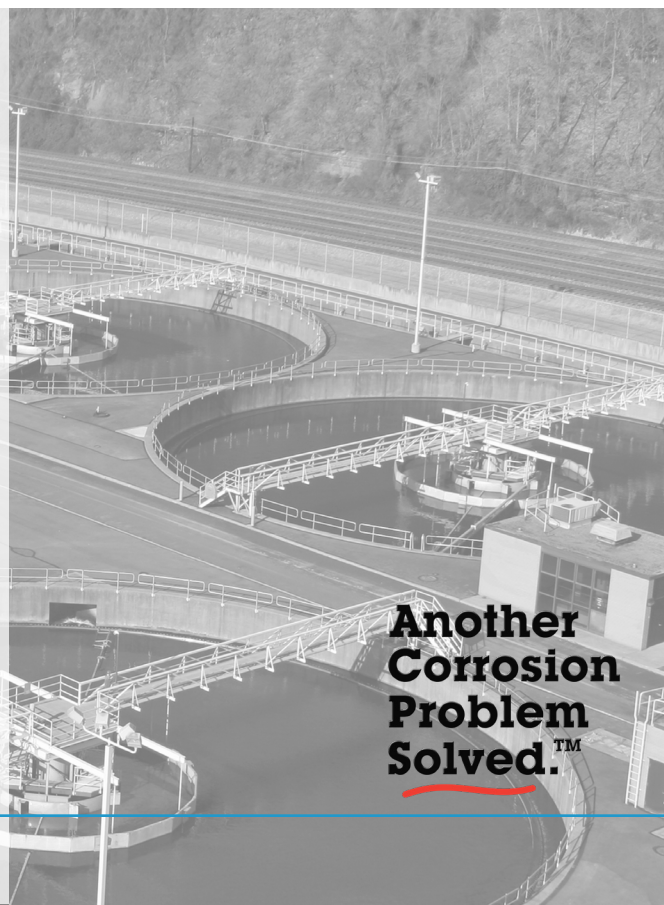
### Chem Proline® Applications

- Water/wastewater treatment
- Chemical processing
- Caustic
- Acids

## Chem Proline® Advanced PE Piping System

Chem Proline® is composed of the latest evolution in Advanced Polyethylene (PE) resin technology. This new Advanced PE material possesses excellent physical and mechanical properties. These properties include: stress crack resistance, slow crack growth resistance, ductility, impact resistance, abrasion resistance and brittle resistance.

Capable of handling some of the harshest chemical applications with an expected long-term life, Chem Proline® offers a greater value over metal, FRP, lined steel, or other thermoplastic piping systems like PVC and CPVC. Chem Proline's® superior properties make it the only polyolefin material able to handle certain chlorinated services like sodium hypochlorite. Chem Proline®, which is UV resistant and lightweight, is perfect for most corrosive chemicals.



**Another  
Corrosion  
Problem  
Solved.™**