

# Get ahead **of the curve**

For more durable, leak-resistant, sustainable water pipelines

The DOW logo is a red diamond shape with the word "DOW" in white, bold, sans-serif capital letters. A small registered trademark symbol (®) is located to the right of the word.

**DOW**



# Time to make a change, **for the better**

Aging, deteriorating pipelines cause the loss of nearly 6 billion gallons of treated drinking water every day in the United States. That's roughly 2.1 trillion gallons a year – enough to support 15 million households.<sup>(1)</sup> We need to protect our most essential resource, and that starts with the pipes that deliver it.

Our water systems need to not only help prevent corrosion, cracking and leakage but also offer excellent, long-term performance under virtually any conditions. On top of that, our municipal water pipes must support ongoing sustainability efforts.



**CONTINUUM™ Bimodal Polyethylene Resins** are up to the challenge. As more municipal and industrial water systems embrace the benefits of polyethylene (PE) pipe, our advanced bimodal PE technology stands out from the crowd.

PE resins offer the lowest total life cycle cost of all municipal pipe materials, according to the Alliance for PE Pipe. As bimodal high density polyethylene (HDPE), CONTINUUM™ Resins raise the bar even further – meeting or exceeding ASTM PE4710 standards. Our proprietary dual-reactor gas-phase process also helps increase processing efficiency, decrease scrap rates and reduce costs.

## Pipes that deliver

Water pipe made with CONTINUUM™ Resins brings together a long list of benefits to outperform both conventional PE and traditional materials such as steel, iron and concrete.

### Rugged durability even in the harshest conditions<sup>(2)</sup>:

- **Seismic resistance** – PE pipes can safely accommodate repetitive pressure surges above their static pressure ratings and are well suited for seismic loading. This proven performance as an effective, cost-efficient solution for earthquake-resistant pipelines helps reduce both repair costs and economic impact on society.
- **Excellent slow crack growth (SCG) resistance** – Over 10,000 hours in the Pennsylvania Notch Test (PENT, ASTM F1473) delivers more than 20 times the ASTM D3035 requirement of 500 hours (Figure 1). Exceptional rapid crack propagation (RCP) resistance also adds durability in extreme temperatures (Figure 2).
- **UV resistance** – CONTINUUM™ Resins exceed the minimum 3-year requirement to withstand ultraviolet (UV) light degradation during outdoor storage, per AWWA C901-20.
- **Chlorine Category 3 (CC3) rating** – Our bimodal PE products allow pipe to maintain its performance and durability in highly chlorinated and high temperature municipal water environments.

For more information on environmental considerations such as weathering, stabilization, biological attack and disinfectant residuals, please refer to Chapter 1 of [AWWA M55 PE Pipe – Design and Installation](#).

Figure 1: SCG resistance<sup>(2)</sup>

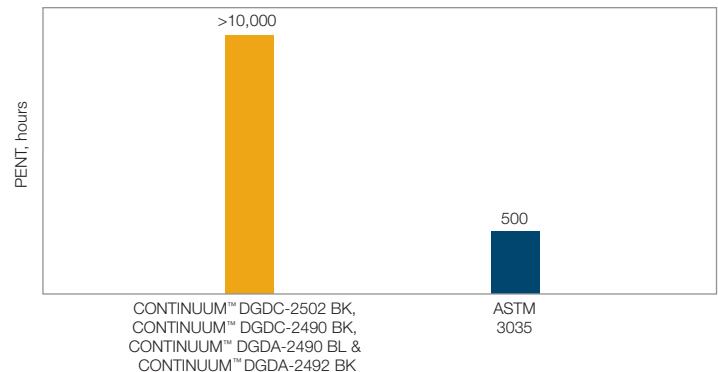
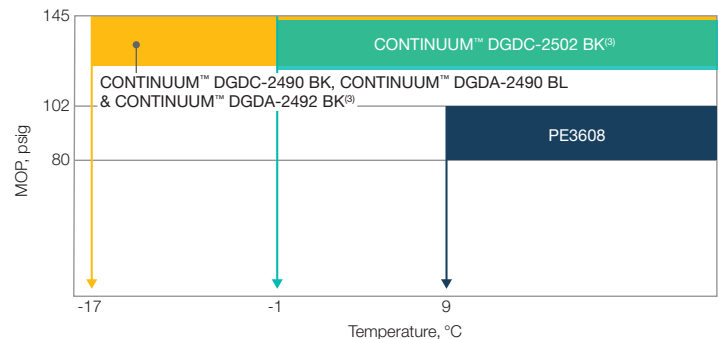


Figure 2: RCP-free zone of operation<sup>(2)</sup>



### Outstanding performance<sup>(2)</sup>:

- **Design and performance versatility** – Pipelines made with CONTINUUM™ Resins can withstand operating pressures of 125-400 psi at diameters from 0.5 to 63 inches and thicknesses up to 5 inches across a broad temperature range<sup>(4)</sup>, making them an outstanding choice for virtually any water delivery system.
- **Improved volume and flow rates** – Ultra-smooth interior surfaces offer reduced drag and turbulence with higher resistance to scaling and biological buildup.
- **More uniform system temperatures** – Low thermal conductivity allows PE pipelines to operate with greater consistency and reduced need for insulation.

<sup>(1)</sup> Source: American Society of Civil Engineers (ASCE) Infrastructure Report Card (2021)

<sup>(2)</sup> Typical values, not to be construed as specifications. Users should confirm results by their own tests.

<sup>(3)</sup> Maximum operating pressure (MOP) using ISO 4437 pressure rating

<sup>(4)</sup> American Water Works Association (AWWA) M55 PE Pipe – Design and Installation, 2nd Edition, Chapter 1 (2020).

## A powerful portfolio

In addition to conventional black grades, our product offering for municipal and industrial water pipe includes CONTINUUM™ DGDA-2490 BL Resin – which is offered in blue to enable faster, easier identification and help prevent accidental damage of water pipes. If you don't see what you're looking for in Table 1, please let us know. We're always excited about collaborating to develop the best solutions possible.

## Supporting sustainability

Clean water is essential to human life. For daily personal use, as well as agriculture, industry, energy production and even recreation. But our crumbling water infrastructure and other factors, including climate change – with the potential for extended droughts, heatwaves, wildfires, hurricanes, flooding and severe winter storms – pose tremendous threats to ongoing water security.

Monolithic pipeline made with CONTINUUM™ Bimodal Polyethylene Resins can play a major role in the conservation, protection and management of our essential water resources.

The resins' exceptional fusion capabilities allow production of seamless, highly leak-resistant pipelines that help conserve water while reducing line breaks and required repairs. Not only that, but pipes made with CONTINUUM™ Resins offer the longest life expectancy of any municipal water pipe material – potentially lasting decades longer than pipes made with traditional materials.

Ensuring water quality is also critical to keeping our communities safe and healthy. The structural integrity and excellent chlorine resistance offered by CONTINUUM™ Resins help maintain regulatory compliance and guard against contaminants such

as lead and copper. In fact, these resins are compliant and listed with NSF International in accordance with NSF/ANSI 61: Drinking Water System Components – Health Effects and 14 (Plastics Piping System Components and Related Materials).

Pipes made with CONTINUUM™ Resins also enable trenchless horizontal directional drilling (HDD), a less disruptive, more cost-efficient installation method for our communities. Bimodal HDPE pipes are lightweight and flexible too, making installation faster, easier and less disruptive.

And of course, we're always working to lower our environmental footprint:

- **Material reduction/downgauging potential** – The strength and durability of our bimodal HDPE create opportunities to reduce pipe thickness and use less material while maintaining performance requirements.
- **Lower energy consumption** during manufacturing and shipping helps increase operational efficiency, reduce costs and create a smaller carbon footprint.

We're constantly exploring and innovating, seeking out new ways to make even better, more sustainable materials to protect our water supply, our communities and our planet.

## Making the right connections

We work closely with municipalities, water pipe manufacturers, converters, industry associations and others throughout the value chain. Our goal, and theirs, is to ensure only the highest quality pipe goes into the ground to safely deliver this essential natural resource. One recent example? A collaborative effort that's expected to help three small, rural towns in Texas prevent 3.5 million gallons of water loss each year – for decades to come.

By continuing to build stronger relationships, we can stay ahead of the curve together – developing advanced solutions to meet future needs.


## Ready to roll?

We're excited by the opportunities – and challenges – offered by municipal and industrial water systems. Please contact your Dow representative or visit [www.dow.com/waterpipe](http://www.dow.com/waterpipe) for more information on how we can help.

**Table 1:** CONTINUUM™ Resins for water pipe

Product	Color	PE4710	Chlorine Category
CONTINUUM™ DGDC-2490 BK Bimodal Polyethylene Resin	Black	Yes	CC3
CONTINUUM™ DGDA-2490 BL Bimodal Polyethylene Resin	Blue	Yes	CC3
CONTINUUM™ DGDC-2502 BK Bimodal Polyethylene Resin	Black	Yes	CC3
CONTINUUM™ DGDA-2492 BK Bimodal Polyethylene Resin	Black	Yes	CC2

# Continuum™

bimodal polyethylene resins by 



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