

Strength under **pressure.**

For natural gas pipelines that perform.

DOW

®



Strength to **carry it through.**

When it comes to natural gas distribution pipelines, you want materials that will make the strongest, longest lasting pipes. That are crack and leak resistant. That can handle the pressure. That are reliable, even in the most demanding environments.

CONTINUUM™ Bimodal Polyethylene Resins can carry the load. Engineered to meet and exceed the capabilities of traditional materials, CONTINUUM™ Resins offer the durability you want and the confidence you need in pressure pipe performance.

Keeping the pressure on. And on.

Aging, deteriorating infrastructure is a major global concern. CONTINUUM™ Resins deliver the extremely high levels of toughness and durability required for exceptional, long-term pressure pipe performance in virtually any climate.

CONTINUUM™ Resins are available in both high density polyethylene (HDPE) and medium density polyethylene (MDPE) grades. Their excellent performance, along with opportunities for large diameters and downgauging, help enable long service life, increased safety, and lower life cycle costs in natural gas pipe applications.

Performance. Safety. Sustainability.

Pipe produced with CONTINUUM™ Bimodal Polyethylene Resins offers gas utilities performance and safety far beyond that of unimodal polyethylene⁽¹⁾ with:

- **High quality bimodal polyethylene technology**
 - CONTINUUM™ DGDA-2490 HDPE for PE4710/PE100 pipe
 - CONTINUUM™ DGDA-2420 MDPE for PE2708/PE80 pipe
- **Exceptional scratch and slow crack growth (SCG) resistance** help extend service life, enhance pipeline integrity, and reduce installation costs by allowing the use of natural backfill⁽²⁾ with no sand bedding

- **Remarkable rapid crack propagation (RCP) resistance** helps prolong life expectancy with enhanced strength and durability in cold weather
- **Excellent high temperature pressure ratings** for use in stringent high temperature applications
- **Broader processing capabilities** with potential for increased production output, improved recyclability, and lower costs compared to other resins
- **Large diameter and thick wall capabilities** – including diameters up to 12 inches for PE2708 and 24 inches for PE4710
- **High fusion integrity** – MDPE and HDPE pipe made with CONTINUUM™ Resins can be securely fused together without mechanical fittings or gaskets that can corrode and/or leak
- **Trench or trenchless installation** – use of trenchless horizontal directional drilling (HDD) can significantly reduce installation costs

Pipeline made with CONTINUUM™ Resins also offers a more sustainable option than metal pipe.

Why? Outstanding durability, excellent corrosion and leak resistance, and less disruptive installation techniques mean that PE pipe typically has a longer installed lifetime with less need for maintenance and replacement. (Which can all help lower life cycle costs too.)

And, by helping prevent leakage, it can also help reduce greenhouse gas emissions, lowering environmental impact even further.

Heavy metal-free formulations offer cleaner, safer options

The trusted performance of CONTINUUM™ DGDA-2490 HDPE and DGDA-2420 MDPE Resins is also available in heavy metal-free (HMF) yellow formulations featuring:

- **No lead or cadmium-based pigments**, which helps reduce impact on the environment while promoting workplace safety and health
- **Excellent weatherability** that meets and exceeds UV resistance requirements
- **More continuous processing** with less die drool, which typically reduces the need for shutdown and cleaning

Table 1 provides more details on how CONTINUUM™ Resins perform under pressure.



Table 1: CONTINUUM™ Bimodal Polyethylene Resins surpass industry standards⁽¹⁾

Attribute/standard	CONTINUUM™ DGDA-2490 Bimodal HDPE Resin	CONTINUUM™ DGDA-2420 Bimodal MDPE Resin
ASTM D2513	- Meets and exceeds - Tested for UV resistance under both ASTM G155 lab conditions and up to five years of unprotected direct sunlight exposure evaluation at four representative geographic locations in the U.S.	- Meets and exceeds - Tested for UV resistance under both ASTM G155 lab conditions and up to five years of unprotected direct sunlight exposure evaluation at four representative geographic locations in the U.S.
DOT CFR title 49, chapter I, part 192	Meets and exceeds	Meets and exceeds
Cell class requirements	- Exceeds ASTM PE4710 and ISO PE100 - Meets CSA Z662-15 (PE4710 PLUS material)	- Exceeds ASTM PE2708 and ISO PE80 - Meets CSA Z662-15 (PE2708 PLUS material)
Operating temperature window	14 to 80°C (57 to 176°F)	Up to 60°C (140°F)
Slow crack growth (SCG) resistance		
Pennsylvania notch test (PENT [ASTM F1473])	10,000 hours	15,000 hours
ASTM D2513 PE4710/PE2708	Up to 20 times	Up to 30 times
Rapid crack propagation (RCP) resistance		
Critical temperature (T _c) [ISO 13477 S4]	-17°C (~1°F) ⁽²⁾ [Typical unimodal HDPE resins only offer protection above 9°C (48°F) ⁽³⁾]	2°C (28°F) ⁽⁴⁾ [Typical unimodal MDPE resins only offer protection above 18°C (64°F) ⁽³⁾]
Critical pressure (P _c) [ISO 13477 S4]		
Small scale steady state RCP (at 0°C)	> 12 bar (174 psig)⁽²⁾	> 10 bar (145 psig)⁽⁴⁾
Full scale RCP	> 46 bar (664 psig)⁽⁵⁾	> 39 bar (560 psig)⁽⁶⁾
High temperature pressure rating		
HDS at 60°C (140°F)	1,000 psi⁽⁷⁾	1,000 psi⁽⁷⁾
ASTM and ISO	Meets or exceeds ASTM PE4710 and ISO PE100	Meets or exceeds ASTM PE2708 and ISO PE80
PE100+ association	Meets PE100+ material test requirements	–

⁽¹⁾ Typical values, not to be construed as specifications. Users should confirm results by their own tests.

⁽²⁾ RCP data generated using 10" SDR 11 pipe tested at 10 bar and 0°C.

⁽³⁾ GRI Report 5092-260-2356, 1998.

⁽⁴⁾ RCP data generated using 12" SDR 11.5 pipe tested at 0°C.

⁽⁵⁾ 10" SDR 11 pipe, Full Scale Critical Pressure at 0°C, calculated from S4 RCP data.

⁽⁶⁾ 12" SDR 11.5 pipe, Full Scale Critical Pressure at 0°C, calculated from S4 RCP data.

⁽⁷⁾ Contact your Dow representative regarding other elevated temperature categorized required strength (CRS) listings for CONTINUUM™ Bimodal Polyethylene Resins.

Make the strong choice

The strength, durability, and versatility of CONTINUUM™ Bimodal Polyethylene Resins creates opportunities to produce pipe with long service life expectancy, lower total life cycle costs, and improved operational safety – both today and as systems expand.

Continuum
bimodal polyethylene resins by 

For more information about CONTINUUM™ Bimodal Polyethylene Resins, please visit www.dow.com, or contact your Dow representative.

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