



A Powerful Solution for ESW Pipe at Nuclear Power Plants

The degradation of steel pipes used in many Essential Service Water (ESW) systems is a serious concern confronting nuclear power plants today.

- According to the Electric Power Research Institute (EPRI), the physical maintenance of degraded steel water pipe systems, combined with the operational costs of shutting a plant down during repairs, is already costing some nuclear utilities up to **\$25 million per year**.¹
- Faced with the short- and long-term prospect of continuous pipeline maintenance and shut-downs and the spiraling costs that result, plant operators are discovering a better solution: **High Density Polyethylene (HDPE)**.
- In December 2008, AmerenUE's Callaway Nuclear Power Plant in Fulton, Missouri, completed the first ever safety-related ASME Class 3 water pipe installation at a nuclear power plant in North America. The material they chose: **CONTINUUM™ DGDA-2492N Bimodal HDPE Resin** from The Dow Chemical Company ("Dow").

The Advantages of HDPE

- HDPE pipe is leak-free when produced and installed properly, even at joints, which can be as strong and leak-free as the pipe itself through use of the heat fusion joining technique.
- HDPE is also corrosion and chemical resistant: it does not rust, rot, pit, corrode, tuberculate or support biological growth. (See photo on far left below.)

- It offers seismic resistance, in that it can safely accommodate repetitive pressure surges above its static pressure rating and is well-suited for seismic loading due to its natural flexibility.
- HDPE is easier and more cost-efficient to install than carbon steel.

The Bimodal HDPE Difference – CONTINUUM™ DGDA-2492N Bimodal HDPE Resin

- Meets or exceeds both ASTM PE4710 and ISO PE100 standards.
- 2.5-year pressure listing by the Plastic Pipe Institute (PPI), exceeding the 3-month requirement, at 176°F (80°C).
- >10,000h PENT, more than 20 times better than the most stringent ASTM SCG requirement for PE4710.
- Three times more resistant to Rapid Crack Propagation (RCP) than the most demanding ISO PE100 requirement, if measured by S-4 critical pressure, and RCP failure does not occur at temperatures above -17°C (-0°F) as measured by S-4 critical temperature.
- Can be used for making heavy-wall pipe up to at least 6 inches thick.

Not Your Typical Resin Supplier

- Dow is the #1 polyethylene producer in the world.
- More than 25 years in the pipe industry.
- Focused on innovation and advancing the performance of polyethylene in pipe.
- Technical assistance available throughout the process, including testing and qualification.

Want to know more?

Visit the Dow web site or talk with a Dow technical representative to find out if CONTINUUM™ DGDA-2492N is the right material for your ESW pipe system.

www.dowcontinuum.com
800.441.4369

Continuum[™]
Bimodal Polyethylene Resins ■■■■■■■■

CONTINUUM™ Bimodal HDPE
Fast Facts

Plastics – North America



Photo source: Sterling Refrigeration, Inc.



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¹Source: EPRI 2009 Portfolio, Balance of Plant Corrosion

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