PRODUCT
GILSULATE 500XR®

District Heating and Cooling
Steam and Condensate Return
Chilled Water Distribution
Domestic Hot Water Systems
Geothermal Distribution
Fuel & Heavy Oil Transport
Sanitary Sewer Distribution

Nuclear Waste Transfer Lines
Solar System Distribution
Waste Heat Recovery
Process Fluid Transport
Superheated Hot Water Systems
Petrochemical Lines
Molten Sulphur Lines

Power & Gas Lines
Condenser Water
Load-Bearing Fill
Freeze Protection
Storage Tanks
Above ground Utilidor
Corrosion Protection

Encasement of Field Applied Joints
Repairs on PIP Systems
Critical Energy Recovery
Electrical Thermal Barrier
Expansion System for Oil Lines
Concrete Trenches

Manufacturer, Proprietor of Patent and Product

Gilsulate International, Incorporated
26000 Springbrook Ave 201 Santa Clarita, Ca 91350
800-833-3881 - www.gilsulate.com

PRODUCT: Gilsulate®500XR (Patent 4,231,884)
"Exact Match Only" This necessary item is not available under any other product name.
*There is no equal alternative to or replacement for Gilsulate®500XR.
*(*Case 2:13-cv-01012-RSWL-JPR)*

Basis for Invention/Patent of Gilsulate®500XR

- Improved Thermal Insulation
- Excellent Load Bearing Properties
- For Underground Structures
- Corrosion Protection
- Resistance To Water Penetration
- Low Density Material

Superior Quality

- Nearly 75 Year Old System Design Details
- UFGS 33.61.13 Meets & Exceed U.S. Military Standards
- Meets ASTM Industry Standards & 3rd Party Lab Tests
- Warrantied For Use & Application

General Information

For nearly 75 years owners have come to expect lower installed cost, favorably priced, simplistic system, long-term efficiency and reliability associated with the trade name Gilsulate®. Gilsulate 500XR® is recognized throughout the world as the leading insulation and protection system for direct buried piping, tanks and structures. Gilsulate500XR's formula was invented, engineered, and patented to create a product that offers thermal insulation, corrosion protection and loadbearing capabilities for application temperature ranges from 35°F – 800°F and is unlike any other product available in the marketplace. Gilsulate 500XR has a global, long-term track record of reliability and successful installations.

Some projects include: world's largest medical center, world's largest regasification plant, world's largest waste treatment plant and the first power plant to be issued a greenhouse gas permit by the U.S. Environmental Protection Agency. Specific system examples include: steam and condensate lines buried in the permafrost of Alaska to hot oil lines in the Virgin Islands to amine lines in Australia to chilled water lines buried in the hot desert sands of Saudi Arabia .

The material Gilsulate500XR is a controlled density insulation and corrosion protection product which assures owners that the installed density and thermal properties are consistent; eliminating variability or "shorting" due to varying static backfill loads or insulation degradation. Only its patented material formula can be mechanically compacted to provide insulation stability and offer even at shallow burials HS20 loading capabilities for underground lines under roadways. Gilsulate has performed above our customer's expectations in real world side by side infrared thermal scans where the pre-insulated system was visible but the Gilsulate system was undetectable. Even in areas where 100-year floods have occurred and subjected the system to real world 22 foot hydrostatic heads the Gilsulate system was unaffected and is still in operation today.

Why Gilsulate?

What do flagship Colleges and Universities, internationally recognized engineering firms and world class EPC contractors have in common? For one, they choose Gilsulate 500XR for their district heating, cooling and corrosion protection systems. They trust their energy distribution networks and high profile projects to Gilsulate because "no rain checks, no excuses, no delay" is what Gilsulate delivers. For nearly 75 years, Gilsulate has been recognized as the go to product when cost, unparalleled efficiency, reliability, innovation and sustainability were required. The "trenchscapes" of underground distribution systems are changing at a much higher pace than ever before.

In today's global market of shrinking budgets contractors are faced with thin margins, high costs and tight deadlines. Contractors are seeking a recognized and accepted viable cost saving alternative to the pre-insulated piping systems when bidding underground insulated piping projects; they are turning to the "Gilsulate Advantage." Lead times can set a project back, unknown obstructions can require ordering special fabricated sections and fittings potentially grinding a project to a halt; affecting their bottom line. With Gilsulate's highly respected insulation and corrosion protection system, excellent track record of success, lower installed costs, material available to ship immediatly and field flexibility for those unknown construction site obstructions... contractors are finding Gilsulate as their competive advantage solution to secure and expedite projects in the marketplace today.

Call us to find out how Gilsulate 500XR is exceeding owners, engineers and contractors expectations around the globe and we can talk you through your next project.

PHYSICAL PROPERTIES (Refer to GII's Design & Installation Manual for complete information)

1 ASTM C177-04 Thermal Conductivity (tested @ use density):
K = 0.53 Btu/hr.ft2 °F/in. @ 100°F
K = 0.60 Btu/hr.ft2 °F/in. @ 175°F
K = 0.65 Btu/hr.ft2 °F/in. @ 300°F

2 ASTM D1895A - Bulk Density
30-34 lbs./ft3

3 ASTM D1895C (400 lbs.) Consolidated Cubic Foot Installed/Use Density (CFUD)
40-42 lbs./ft3 CFUD

4 ASTM D1895C (1000 lbs.) Consolidated Cubic Foot Installed/Use Density (CFUD)
40-42 lbs./ft3 CFUD

5 ASTM D1895C (400 lbs.) Percent of compaction of installed density under static load
Shall not exceed more than 1% compaction

6 ASTM D1895C (12,000+lbs.) Material Bearing Under Applied Static Loading
12,000 lbs./psf Load Bearing

7 Particle Sizing Range:
"Well-graded" diameter ranging from 1mm to sub-micron sizes

8 Material Stability:
Direct-buried material must support weight of a man prior to backfill

9 Temperature Range:
35°F to 800°F

10 Electrical Resistivity:
Greater than 10 to the 12th Ohm-cm

11 Hydrostatic Head
Withstand moisture penetration equivalent to 48" head for greater than 30 days