Pyrogel® XT-E

Flexible Industrial Insulation for High-Temperature Applications

–40°F (–40°C) to 1200°F (650°C)

aspen aerogels®

www.aerogel.com

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Pyrogel® XT-E is the most effective high-temperature insulation material in the industrial market, typically 2-5 times thinner than competing products. It is efficient, durable, and more productive to install. Its water resistance offers a level of protection against corrosion under insulation (CUI). It is also available in a fire-protection grade (Pyrogel® XTF) that is specially formulated to provide exceptional performance against the UL 1709 standard.

Applications Hot piping and equipment, dual temperature (contact us for limits), towers, tanks, low- and high-temperature ducts, fire protection

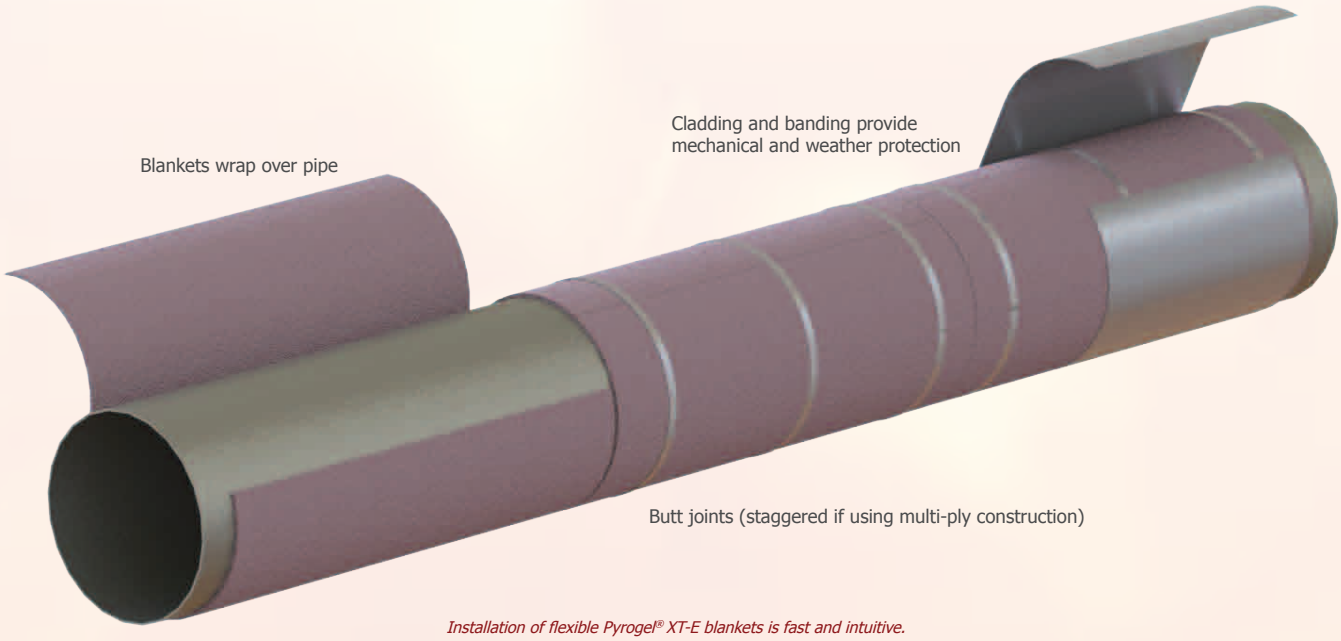
Service Temperature Range -40°F (-40°C) to 1200°F (650°C)

Thermal Performance Pyrogel® XT-E is one of the most efficient industrial insulations in the world. Its required thicknesses are 50% - 80% less than other insulation materials.

Moisture Resistance Moisture is a problem in insulation at temperatures up to 200°C. It can form within the insulation and cause corrosion under insulation (CUI). Pyrogel® XT-E is hydrophobic (resistant to liquid water) through the entire matrix of the material (not just on the surface) and provides excellent resistance to moisture. Other insulations tend to absorb moisture over time, potentially corroding the substrate. Pyrogel® XT-E also meets all specifications for stress crack corrosion of stainless steel.

Logistics From procurement through installation, Pyrogel® XT-E simplifies logistics because of its decreased volume requirements. These advantages include freight savings, storage space, simplified inventory, and the fact that it doesn't break in transit.

Installation Pyrogel® XT-E is quickly and easily installed by wrapping it onto piping and equipment. In contrast, rigid insulation materials are installed piece by piece in sections, which is very labor intensive. Pyrogel® XT-E also is applied in longer lengths and at a faster rate than other insulation materials, which shortens the project schedule.



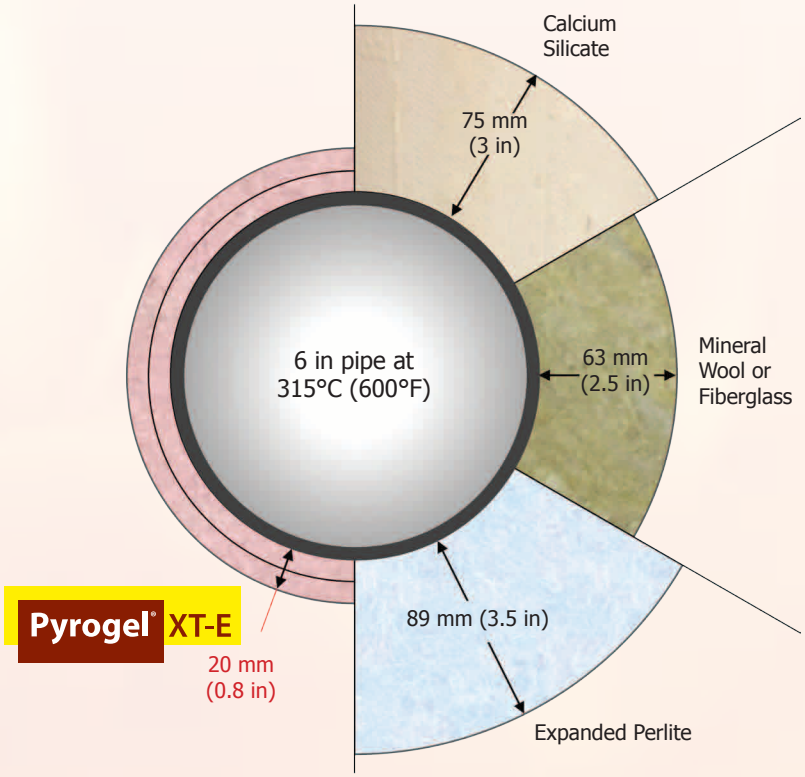
Installation of flexible Pyrogel® XT-E blankets is fast and intuitive.

Special Applications

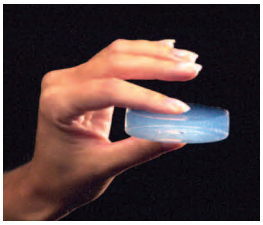
Overwrap System – Most hot insulation materials used today will eventually become wet, resulting in heat and energy loss, poor process control, and corrosion. This problem can be fixed by wrapping a single layer of 10 mm Pyrogel® XT-E with metal jacket over the existing insulation and jacketing. The Pyrogel® XT-E overwrap drives moisture out of the wet inner layers, resulting in improved thermal performance and reduced operating costs. It also decreases the outer surface temperature, helping to protect your personnel.

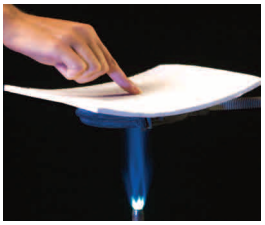
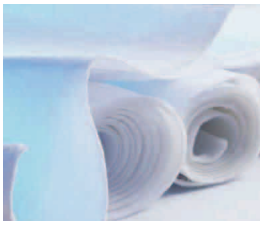
High Temperature Composite System – High temperature applications require higher insulating values. Most high temperature insulation materials (ceramic fiber, mineral wool, etc.) have to be applied in extremely large thicknesses to achieve such values. But for reasons such as space constraints and economics, thick insulation might not work. In these cases, Pyrogel® XT-E can be used in combination with the other materials to substantially reduce the total thickness.

For more Pyrogel XT-E info, scan this code with mobile device QR reader, or go to www.aerogel.com.



All four designs provide same level of thermal efficiency.



Aerogel: A New Way to Think About Industrial Insulation

Aerogels have been in existence for more than 80 years. They consist of lightweight silica solids derived from a gel in which the liquid component has been replaced with gas. The silica solids, which are poor conductors, consist of very small, three-dimensional, intertwined clusters that comprise only 3% of the volume. Conduction through the solid is therefore very low. The remaining 97% of the volume is composed of air in extremely small nanopores. The air has little room to move, inhibiting both convection and gas-phase conduction.

These characteristics make aerogel the world's lowest density solid and most effective thermal insulator. The outstanding thermal properties of aerogels have been studied for decades, but Aspen Aerogels® has developed a technically and economically viable form of aerogel for industrial insulation uses. Our unique process integrates aerogel into a carrier to create flexible, resilient, durable aerogel blankets with superior insulating properties.

Environmentally friendly: Strict environmental regulations and increased awareness have led to the requirement for environmentally friendly insulation materials for use in industry. Aerogels pose no chemical threat to the environment. They are silica based, which is essentially sand. Cryogel® Z and Pyrogel® XT-E contain no respirable fibers and do not require blowing agents, so they are free of CFCs and HCFCs. These products can be safely disposed and, since the installed volume is considerably less than competing materials, there is less waste going to landfills.

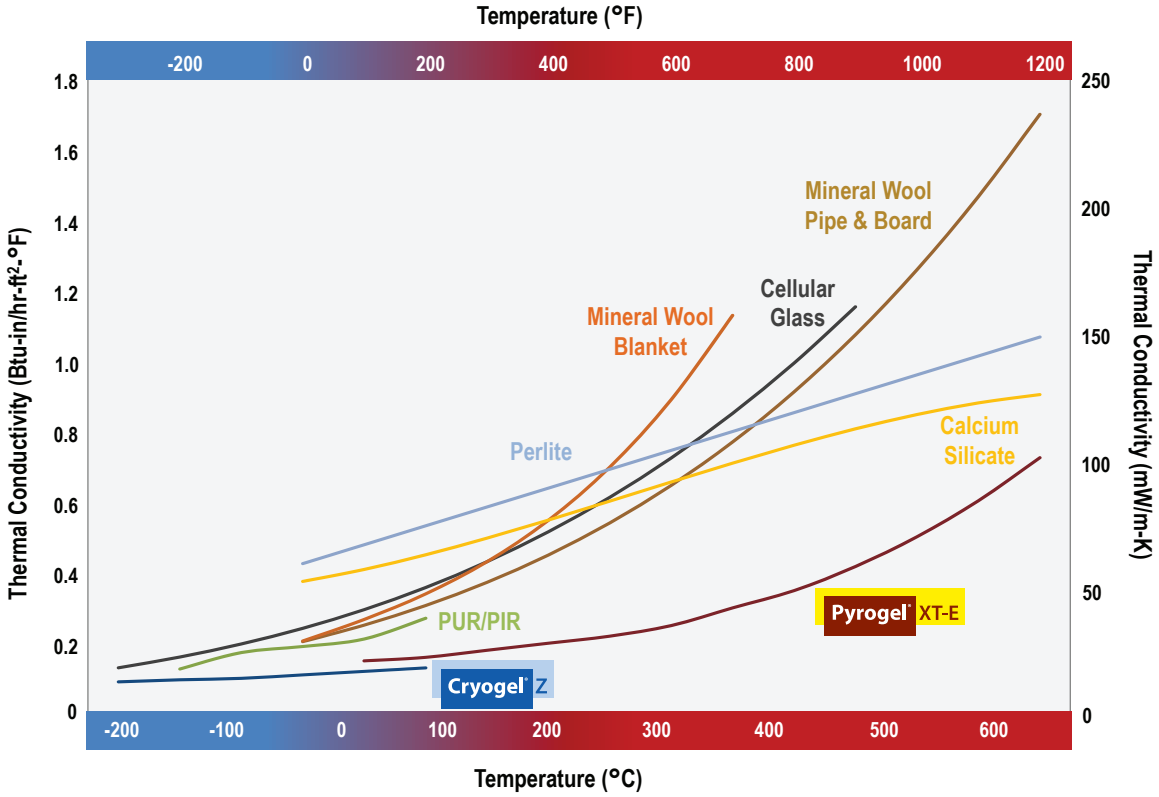
Fire resistant: Cryogel® Z and Pyrogel® XT-E offer excellent resistance to flame spread and smoke emission. In actual hydrocarbon pool and jet fire scenarios, they protect piping and equipment longer, which provides additional time to respond to a catastrophic event.

Light weight: Cryogel® Z and Pyrogel® XT-E are lighter than other insulation materials. This enables them to be easily and safely handled on the job site. They can be installed in longer lengths than traditional insulations, which improves installation rates. Their light weight also reduces overall loading of the pipe and equipment support structure.

Durable: Cryogel® Z and Pyrogel® XT-E are flexible materials that deform under compression. They have excellent bounce-back properties, even when exposed to compression forces of hundreds of psi, and they can resist high impact loads with no damage and no compromise in performance. This is unlike rigid insulation which, although stiff, is friable and susceptible to cracking. This creates thermal short circuits and paths for moisture intrusion. Rigid insulations also are at risk of breakage during shipping and installation.

Hydrophobic: Cryogel® Z and Pyrogel® XT-E are extremely hydrophobic and therefore have outstanding resistance to moisture.

Aerogel Insulation Materials Have the Lowest K-Values of Any Industrial Insulation



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