



**CABOT** 

AEROGEL INSULATION FOR ENERGY  
AND INDUSTRIAL APPLICATIONS

# CABOT AEROGEL: SETTING A NEW STANDARD FOR INSULATION

As the challenges facing oil and gas operators developing fields in frontier regions such as deep/ultra-deep waters, oil sands, and arctic environments continue to increase, so does the importance of choosing the best solutions to meet these challenges, especially insulation. Changes in the environmental landscape and regulation have also increased focus and demands on insulated systems in the industrial world. The fabrication, construction, and operation of pipelines and other systems requires a versatile insulation material that delivers the best possible thermal performance. Cabot Corporation, a global leader in performance materials, has developed a series of world-class products which exploit the many benefits of its aerogel insulation to meet the ever-increasing demands of the oil and gas industry.

Cabot aerogel products are available in a range of forms to best meet the variety of needs of the oil and gas and industrial marketplace. Each can be quickly and easily installed resulting in cost savings for fabricators and installers while delivering operators the many benefits of exceptional thermal performance such as longer cool down times, lower capital costs, consistent life-of-field U-values, and reduced risk. Cabot's aerogel technologies not only provide the highest thermal performance, but also bring benefits with regards to corrosion under insulation, hydrophobicity, and mechanical strength. Cabot's particulate aerogel can also be used as an additive to enhance traditional technologies and increase thermal performance to previously unachievable levels.





**Cabot aerogel delivers a rare combination of properties:**

- Ultra-low conductivity, even under compression
- No performance degradation over time
- Superior CUI performance
- Performance from cryogenic to high temperature
- Extreme hydrophobicity
- Mechanical resilience and integrity under load

**Resulting in improved project economics:**

- Longer subsea tiebacks and pipelines
- Smaller jacket pipes and reduced cladding
- Longer cool down times
- Energy savings
- Faster fabrications
- Broader range of design options

**All of Cabot's aerogel product forms are engineered to provide:**

- Unsurpassed insulation performance
- Fast, easy installation
- Dust free, safe to handle application

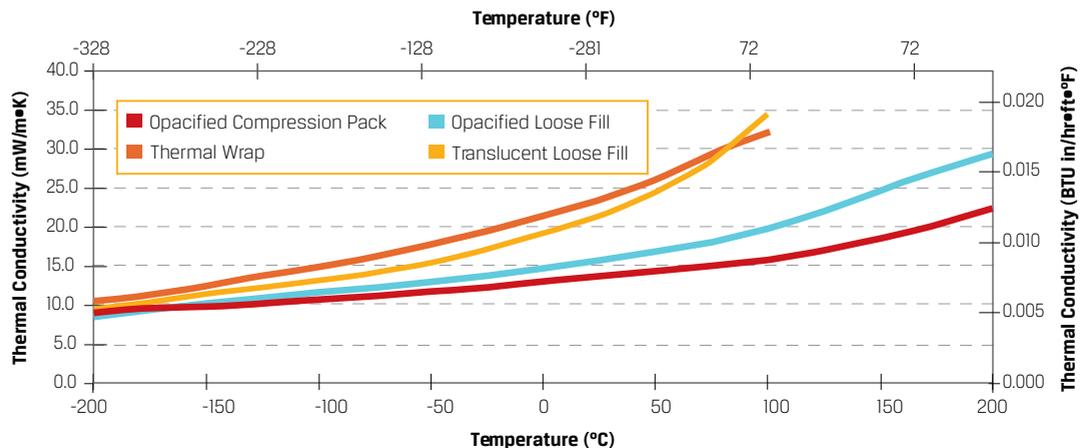
**Applications:**

- Thermal insulation
- Energy efficiency
- Personnel protection
- Condensation control
- Process control

**Wide range of operating temperatures:**

Compression Pack	-200°C to 200°C	-328°F to 392°F
Aerogel Coating	-30°C to 200°C	-22°F to 392°F
Thermal Wrap	-200°C to 125°C	-328°F to 275°F
Opacified Infill	-50°C to 800°C	-58°F to 1472°F
Translucent Infill	-200°C to 800°C	-328°F to 1472°F

**Ultra-Low Thermal Conductivity**



For temperatures outside ranges shown, please contact Cabot Aerogel for more information, as performance varies based on material grade and specific application.

# Cabot has developed a series of aerogel products and forms to economically and efficiently address the most difficult thermal design issues.



## **Compression Pack for pipe-in-pipe systems**

This proven system with over 400km of installed subsea pipelines, consists of flat packs of compressed aerogel, custom-sized and pre-attached to a rugged outer sheath. These units are quickly and easily snapped onto the inner pipe of a pipe-in-pipe system for a precise, consistent final form. The result is a highly durable, easy to fabricate, super-low U-value system ready for use in the most difficult environments. The Compression Pack has been specified for use in cryogenic systems. The Compression Pack has been specified for use in cryogenic systems.



## **Thermal Wrap blanket for ambient to cryogenic applications**

Thermal Wrap consists of aerogel granules within non-woven fibers that produce an extremely flexible, compressible, highly efficient insulation material. Less dusty than competing blankets, with a thermal conductivity that doesn't degrade, but improves with compression, Thermal Wrap can be used in a variety of applications. It is easily laminated to create infinite thicknesses or surfaces.



## **Particles for infill and cavity applications**

Cabot's particulate aerogel is the lightest and best insulating solid in the world. Its free-flowing nature and exceptional hydrophobicity makes it an ideal insulator for bulk fill and cavity applications. Cabot's aerogel provides extremely high thermal performance, particularly when compared to many traditional insulation options that rely on trapping still air. The unique nanoporous microstructure of the aerogel particle results in material thermal conductivity of only 11mW/mK – less than half that of still air, that will not degrade with time or temperature. Cabot's aerogel particles have also been approved for cryogenic applications.



## **Coatings for spray applications**

Insulative coatings are generating significant interest due to the increased focus on environmental and safety awareness and sensitivity to energy efficiency. Cabot has partnered with formulators and applicators around the world to create high performance, sprayable aerogel coatings systems for insulation and personnel protection applications. Formulated with Cabot's Enova® aerogel particles, the thermal conductivity of these easy-to-apply systems is far superior to any on the market today.



## Customers

ExxonMobil  
Helix Energy Solutions  
Newfield  
BP  
Total  
ATP Oil & Gas Corporation  
Petrobras  
Statoil  
Conoco Philips  
Lundin  
BG Group  
Murphy Oil Corporation

Technip  
Heerema  
Helix Energy Solutions  
Pipeline Technique Ltd.  
Saipem  
Tata  
NASA  
Rockwool  
Themec  
AMSO  
VerdErg



[cabotcorp.com](http://cabotcorp.com)

### NORTH AMERICA

Cabot Corporation Business  
and Technical Center  
157 Concord Road  
Billerica, MA 01821-7001 USA  
**TEL** 800 462 2313  
**FAX** +1 978 670 7035

### EUROPE

Cabot Specialty Chemicals  
Interleuvenlaan 15 i  
3001 Leuven, BELGIUM  
**TEL** +32 16 39 24 51  
**TEL** +32 16 39 24 13  
**FAX** +32 16 39 24 44

### ASIA PACIFIC

Cabot China Ltd.  
558 Shuangbai Road  
Shanghai 201108, CHINA  
**TEL** +86 21 5175 8800  
**FAX** +86 21 6434 5532

### JAPAN

Cabot Specialty Chemicals, Inc.  
Sumitomo Chiba-Daimon Idg. 3 F  
2-5-5 Shiba Daimon, Minato-ku,  
Tokyo 105-0012, JAPAN  
**TEL** +81 3 6820 0255  
**FAX** +81 3 5425 4500

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