

# Spaceloft<sup>®</sup> Subsea

## FLEXIBLE INSULATION FOR SUBSEA PIPE-IN-PIPE APPLICATIONS

Spaceloft<sup>®</sup> Subsea, due to its very low thermal conductivity, is used for thermal insulation for pipe in pipe (PIP) applications in the major offshore sectors.

Customers can request almost any desired thickness to suit their pipeline thermal goals. The insulation is ideal for very hot pipelines as well as cooler pipelines that can sometimes be found in deep fields.

Spaceloft<sup>®</sup> Subsea has the ability to minimize heat loss for extremely long tiebacks. It is manually installed in a continuous process and, because it is flexible, can be easily tailored on site if required. Spaceloft<sup>®</sup> Subsea is provided prepackaged ready for use or in roll format for later processing.

Spaceloft<sup>®</sup> Subsea has been used by several major oil companies and their preferred contractors in the Gulf of Mexico, Offshore Brazil, the North Sea, and Offshore West Africa.



### Physical Properties

Thickness*	0.2 in (5 mm)
Material Form*	58 in (1,450 mm) wide x 245 ft (75 m) long rolls
Max. Use Temp.	390°F (200°C)
Color	Black
Density*	8.0 lb/ft <sup>3</sup> (0.13 g/cc)
Hydrophobic	Yes

\* Nominal Values

### Advantages

#### Superior Thermal Performance

Up to five times better thermal performance than competing insulation products

#### Reduced Thickness and Profile

Equal thermal resistance at a fraction of the thickness

#### Less Time and Labor to Install

Easily cut and packaged to suit customer rapid installation needs

#### Physically Robust

Soft and flexible but with excellent springback, recovers thermal performance even after compression events as high as 50 psi

#### Simplified Inventory

Unlike rigid insulations, blanket adapts to any irregular pipe surface such as bundles and electrically heated PIP

#### Hydrophobic Yet Breathable

Repels liquid water but allows vapor to pass through

#### Aging

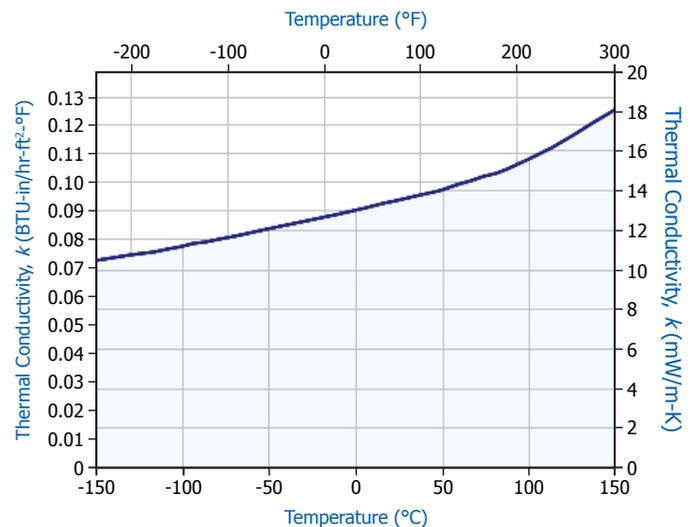
Excellent long term aging performance

#### Environmentally Safe

Landfill disposable, shot-free, with no respirable fiber content

### Thermal Conductivity<sup>†</sup>

ASTM C 177 Results



<sup>†</sup> Thermal conductivity measurements taken at a compressive load of 2 psi.

## DATA SHEET

### Spaceloft® Subsea

#### Packaging

Spaceloft® Subsea is provided for subsea PIP users in a prepackaged form to permit quick installation. The package is available in flexible formats for Reeling, S lay, and J lay needs.

#### HPHT PiP Uses

Spaceloft® Subsea has been validated, among other Aspen Aerogels® insulation materials, for high temperature use for future deepsea subsea pipelines. It provides excellent performance for lines operating at higher temperatures such as 350°F over long lengths.

#### Low Temperature Margins

Spaceloft® Subsea is well-suited for long pipelines where the inlet temperatures are low so that the margin on hydrate or wax format is critical. It is a stable, low thermally conductive material that helps minimize carrier sizes while achieving the lowest possible OHTC (Overall Heat Transfer Coefficient) for the pipeline.



#### Characteristics

Spaceloft® Subsea can be cut using conventional textile cutting tools including scissors, electric scissors, and razor knives. The material can be dusty, and it is recommended gloves, safety glasses, and dust mask be worn when handling material. See MSDS for complete health and safety information.

#### Other Available Materials

Aspen Aerogels® produces several types of flexible aerogel blanket materials for thermal insulation, energy absorption, and fire protection. Please contact us for additional information on these products.

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