

Calcium Silicate Insulation

Gentherm 650 provides all the benefits of traditional calcium silicate insulation but, most importantly, is cost engineered to be comparable with fibrous insulation products commonly found on today's steam generation and transmission plants. Gentherm 650 is specially formulated to meet rigorous demands of modern steam pipelines essential to the operation of equipment heated or powered by high pressure, high temperature steam.

Gentherm 650 performs to the same standards as Newtherm 800 in all respects but with a lower continuous operating temperature 650°C.



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Legislation:

Gentherm 650 complies with the classification requirements of BS 3958: Part 2: 1982: Type 1 and the qualification requirements of ASTM C533 1995: Type 1. In addition calcium silicate insulation products comply with or help to achieve compliance to the following standards:

- BS EN 563: 1994 Safety of machinery. Temperatures of touchable surfaces. Ergonomics data to establish temperature limit values for hot surfaces.
- BS 5970: 1992 Code of practice for thermal insulation of pipe work and equipment (in the temperature range -100°C to +870°C).
- BS 5422: 1990 Method for specifying thermal insulating materials on pipes, ductwork and equipment (in the temperature range -40°C to +700°C).
- BS 3958: Part 2: 1982 Calcium Silicate preformed insulation.
- BS 3958: Part 6: 1972 (1980) Finishing materials: hard setting composition, self-setting cement and gypsum plaster.
- NES 800: Part 1
- NHS Model Spec C02
- NES Y50

Product Range

- Flat Slab
- Pipe Section
- Radiused & Bevelled Lags
- Bends & Elbows
- Pipe Supports
- Dome End Segments
- Segments for Knuckles
- Flanges
- Valves
- Reducers
- Tees

Contact Details

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Factory Applied Finishes

- Sodium Silicate
- VentureClad Covered
- Foil Backed
- Polyester Laminate Backed
- Canvas Covered

Product Characteristics

Density	Nominal Dry Density 220kg/m ³	
Appearance	White/off White Colour	
Thermal conductivity	°C	Gentherm 650
Mean Temperature:	100	0.055W/(m.K)
	150	0.061W/(m.K)
	200	0.066W/(m.K)
	250	0.074W/(m.K)
	300	0.080W/(m.K)
	350	0.089W/(m.K)
Compressive strength	>0.60 Mpa	
Flexural strength	>0.35 Mpa	
Shrinkage after heating at 650°C	<2%	

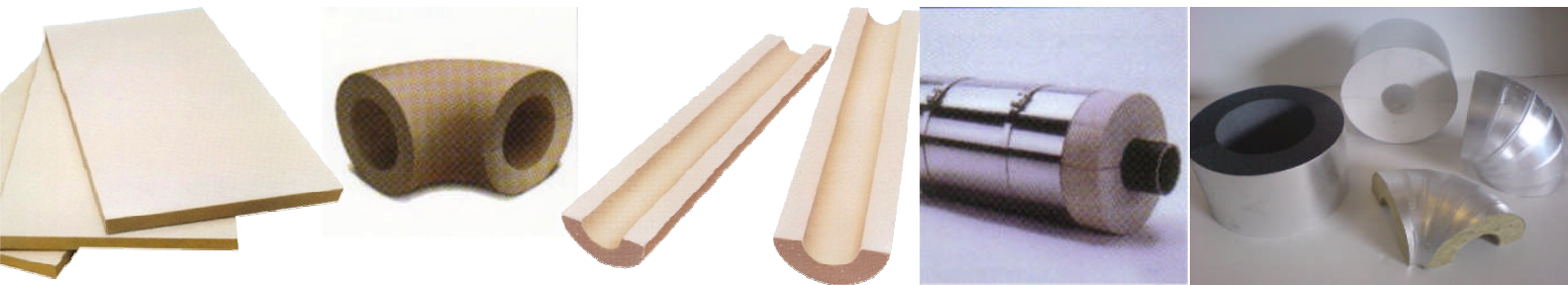
Product Information

Standard Length	600mm
Minimum Pipe Section O/D	21mm
Maximum Pipe Section O/D (R+B Lags supplied for sizes above)	196mm
Standard Thicknesses (Double & Triple layers also available)	25, 38, 50, 65, 75,
Standard Packaging	Export Carton, shrink wrapped to pallet
Storage	A warm dry atmosphere, clear of ground

Product Benefits

- High compressive strength
- Strong rigid insulation
- Excellent thermal performance at high temperature
- No fibre shakedown
- Maximum operating temperature 650°C
- Reduced energy loss
- Non-combustible
- Will take foot traffic
- Non-punking

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COMPOSITION

Synthetic calcium silicate hydrate	CAS No. 1344-95-2
Cellulose Fibre	9004-34-6
Glass Fibre	65997-17-3

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HAZARD IDENTIFICATION

Cutting or drilling boards can cause dust emissions which, if not controlled, may be harmful to health.

FIRST AID MEASURES

Eye: Flush eye immediately with water or physiological saline for at least 15 minutes. Remove any contact lenses and open eye widely. If irritation continues, seek medical advice. **Skin Contact:** Wash the skin thoroughly with water. **Inhalation:** Take exposed person to fresh air. **Ingestion:** Flush mouth thoroughly and drink plenty of water. **Information:** Show this document (MSDS) to the doctor or the casualty department.

FIRE FIGHTING MEASURES

Fire Precautions: No special precautions required. **Fire Fighting Equipment:** Not applicable. **Hazardous Decomposition Products:** Not flammable. Small quantity of carbon monoxide and carbon dioxide.

ACCIDENTAL RELEASE MEASURES

Spillage: Refer to handling procedures—use personal safety equipment. Restrict spreading. Collect dust with a Type H vacuum cleaner (should comply with BS 5415 as a minimum) or soak with water and sweep up.

HANDLING AND STORAGE

Handling: Engineering methods to control dust emissions are preferred. Effective exhaust ventilation must be in place when drilling or cutting. Avoid inhalation of dust. The use of high speed cutting tools should be avoided unless suitable dust control or extraction can be demonstrated. **Storage:** Keep in dry place. Protect from acid. No special labelling or storage conditions are necessary.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes: Safety glasses suitable for dust protection.

Skin: it is good practice to avoid skin contact; wear protective gloves; normal protective working overalls are adequate.

Inhalation: If engineering controls and work practice are not effective in controlling dust emissions then wear suitable, approved personal protective equipment; a mask and dust filter type P2 (For fine dust) may be appropriate. Filters have an expiry date and may need replacement. Read the suppliers' information.

Workplace Layout: No specific requirements. The work area should be well ventilated if dust is generated during work.

REGULATORY INFORMATION

OCCUPATIONAL EXPOSURE STANDARD (OES), MAXIMUM EXPOSURE LIMIT (MEL), SHORT TERM EXPOSURE LIMIT (STEL). **Calcium Silicate & General Dust:** OES 10mg/m³ total inhalable dust, 4mg/m³ respirable dust, 8 hour time weighted averages. **Cellulose:** OES 10mg/m³ total inhalable, 4mg/m³ respirable dust, 8 hour time weighted averages and STEL 20mg/m³. **Glass Fibre:** MEL 5mg/m³ total dust, and 2 fibres/ml, 8 hour time weighted averages.

OTHER INFORMATION

Fields of Application: Insulating product for use in industry. **Restriction of Application:** None anticipated. **Requirements Concerning Special Training:** No special training necessary. The worker shall be fully instructed in the conduct of the job and be informed of the contents of this document (MSDS). The requirements of the COSHH regulations should be met.

Residual Components: Quartz is used in the manufacture and a small proportion may remain in the board. The amount is such that exposure to mixed dust from the board at the OES of 4mg/m³ is not likely to lead to an exposure to quartz in excess of the maximum exposure limit (MEL) which for quartz is 0.3mg/m³ of respirable dust (8 hour time weighted average).

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PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off White
pH:	N/A
Melting Point (°C):	N/A
Boiling Point (°C):	N/A
Flash Point (°C):	N/A
Flammability:	N/A
Autoignition:	N/A
Explosive Limits:	N/A
Density (Kg/m ³):	220 (nominal)
Water Solubility:	N/A
Fat Solubility:	N/A
Odour:	Odourless
Additional Information:	Slightly soluble in acids

STABILITY AND REACTIVITY

Stable and inert.

TOXICOLOGICAL INFORMATION

Routes of Exposure: Lungs, gastro-intestinal tract, and eyes (dust created in cutting or drilling of the boards).

Short term effects:

Eyes: Dust particles may cause temporary irritation and watering of the eyes.

Skin: None anticipated.

Inhalation: Dust may result in irritation of the respiratory tract.

Ingestion: Mild discomfort.

Long term Effects: Prolonged inhalation of high concentrations of the dust may cause respiratory conditions.

ECOLOGICAL CONSIDERATIONS

No significant effect.

DISPOSAL CONSIDERATIONS

Waste Disposal: Treat as construction industry waste.

TRANSPORT INFORMATION

No special requirements.