



# Superwool<sup>®</sup> 1650SI Board

## Product Data Sheet

### Product Description

Our Superwool 1650SI Board is a best-in-class 1650°C (3000°F) classification temperature low biopersistent structural insulation board. It has been developed especially for the demanding application of backup insulation in molten metal handling equipment such as the steel ladle, tundish or torpedo car.

This board is designed as a high performance back-up insulation. Any potential hot face applications should be discussed with your Morgan Advanced Materials - Thermal Ceramics representative prior to design and installation.

Superwool 1650SI Board delivers melting stability within the heavy-duty process of steel manufacturing. Its high temperature capability also allows it to be used in combination with our WDS<sup>®</sup> Microporous insulation delivering maximum energy savings. These properties deliver to the steel makers an edge with superior insulation performance, reliability, energy savings, and improved personnel safety.

Superwool 1650SI Board is formed from a combination of Superwool fibre which delivers exceptional insulating properties and tailored mechanical fillers which supply a rigid supporting skeleton. The two together provide an unequalled combination of insulating properties and mechanical strength.

### Features

- Classification Temperature 1650°C (3000°F)
- Low thermal conductivity
- High density
- Excellent strength
- Low shrinkage at elevated temperatures
- Hydrophobic
- Excellent cyclic load resistance

### Benefits

- Improved cost of ownership with higher energy efficiency, reduced maintenance and overall operational ladle performance
- Employee safety benefits from melt floor to maintenance with reduced outer shell temperatures
- Easy lining configuration due to agile manufacturing process
- Hydrophobicity expands selection of the product in wider back-up applications
- 1650°C Classification temperature offers opportunity for Microporous back-up lining system resulting in highest energy performance

### Environmental & Health Safety

Superwool low biopersistent fibres manufactured by Morgan Advanced Materials are not classified as carcinogenic by IARC or under any national regulations on a global basis. They have no requirements for warning labels under GHS (Globally Harmonised System for the classification and labelling of chemicals).

In Europe, Superwool fibres meet the requirements specified under Note Q of European Regulation EC/1272/2008 (on Classification, Labelling and Packaging of substances and mixtures). All Morgan Advanced Materials Superwool low biopersistent fibre products are therefore exonerated from classification and labelling as hazardous in Europe.

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Properties		Superwool 1650SI Board
Region of Manufacture		Europe
Classification Temperature, °C (°F), ENV 1094-1 (2008)		1650 (3000)
Continuous Use Temperature, °C (°F)		1350 (2460)
Density, kg/m <sup>3</sup> (pcf), ENV 1094-1 (2008)		820 (51)
Cold Compression Strength, MPa (psi), 10% Deformation, ASTM C165		3 (435)
Modulus of Rupture, MPa (psi)		4.5 (652.5)
Linear Shrinkage, %, ENV 1094-1 (2008)		
	1650°C (3000°F)	<1.5
Hot creep under 1 MPa (145 psi), %		
	2 hours @ 500°C (932°F)	2
	2 hours @ 800°C (1472°F)	3
Water Absorption, 2 hours, %		2
Loss of Ignition, %		3.5
Chemical Analysis, %		
	Alumina, Al <sub>2</sub> O <sub>3</sub>	0-1
	Silica, SiO <sub>2</sub>	91-95
	Calcium Oxide, CaO	5-8
	Others	0-1
Thermal Conductivity, W/m·K (BTU·in/hr·ft <sup>2</sup> ·°F), ASTM C 201		
	400°C (752°F)	0.12 (0.83)
	600°C (1112°F)	0.14 (0.97)
	800°C (1472°F)	0.17 (1.18)
	1000°C (1832°F)	0.20 (1.39)
	1200°C (2192°F)	0.24 (1.66)
	1300°C (2372°F)	0.27 (1.87)

### Shelf Life

The material remains stable over time and has no aging effect, provided it is kept in dry conditions and retained in the original packaging.

### Standard Dimensions and Availability

Board Size, mm (in)		Thickness, mm (in)
1000 x 1200 (39.3 x 47.2)		10-13 (0.40-0.51)
1000 x 600 (39.3 x 23.6)		Process capability up to 20mm (0.8 in)
Dimensions can be adapted for optimum fitting to tiling size		

The product(s) represented are intended for industrial refractory applications. The values and application information in this datasheet are given for guidance only. The values and the information given are subject to normal manufacturing variation and may be subject to change without notice. Morgan Advanced Materials – Thermal Ceramics makes no guarantees and gives no warranties about the suitability of a product, and you should seek advice to confirm the product's suitability for use with Morgan Advanced Materials.