FACT SHEET

LOWER THERMAL CONDUCTIVITY

Superwool® Plus™
Insulating fibre

Lower thermal conductivity...

...improved insulation by 20%

The lower the thermal conductivity of a material, the better it is at restricting the flow of energy from hot to cold. Superwool® Plus™ insulation has a high fibre index which results in outstanding low thermal conductivity which is lower than all other AES and RCF fibres.

- Energy savings up to 17%
- Material weight savings up to 25%
- 20% lower thermal conductivity than other tested AES blanket materials
- Lower thermal conductivity with lower density comparisons
- Lowest thermal conductivity compared to all other AES and RCF fibres

The effect high fibre index has on thermal conductivity

The thermal conductivity of Superwool® **Plus**™ fibre is 20% better than other AES blanket materials. This is due to the large surface area of fibres available for blocking the transmission of thermal radiation and the lack of shot particles that can provide a shortcut path for conduction.

The improvement in thermal conductivity results in a 96kg/m³ density Superwool® Plus™ blanket providing an equivalent insulation to a 128kg/m³ (8lbs/ft³) blanket of the best competitor AES material.

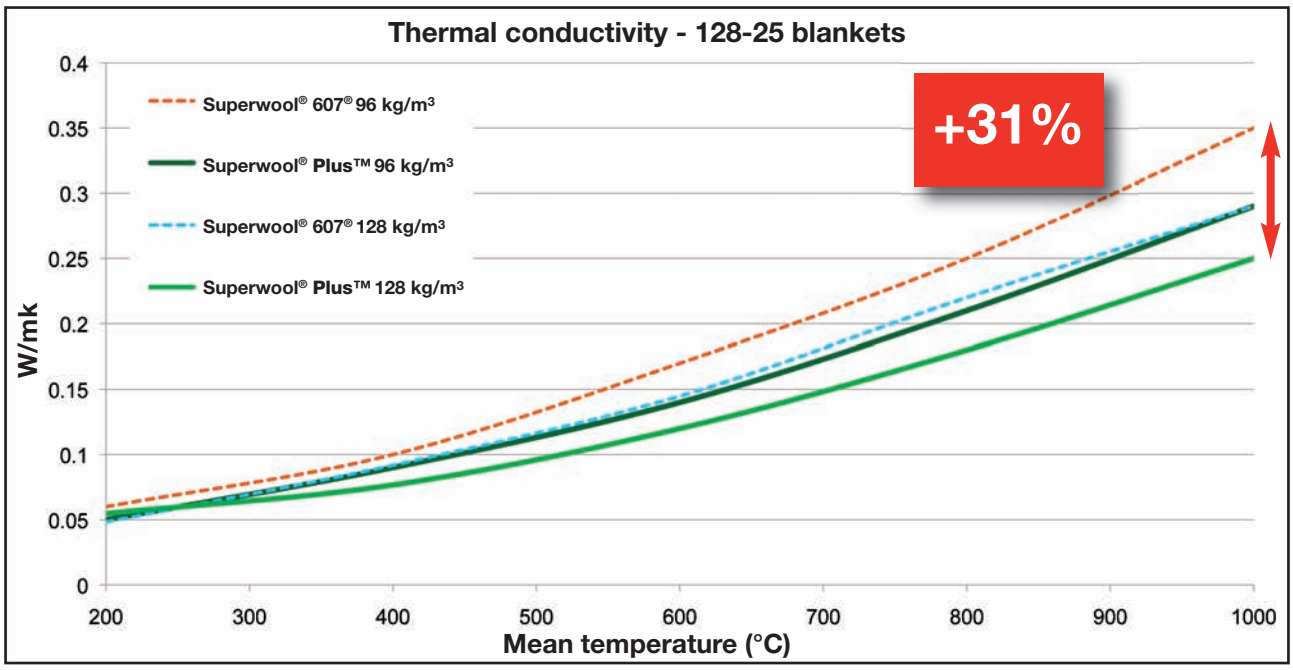
The advantage of Superwool® **Plus**™ fibre is even more distinct in comparison to other brands of AES fibre which tend to have high shot content and coarse fibres, neither of which are beneficial for blocking high temperature thermal radiation.

The high fibre index in Superwool® **Plus**™ blanket provides outstanding low thermal conductivity.

Thermal conductivity - the lower the better, but why?

As previously defined, the thermal conductivity of a material is a measure of its ability to conduct energy (heat). The lower the thermal conductivity of a material, the better it is at restricting the flow of energy from hot to cold.

For a given thickness of insulation, the material with a lower thermal conductivity will give a greater temperature difference between the hot and cold faces and resulting in less energy loss.



Graph showing the effect of high fibre index (low shot content) which gives the blanket a very low thermal conductivity.

Measurements conducted using ASTM C-201 testing methods.

How lower thermal conductivity relates to energy saving

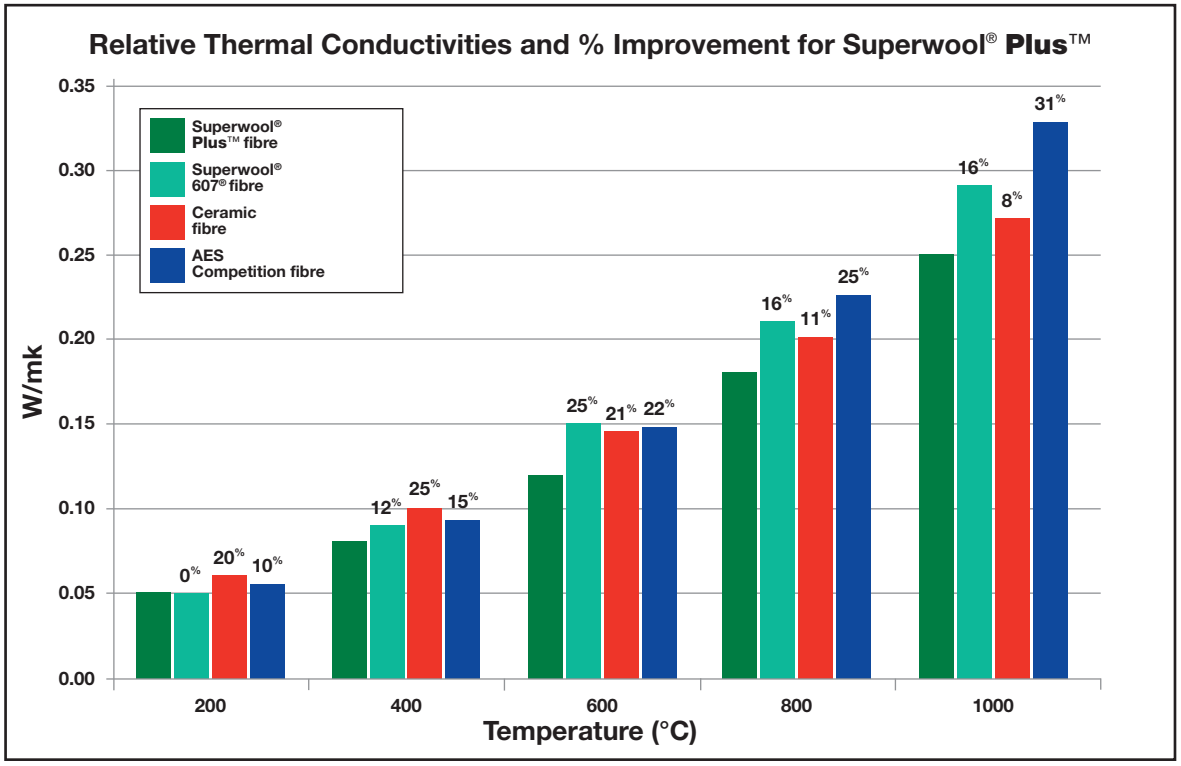
All businesses around the world are increasingly aware of the urgent need to make better use of the world's energy resources.

Improved energy efficiency is often the most economic and readily available means of reducing greenhouse gas emissions.

The demand for energy worldwide continues to increase year by year and the 2009 World energy outlook predicted the numbers would continue to rise.

Lower thermal conductivity ultimately leads to reduced energy losses. Morgan Thermal Ceramics tested different types of blanket, all at 128kg/m^3 (8lbs/ft^3). The results set out in the chart below show the percentage improvement in energy saved by Superwool® **Plus**™ and the percentage relative to the measured thermal conductivity of the fibres.

At 1000°C (1832°F) our results show a competitor AES blanket has approximately 31% higher thermal conductivity compared to Superwool® **Plus**™ fibre. This means Superwool® **Plus**™ fibre provides a 31% saving in energy transmitted compared to the competitor AES blanket and up to 16% compared to standard Superwool® 607® blanket.



Superwool® Plus™

Insulating fibre

Features	Benefits
An engineered solution (unique)	Takes insulation beyond normal performance
Patented technology	Proven chemical formulation
Exonerated from Carcinogen classification under Nota Q of European Directive 67/548	Restrictions on use do not apply. No special requirements for dust control, supply to the general public or waste disposal
Lower thermal conductivity	Improves insulation by 20%
Up to 30% more fibres	Efficient prevention of heat transfer and greater strength
Less shot	Cleaner workplace
High Fibre Index	Up to 20% reduction in thermal conductivity giving energy saving
Stronger with good handleability (no tearing)	Ease of installation saving time and waste
Improved handling	Operator satisfaction
Soft & smooth feel	Less mechanical skin irritation
Consistent use of pure raw materials	Higher classification temperature, low shrinkage and consistent quality
Lower density grade for the same result	**Material weight savings up to 25%**
Thinner lining for the same result	Create more working space within unit
Resistant to vibration	Allows long lifetime under vibration conditions where other products fail
An environmental solution	Potential savings on waste disposal
Worldwide production	Availability

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SUPERWOOL® is a patented technology for high temperature insulation wools which have been developed to have a low bio persistence (information upon request). This product may be covered by one or more of the following patents, or their foreign equivalents:

SUPERWOOL® PLUS™ products are covered by patent numbers:
US5714421, US5994247, US6180546, US7259118, and EP0621858.

SUPERWOOL® 607HT™ products are covered by patent numbers:
US5955389, US6180546, US7259118, US7470641, US7651965, US7875566, EP0710628, EP1544177, and EP1725503

A list of foreign patent numbers is available upon request to The Morgan Crucible Company plc.

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