

# Superwool™ 607™ HT

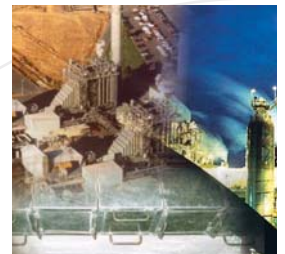


If mechanical properties are important factors to you, then it has to be SW 607 HT

# Fact sheet 4

## Introduction

**This fact sheet explains** why strength is an important property of insulating fibre products and gives specific mechanical strength data for various Superwool 607 HT products.

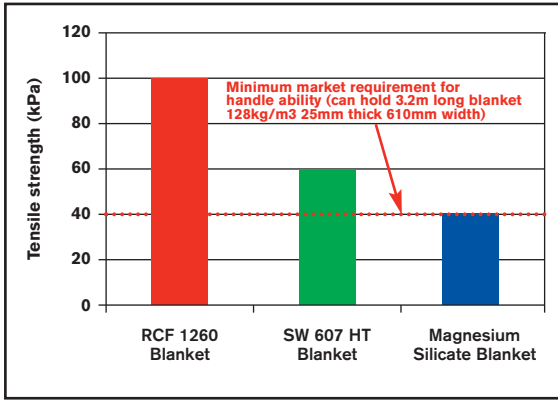


## Key Points Summary

- Good product strength ensures optimum ease of installation - weak products are difficult to install leading to increased installation costs. Products that require repeated handling need good strength also.
- Good strength maximises in-service performance as weak products may work loose from fixings causing premature failure of, for example, furnace linings.
- The tensile strength of Superwool 607 HT Blanket is above the commonly recognised desirable level of 40 kPa.
- Customer trials on die-cutting blanket and on folding blanket for module manufacturing have proven that the tensile strength of Superwool 607 HT Blanket produces good results in these processes.
- The modulus of rupture and compressive strength of Superwool 607 HT Boards and Vacuum Formed (VF) Shapes is similar to RCF Boards made by Thermal Ceramics.
- Superwool 607 HT 'C' Board has been developed to maintain good strength properties after firing when the organic binders have burnt out.
- Hardness of Vacuum Formed (VF) Shapes is important for gas velocity resistance and for applications where they support electric heating elements.
- The good mechanical properties of Superwool VF products mean that thin and large products can be made which have good handling strength.
- The after-firing hardness of Superwool 607 HT VF is equivalent to VF 1260 (RCF) after heat treatment for 24 hours at 1150°C.

# Superwool 607™ HT™ - offers high security margin

## Superwool 607 HT Blanket Mechanical Properties

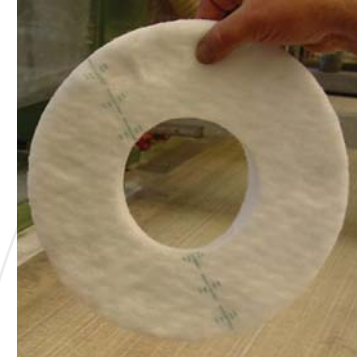


### Tensile strength - values for application temperature higher than 1100°C:

Many years of experience have shown that the tensile strength of RCF blanket should be above 40kPa to avoid problems in application and module making.

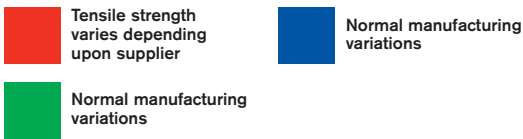
Today, the strength of RCF blanket varies greatly according to the manufacturer, but generally, even the lowest strength material achieves the minimum level of 40kPa. Thermal Ceramics have worked hard in the development of Superwool 607 HT to ensure that this new Superwool material also fulfills this minimum strength requirement for application and module making thus allowing trouble free application whilst providing the benefits of an unclassified low bio-persistent material.

As can be seen in this photograph, Superwool 607 HT blanket shows good behaviour in die cutting, with neat cut-out areas and can be handled easily.



128 kg/m<sup>3</sup> - 25mm thick SW607HT Blanket ring when die cut

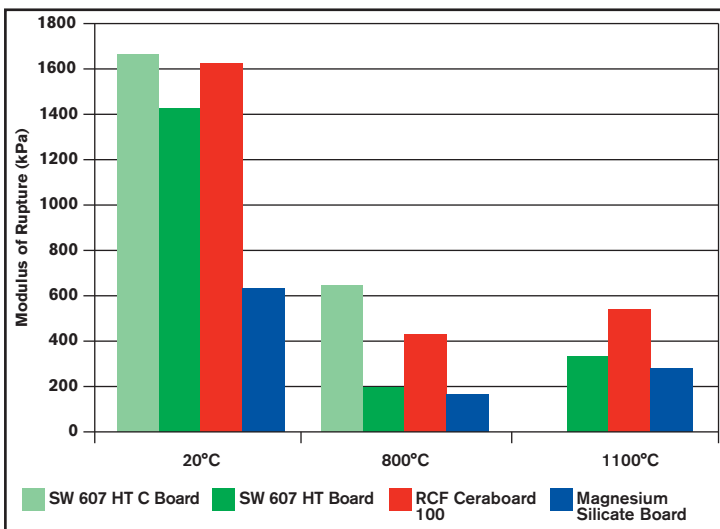
### Typical green tensile strength for 128kg/m<sup>3</sup> density blanket



128kg/m<sup>3</sup> - 25mm thick SW607HT Blanket in folding process and final Z-Blok.

The photos (left) also illustrate the uniformity of the pleats when folded with no damage to the edge of the pleat when Z-Blok is formed.

## Superwool 607 HT Board Mechanical Properties

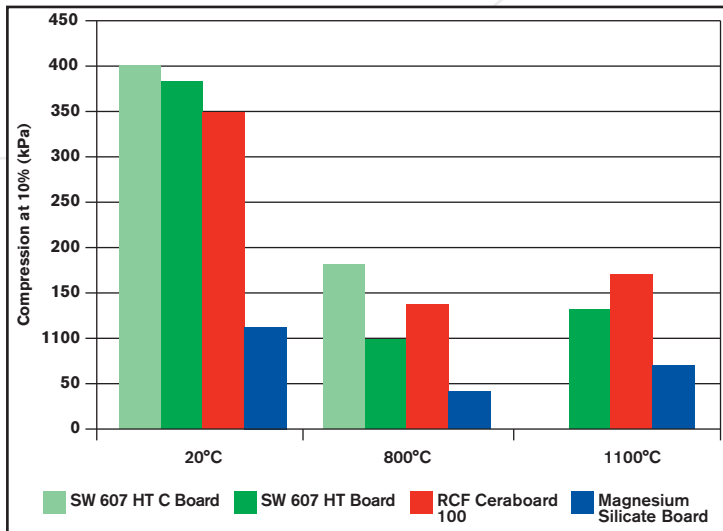


### Modulus of rupture

Modulus of rupture is measured following ENV1094-7 norm. This represents the strength of the board to sustain handling or to support anchors/electrical elements at temperature.

The following diagram shows modulus of rupture evolution with temperature for four insulating materials designed for medium to high temperature usage. The green strength of refractory ceramic fibre boards is an important characteristic when determining how easily the product can be installed without damage. Superwool 607 HT Boards show similar green strengths to RCF Ceraboard 100; by comparison magnesium silicate boards are much lower in strength at the time of installation.

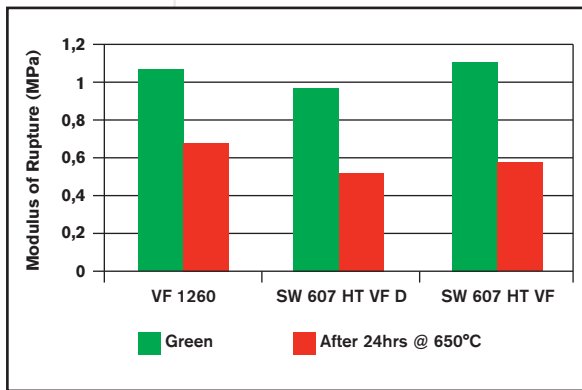
All ceramic fibre boards reduce in strength as organic binders burn out, therefore Thermal Ceramics have introduced the Superwool 607 HT 'C' Board which is limited to applications up to 1000°C but maintains higher strength when organic binders burn out.



### Compression

Compression resistance of Superwool 607 HT Boards can be compared with RCF Boards in the green state. Superwool 607 HT 'C' Board maintains high compression resistance after organic binders' burn out.

## Superwool 607 HT Vacuum Formed (VF) Products

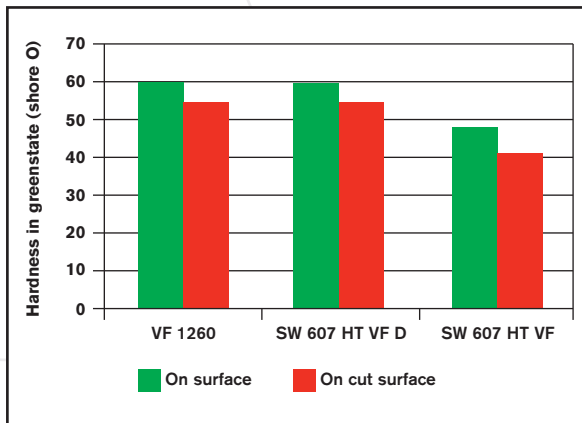


In VF products Superwool 607 HT fibre shows the same properties as in boards.

### Modulus of rupture

Overall, Superwool 607 HT VF products have very good modulus of rupture in the green state and at temperature. This is an important factor as it shows the products can be used under load.

With good mechanical strength, Superwool 607 HT VF products are easy to handle, large and thin (from 5mm) products can be manufactured.

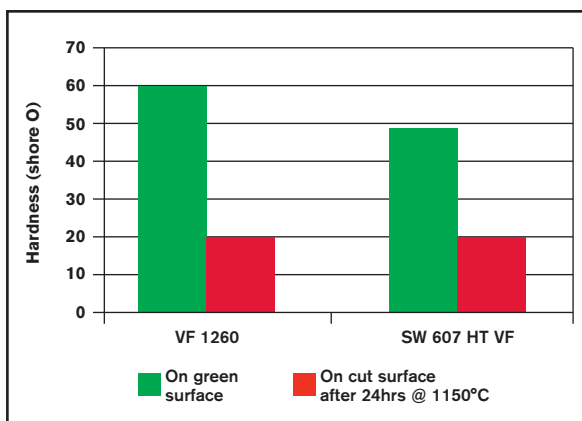


### Hardness of green product:

Superwool 607 HT VF D has very good product hardness at both the outer and the cut surfaces, making it comparable to RCF based materials such as VF1260.

With lower density, Superwool 607 HT VF has lower hardness than RCF VF1260 and SW607 HT D. The overall hardness on the surface or cut area is still very good for standard application purpose.

As with VF1260, both Superwool 607 HT VF D and Superwool 607 HT VF have good hardness and machining properties, offering security in anchorage and the ability to hold electrical elements.



### After firing:

Good green hardness is important mainly for handling and installation, but what is also important is maintaining sufficient hardness at temperature. This excellent hardness in green and fired state shows Superwool 607 HT VF products can:

- Support electrical elements
- Support anchor systems and be reliably supported by anchors
- Have good gas velocity resistance.

The graph (left) shows hardness evolution from a green product to a fired product after heat treatment for 24 hours at 1150°C.

# Superwool<sup>®</sup> 607<sup>HT</sup><sup>®</sup>



## Superwool 607 HT benefits to users:

- Low bio-persistent
- Exonerated from carcinogenic restrictions
- Classification temperature 1300°C
- High performance
- Low linear shrinkage
- Proven references
- Higher maximum continuous use limits
- No reaction to high alumina products
- Resistant to thermal cycling
- Economical
- Comply with Health & Safety regulations and legal requirements
- Low thermal conductivity
- Patented technology
- Worldwide availability
- Local support
- Possible savings on waste disposal

## Superwool 607 HT product portfolio:

- Blanket
- Board
- Paper
- Bulk Fibres
- Felt
- Vacuum Formed Products
- Pyro-Log
- Pyro-Bloc
- Z-Blok
- Mastic

## Superwool availability Worldwide:

- Manufacturing plants worldwide
- Full support in over 40 countries
- Europe
- Asia
- North America
- South America
- Middle East



**Thermal Ceramics**

**A World Force in Heat Management**

For additional support  
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