Superwool® Boards and Shapes

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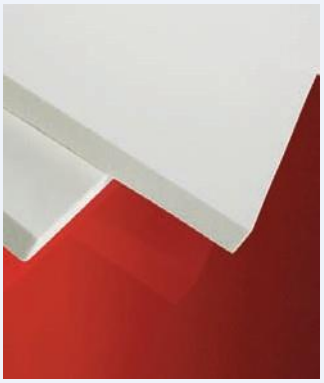

Features

- Rigid, self-supporting fiber insulation
- Available in a variety of sizes and thicknesses
- Based on patented technology
- Reduces thickness of backup insulation up to 50% when replacing insulating firebrick or castables
- Low thermal conductivity and heat storage
- Non-wetting to molten aluminum

Product Description

Superwool boards are processed from a slurry consisting of Superwool bulk fiber and organic binders. Each board has cut edges for controlled squareness and trueness. Boards may be ordered with both surfaces machined smooth to a close thickness tolerance.

Superwool is a low bio-persistent fiber, manufactured from pure raw materials and processed to offer excellent performance in high-temperature applications. Superwool offers an alternative to traditional solutions due to its high refractoriness and excellent non-wetting characteristics with molten aluminum.

Superwool provides stability and resistance to chemical attack. Exceptions include hydrofluoric acid, phosphoric acid and strong alkalis (e.g. NaOH, KOH). Superwool is unaffected by incidental spills of oil or water. Thermal and physical properties are restored after drying.

Superwool is ideally suited to individual applications and is available in a wide range of thicknesses and densities. The maximum continuous use temperature depends on the application. Refer to your local Thermal Ceramics representative for advice.

Applications

- Molten aluminum contact
- Furnace, kiln, and oven hot face linings
- Flue and chimney linings
- Insulation as backup to:
  - firebrick
  - insulating firebrick
  - refractory castables
  - rammed shapes
- Appliance and heat processing insulation

Type

Alkaline Earth Silicate (AES) Wool CAS number: 329211-92-9

Superwool® Boards and Shapes

	Superwool Plus	Superwool HT	Superwool Plus PM	Superwool HT PM
Fiber Class	AES	AES	AES	AES
Region of manufacture	NA	NA	NA	NA
Physical Properties				
Color	white	white	beige	white
Continuous Use Temperature, °C (°F)	1000 (1832)	1177 (2150)	1000 (1832)	1177 (2150)
Classification Temperature, °C (°F)	1100 (2012)	1275 (2372)	1100 (2012)	1275 (2372)
Melting Temperature, °C (°F)	1275 (2372)	-	1275 (2372)	-
Denisty, kg/m^3 (pcf)	320 - 350 (20 - 22)	320 - 350 (20 - 22)	240 - 270 (15 - 17)	224 - 270 (14 - 17)
Modulus of Rupture, MPa (psi), fired at 982°C (1800°F)	2 (300)	1.4 - 1.7 (200 - 250)	1.4 - 1.7 (200 - 250)	1.2 - 1.6 (175 - 225)
Compressive strength @ 5% deformation, MPa (psi)	0.38 (55)	0.41 (60)	0.10 - 0.17 (15 - 25)	-
Compressive strength @ 10% deformation, MPa (psi)	0.41 (60)	0.48 (70)	0.16 - 0.28 (23 - 40)	-
Permanent Linear Shrinkage, %, 24 hours, EU made products per ENV (1094-1)				
1500°F (816°C)	2	0.25	-	0.25
1800°F (982°C)	2.5	0.25	1	0.33
Chemical Analysis, % weight basis after firing				
Alumina, Al_2O_3	trace	-	trace	-
Silica, SiO_2	68	70-80	67	70-80
Calcium oxide + Magnesium oxide, CaO + MgO	31	18-25	27	18-25
Other	1	<3	1	<3
Loss of Ignition, LOI	4-7	3-6	2-4	2-5
Thermal Conductivity, W/m•K (BTU•in/hr•ft^2), per ASTM C201				
260°C (500°F)	0.056 (0.39)	0.058 (0.4)	0.058 (0.4)	0.056 (0.39)
538°C (1000°F)	0.094 (0.65)	0.089 (0.62)	0.089 (0.62)	0.095 (0.66)
816°C (1500°F)	0.150 (1.04)	0.150 (1.04)	0.143 (0.99)	0.151 (1.05)
982°C (1800°F)	0.195 (1.35)	-	-	0.192 (1.33)
1093°C (2000°F)	-	0.218 (1.51)	-	0.223 (1.55)