WDS® UltraShell™

Product Description

WDS UltraShell is a mechanically robust 3D microporous insulation formed into curved segments and shells of various diameters and thicknesses.

The engineered mineral matrix has been specifically designed for applications where mechanical resistance, associated with very light weight, are a key selecting criteria.

Like any other microporous insulation of our industrial range produced with our exclusive WDS Technology process, it features extremely good handling properties, extremely low thermal conductivity coefficient giving it very good insulating properties in limited thickness, allowing to design equipment where high energy efficiency, space optimization and reduction of weight are other premium factors to be considered.

Environmental & Health Safety

WDS UltraShell does not contain any hazardous or decomposition substance according to the EU Directive 2006/1907/EEC and IARC. The fibers or filaments used as reinforcement of the mineral core are also exonerated from any classification as define by the WHO (World Health Organization).

Resistance to Moisture and Water

WDS UltraShell has a non-porous surface therefore it is sensitive to all liquids that can wet it; this includes substances such as water, oil and petroleum spirit, since they can destroy the pore structure. Non condensed moisture does not affect the product.

Sensitivity to liquids of WDS UltraShell can be eliminated by using a surface treatment such as temperature resistant aluminum foil or shrink wrapping with PE Film.

Features

- Very high compactness
- Very low thermal conductivity in the widest temperature spectrum
- Not affected by thermal shock
- Improved product mineral matrix core features minimal dust release and very good handling and machining abilities
- Good resistance to compression associated to its low density
- Homogeneity throughout the entire surface and thickness of the board leading to consistency in performances per square area of material installed
- Highly efficient insulation in limited space and weight constraints
- Inorganic and non-combustible
- Unaffected by most chemicals
- Structural integrity

Benefits

- Dimensionally stable over time up to the maximum using temperature
- Pedestrian resistance once installed
- Easy to cut and with proven installation techniques
- Very low weight lining system can be foreseen due to the extremely favorable product density /thickness ratio
- Environmentally friendly
- Helps to control energy efficiency and heat flow very precisely
- Increases effective volume inner capacity or reduces encumbrance in equipment and apparels of any kind.

Specific Application Advantages

- Ultra-thin insulation allowing to save space and weight on pipe racks
- Less quantity of metal cladding required improving significantly operational costs and ROI.
- Tightest tolerances guarantee perfect fit for fast installation and efficiency pipe sealing
- Less pipe congestion on rack allow easier accessibility for faster maintenance and intervention
- Very good pedestrian resistance once installed.
- Wide option of thicknesses and diameters available
- Water resistant encapsulation available
- Does not deteriorate and maintain its physical and thermal performances over time
- Perfect combination with our water repellent Superwool® blankets to address corrosion under insulation at best

Physical, Thermal and Chemical Properties

	Test Method	WDS UltraShell™
Classification Temperature, °C (°F)		950 (1742)
Density, kg/m³ (pcf), nominal		230 (14.3)
Cold Compressive Strength, MPa (psi)	ASTM C 165	0.42 (60.9)
Linear Shrinkage, %, ASTM C365		
Full soak, 950°C (1742°F), 24 hours	ASTM C365	<3.0
One side exposed soak, 950°C (1742°F), 12 hours		<0.5
Thermal Conductivity, W/m•K (BTU•in/hr•ft²•°F)		
200°C (392°F)	ASTM C 177	0.022 (0.152)
400°C (752°F)		0.027 (0.187)
600°C (1112°F)		0.034 (0.235)
800°C (1472°F)		0.044 (0.305)
Chemical Analysis, % weight basis after firing		
Silica, SiO_2		75-85
Silicon Carbide, SiC		12-20
Others		3-10
Loss of Ignition, Dry condition		<1.5

Shelf life

- WDS UltraShell has unlimited shelf life if it stored properly
- WDS UltraShell must be handled and stored in dry conditions
- WDS UltraShell is resistant to diffusion by atmospheric humidity (water vapor) proving condensation is avoided

Standard Dimensions and Availability

DN	Length, mm (in)	Thickness, mm (in)
DN15, DN20, DN25, DN32, DN40, DN50, DN65, DN80, DN100, DN125, DN200	500 (19.68), 1000 (39.37)	20, 25, 30, 35, 40, 45, 50 (0.8, 1, 1.2, 1.4, 1.6, 1.8, 2)
Other diameters and thicknesses are available on demand		