

K-Shield® Felts

Datasheet Code US: 5-14-803

SDS: 258

Product Description

K-Shield Felt products are produced from premium, cleaned Kaowool high-purity fibers and a special thermosetting binder system in a unique paper-making process. The cleaning process dramatically improves the thermal conductivity, insulating value, and vibration resistance of the felt, while also making it an ideal product for die-cutting, fabrication, and handling. K-Shield Felts are both compressible and resilient, while exhibiting excellent flexibility and handling strengths. The special binder system eliminates smoke problems and allows for minimal off-gassing. Due to their unique semi-rigid yet flexible form, K-Shield Felts offer some special properties in comparison to traditional blankets and papers.



The standard K-Shield Felt, K-Shield Felt LS, and K-Shield Felt AG are premium, low-shot products produced from cleaned high-purity ceramic fibers. The K-Shield Felt LS is a very clean, lower-shot product developed for those very demanding applications. These products have very low thermal conductivities and exhibit excellent vibration resistance.

The K-Shield Felt AG is designed specifically for aerospace insulation applications and is approved for both the BMS9-19 and AMS 3680-Rev. C specifications. These approvals include meeting specific tests related to optimum performance in aerospace insulation applications.

Features

- Extremely low thermal conductivity and heat storage
- Excellent flexibility with good handling strength for fabrication and die-cutting
- · High temperature stability
- · Low organic binder content with minimal off-gassing
- Low shot (un-fiberized material) content
- Lightweight, yet resilient
- Continuous use limit of 2300°F (1260°C)

Applications

- Automotive heat shields and muffler insulation
- Aerospace insulation
- High-temperature gasketing
- Commercial and domestic appliance insulation
- Expansion joints
- Parting agent in heat treating and metal working

Chemical Properties

A small amount of organic binder will begin outgassing at approximately 500°F (260°C). Caution should be exercised during the initial heating. Adequate ventilation should be provided.



K-Shield® Felts

Physical Properties	Felt Product Name	K-Shield	K-Shield LS	K-Shield AG
Color tan tan tan Continuous Use Temperature, °F 2300 2300 2300 Continuous Use Temperature, °C 1260 1260 1260 Classification Temperature, °F 2400 2400 2400 Classification Temperature, °C 1316 1316 1316 Melting Temperature, °F 3200 3200 3200 Melting Temperature, °C 1760 1760 1760 Density, pcf 6 6 6 Density, pcf 6 6 6 Density, kgm³ 96 96 96 Tensile strength, psi 10-20 10-20 5-10 Tensile strength, Mpa 0.07-0.14 0.07-0.14 0.03-0.07 Fired Tensile strength, Mpa 0.03 0.03 0.03 Fiber index, % 65-70 75-80 62-70 Chemical Analysis, % weight basis after firing 3 51 51 51 Silica, SiO₂ 49 49 49 Other 1<	Fiber Class	RCF	RCF	RCF
Continuous Use Temperature, °F 2300 2300 2300 Continuous Use Temperature, °C 1260 1260 1260 Classification Temperature, °F 2400 2400 2400 Classification Temperature, °F 2400 3200 3200 Melting Temperature, °F 3200 3200 3200 Melting Temperature, °C 1760 1760 1760 Density, pcf 6 6 6 Denisty, kg/m³ 96 96 96 Tensile strength, psi 10-20 10-20 5-10 Tensile strength, Mpa 0.07-0.14 0.07-0.14 0.03-0.07 Fired Tensile strength, Mpa 0.03 0.03 0.03 Fired Tensile strength, Mpa 0.03 0.03 0.03 Other (acceptable Strength), Mpa 0.03 0.03 0.03 Alumina, Al ₂ O ₃ 51 51 51 Silica, SiO ₂ 49 49 49 Other trace trace trace Loss of Ignition, LOI <td>Physical Properties</td> <td></td> <td></td> <td></td>	Physical Properties			
Continuous Use Temperature, °C	Color	tan	tan	tan
Classification Temperature, °F	Continuous Use Temperature, °F	2300	2300	2300
Classification Temperature, °C 1316 1316 1316 Melting Temperature, °F 3200 3200 3200 Melting Temperature, °C 1760 1760 1760 Density, pcf 6 6 6 Denisty, kg/m³ 96 96 96 Tensile strength, psi 10-20 10-20 5-10 Tensile strength, Mpa 0.07-0.14 0.07-0.14 0.03-0.07 Fired Tensile strength, Mpa 0.03 0.03 0.03 Fiber Index, % 65-70 75-80 62-70 Chemical Analysis, weight basis after firing 51 51 51 Alumina, Al-Qo 51 51 51 51 Silica, SiO2 49 49 49 49 Other trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU-in/hr-ft², per ASTM C201 Density, pcf 6 6 6 60°F 0.41 0.39 0.4 100°F 0.68 0.65 0.72	Continuous Use Temperature, °C	1260	1260	1260
Melting Temperature, °F 3200 3200 3200 Melting Temperature, °C 1760 1760 1760 Density, pcf 6 6 6 Denisty, kg/m³ 96 96 96 Tensile strength, psi 10-20 10-20 5-10 Tensile strength, Mpa 0.07-0.14 0.07-0.14 0.03-0.07 Fired Tensile strength, psi 5 5 5 Fired Tensile strength, Mpa 0.03 0.03 0.03 Fiber index, % 65-70 75-80 62-70 Chemical Analysis, weight basis after firing Alumina, Al ₂ O ₃ 51 51 51 Silica, SiO ₂ 49 49 49 Other trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU-in/hr-ft², per ASTM C201 Density, pcf 6 6 6 500°F 0.41 0.39 0.4 100°F 0.68 0.65 </td <td>Classification Temperature, °F</td> <td>2400</td> <td>2400</td> <td>2400</td>	Classification Temperature, °F	2400	2400	2400
Melting Temperature, °C 1760 1760 1760 Density, pcf 6 6 6 Denisty, kg/m³ 96 96 96 Tensile strength, psi 10-20 10-20 5-10 Tensile strength, Mpa 0.07-0.14 0.07-0.14 0.03-0.07 Fired Tensile strength, psi 5 5 5 Fired Tensile strength, Mpa 0.03 0.03 0.03 Fiber index, % 65-70 75-80 62-70 Chemical Analysis, % weight basis after firing Alumina, Al ₂ O ₃ 51 51 51 Silica, SiO ₂ 49 49 49 Other trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU-in/hr-ft², per ASTM C201 Density, pcf 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.51 1.58 Thermal Conductivity, W/m·K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.06 588°C 0.1 <td>Classification Temperature, °C</td> <td>1316</td> <td>1316</td> <td>1316</td>	Classification Temperature, °C	1316	1316	1316
Density, pcf 6	Melting Temperature, °F	3200	3200	3200
Denisty, kg/m³ 96 96 96 Tensile strength, psi 10-20 10-20 5-10 Tensile strength, Mpa 0.07-0.14 0.07-0.14 0.03-0.07 Fired Tensile strength, psi 5 5 5 Fired Tensile strength, Mpa 0.03 0.03 0.03 Fiber index, % 65-70 75-80 62-70 Chemical Analysis, % weight basis after firing Alumina, Al₂O₃ 51 51 51 Silica, SiO₂ 49 49 49 Other trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU-in/hr-ft², per ASTM C201 Density, pcf 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m-K, per ASTM C201	Melting Temperature, °C	1760	1760	1760
Tensile strength, psi	Density, pcf	6	6	6
Tensile strength, Mpa	Denisty, kg/m³	96	96	96
Fired Tensile strength, psi 5 5 5 5 5 5 Fired Tensile strength, Mpa 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.0	Tensile strength, psi	10-20	10-20	5-10
Fired Tensile strength, Mpa 0.03 0.03 0.03 0.03 0.03 Fiber index, % 65-70 75-80 62-70 Chemical Analysis, % weight basis after firing Alumina, Al ₂ O ₃ 51 51 51 51 51 Silica, SiO ₂ 49 49 49 49 49 49 Other trace trace trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU-in/hr-ft², per ASTM C201 Density, pcf 6 6 6 6 6 6 0.72 1.00°F 0.68 0.65 0.72 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m-K, per ASTM C201 Density, kg/m³ 96 96 96 96 96 96 96 96 96 96 96 96 96	Tensile strength, Mpa	0.07-0.14	0.07-0.14	0.03-0.07
Fiber index, % 65-70 75-80 62-70	Fired Tensile strength, psi	5	5	5
Chemical Analysis, % weight basis after firing Alumina, Al₂O₃ 51 51 51 Silica, SiO₂ 49 49 49 Other trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU•in/hr•ft², per ASTM C201 Density, pcf 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Fired Tensile strength, Mpa	0.03	0.03	0.03
Alumina, Al ₂ O ₃ 51 51 51 51 Silica, SiO ₂ 49 49 49 49 Other trace trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU-in/hr-ft², per ASTM C201 Density, pcf 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m-K, per ASTM C201 Density, kg/m³ 96 96 260°C 0.06 0.06 0.05 538°C 0.16 0.15 0.16	Fiber index, %	65-70	75-80	62-70
Silica, SiO2 49 49 49 Other trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU•in/hr•ft², per ASTM C201 Density, pcf 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Chemical Analysis, % weight basis after firing			
Other trace trace trace Loss of Ignition, LOI 2-5 2-5 3 (max) Thermal Conductivity, BTU-in/hr-ft², per ASTM C201 Density, pcf 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Alumina, Al ₂ O ₃	51	51	51
Loss of Ignition, LOI 2-5 2-5 3 (max)	Silica, SiO ₂	49	49	49
Density, pcf 6 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 1.58 Thermal Conductivity, W/m*K, per ASTM C201 Density, kg/m³ 96 96 96 96 260°C 0.06 0.06 0.05 538°C 0.16 0.16 0.15 0.16 0.16 0.15 0.16 0.16 0.16 0.15 0.16	Other	trace	trace	trace
Density, pcf 6 6 6 500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Loss of Ignition, LOI	2-5	2-5	3 (max)
500°F 0.41 0.39 0.4 1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Thermal Conductivity, BTU-in/hr-ft², per ASTM C201	·		
1000°F 0.68 0.65 0.72 1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Density, pcf	<u>6</u>	<u>6</u>	<u>6</u>
1500°F 1.15 1.02 1.12 2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	500°F	0.41	0.39	0.4
2000°F 1.82 1.51 1.58 Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	1000°F	0.68	0.65	0.72
Thermal Conductivity, W/m•K, per ASTM C201 Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	1500°F	1.15	1.02	1.12
Density, kg/m³ 96 96 96 260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	2000°F	1.82	1.51	1.58
260°C 0.06 0.06 0.05 538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Thermal Conductivity, W/m•K, per ASTM C201	·		
538°C 0.1 0.09 0.1 816°C 0.16 0.15 0.16	Density, kg/m ³	<u>96</u>	<u>96</u>	<u>96</u>
816°C 0.16 0.15 0.16	260°C	0.06	0.06	0.05
	538°C	0.1	0.09	0.1
1093°C 0.26 0.22 0.23	816°C	0.16	0.15	0.16
	1093°C	0.26	0.22	0.23

The values given herein are typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Morgan Advanced Materials office to obtain current information.



K-Shield® Felts

Standard Sizes and Availability

Product	Thickness, in (mm)	Width, In (mm)	Linear Ft/Roll (M/Roll)	Sq Ft/Carton (Sq M/Carton)
K-Shield Felt K-Shield Felt LS	1/4 (6.25)	24 (60)	50 (15)	200 (61)
K-Shield Felt K-Shield Felt LS	1/4 (6.25)	48 (120)	50 (15)	200 (61)
K-Shield AG Felt	1/4 (6.25)	24 (60)	50 (15)	200 (61)
K-Shield AG Felt	1/4 (6.25)	48 (120)	50 (15)	200 (61)
K-Shield Felt K-Shield Felt LS	1/2 (13)	24 (60)	25 (8)	100 (30)
K-Shield Felt K-Shield Felt LS	½ (13)	48 (120)	25 (8)	100 (30)
K-Shield AG Felt	1/2 (13)	24 (60)	25 (8)	100 (30)
K-Shield AG Felt	1/2 (13)	48 (120)	25 (8)	100 (30)

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