Paper products - Superwool® AES grades

Product Name	Superwool®			
	Plus	Plus Flex Wrap	332-E	HT
Color	white			
Density, pcf (kg/m³)	11 - 13 (176 - 208)	10 - 13 (160 - 208)	11 - 14 (176 - 224)	
Continuous temperature use limit, °F (°C)	1832 (1000)		1300 (704)	2102 (1100)
Classification temperature rating, °F (°C)	2012 (1100)		-	2372 (1275)
Melting point, °F (°C)	2327 (1275)		1800 (980)	2552 (1400)
Tensile Strength, psi (MPa)	>65	>25	-	>50
Chemical Analysis, %, Weight basis after firing				
Alumina, Al_2O_3	trace		-	trace
Silica, SiO_2	60 - 70	60 - 70	65	60 - 70
Calcium oxide + Magnesium oxide, CaO + MgO	25 - 35	25 - 35	-	16 - 22
Loss on ignition, L.O.I.	5 - 10	2 - 5	30	5 - 10
Other	1		5	<1
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201				
mean temperature @ 500°F (260C)	0.39 (0.06)		0.35 (0.05)	0.39 (0.06)
@ 1000°F (538°C)	0.65 (0.09)		0.53 (0.08)	0.65 (0.09)
@ 1500°F (816°C)	1.04 (0.15)		-	1.02 (0.15)
@ 1800°F (982°C)	1.35 (0.19)			-
@ 2000°F (1093°C)	-			1.52 (0.22)

Availability and Packaging

Thickness, in (mm)	Width, in (mm)	Sq. Ft/Roll (Sq. M)	Mill Rolls, L. Ft./Roll (L. M)	Products
1/32 (0.8)	12, 24, 48 (305, 610, 1219)	1000 (93)	-	Superwool Plus 332-E
1/16 (1.6)	12, 24, 48 (305, 610, 1219)	500 (46)	750 (229)	Superwool Plus, Flex-Wrap, HT
1/8 (3.175)		250 (23)	375 (114)	Superwool Plus, Flex-Wrap, HT
1/4 (6)		125 (12)	185 (56)	Superwool Plus, Flex-Wrap, HT

Safety Data Sheet (SDS): are available for all our products. Data sheets, in other languages, can also be found by visiting our website.
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1/4 (6)			x		240 (6095)	24, 48 (610, 1220)	160 (14.9)
1/2 (13)		x	x	x	600 (15240)		100 (9.3)
1 (25)	x	x	x	x	300 (7620)		50 (4.6)
1 1/2 (38)	x	x	x		180 (4575)		30 (2.8)
2 (50)	x	x	x		150 (3810)		25 (2.3)

Imperial information

Morgan Advanced Materials

Paper products - expandable RCF and Superwool® AES grades

Product Name	Kaowool® 333-E	Superwool®	
		351-E	406-E
Color	gray		
Density, pcf (kg/m³)	15 - 18 (240 - 288)	16 - 19 (240 - 288)	21 - 25 (336 - 400)
Continuous temperature use limit, °F (°C)	1350 (732)	1832 (1000)	
Classification temperature rating, °F (°C)	1500 (816)	2012 (1100)	
Melting point, °F (°C)	2000 (1093)	2327 (1275)	
Tensile Strength, psi (MPa)	>40 (0.28)	75 - 100 (0.51 - 0.68)	
Fired Tensile Strength, psi (MPa)	5 - 10 (0.03 - 0.07)		
Chemical Analysis, %, Weight basis after firing			
Alumina, Al_2O_3	42	trace	47
Silica, SiO_2	48	55 - 65	53
Carbon, C	5 - 10	5 - 10	-
Calcium oxide + Magnesium oxide, CaO + MgO	-	23 - 37	
Organic binder.	6 - 10		
Other	10	trace	
Expansion characteristics, % increase			
Thickness, in (mm)	1/4 (6.35) / 1/16 (1.6)	1/8 (3.175)	4/25 (4)
@ 400°F (204°C)	86 / 132	86	-
@ 1000°F (538°C)	-		82
@ 1004°F (540°C)	419 / 385	419	-
@ 1200°F (649°C)	-		107
@ 1400°F (760°C)			98
@ 1454°F (790°C)	414 / 503	414	-
@ 1798°F (981°C)	358 / 530	358	

Availability and Packaging

Thickness, in (mm)	**Width,** in (mm)	**Sq. Ft/Roll** (Sq. M)	**Mill Rolls,** L. Ft./Roll (L. M)	**Products**
1/16 (1.6)	24, 48 (610, 1219)	500 (46)	750 (229)	Kaowool 333-E, Superwool 351-E, 406-E
1/8 (3.175)		250 (23)	375 (114)	
1/4 (6.35)		125 (12)	185 (56)	

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Imperial information

Paper products - RCF grades

Product Name	400-LS	Kaowool					K-Shield® BF	Kaowool	
		Flex Wrap	500 Grade	700 Grade	900 Grade	2000 Grade		2600 Grade	3000 Grade
Color	off white	white							
Density, pcf (kg/m³)	12 - 15 (192 - 240)	11 - 13 (176 - 208)	12 - 14 (192 - 224)	11 - 13 (176 - 208)	10 - 12 (160 - 192)	11 - 14 (176 - 224)	8 - 10 (128 - 160)	10 - 13 (160 - 208)	7 - 10 (112 - 160)
Continuous temperature use limit, °F (°C)	1350 (732)	2150 (1176)					2300 (1260)	2450 (1343)	2800 (1538)
Classification temperature rating, °F (°C)	1500 (816)	2300 (1260)					2400 (1316)	2600 (1426)	3000 (1648)
Melting point, °F (°C)	2000 (1093)	3200 (1760)							3600 (1982)
Fibre Index, %	70	50	50	55	70	80	75	55	99
Tensile Strength, psi (MPa)	40 - 75 (0.28 - 0.52)	>25 (>0.17)	75 - 100 (0.51 - 0.68)				14 - 25 (0.10 - 0.17)	75 - 100 (0.51 - 0.68)	25 - 40 (0.17 - 0.27)
Fired Tensile Strength, psi (MPa)	5 - 10 (0.03 - 0.07)	2 - 3 (0.14 - 0.20)					15 - 25 (0.10 - 0.17)	2 - 3 (0.14 - 0.20)	-
Chemical Analysis, %, Weight basis after firing									
Alumina, Al_2O_3	15	47	47	47	47	47	51	35	95
Silica, SiO_2	43	53	53	53	53	53	49	51	5
Zirconia, ZrO_2	-							14	-
Calcium oxide, CaO + Magnesium oxide, MgO	21	-							
Loss on ignition, L.O.I.	5 - 10	3 - 7	6 - 10				0.5 max	6 - 10	
Other	22	trace							
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201									
mean temperature @ 500°F (260°C)	0.36 (0.05)	0.39 (0.06)	0.43 (0.06)	0.40 (0.06)	0.38 (0.05)	0.38 (0.05)	0.38 (0.05)	0.37 (0.05)	0.36 (0.05)
@ 1000°F (538°C)	0.58 (0.08)	0.69 (0.10)	0.69 (0.09)	0.63 (0.09)	0.61 (0.09)	0.56 (0.08)	0.59 (0.09)	0.63 (0.09)	0.53 (0.08)
@ 1500°F (816°C)	**0.77 (0.11)	0.96 (0.14)	1.07 (0.15)	0.95 (0.14)	0.94 (0.14)	0.80 (0.11)	0.85 (0.12)	1.02 (0.15)	0.80 (0.11)
@ 2000°F (1093°C)	-		1.58 (0.23)	1.38 (0.20)	1.40 (0.20)	1.11 (0.16)	1.18 (0.17)	1.57 (0.23)	1.20 (0.17)
@ 2500°F (1371°C)			-					-	1.78 (0.26)
@ 2600°F (1426°C)			-					2.52 (0.36)	-
@ 2800°F (1538°C)								-	2.22 (0.32)

**400-LS paper thermal conductivity is measured at @ 1300°F (704°C)

Availability and Packaging

Thickness, in (mm)	Width, in (mm)	Sq. Ft/Roll (Sq. M)	Mill Rolls, L. Ft./Roll (L. M)	Products
1/32 (0.8)	12, 24, 48 (305, 610, 1219)	1000 (93)	-	K-Shield BF, Kaowool 700, 900, 2000, 3000
1/16 (1.6)		500 (46)	750 (229)	400-LS, K-Shield BF, Kaowool Flex-Wrap, 500, 700, 900, 2000, 3000
1/8 (3.175)		250 (23)	375 (114)	400-LS, K-Shield BF, Kaowool Flex-Wrap, 500, 700, 900, 2000, 3000
1/4 (6.35)		125 (12)	185 (56)	400-LS, K-Shield BF, Kaowool Flex-Wrap, 500, 700, 900, 2000, 3000

Notes: 400-LS and Kaowool 333-E and Kaowool Flex-Wrap are only available in 24 and 48 inch widths.
Kaowool 3000 is available only in 24 inch width.

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Imperial information