

Board and Shapes - Superwool® AES organic & inorganic grades

Product Name	Superwool® Organic				Inorganic Superwool®		
	Plus	Plus PM	HT	HT PM	I- Plus	I- HT	
Color	white	beige	white				
Density, pcf (kg/m ³)	20 - 22 (320 - 350)	15 - 17 (240 - 270)	20 - 22 (320 - 350)	14 - 17 (224 - 270)	15 - 17 (240 - 270)	18 (293)	
Continuous temperature use limit, °F (°C)	1832 (1000)		2150 (1177)		1832 (1000)	2150 (1177)	
Classification temperature rating, °F (°C)	2012 (1100)		2372 (1275)		2012 (1100)	2372 (1275)	
Modulus of Rupture, psi (MPa), fired @ 1800°F	300 (2)	200 - 250 (1.4 - 4.7)		175 - 225 (1.2 - 1.6)	-	38 (0.26)	
Compressive Strength, psi (MPa)							
@ 5% deformation	55 (0.38)	15 - 25 (0.10 - 0.17)	60 (0.41)	-		7 (0.05)	
@ 10% deformation	60 (0.41)	23 - 40 (0.16 - 0.28)	70 (0.48)	-		12 (0.08)	
Permanent Linear Shrinkage, %							
24 hrs. @ 1500°F (816°C)	2.0	-	0.25		2.2	0.51	
@ 1800°F (982°C)	2.5	1.0	0.25	0.33	2.3	0.93	
@ 2000°F (1093°C)	-					1.5	
@ 2200°F (1204°C)	-					1.7	
Chemical Analysis, %, Weight basis after firing							
Alumina, Al ₂ O ₃	trace		-		trace		
Silica, SiO ₂	67	70 - 80		70	82		
Calcium oxide + Magnesium oxide, CaO + MgO	27	18 - 25		24	16		
Other	1		<3		<1		
Loss on ignition, L.O.I.	4 - 7	2 - 4	3 - 6	2 - 5	1.3	1.8	
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201							
mean temperature @ 500°F (260°C)	0.39 (0.06)	0.40 (0.06)		0.39 (0.06)	0.43 (0.06)		
@ 1000°F (538°C)	0.65 (0.09)	0.62 (0.09)		0.66 (0.10)		-	
@ 1500°F (816°C)	1.04 (0.15)	0.99 (0.14)	1.04 (0.16)	1.05 (0.16)	1.01 (0.15)		
@ 1800°F (982°C)	1.35 (0.19)	-		1.33 (0.20)			
@ 2000°F (1093°C)	-		1.51 (0.23)	1.55 (0.23)			

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Board and Shapes - Millboards RCF and Superwool® AES grades

Product Name	Kaowool® MB-822	Kaowool MB-830	Kaowool 1401	Superwool® HT Millboard
Color	white	tan	white	
Density, pcf (kg/m ³)	55 (881)	40 (641)	35 - 40 (560 - 641)	64 (1025)
Continuous temperature use limit, °F (°C)	2000 (1093)			2150 (1177)
Classification temperature rating, °F (°C)	2300 (1260)	2700 (1482), one time	2300 (1260)	2372 (1300)
Melting point, °F (°C)	3200 (1760)			2552 (1400)
Modulus of Rupture, psi (MPa)	650 - 750 (4.48 - 5.17)	400 - 500 (2.76 - 3.45)	650 - 750 (4.48 - 5.17)	567 (3909)
Compressive Strength, psi (MPa)				
@ 5% deformation	50 - 75 (0.34 - 0.51)	-	10 - 20 (0.06 - 0.14)	36 (251)
@ 10% deformation	100 - 125 (0.69 - 0.86)		55 - 70 (0.38 - 0.48)	133 (920)
@ 15% deformation	250 - 300 (1.72 - 2.06)		175 - 200 (1.20 - 1.38)	228 (1570)
Chemical Analysis, %, Weight basis after firing				
Alumina, Al ₂ O ₃	35		36	15
Silica, SiO ₂	63	65	60	75
Other	2	-	4	<2
Loss of Ignition, L.O.I.	5 - 7	12 - 15	9 - 11	12
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201				
mean temperature @ 500°F (260°C)	0.80 (0.11)	0.53 (0.08)	0.61 (0.08)	0.96 (0.14)
@ 1000°F (538°C)	0.89 (0.13)	0.71 (0.10)	0.81 (0.12)	1.14 (0.16)
@ 1500°F (816°C)	0.98 (0.14)	0.91 (0.13)	1.04 (0.15)	1.42 (0.20)
@ 2000°F (1093°C)	1.08 (0.16)	1.15 (0.16)	1.33 (0.19)	1.79 (0.26)

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Board and Shapes - RCF inorganic grades

Product Name	Inorganic					
	I - 2100	I - 2300	I - 2600	I - 2800	I - A5	
Color	light beige	off white	white	white	white	
Density, pcf (kg/m ³)	17 (272)	17 (272)	16 (256)	16 (256)	16 (256)	
Continuous temperature use limit, °F (°C)	2100 (1149)	2300 (1260)	2600 (1427)	2800 (1538)	2950 (1621)	
Melting point, F (°C)	3200 (1760)					
Modulus of Rupture, psi (MPa)	75 (0.52)	56 (0.39)	72 (0.50)	66 (0.46)	60 (0.41)	
Compressive Strength, psi (MPa)						
@ 5% deformation	9 (0.06)	7 (0.05)	19 (0.13)	10 (0.07)	10 (0.07)	
@ 10% deformation	12 (0.08)	9 (0.06)	25 (0.17)	16 (0.11)	12 (0.08)	
Permanent Linear Shrinkage, %						
24 hrs. @ 1500°F (816°C)	0.8	0.3	-		0.1	
@ 1800°F (982°C)	2.0	1.9	0.3	0.1		
@ 2000°F (1093°C)	3.2	2.7	0.8	0.8	0.3	
@ 2200°F (1204°C)	-	3.4	1.2	0.9	0.2	
@ 2400°F (1316°C)		-	-	1.6	1.2	0.5
@ 2600°F (1427°C)				1.5		
@ 2800°F (1538°C)				-	1.0	0.6
Chemical Analysis, %, Weight basis after firing						
Alumina, Al ₂ O ₃	30	32	35	40	45	
Silica, SiO ₂	68	68	65	60	55	
Other	1.5	< 1				
Loss on ignition, L.O.I.	1.3					
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201						
mean temp. @ 500°F (260°C)	0.48 (0.07)		0.45 (0.06)	0.44 (0.06)	0.46 (0.07)	
@ 1000°F (538°C)	0.72 (0.10)		0.67 (0.10)	0.64 (0.09)	0.68 (0.10)	
@ 1500°F (816°C)	1.03 (0.15)		1.01 (0.15)	0.93 (0.13)	1.02 (0.15)	
@ 2000°F (1093°C)	1.52 (0.22)		1.49 (0.21)	1.34 (0.19)	1.52 (0.22)	
@ 2500°F (1371°C)	-				2.21 (0.32)	

Board and Shapes - RCF grades

Product Name	Kaowool®										
	M	PM	HP	HD	A	HS	HS-45	HT	2600	80	3000
Color	beige	white	beige				white	yellow	blue	white	pink
Density, pcf (kg/m ³)	16 - 18 (256 - 288)	16 (256)	20 - 23 (320 - 359)	26 (416)	28 (449)		42 (673)	22 - 25 (253 - 400)	15 (240)	25 (400)	12 (192)
Continuous temperature use limit, °F (°C)	2000 (1093)	2150 (1177)	2100 (1149)	2300 (1260)	2100 (1149)	2300 (1260)	2400 (1316)	2450 (1343)	2600 (1426)	2950 (1621)	
Classification temperature rating, °F (°C)	2200 (1204)	2300 (1260)		2400 (1316)	2300 (1260)	2400 (1316)	2500 (1371)	2600 (1426)	2700 (1482)	3000 (1649)	
Modulus of Rupture, psi (MPa)	100 - 130 (0.69 - 0.90)	200 - 250 (1.38 - 1.72)	200 (1.38)	150 - 175 (1.03 - 1.21)	250 (1.72)	230 - 260 (1.59 - 1.79)	450 - 550 (3.10 - 3.79)	200 (1.38)	115 (0.79)	75 (0.52)	70 (0.48)
Compressive Strength, psi (MPa)											
@ 5% deformation	20 - 30 (0.14 - 0.21)		75 (0.52)	50 - 70 (0.34 - 0.48)	100 (0.69)	60 - 80 (0.41 - 0.55)	200 - 250 (1.38 - 1.72)	75 (0.52)	30 (0.21)	25 (0.17)	20 (0.14)
@ 10% deformation	30 - 40 (0.21 - 0.28)		100 (0.69)	70 - 90 (0.48 - 0.62)	125 (0.86)	80 - 100 (0.55 - 0.69)	250 - 300 (1.72 - 2.07)	100 (0.69)	40 (0.28)	50 (0.34)	25 (0.17)
Permanent Linear Shrinkage, %, 24 hrs											
@ 1500°F (816°C)	1.2	0.2	0.7	0.1	-	0.8	0.5	-	0.3	-	0.3
@ 1800°F (982°C)	2.2	2.0	1.6	1.4	1.6	1.9	0.7				0.1
@ 2000°F (1093°C)	2.8	2.4	2.8	2.5	2.8	2.1	0.4				0.0
@ 2200°F (1204°C)	3.4	3.4	3.8	2.8	3.8	0.2	0.6	2.3	0.7	1.3	0.4
@ 2400°F (1316°C)	-					+0.3	+0.8	2.6	0.8	1.8	0.5
@ 2600°F (1426°C)						+1.1	3.0	0.1	0.6		
@ 2800°F (1538°C)						-	-	-	+0.3	+1.5	
@ 2900°F (1593°C)						-	-	-	-	+2.5	
Chemical Analysis, %, Weight basis after firing											
Alumina, Al ₂ O ₃	42	44	41 - 43	41	43 - 45	18	55	50 - 52	51	70 - 72	66
Silica, SiO ₂	56		56 - 59	53	54 - 57	81	35	47 - 49	49	25 - 28	34
Other	-	<1	-	<1	-	2	-	<1	-	-	
Loss on ignition, L.O.I.	4 - 7		6 - 8	5 - 8	7 - 9	5 - 8		5 - 7	7 - 9	3 - 5	7 - 9
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201											
mean temperature @ 500°F (260°C)	0.5 (0.08)	0.4 (0.06)	0.5 (0.08)	0.6 (0.09)	0.5 (0.08)	0.7 (0.10)	1.0 (0.15)	0.5 (0.08)			
@ 1000°F (538°C)	0.7 (0.10)	0.6 (0.09)	0.7 (0.10)	0.8 (0.12)	0.7 (0.10)	0.8 (0.12)		0.7 (0.10)			
@ 1500°F (816°C)	1.0 (0.14)	0.9 (0.13)	1.0 (0.14)	1.1 (0.16)	0.9 (0.13)	1.1 (0.16)	1.2 (0.17)	0.9 (0.13)	1.0 (0.14)	0.9 (0.13)	1.0 (0.14)
@ 2000°F (1093°C)	1.5 (0.22)	1.3 (0.19)	1.4 (0.20)	1.6 (0.23)	1.3 (0.19)	1.6 (0.23)	1.7 (0.25)	1.3 (0.19)	1.5 (0.22)	1.3 (0.19)	1.4 (0.20)

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