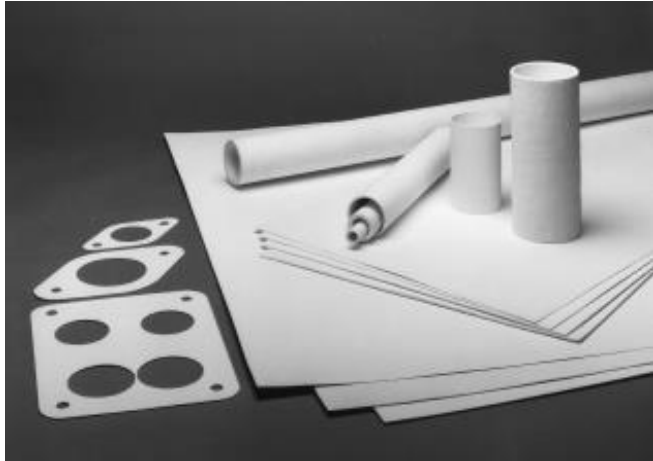


ZIRCAR Refractory Sheet Types RS-99 is a moderately high-density fiber based ceramic material with greater than 99% alumina purity. Refractory Sheet Type RS-99 is usable to temperatures **1650°C (3002°F)** and can withstand over 500 hours of continuous submersion in molten aluminum at 750°C (1382°F) with no wetting and no degradation in properties. Type RS-99's high alumina content is ideal for high vacuum, reducing atmospheres and other applications where silica cannot be tolerated, such as setters for P/M and MIM applications. Refractory Sheet Type RS-99 boards are available in three types: **Type RS-99M** is a plastic highly moldable sheet ideally suited for forming custom geometries or for molding in place. **Type RS-99W** boards can be moistened with water and molded into any desired shape. After a low temperature baked out of 300°C (570°F) the boards are unaffected by moisture. **Type RS-99R** boards are pre-fired and are unaffected by moisture. They remain rigid even if saturated with water.



CYLINDERS/CUSTOM SHAPES

Custom boards, shapes and preparations are available on request. Our forming processes, large inventory of custom tooling and state of the art machining techniques allow a wide variety of sizes and shapes to be made. Special geometries such as disks, rings, gaskets and custom-machined shapes can be fabricated. Tight tolerance machining, compositional variations and the application of surface rigidizers and hardening agents are available. Please contact us with your special requirements.

FABRICATION GUIDELINES

RS-99M can be readily cut with a knife or scissors. Joints can be made by wetting both surfaces with water, (with a sponge or brush), and promptly pressing the two surfaces together. Thicker sheets can be made by laminating two or more sheets together in this manner.

RS-99W is suitable for die cutting or stamping of gaskets. They can be re-wet, made moldable, and handled like RS-99M. RS-99R cuts and handles similarly to RS-99W except it is slightly less compressible and more rigid. They can be machined to precision tolerances with conventional tooling.

SUGGESTED APPLICATIONS

- High and Low Temperature Gasketing
- Asbestos-Cement Board Replacements
- Dead Plates, Set Out Plates, Wear Guides and Pusher Pads in Hot Glass Handling
- Induction Furnace Components such as: Channel Melter Components, Coil Liners, Coreless Induction Components, Covers, Tops, Bases, Front and Back Plates, Coil Supports, Splash and Coil Shield
- Brazing Separators and Fixtures. The High AIO Content Makes this Product Resistant to Sticking in Many Environments Including Molten Metals
- Rapid Cycle Furnace Door Cowls and Hot Face Supports
- Insulation in High Pressure Molding Presses
- High and Low Temperature Electrical Insulator

ZIRCAR Refractory Composites, Inc.

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Technical Data
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Rev. March 2024

HIGH ALUMINA MATRIX SHEETS

PHYSICAL PROPERTIES AND CHARACTERISTICS

TYPE	RS-99M	RS-99W	RS99R
Form	Moldable Sheet ^{1,3}	Rigid Sheet ^{2,3}	Rigid Sheet
Nominal Composition, wt%			
Al ₂ O ₃	99+	99+	99+
SiO ₂	<1	<1	<1
Organic	<1	<1	<1
Color	White	White	White
Max. Use Temp., C°(F°)	1650(3002)	1650(3002)	1650(3002)
Specific Heat, J/kg°K(BTU/lb°F) at 600°	1047(0.25)	1047(0.25)	1047(0.25)
Flammability	Nil	Nil	Nil
Thermal Expansion, RT-400°C(754°F)	7.0x10 ⁻⁶ /°C (5x10 ⁻⁶ /°F)	7.0x10 ⁻⁶ /°C (5x10 ⁻⁶ /°F)	7.0x10 ⁻⁶ /°C (5x10 ⁻⁶ /°F)
Density, as supplied, gm/cc(pcf)	2.1(130) [^]	2.1(130)	2.1(130)
Porosity, %	56	48	48
Loss on Ignition, %	4 - 5	4 - 5	0 - 1
Modulus of Rupture**, MPa(psi) as received	18(2600) [^]	18(2600)	21.8(3150)
Compressive Strength**, MPa (psi) at 10% compression	25.6(3700) [^]	25.6(3700)	30.1(4350)
Thermal Conductivity, W/m°K(BTU/hr. ft ² °F/in)	0.64(4.5) [^]	0.64(4.5)	0.64(4.5)
Linear Shrinkage, %			
Length/Thickness			
after 4 hrs. at 1200°C(2192°F)	0.4 / 1	0.3 / 1	0.3 / 0.4
after 4 hrs. at 1400°C(2552°F)	4 / 5	3 / 5	3 / 5
after 4 hrs. at 1600°C(2912°F)	8 / 10	8 / 10	8 / 10
Hardness, Durometer "D"	-	80	86

**Properties expressed parallel to thickness.

AVAILABILITY

ITEM #	DESCRIPTION	ITEM #	DESCRIPTION	ITEM #	DESCRIPTION
DS01	RS99M, 24" X 24" X 1/32"	DS20	RS99W, 24" X 24" X 1/32"	DS40	RS99R, 24" X 24" X 1/32"
DS02	RS99M, 24" X 24" X 1/16"	DS21	RS99W, 24" X 24" X 1/16"	DS41	RS99R, 24" X 24" X 1/16"
DS03	RS99M, 24" X 24" X 1/8"	DS22	RS99W, 24" X 24" X 1/8"	DS42	RS99R, 24" X 24" X 1/8"
DS04	RS99M, 24" X 24" X 3/16"	DS23	RS99W, 24" X 24" X 3/16"	DS43	RS99R, 24" X 24" X 3/16"
DS05	RS99M, 24" X 24" X 1/4"	DS24	RS99W, 24" X 24" X 1/4"	DS44	RS99R, 24" X 24" X 1/4"
DS06	RS99M, 24" X 24" X 1/2"	DS25	RS99W, 24" X 24" X 1/2"	DS45	RS99R, 24" X 24" X 1/2"
DS10	RS99M, 24" X 48" X 1/32"	DS30	RS99W, 24" X 48" X 1/32"	DS50	RS99R, 24" X 48" X 1/32"
DS11	RS99M, 24" X 48" X 1/16"	DS31	RS99W, 24" X 48" X 1/16"	DS51	RS99R, 24" X 48" X 1/16"
DS12	RS99M, 24" X 48" X 1/8"	DS32	RS99W, 24" X 48" X 1/8"	DS52	RS99W, 24" X 48" X 1/8"
DS13	RS99M, 24" X 48" X 3/16"	DS33	RS99W, 24" X 48" X 3/16"	DS52	RS99W, 24" X 48" X 3/16"
DS14	RS99M, 24" X 48" X 1/4"	DS34	RS99W, 24" X 48" X 1/4"	DS54	RS99W, 24" X 48" X 1/4"
DS15	RS99M, 24" X 48" X 1/2"	DS35	RS99W, 24" X 48" X 1/2"	DS55	RS99W, 24" X 48" X 1/2"

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