



Alumina Paper Type APA

General Information

ZIRCAR Ceramics' Alumina Paper Type APA is a family of thin, uniform, paper-like structures made principally of polycrystalline alumina fiber (PCW). A small amount of silica-based fibers are added, which enhance APA's ability to be manufactured on continuous paper-making equipment.

Alumina Paper Type APA is available in three varieties. All three are useful at temperatures as high as 1650°C (3002°F).

APA-1 is a relatively strong, flexible paper that contains an organic binder. This organic binder begins to decompose at 200°C and is typically completely removed at 600°C. APA-1 is available in sheet and roll forms in a variety of thicknesses.

APA-2 is a semi-flexible, thin sheet of APA-1 that has had its organic binder burned out. It is free of organics.

APA-3 is a very thin, uniformly rigidized, stiff sheet of alumina fiber and colloidal alumina binder. It is free of organics.



Characteristics & Properties

Type		APA-1			APA-2	APA-3
Thickness, nominal, mm (in.)		0.5 (0.02)	1 (0.04)	3 (0.12)	1.04 (0.041)	0.31 (0.012)
Weight, g/m ² (oz/yd ²)		61 (1.83)	125 (3.7)	375 (11)	126 (3.72)	213.4 (6.2)
Density, g/cc (pcf)		0.20 (12.2)	0.125 (7.7)		0.12 (7.6)	0.7 (44)
Tensile Strength**	N/15mm (lbs/in) width	1.6 (0.61)	5 (1.9)	12 (4.6)	-	-
	g/cm (lbs/in) width	-	-	-	-	1429 (8.0)
Nominal Composition, wt. %	Al ₂ O ₃	85	79		86	96
	SiO ₂	7	9		10	4
	Other Oxides	<2	<4		4	-
	Organic	7.5	9		0	0
Type of Binder		Organic			None	Alumina
Form		Flexible			Semi-flexible	Rigid
Maximum Use Temperature*, °C (°F)		1650 (3002)				
Color		White				

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Characteristics & Properties Continued

Thermal Conductivity**, W/m ² K (BTU/hr ft ² °F/in)	APA-1	APA-2	APA-3
500°C (932°F)	0.09 (0.6)		0.18 (1.25)
1000°C (1832°F)	0.16 (1.2)		0.26 (1.82)
1500°C (2732°F)	0.29 (2.0)		0.36 (2.50)

The data presented herein is intended to help the user to determine the appropriateness of this material for their application.

This data is a nominal representation of this product's properties and characteristics and therefore should not be used in preparing specifications.

* Maximum use temperature is dependent on variables such as stresses, both thermal and mechanical, and the chemical environment that the material experiences. ** Properties expressed parallel to thickness.

Suggested Applications

Thermal insulation in low-mass furnaces and thermal process systems operating to 1650°C (3002°F).

High-temperature gaskets and seals.

Separator in multi-foil vacuum furnace insulation systems.

Expansion joint insulation.

Backup thermal insulation in molten metal troughs, furnaces and thermal process systems operating to high temperatures.

Parting agent and barrier layer in brazing, heat-treating, metal forming and diffusion bonding processes.

Electrical insulation in high-temperature systems operating to 1650°C (3002°F).

Availability of Standard Paper

ITEM #	DESCRIPTION
C4501	APA-1, 18"W x 24"L x 0.040"T
D44-02	APA-1, 18"W x 19.7"L x 0.12"T
D5030	APA-1, 610mmW x 16mL x 1mmT ROLL
D5040	APA-1, 610mmW x 82mL x 1mmT ROLL
D5050	APA-1, 500mmW x 10mL x 3mmT ROLL
D44-01	APA-1, 550mmW x 50sq-m x 0.5mmT
C4502	APA-2, 18"W x 24"L x 0.050"T
C4504	APA-3, 18"W x 24"L x 0.012"T

To Order

Standard items: order online or specify quantity, item # and description.

Standard items are available for immediate shipment from stock.

Custom preparations such as die-cut shapes and roll sizes are available.



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