

TOMBO BRAND[®]

CERAMIC FIBER
FINEFLEX[®]

ALUMINA FIBER
RUBIEL[®]

ULTRA HIGH TEMPERATURE FIBEROUS INSULATING MATERIALS



NICHIAS Corporation

CERAMIC FIBER
FINEFLEX[®]

ALUMINA FIBER
RUBIEL[®]

FEATURES

- Excellent Heat Resistance
- Low Thermal Conductivity and Good Thermal Insulating Property
- Low Heat Capacity
- Excellent Thermal Shock Resistance
- Chemical Stability
- Light Weight



FINEFLEX

FINEFLEX is alumina-silicate fiber manufactured by blowing method or by centrifugal force. FINEFLEX has long been established as excellent furnace lining material in many industries.

ITEM \ GRADE		T/#5100	T/#5200-Z	T/#5300
Max. Service Temp. (°C)		1300	1400	1500
Fiber Diameter (μ)		2.5	2.8	2.5
Specific Gravity		2.63	2.77	2.75
Specific Heat (kcal/kg°C)		0.25	0.25	0.25
Chemical Analysis (%)	Al ₂ O ₃	47	34	58
	SiO ₂	53	50	42
	ZrO ₂	-	16	-

RUBIEL

RUBIEL is polycrystalline alumina fiber of which Al₂O₃ content is 95%. Thanks to its crystalline structure, fibers do not become brittle at high temperature and do not shrink much. RUBIEL can stand against temperature up to 1600°C

ITEM \ GRADE		T/#5470
Max. Service Temp. (°C)		1600
Melting Temp. (°C)		>2000
Fiber Diameter (μ)		3
Specific Gravity		3.6
Specific Heat (kcal/kg°C)		1.1 × 10 ³
Chemical Analysis (%)	Al ₂ O ₃	95
	SiO ₂	5

THERMAL CONDUCTIVITY OF FINEFLEX PRODUCTS

(kcal/m·h·°C)

GRADE \ ITEM	MEAN TEMPERATURE(°C)			
	400	600	800	1000
Bulk Fiber T/#5100 (0.16)	0.08	0.12	0.17	0.23
Blanket T/#5120 (0.13)	0.06	0.10	0.15	0.21
Hard Board T/#5112	0.06	0.08	0.12	0.16
Felt T/#5110	0.06	0.09	0.13	0.17
Fine Block T/#5440-M,HZ	0.09	0.13	0.18	0.25
Paper T/#5130-T	0.06	0.08	0.11	0.14
Fibercast T/#5420 (0.25)	0.08	0.12	0.17	0.23

() : Density (g/cm³)

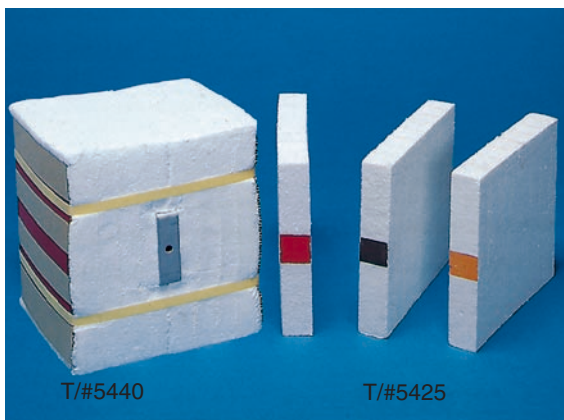
FINEFLEX·RUBIEL PRODUCTS

	Tombo No.	Product Name	Max. Service Temperature	Density (g/cm ³)	Standard Size (mm)	Description	Usage	
Bulk	5100	1300 Bulk Fiber	1300°C	0.10, 0.13, 0.16	20kg/Bag	Amorphous alumina-silicate bulk fiber in different alumina contents for temperature limits.	Base material for processed products Packing material	
	5200-Z	1400 Bulk Fiber	1400°C					
	5300	1500 Bulk Fiber	1500°C					
	5470	Rubiel Bulk Fiber (RM type)	1600°C					
Blanket	5120	1300 Blanket	1300°C	0.10, 0.13, 0.16	T:6, 12.5, 25, 50	Needle punched insulating blanket made out of the above bulk fiber. No adhesive is contained.	Industrial furnace lining Hot air seals	
	5220-Z	1400Z Blanket	1400°C	0.10, 0.13, 0.16	W:600			
	5320	1500 Blanket	1500°C	0.13, 0.16	L:1200, 3600, 7200			
	5090	Fine Felt-N	1100°C	0.11	T:25,50 W:600 L:900			
Board	5112	1300 Hard Board	250	1300°C	0.25	T:25, 50 W:600 L:900	Rigid insulating board with inorganic binder (#250) and with inorganic and organic binder (#A-250)	Industrial furnace lining
			A-250	1300°C	0.23			
	5461	RF Board	14LD	1400°C	0.25	T:25, 40, 50 W:600 L:900	Rigid high temperature insulating board made out of Rubiel bulk fiber and special inorganic fillers and binders. Boards in various densities and temperature limits are available for applications.	Very high temperature furnace lining Small electric furnace for fast heating & cooling Sintering furnace for electronics parts
			16LD	1600°C	0.20			
			16MD	1600°C	0.40			
			16MDS	1600°C	0.40			
			17MD	1700°C	0.40			
			17MDS	1700°C	0.40			
			17UD	1700°C	0.70			
			18HD	1800°C	0.50			
18HDS	1800°C	0.50						
Felt	5110	1300 Felt	1300°C	0.20	T:6, 12, 25, 50 W:600 L:900	Semi-rigid board with organic binder.	Packing material to absorb thermal expansion	
	5463	RF Felt	15H	1500°C	0.15	T:20 W:600 L:900	Semi-rigid board made out of Rubiel and processed Fineflex bulk fiber with small amount of organic binder.	Packing material for joints
			16H	1600°C	0.14			
	5115	1300 Wet Felt	1200°C	0.40 (Dried)	T:6, 12, 25 W:300 L:600	Flexible insulation with inorganic binder to air dry.	Furnace lining for high velocity	
Block	5440	Fine Block	M#160	1300°C	0.16	T:125, 150, 200, 250, 300 280×300, Finish:300×300	Insulating module made with strips of Fineflex blanket with built-in fasteners.	Heating furnace lining for steel making and forging Heating furnace for non-ferrous metal
			HZ#130	1400°C	0.13			
			HZ#160	1400°C	0.16			
	5425	Soft Block	S	1200°C	0.19	T:50 300×300	Edge-grain, adhesion stacked insulating module made out of Fineflex Felt.	Heating furnace for steel Heat treating furnace for metals Calcination furnace for ceramics Sintering furnace for carbons
			M	1300°C	0.19			
			H	1400°C	0.18			
			15H	1500°C	0.17			
16H	1600°C	0.16	Same construction as the above, but made out of RF Felt.					
Paper	5130-T	1300 Paper	1300°C	0.25	T:0.5, 1.0, 1.5, 2.0, 3.0, 4.0 W:600 L:1200	Ceramic fiber paper with small amount of organic binder.	Gaskets for heaters Gaskets and insulating materials for electrical appliances	
Castables	5420	FIBERCAST	250	1300°C	0.25 (Dried)	20kg/Can	Paste type versatile insulating material with inorganic binder and other filling materials. Air-setting.	Heating furnace for forging Burner tile Surface seals for tin bath in glass industry Sintering furnace for alumina Easy and quick repair work for existing furnaces
			400	1400°C	0.40 (Dried)			
			700	1500°C	0.70 (Dried)			
			1000	1500°C	1.00 (Dried)			
			400AS	1400°C	0.44 (Dried)			
			D-500	1600°C	0.50 (Dried)			
	Fibertap	1300°C	0.64 (Dried)	25kg/Bag	Air-setting type fibrous castable material.	Hot air duct, Trough lid for aluminum		
Molded Shapes	5410	Molded Shapes	1300°C	0.2~0.6		Vacuum formed Fineflex products in various shapes.	Tap-out cone for aluminum, Plate heater insulation	
		RF Molded Shapes	1600°C			Ditto, but with Rubiel bulk fiber.	Exhaust manifold insulation, Burner tile	
Textile		Yarn				Various textile products made out of Fineflex bulk fiber and small amount of organic fibers.	Hot air seals Hot air and temperature curtains	
	8451	Tape			T:2 W:25~100 L:30 (m)			
	8450	Cloth			T:2 W:1000 L:30 (m)			
	8453	Cord			Dia. 3.2~12.7 L:30 (m)			
	8452	Sleeve			I.D. 9.6~25.4 L:30 (m)			
	5103	Braided Rope			Dia. 13~60 L:30 (m)			
5103-T	Twisted Rope			Dia. 6~25 L:30 (m)				
Adhesive		FC Adhesive	1400°C	1.8 (Paste)	25kg/Can	Paste type refractory adhesives developed for bonding ceramic fiber products to other materials. For bonding to different materials, 4 grades are available.	FC: for refractory castables	
		FA Adhesive	1300°C	1.9 (Paste)			FA: for high alumina refractory bricks	
		FM Adhesive	600°C	3.1			FM: for steel wall	
		FF Adhesive	1700°C	1.7 (Paste)			FF: for other ceramic fiber products	
Surface Coating		Spray Coat	1500°C	2.8	5kg/Can	Zirconia based paste type surface coating material.	To increase anti-velocity and anti-scale properties of ceramic fiber products.	
		Rigidizer		1.2	20kg/Can	Surface rigidizer of colloidal silica.		

WIDE VARIETY OF TOP QUALITY PRODUCTS UP TO 1800°C



T/#5100 FINEFLEX Bulk Fiber



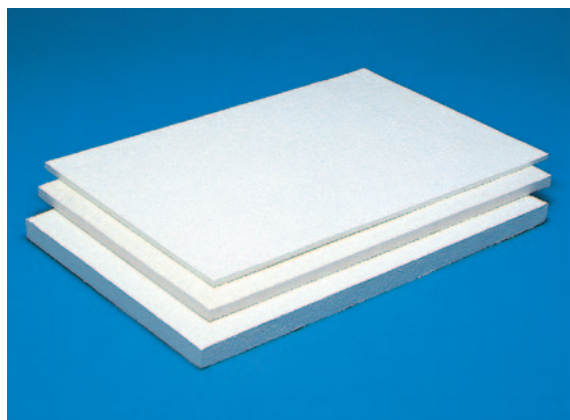
T/#5440 Fine Block
T/#5425 FINEFLEX Soft Block



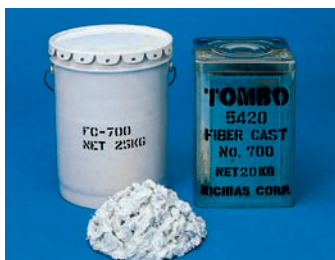
T/#5120 FINEFLEX Blanket



T/#5130 FINEFLEX 1300 Paper



T/#5110 FINEFLEX Felt



T/#5420 FIBERCAST



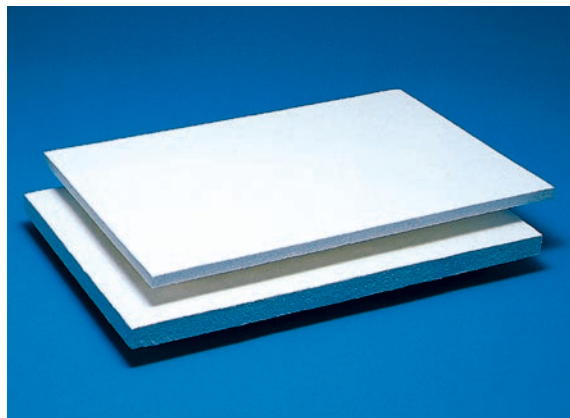
FINEFLEX Textile



T/#5410 Molded Shapes



Adhesives



T/#5112 FINEFLEX 1300 Hard Board



Spray Coat



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