Foundry Service & Supplies, Inc.

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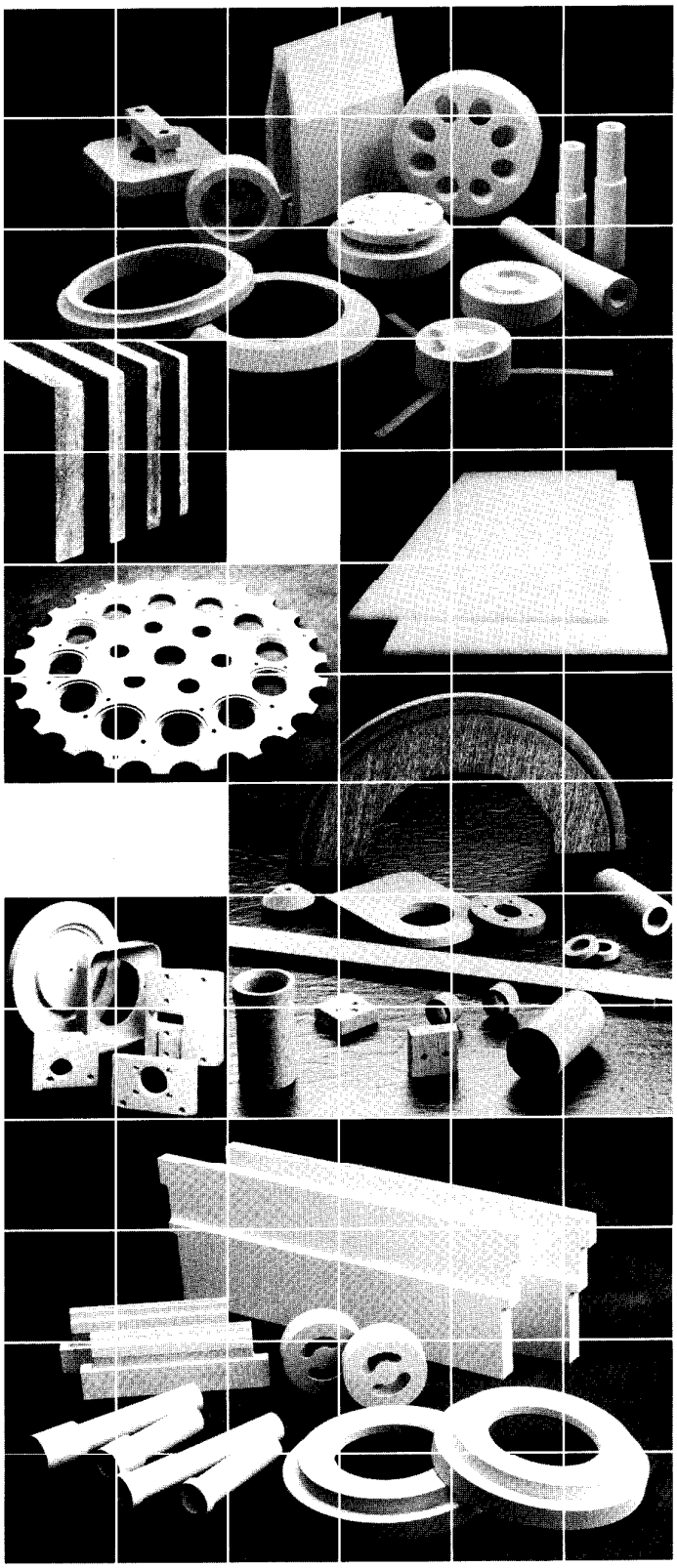
BNZ Insulating Board Materials
Summary Data Sheet

Introduction

BNZ manufactures a wide range of products for use as industrial insulations. The Billerica plant produces Marinite calcium silicate boards in varying compositions and densities for continuous temperatures up to 1400°F, and Transite for high strength, low temperature applications. Our Zelienople facility manufactures Insulating Fire Brick and refractory specialties at the world's most advanced IFB plant. A strong network of distributors/fabricators, who are specialists to the industries they serve, are established worldwide to provide you the service and quality you require.

This summary focuses on the insulating boards available at Billerica. A complete data sheet is available for any product that interests you.



Marinite®

Marinite is a non-asbestos calcium silicate structural insulating board available in various compositions and densities for a variety of applications. Marinite offers structural strength and high thermal insulating values. It is also non-corroding, water-resistant and easily machined. The various grades and typical applications are listed below:

Marinite A, Marinite A^{HP} and Marinite C

For use in conveying, containing and forming molten aluminum and other non-ferrous metals. Applications include holding furnace linings, tips for continuous casters, transition plates, rings, plugs, baffles, troughs, spouts, floats and filter boxes.

Marinite P, Marinite I and Marinite M

Used in a variety of heat insulating processes, fire protection and machined parts for OEM applications. Examples include baking oven walls and linings, fire training burn buildings, platen press insulation, fire doors, personnel protection, cable trays, and as USCG approved insulation for marine applications. Back-up insulation applications include ladles, torpedo cars and tundishes in the iron and steel industry, lime and cement plant rotary kilns and aluminum holding furnaces.

Marinite IL and Marinite ML

For use in applications where light weight is more critical than strength or durability.

Transite® HT

Transite HT is a non-asbestos monolithic fiber-cement board for use up to 600°F in a variety of applications where high strength, thermal stability, electrical insulation, corrosive resistance or machinability is required. Typical applications include induction furnace linings, whopper jaw linings, core plates and carry plates in the foundry industry, aluminum pot insulators, busbar supports, industrial and baking oven shelving, electrode arm insulators, and load-bearing gaskets, spacers, supports and machined parts for OEM applications.

Minerit

Minerit is a non-asbestos homogenous fiber-cement architectural panel that is used in areas that require higher strengths, corrosion, fire and water resistance than typical construction panels. Applications include heat shields, spray booths, fume hood linings, welding booths, equipment screens and wall linings.

FUSED SILICA
HOT PRESS PLATENS
CASTABLE CERAMICS
FIRED SHAPES
AEROSPACE TOOLING

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HI-TEMP INSULATIONS
CALCIUM SILICATE BOARDS
MILLBOARD AND BLANKET
PAPERS AND CEMENTS
CUTTING AND FABRICATING

Insulating Board Materials
Summary Data Sheet

Please request a data sheet for the specific insulating board of interest

Properties	Marinite®						Transite®	Minerit
	A	A^{HP}	C	P	I & M	IL & ML	HT	HD
Available thicknesses	½" – 3"	½" – 3"	1" – 2"	½" – 2"	½" – 2"	½" – 2"	¼" – 3"	⅛" – ½"
Sheet sizes	4' x 8'	4' x 8'	4' x 8'	4' x 8'	4' x 8'	4' x 8'	4' x 8'	4' x 8' 4' x 10'
Density								
pcf (kg/m^3)	65 (1041)	65 (1041)	54 (865)	60 (961)	46 (737)	36 (577)	100 (1602)	100 (1602)
Modulus of Rupture								
psi (kg/cm^2)	1350 (95)	1200 (84)	900 (63)	1400 (98)	800 (56)	500 (35)	2600 (183)	3700 (260)
Compressive Strength								
psi (kg/cm^2) ultimate load	2100 (148)	2500 (176)	2200 (155)	—	—	—	10400 (731)	11600 (816)
@ 5% deformation	1500 (105)	1800 (127)	1600 (112)	3050 (214)	1000 (70)	850 (60)	—	—
@ 10% deformation	—	—	—	5850 (411)	1350 (95)	1050 (74)	—	—
Moisture Content								
(normal), % of dry weight	2.5	2.5	2.5	3.0	3.0	3.0	< 12	5
Thermal Conductivity								
Mean Temperature, Btu-in/ft^2, hr, °F								
250°F	—	—	—	—	—	—	2.40	2.08
400°F	—	—	.99	1.13	0.81	0.67	—	—
600°F	—	—	1.00	1.15	0.79	0.68	—	—
800°F	1.92	1.47	1.03	1.16	0.81	0.70	—	—
1000°F	1.95	1.52	1.06	1.17	0.86	0.73	—	—
Mean Temperature, (W/m°K)								
121°C	—	—	—	—	—	—	0.34	0.30
205°C	—	—	0.14	0.16	0.12	0.10	—	—
316°C	—	—	0.14	0.17	0.11	0.10	—	—
425°C	0.28	0.21	0.15	0.17	0.12	0.10	—	—
538°C	0.28	0.22	0.15	0.17	0.12	0.11	—	—
Shrinkage								
24 hrs @	1350°F	1350°F	1350°F	1200°F	1200°F	1200°F	600°F	—
Length/width, %	0.1	0.2	2.3	0.6	0.4	0.4	0.85	—
Thickness, %	0.8	0.9	9.4	2.1	1.4	1.4	3.7	—
Screw Holding Strength								
lbs (kg) @ ⅞" penetration	240 (109)	250 (113)	220 (100)	500 (227)	200 (91)	110 (50)	—	—

Test results represent typical average values obtained in accordance with accepted test methods.
For complete data and test methods, please request a data sheet for the specific insulating board of interest.

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Marinite® and Transite® Specific Applications

REFRACTORY PRODUCTS APPLICATION INFORMATION

Introduction

Marinite and Transite non-asbestos structural insulating boards are utilized in a variety of industries for a multitude of applications.

This brochure is intended to provide you ideas of possible solutions Marinite and Transite can offer. A brief description of the products is listed here. For technical data, request the "Summary Data Sheet" or the specific product's data sheet.

Marinite

Marinite combines structural strength with consistently low thermal conductivity values over a wide range of temperatures up to 1400°F, or higher. It offers exceptional thermal shock and is non-corroding, water resistant and easily machined. Marinite is a non-asbestos calcium silicate board available in various compositions and densities ranging from 36 lbs/ft^3 to 65 lbs/ft^3.

Transite HT

Transite is a monolithic cement composition board that offers high strength, electrical insulation, corrosion resistance and thermal stability for temperatures up to 600°F with a density of 100 lbs/ft^3.

Industries using Marinite and Transite

- Aerospace
- Aluminum
- Automotive
- Baking
- Cement
- Ceramics
- Chemical Processing
- Computer
- Fire Training
- Foundry
- Glass
- Heat Processing
- Iron & Steel
- Jewelry
- Marine
- Medical
- Non-ferrous Metals
- OEM
- Petroleum
- Plastic
- Power Generation
- Pulp and Paper
- Railroad
- Tire

Application	Marinite	Transite
Ceramics		
Kiln car bottoms	■	—
Oven drying plates and pallets	■	■
Electrical Insulation		
Aluminum smelting	—	■
Arc shields	—	■
Braking resistance grids		■
Busbar supports	—	■
Collars and bushings	■	■
Component mounting plates	■	■
Fuse gear	—	■
Hot wire cutting equipment	■	■
Supports and housings	■	■
Switchgear assemblies	—	■
Terminal Boxes and strips	—	■
Transformer spacers	—	■
Welding systems	■	■
Fire Protection		
Boxing valves and electrical panels	■	—
Cable trays	■	—
Electric control, train control and HVAC lockers on light rail cars	■	—
Fire door cores, rails and stiles	■	—
Fire stops	■	—
Fire walls	■	—
Floor component in light rail cars	■	—
Metal exhaust ducts	■	—
Penetration seal fire stops in power plants	■	—
Stairway enclosure	■	—
Storage shed firewalls	■	—
Structural beam boxing	■	
Switch panel enclosures on light rail cars	■	—
Wall shields/floor protectors	■	—
Welding and torch shields	■	—

Application	Marinite	Transite
Fire Training		
Burn buildings and mobile burn buildings	■	—
Mock aircraft for fire training	■	—
Foundry		
Core molding plates	■	■
Core drying plates	■	■
Flask liners	—	■
Induction furnace casings	—	■
Glass		
Chamber wall linings	■	—
Glass forming tubes	■	—
Neon molding jigs	■	—
Tank bottom insulation	■	—
Hobbyists		
Craftsmen's boards and bench tops	■	■
Silversmith's work surfaces	■	—
Soldering boards	■	—
Insulation		
Billet heater end plates	■	■
Buckstay protection for glass tanks	■	—
Casings	■	■
Cold storage warehouses	■	■
Collars around heating elements	■	■
Concrete floor protection	■	■
Concrete protection from jet engine exhaust	■	■
Contaminated dirt incinerators	■	—
Continuous soldering ovens	■	—
Control panel insulators	■	■
Cooler rings in steel plants	■	—
Dryers	■	■
Dryer jacks	■	■

(Continued on back page)

Marinite and Transite Specific Applications

REFRACTORY PRODUCTS APPLICATION INFORMATION

Industries using Marinite and Transite *(Continued from front page)*

Application	Marinite	Transite
Insulation *(Continued from front page)*		
Electrical collars and bushings	■	■
Float glass assembly tops	■	—
Floor insulation for hot slabs in railroad cars	■	—
Gas analyzing machines	■	■
Gaskets	■	■
Glass tank bottoms	■	■
Heat pads	■	■
Heat sealing machines	■	—
Heat treatment plants	■	—
High volume baking ovens	■	—
Hoods	■	—
HVAC expansion valve dryer/insulation	■	—
Infrared heater backing	■	—
Insulated mold boards in foundries	■	—
Lab furnaces	■	—
Lead-melting furnaces	■	—
Lehrs in preheat and cooling sections	■	—
Ovens	■	—
Personnel protection (heat shields)	■	■
Paint drying ovens	■	—
Plastic vacuum-forming ovens	■	—
Port plugs	■	—
Reduction cell bottoms	■	—
Reduction cell pad insulation	■	■
Rotary kilns	■	—
Steam cabinet parts	■	—
Steel splash pads	■	—
Support for heating elements	■	■
Textile drying ovens	■	—

Application	Marinite	Transite
Iron & Steelmaking		
Concrete floor protection	■	—
Ladle covers	■	—
Rotary kilns	■	—
Runners/troughs	■	—
Runner covers	■	—
Steel ladles	■	—
Torpedo car linings	■	—
Insulating truck beds carrying billets	■	—
Tundishes	■	—
Lime and Cement Plants		
Backup insulation in rotary kilns	■	—
Marine		
Incombustible base for melamine or aluminum veneers and wallpaper	■	—
Marine applications for divisional bulkheads and linings	■	—
Molding		
Injection molding	■	—
Molded insulation presses	■	■
Plastic platen presses	■	■
Plywood platen presses	■	—
Rubber platen presses	■	—
Pallet supports used during oven drying	■	■
Vacuum forming ovens	■	—
Non-ferrous		
Baffles	■	—
Basins	■	—
Distribution and pouring boxes	■	—
Distribution plate	■	—
Electrical insulation	—	■
Feed boards	■	—
Filter boxes	■	
Floats and spouts	■	—

Application	Marinite	Transite
Head boxes	■	—
Headers	■	—
Holding furnace linings	■	—
Hot tops and ingot mold liners	■	—
Launders	■	—
Orifice plates	■	—
Pot insulation	—	■
Plugs	■	—
Rings	■	—
Skimmer dams	■	—
Stopper pins	■	—
Tips/snouts	■	—
Transition plates	■	—
Trough linings	■	—
Power Generation		
Cable trays	■	—
Pipe support systems	■	■
Fire protection	■	—
Utility Applications		
Chutes and conveyance ducts	■	■
Clutch plates	—	■
Food storage cold slabs	■	■
Fume hood liners	—	■
Gaskets/bushings	■	■
Guide stops	—	■
Load bearing pipe supports	■	■
Machine guards	■	■
Paint booths	—	■
Personnel protection	■	■
Press plates	■	—
Radiator enclosures	■	■
Splash guards/shields	■	■