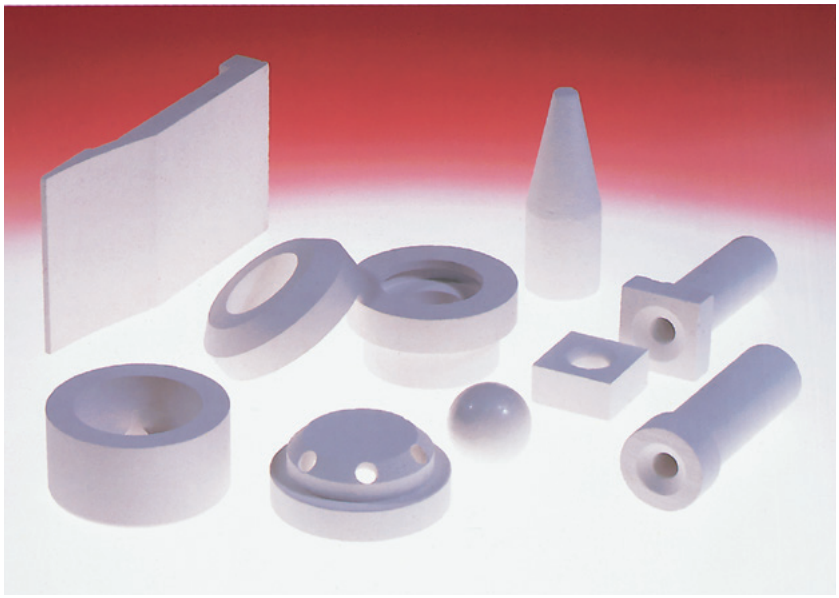
Non wettable thermal insulation boards

TOMBO™ No. 4720
LUMIBOARD™

LUMIBOARD™ is a xonotlite-based calcium silicate board with excellent heat resistance. It is excellent in machinability and is most suitable as thermal insulation material for transfer, casting, and holding processes where the insulation material is in direct contact with molten aluminum alloy such as launders, spouts, floats, hot top ring headers, and holding furnaces for die-casting.

There are two products, L-14Z is for standard applications and L-100 is reinforced with special fiber for use in casting parts such as hot top ring headers, etc.

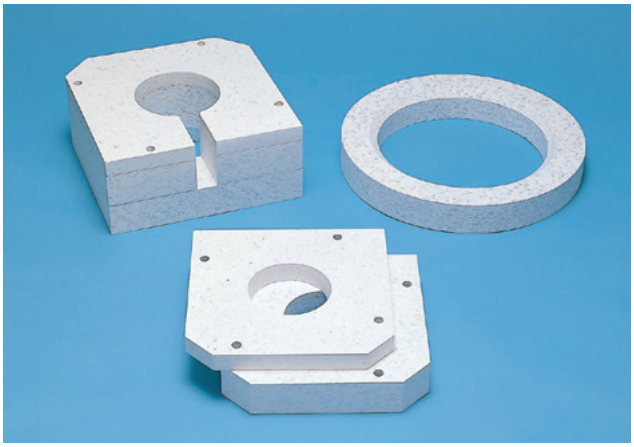


Advantages

- **Low thermal conductivity, Low heat capacity**
  Molten aluminum can be transferred with minimal reduction in temperature when LUMIBOARD™ is used in the launders between the melting and holding furnace and the die-cast machine. When LUMIBOARD™ is used for the lining of the holding furnace, energy savings can be achieved by raising temperature in a shorter time than conventional castables.
- **Excellent machinability**
  LUMIBOARD™ can be machined in a variety of shapes such as floats, spouts, hot top ring headers, etc. due to its excellent machinability.
- **Easy to remove solidified metal**
  LUMIBOARD™ is non wettable with molten aluminum so it is easy to remove solidified metal.

Applications

- **L-14Z**
  Launders, Baths for holding furnaces, Floats, Spouts, etc.
- **L-100**
  Hot top ring headers, Floats, Spouts, etc.



Standard dimensions

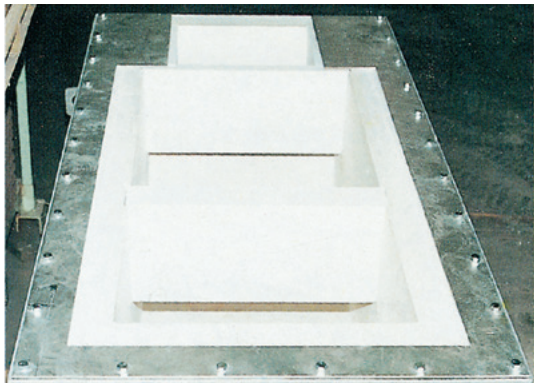
Description \ Products		L-14Z											L-100			
Thickness		12.7	19.1	25.4	28.5	31.8	38.1	44.5	50.8	63.5	76.2	101.6	12.7	19.1	25.4	28.5
Width × Length (mm)		1260 × 1275 1260 × 2550														
Unit weight (kg/ea)	1275	17.1	25.7	34.1	38.3	42.7	51.2	59.8	68.2	85.4	102.4	136.6	15.9	23.8	31.7	35.6
	2550	34.3	51.5	68.6	76.9	85.8	102.8	120.1	137.1	171.4	205.7	274.2	31.8	47.9	63.7	71.4
Surface finish		Sanded on both faces								Not sanded			Sanded on both faces			

Physical properties

Properties \ Products		L-14Z		L-100	
Bulk density	(kg/m^3)	840		800	
Hardness (Durometer D scale)		64		64	
Screw grip ※1	(N)	1000		1100	
Bending strength (MPa)	In normal ambient temperatures	8.8		9.3	
	After heating at 750℃× 24hrs	6.8		6.1	
	After heating at 1000℃× 24hrs	1.7		1.0	
Compressive stress (MPa)	At 0.5% compaction	0.7		0.9	
	At 1.0% compaction	2.3		2.7	
Linear heat shrinkage (%)		Length	Thickness	Length	Thickness
	After heating at 750℃× 24hrs	0.4	1.1	0.4	1.1
	After heating at 1000℃× 24hrs	0.9	4.6	0.6	2.0
Weight loss on ignition (%)	After heating at 650℃× 3hrs	1.9		3.2	
	After heating at 850℃× 3hrs	3.9		5.8	
	After heating at 1000℃× 3hrs	4.1		6.2	
Thermal expansion (1/℃)	Initial heating	5.1×10^{-6}		4.4×10^{-6}	
	From second heating onward	6.6×10^{-6}		6.5×10^{-6}	
Thermal conductivity (W/(m·K))	at 300℃	0.20		0.19	
	at 500℃	0.20		0.20	
	at 700℃	0.20		0.20	

※The above figures are actual values measured by Nichias and not specification values.
※1 Screw : JIS B 1122 Self-tapping screw of 4mm diameter
Pilot hole: 3.2mm diameter (penetrated through the thickness)
Penetration depth: 22mm

Example of application for holding furnace



Cautions for drying and preheating

- As products are shipped from the factory in dry condition, moisture absorption during storage and water absorption from the joint filling sealant during installation could cause cracks when LUMIBOARD™ is in contact with molten aluminum. Please dry LUMIBOARD™ with an electric furnace, heater, or by putting the LUMIBOARD™ in the furnace prior to use.
- Please dry LUMIBOARD™ L-100 at a temperature under 250℃ to prevent the reinforcing fiber from burning away.
- Please dry formed products for the bath of the holding furnace at approximately 150℃ prior to raising temperature. Please raise temperature at a speed of 25℃ per hour as a guideline and keep the temperature at each of the following points (200℃, 400℃ and 600℃) for 6 to 12 hours.

31.8	38.1	44.5	50.8	63.5	76.2	101.6
39.7	47.6	55.5	63.4	79.2	95.4	126.8
79.7	95.5	111.5	127.3	159.1	191.0	254.6
Sanded on both faces				Not sanded		