SOMAL REFRACTORIES
QUALITY YOU CAN TRUST

SOMAL PIPES PRIVATE LIMITED
Village Giaspura, P.O. Lohara, G.T. Road, Near
Sua Chowk, Industrial Area - C, Ludhiana-14
(Punjab) INDIA +91 98151 06000
www.somalrefractories.com

HIGH ALUMINA SHAPES

Our High Alumina Bricks are of extremely high Refractoriness as we serve critical applications such as the Ladles of Electric Arc Furnaces. This allows steel makers to reduce their consumption of Refractory and increases their Productivity. The Sillimanite based bricks are mainly supplied to Rolling mills. Our Insulation Bricks are mainly supplied to Rolling Mills. We also supply special High Alumina shapes to Boilers in Paper and Sugar Mills.

HIGHLIGHTS

- **Highest Life achieved in Hot Metal Ladle in Aarti Steel.**
- **Reduced cost of Ladle Lining of Jindal Stainless Steel by 20% for the same life. (Jindal Stainless steel is one of the Largest Stainless-steel manufacturers in the World)**
- **Supplier to JV of Aichi Steel Corporation, Japan.**
- **Supplier to Industrial Knives Manufacture to Germany.**
- **Supplier to manufacturers of Highest steel Grades who supply to Maruti Sazuki.**
- **Complete Rolling mill Refractory Provider to one of the largest Rolling Mills in North India. Most of the refractory was Sillimanite based.**

ABBREVATIONS

S- Sillimanite Based

LI- Low Iron

M- Mullite

D- Dense

K- Kyanite

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SOMAL REFRACTORIES
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PRODUCT DATA SHEET

Insulation, Fire Clay and High Alumina Bricks

Sr. No.	PRODUCT	Properties									
		General	Chemical Analysis		Physical			Thermal			
		Max Service Temprature	Al_2O_3 %	Fe_2O_3 %	B.D. (g/cc)	A.P. %	C.C.S. (kg./Cm2)	P.C.E. (O.C.)/°C	RUL (Ta), °C	P.L.C. % after Heating at	Thermal Conductivity Kcal/m/hr°C at 500°C HF
1	SP INS 110	1100°C	23.2	2.07	0.98	62.0	32	+18 / +1522		-0.30 1100°C / 3 hrs.	0.28
2	SP INS 135	1350°C	29.2	1.80	1.03	63.3	37	+26 / +1621		-0.87 1350°C / 3 hrs.	0.33
3	SP INS 140	1400°C	39.0	2.00	1.00	63.0	35	+28 / +1646		-1.20 1400°C / 3 hrs.	0.30
4	SP 30	1350°C	32.0	2.38	2.11	21.2	355	+28 / +1646	1300	-0.68 1350°C / 3 hrs.	
5	SP 30 S	1350°C	34.2	1.76	2.17	19.6	380	+29 / +1659	1300	-0.43 1350°C / 3 hrs.	
6	SP 30 D	1350°C	35.0	1.85	2.19	17.6	405	+29 / +1659	1300	-0.32 1350°C / 3 hrs.	
7	SP 35 D	1400°C	35.8	1.85	2.19	15.2	480	+30 / +1665	1380	-0.45 1400°C / 3 hrs.	
8	SP 40	1400°C	39.5	2.56	2.18	20.6	365	+29 / +1659	1370	-0.72 1400°C / 3 hrs.	
9	SP 40 S	1420°C	40.5	2.15	2.21	19.5	395	+30 / +1665	1400	-0.76 1450°C / 3 hrs.	
10	SP 40 D	1400°C	40.6	1.93	2.26	15.8	490	+30 / +1665	1380	-0.38 1400°C / 3 hrs.	
11	SP 42 D	1460°C	43.7	1.28	2.31	15.8	645	+33 / +1743	1420	-0.45 1450°C / 3 hrs.	
12	SP 45	1400°C	43.5	2.85	2.28	19.8	400	+30 / +1665	1420	-0.63 1400°C / 3 hrs.	
13	SP 45 S	1450°C	45.0	2.05	2.26	19.2	420	+31 / +1683	1430	-0.55 1450°C / 3 hrs.	
14	SP 50	1400°C	49.5	3.20	2.38	20.6	420	+31 / +1683	1420	-0.55 1400°C / 3 hrs.	
15	SP 50 S	1450°C	49.5	2.05	2.30	19.2	465	+32 / +1717	1420	-0.66 1450°C / 3 hrs.	
16	SP 55	1420°C	54.1	3.16	2.46	20.6	480	+33 / +1743	1400	0.55 1450°C / 3 hrs.	
17	SP 55 S	1460°C	54.7	2.50	2.38	20.2	495	+34 / +1763	1500	0.30 1400°C / 3 hrs.	
18	SP 60	1450°C	59.5	3.65	2.53	19.6	565	+35 / +1785	1430	0.88 1450°C / 3 hrs.	
19	SP 60 S	1480°C	59.2	2.50	2.42	18.7	545	+35 / +1785	1470	0.70 1550°C / 3 hrs.	
20	SP 60 M	1600°C	60.8	0.71	2.40	18.7	620	+36 / +1804	1550		0.55
21	SP 62 D	1550°C	63.1	1.32	2.45	16.8	690	+36 / +1804	1500	-0.30 1550°C / 3 hrs.	
22	SP 70	1450°C	67.5	3.80	2.66	19.7	745	+36 / +1804	1450	2.00 1400°C / 3 hrs.	
23	SP 70 S	1460°C	69.8	3.00	2.61	20.6	720	+36 / +1804	1460	1.75 1450°C / 3 hrs.	
24	SP 70 L	1480°C	68.0	2.70	2.60	19.3	680	+36 / +1804	1470	1.87 1450°C / 3 hrs.	
25	SP 70 LI	1480°C	70.7	1.75	2.60	19.9	698	+36 / +1804	1470	1.15 1500°C / 3 hrs.	
26	SP 80	1550°C	78.0	1.60	2.78	17.9	820	+37 / +1820	1470	0.90 1500°C / 3 hrs. 0.30 1600°C / 3 hrs.	
27	SP 85	1600°C	82.0	1.56	2.80	17.6	870	+37 / +1820	1560	0.87 1550°C / 3 hrs.	
28	SP 90	1600°C	87.5	1.30	2.92	18.7	945	+37 / +1820	1570	0.35 1500°C / 3 hrs.	
29	SP 90 K	1700°C	90.3	0.32	2.95	18.3	860	+37 / +1820	1620	-0.16 1600°C / 3 hrs.	

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SOMAL REFRACTORIES
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PRODUCT DATA SHEET

Mortars

Sr. No.	PRODUCT	Properties							
		General			Chemical Analysis		Thermal		
		Max Service Temprature	Max Grain Size	Water Required for Casting	Al_2O_3 %	Fe_2O_3 %	Retain on Max. Size %	RUL (Ta), °C	Refractoriness/Pyrometric cone, Orton/°C
1	SP INS. MORTAR	1350°C	1.0 mm	40 - 50%	20.5	1.95	1.20		+18 / +1522
2	SP MORTAR 50 N	1500°C	1.5 mm	20 - 28%	47.3	4.40	1.50		+29 / +1659
3	SP MORTAR 50 F	1500°C	0.5 mm	22 - 30%	48.5	4.40	1.20		+29 / +1659
4	SP MORTAR 30	1350°C	1.0 mm	35 - 45%	31.0	2.85	1.50		+23 / +1605
5	SP MORTAR 30 S	1380°C	1.0 mm	30 - 40%	31.0	2.45	1.21		+26 / +1621
6	SP MORTAR 40	1400°C	1.0 mm	35 - 45%	38.0	3.21	1.50		+26 / +1621
7	SP MORTAR 40 S	1450°C	1.0 mm	28 - 38%	38.5	2.40	1.22		+28 / +1646
8	SP MORTAR 50	1450°C	1.0 mm	25 - 35%	47.6	4.25	1.20		+29 / +1659
9	SP MORTAR 50 S	1500°C	1.0 mm	25 - 35%	48.2	2.45	1.05		+30 / +1665
10	SP MORTAR 60	1500°C	1.0 mm	22 - 32%	57.2	4.10	1.51		+31 / +1683
11	SP MORTAR 60 S	1550°C	1.0 mm	20 - 30%	58.5	2.45	0.91		+32 / +1717
12	SP MORTAR 70	1550°C	1.0 mm	22 - 32%	68.3	4.30	1.10		+33 / +1743
13	SP MORTAR 70 S	1600°C	1.0 mm	20 - 30%	68.3	3.30	1.13		+34 / +1763
14	SP MORTAR 80	1650°C	0.5 mm	18 - 28%	78.8	3.20	1.50		+34 / +1763
15	SP MORTAR 80 L	1650°C	0.5 mm	15 - 25%	81.0	1.50	1.40		+36 / +1804
16	SP MORTAR 85 P	1650°C	0.5 mm	15 - 25%	82.8	1.45	2.00		+36 / +1804
17	SP MORTAR 90 K	1700°C	0.5 mm	22 - 35%	89.0	0.35	1.21		+37 / +1820
18	SP MORTAR 90 L	1700°C	0.5 mm	25 - 35%	88.0	0.52	1.66		+37 / +1820
19	SP MORTAR 99	1750°C	0.5 mm	37 - 55%	95.4	0.28	1.36		+37 / +1820

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SOMAL MONOLITHICS

We our on track to aggressively capture Market share in the Monolithic segment. As the percentage of Unshaped refractory to total Refractory is increasing day by day we have to tend to the needs of our customers. As a large percentage of synthetic raw materials are needed in manufacturing Monolithics we only purchase our raw materials from the best suppliers. Raw materials such as WFA, BFA, Technical and reactive alumina, High Purity Cement, Micro silica are all purchased from the likes of Carborundum Universal, Calderys and Elkem from their Manufacturing plants in India. We are supplying extremely critical castables for Induction Coils to Major steel plants. We are supplying Low cement castables for Electric Arc Furnace Roof tops and Gunning mass for furnace lining. Our Rolling Mill and Boiler Customers also need a wide range of Conventional and Low Cement Castables.

HIGHLIGHTS

- Exclusive Crucible Lid Supplier for Subsidiary of Aichi Steel Japan.
- Electric arc furnace roof top supplier for India's Largest Stainless-steel manufacturer.
- Supplier of Low Cement Blocks for floor of Major rolling mills replacing Magnesite Bricks due to Higher Cold crushing strength of our materials.
- Taking major market share of Induction Furnace coil coating from Calderys who had a monopoly in this sector.
- More than 90% Market share achieved in Mortars needed for Joining Bottom pouring sets.

ABBREVATIONS

LC- Low cement

ULC- Ultra Low cement

LI- Low Iron

M- Mullite

M- Magnesite

K- Kyanite

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PRODUCT DATA SHEET

Conventional and Insulating Castables

Sr. No.	PRODUCT	Properties																
		General			Chemical Analysis			Physical								Thermal		
		Max Service Temprature	Max Grain Size	Water Required for Casting	Al_2O_3 %	CaO	Fe_2O_3 %	Dry density (g/cc) after drying at 110°C/24	CCS.(Kg/cm2) after drying at 110°C/24	CCS.(Kg/cm2) after drying at 800°C/3 hrs.	CCS.(Kg/cm2) after drying at 1100°C/3 hrs.	CCS.(Kg/cm2) after drying at 1350°C/3 hrs.	CCS.(Kg/cm2) after drying at 1400°C/3 hrs.	CCS.(Kg/cm2) after drying at 1550°C/3 hrs.	Retained on Max. Size %	Refractoriness/ Pyrometric cone, Orton/°C	P.L.C. % after Heating at	Thermal Conductivity Kcal/m hr°C at 500°C HF
1	SP FIRECRETE NORMAL	1400°C	5 mm	10.5 - 11.5%	44.0	6.00	3.90	2.18	285		180				1.0	+20 / +1564	-0.15 1100°C / 3 hrs., +0.85 1350°C / 3 hrs.	
2	SP FIRECRETE SPECIAL	1350°C	5 mm	11 - 12%	45.3	8.35	4.00	2.26	425		270				1.0	5-16 / 1430-149	-0.15 1100°C / 3 hrs., +0.70 1350°C / 3 hrs.	
3	SP FIRECRETE SUPER	1450°C	5 mm	10 - 11%	70.2	5.45	5.10	2.55	380		250	430	430		0.8	+31 / +1683	-0.12 1100°C / 3 hrs., -0.70 1400°C / 3 hrs.	
4	SP CRETE 65 M	1700°C	6 mm	5 - 8%	67.0	5.33	0.88	2.42	480		450			640		+36 / +1804	+0.65 1550°C / 3 hrs.	
5	SP CAST 50	1500°C	5 mm	11 - 12%	49.0	5.00		2.17	370						1.0	+28 / +1646	-0.15 1100°C / 3 hrs.	
6	SP - HEAT 50- C	1500°C	5 mm	10.5 - 11.5%	50.5	4.50	1.20	2.17	380		220			610	1.0	+30 / +1665	-0.15 1100°C / 3 hrs., -1.5 1550°C / 3 hrs.	
7	SP HEAT 50- C SPECIAL	1500°C	5 mm	10.5 - 11.5%	51.0	4.60	1.00	2.18	435		235			620	0.8	+30 / +1665	-0.20 1100°C / 3 hrs., -1.70 1550°C / 3 hrs.	
8	SP HEAT C SUPER	1500°C	5 mm	10.5 - 11.7%	51.0	5.30	1.50	2.28	550					570	1.0	+30 / +1665	-0.20 1100°C / 3 hrs., -1.80 1550°C / 3 hrs.	
9	SP INSULYTE 4	1000°C	6 mm	80 - 100%			9.80	0.55	52	3.8					1.0		-0.40 1100°C / 3 hrs.	0.10
10	SP INSULYTE 7	1100°C	6 mm	60 - 65%			7.45	0.85	154		8.3				1.2	+12 / +1337	-0.80 1100°C / 3 hrs.	0.18
11	SP INSULYTE 9	1200°C	6 mm	38 - 43%			5.10	1.00	18		14				1.2	+13 / +1349	-0.50 1200°C / 3 hrs.	0.275
12	SP INSULYTE 9 HS	1200°C	6 mm	38 - 44%			2.80	1.00	26		21				1.2	+14 / +1398	-0.50 1200°C / 3 hrs.	0.28
13	SP INSULYTE 11	1300°C	6 mm	29 - 34%			3.35	1.25	40		30				1.4	+14 / +1398	-0.19 1100°C / 3 hrs., +0.80 1400°C / 3 hrs.	0.325
14	SP INSULYTE 13	1350°C	6 mm	26 - 31%			3.40	1.45	60		35				1.2	+14 / +1398	-0.15 1100°C / 3 hrs., +0.70 1300°C / 3 hrs.	0.335
15	SP -LC- 45	1550°C	6 mm	5.7 - 6.2%	46.5	1.80	0.90	2.32	640	800	870			1010		+32 / +1717	-0.15 1100°C / 3 hrs., -1.50 1500°C / 3 hrs.	
16	SP - LC- 60	1600°C	6 mm	5.5 - 6.2%	59.5	2.05	1.35	2.52	725	800	880			1015	1.0	+36 / +1804	-0.12 1100°C / 3 hrs., -0.70 1550°C / 3 hrs.	
17	SP -LC- 70	1650°C	6 mm	4.5 - 5.5%	70.4	2.26	1.61	2.65	662	900	867			900		+36 / +1804	+1.25 1550°C / 3 hrs.	
18	SP -LC- 90	1700°C	6 mm	4 - 5%	89.0	2.1	1.2	2.9	983	1000	1196			1235	3.0	+37 / +1820	+1.40 1550°C / 3 hrs.	
19	SP - ULCC- 45	1550°C	6 mm	5.5 - 6.2%	46.0	1.00	0.90	2.33	450		880			980	0.8	+32 / +1717	-0.20 1100°C / 3 hrs., -1.50 1500°C / 3 hrs.	
20	SP -ULCC- 60	1600°C	6 mm	5.5 - 6.2%	60.0	1.00	1.30	2.54	450		880			980	0.8	+32 / +1717	-0.20 1100°C / 3 hrs., -0.50 1500°C / 3 hrs.	
21	SP -ULCC- 80	1700°C	6 mm	4.5 - 5.2%	79.5	1.00	2.65	2.85	480		980			1230	0.8	+37 / +1820	-0.15 1100°C / 3 hrs., +1.30 1500°C / 3 hrs.	
22	SP -ULCC- 95	1800°C	6 mm	4.0 - 5.0%	92.3	1.00	0.16	3.00	550		1100			1225		+38 / +1835	-0.50 1550°C / 3 hrs.	

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PRODUCT DATA SHEET

Ramming and Gunning Mass

Sr. No.	PRODUCT	Properties													
		General		Chemical Analysis				Physical							Thermal
		Max Service Tempratur e	Max Grain Size	Al2O3 %	CaO	Fe2O 3 %	MgO %	Dry density (g/cc) after drying at 110°C/24 hrs.	CCS.(Kg/c m2) after drying at 110°C/24 hrs.	CCS.(Kg/c m2) after drying at 800°C/3 hrs.	CCS.(Kg/c m2) after drying at 1100°C/3 hrs.	CCS.(Kg/c m2) after drying at 1350°C/3 hrs.	CCS.(Kg/c m2) after drying at 1400°C/3 hrs.	CCS.(Kg/ cm2) after drying at 1550°C/ 3 hrs.	Refractorine ss/ Pyrometric cone, Orton/°C
1	SP RAM M-84	1700°C	5 mm			4.37	81.15	2.75	309					249	+38 / +1835
2	SP RAM M-95	1750°C	5 mm			0.50	95.12	2.85	320					250	+38 / +1835
3	SP GUN E-84	1700°C	4 mm			3.31	79.87	2.70	327					386	+38 / +1835
4	SP GUN M-80	1700°C	4 mm			3.43	78.89	2.72	352					428	+38 / +1835
5	SP GUN M-90	1750°C	4 mm			0.85	90.1	2.75	350					225	+38 / +1835
6	SP GUN 45	1450°C	6 mm	43.66	9.48	2.23		1.90	200	150	190				+16 / +1491
7	SP GUN 90 SUPER	1600°C	4 mm	86.07	1.63	0.79		2.60	350			912	912		+36 / +1804
8	SP GUN 94 SUPER	1700°C	4 mm	92.42		0.17		2.70	475		200			400	+38 / +1835
9	SP GUN 55	1550°C	6 mm	50.72	2.97	0.72		2.20	380		320			600	+32 / +1717
10	SP GUN 60	1650°C	6 mm	61.00	3.03	1.00		2.30	450		320			650	+33 / +1743
11	SP GUN 80	1650°C	6 mm	81.47	3.14	1.41		2.65	400		320			700	+33 / +1743

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TESTING STANDARDS

Chemical Analysis

IS 12107 (Part - 1) : 1987	Determination of loss in ignition
IS 12107 (Part - 2) : 1987	Determination of Silica
IS 12107 (Part - 3) : 1987	Determination of Aluminium as Al_2O_3
IS 12107 (Part - 4) : 1987	Determination of Phosphorus
IS 12107 (Part - 5) : 1987	Determination of titanium Dioxide
IS 12107 (Part - 6) : 1987	Determination of Iron Oxide
IS 12107 (Part - 7) : 1987	Determination of manganese
IS 12107 (Part - 8) : 1987	Determination of calcium and Magnesium
IS 12107 (Part - 9) : 1987	Determination of sodium and potassium

Physical and Thermal Analysis.

IS 1528 (Part - 1) : 2010	Determination of pyrometric cone equivalent (PCE) or softening point
IS 1528 (Part - 2) : 2010	Determination of refractoriness under load
IS 1528 (Part - 3) : 2010	Determination of spalling resistance
IS 1528 (Part - 4) : 2010	Determination of cold crushing strength
IS 1528 (Part - 5) : 2010	Method for determination of modulus of rupture at ambient temperature of dense and insulating shaped refractory products
IS 1528 (Part - 6) : 2010	Determination of permanent linear change after reheating for shaped insulating and dense refractories
IS 1528 (Part - 7) : 2010	Methods of sampling and physical tests for refractory materials and criteria for conformity
IS 1528 (Part - 8) : 2010	Determination of apparent porosity
IS 1528 (Part - 9) : 2010	Determination of true density
IS 1528 (Part - 10) : 2010	Determination of size of refractory bricks
IS 1528 (Part - 11) : 2010	Determination of warpage
IS 1528 (Part - 12) : 2010	Method for determination of bulk density and true porosity of shaped insulating refractory products
IS 1528 (Part - 13) : 2010	Determination of resistance to carbon monoxide
IS 1528 (Part - 14) : 2010	Determination of sieve analysis
IS 1528 (Part - 15) : 2010	Method for determination of bulk density, apparent porosity and true porosity of dense shaped refractory products
IS 1528 (Part - 16) : 2010	Determination of thermal conductivity according to hot-wire method (parallel)
IS 1528 (Part - 17) : 2010	Determination of cold crushing strength of shaped insulating refractory products
IS 1528 (Part - 18) : 2010	Determination of creep in compression
IS 1528 (Part - 19) : 2010	Determination of thermal expansion
IS 1528 (Part - 20) : 2010	Determination of modulus of rupture at elevated temperature
IS 1528 (Part - 21) : 2010	Determination of thermal conductivity according to hot-wire method (cross-array)
IS 1528 (Part - 22) : 2010	Methods of determination of Permeability to gases of dense shaped refractory products
IS 10570 : 2010	Methods of testing Refractory Castables
IS 11452 : 1985	Methods of testing air-setting refractory mortars
IS 10047 : 1981	Methods of testing refractory ramming masses
IS 4031-5 : 1988	Methods of physical test for hydraulic cement
IS 4031-5 (Part 5) : 1988	Determination of initial and final setting times (CED 2 : Cement and Concrete)

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