

# *Flait Group*

*For appropriate and simple solutions*

## ***Refractories & Lining Materials***



## Introduction

Flair Group, an organization of engineers from various disciplines, focused to provide appropriate and simple solution by working closely with various process industries. We are the local partner of **Rishabh Incorporates**, Jaipur, India to supply refractories in Bangladesh. Quality of our refractories are ensured by close monitoring at different stages of production and transportation. Considering the fact of product quality deterioration during transportation and handling, refractories are packed under our direct supervision. We are committed to serve better.

## Industries Served

We provide products to a wide range of industries:

<i>Aluminum</i>	<i>Iron &amp; Steel</i>	<i>Sugar</i>	<i>Forgings</i>
<i>Ceramic &amp; Glass</i>	<i>Fertilizers</i>	<i>Non Ferrous Metals</i>	<i>Frit</i>
<i>Chemicals</i>	<i>Textiles</i>	<i>Tiles &amp; Cement</i>	<i>Food</i>
<i>Construction</i>	<i>Foundry</i>	<i>Paint</i>	<i>Pottery</i>
<i>Dairy</i>	<i>Galvanizing</i>	<i>Paper</i>	<i>Rubber</i>

## Supplied Refractories

We deliver all types of refractories from top notch manufacturers:

### 1. Monolithics

#### **Companies**

\*Maithan Ceramics Limited

#### **Products**

Castables

\* Conventional Castables (**Whyheat Series & Firecrete Series**)

\* Low Cement Castable (**Accmon Series**)

\* Insulating Castables (**Maclyte Series**)

\* Special Castables (Self Flow Castables, Non Wetting Castables)

Ramming Mass

\*Plastic Alumina based Ramming Mass (Accoplast Series)

\*Basic and Acidic Ramming Mass (Magnesite ,Alumina Spinel, Silica)

Cement/Mortar

\*Refractory Cement(**Macset Series**)

\*High Alumina Binders (**Calundum Series**)

### 2. Fire Bricks & Shapes

#### **Companies**

\* Maithan Ceramics Limited

\* Eastern Refractories Limited

\* Shyam Refractories

#### **Products**

Fire Bricks, Burner Blocks, Slabs, Standard Shapes

\* Fire Clay Bricks: IS6 & IS8 Bricks

\* Alumina Bricks: 40% to 90% and as per requirement

\* Basic Bricks: Magnesite, Chrome Magnesite

\* Specialized Bricks: Mullite, Silliminite bricks, 88X etc.

Special Shapes can also be prepared as per requirement

### 3. Ceramic Fiber Material

**Companies**

- \* Unifrax India Ltd
- \* Simond Fibertech Ltd

**Products**

Ceramic Fibre Blankets – Density: 64, 96, 128, 160  
Ceramic Fibre Modules – All Sizes and grades  
Ceramic Fibre Boards – Standard and High Density  
Ceramic Fibre Papers, Ropes and other accessories

### 4. Insulation Material

**Companies**

- \* Maithan Ceramics Limited
- \* Bhilwara, Rajasthan

**Products**

Insulation Bricks  
\* Cold Face Insulation (CFI), Hot Face Insulation (HFI)  
\* Hot Face Kynite (HFK), Porosint Bricks  
Other Insulation Material  
\* Calcium Silicate (HYSIL) boards  
\* Asbestos/ Nonasbestos Millboard

### 5. CCM Refractories

**Companies**

- \*MPR Refractories

**Products**

Slide Gate Plate  
Collector Nozzle  
Ladle(Fix) Nozzle  
Tundish Nozzle 95% Zir. Insert  
Tundish Well Block  
Ladle Well Block  
Porous Plug  
Porous Plug Well Block  
Casting Powder  
NFC  
90K Mortar  
90% Castable (equivalent to Whyteheat A)  
60% Castable (equivalent to Whyteheat K)

### All Foundry Requisites

Ramming Mass, Fire Clay, Bentonite Powder, Soap Stone, Coal Dust, Coupla Mouth, Ferro Silicon lumps, Charcoal Powder, Sodium Silicate, etc

## **Our Specialty Products**

CCM Refractory:	All Kind of Flow Control Refractories
Aluminium Shots:	93%+ Aluminum Content Aluminum Shots/ Knotched Bars
Boric acid:	Indo Borax & Chemicals ltd Indore

***Hope you will find Flair Group competent to work with your esteemed organization.***

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➤ ***Enclosed is the catalog of refractories with specifications.***

## SLIDE GATE REFRACTORIES



Image : Slide Plate

Table : Properties and compositions of slide plate.

Brand Name	A.P. (%) max.	B.D. (gm/cc) min.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.	Cr <sub>2</sub> O <sub>3</sub> (%) max.	MgO (%) min.	F.C. (%) min.	ZrO <sub>2</sub> (%) min.	HMOR 1400 <sup>o</sup> C (kg/cm <sup>2</sup> ) min.	Application Area
MPR- 85 AC	16	3.10	84	-	-	-	4	-	-	Ingot & Continuous Casting
MPR- 85 AZCN	16	3.00	80	-	-	-	4	5.5	-	Continuous Casting
MPR- 85 AZCS	16	3.00	72	-	-	-	4	9.0	-	Continuous Casting
MPR – 98 M	17	2.95	-	-	-	97	-	-	-	Continuous Casting
MPR -80 MS	8	2.80	-	-	-	80	-	-	100	Continuous Casting
MPR – AZCLP	6	3.00	75	-	-	-	4	9.0	100	Continuous Casting



**NOZZLE REFRACTORIES****Image : Collector Nozzle****Table : Properties and compositions of ladle nozzle and collector nozzle.**

Brand Name	A.P. (%) max.	B.D. (gm/cc) min.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.	Cr <sub>2</sub> O <sub>3</sub> (%) max.	MgO (%) min.	F.C. (%) min.	ZrO <sub>2</sub> (%) min.	HMOR 1400°C (kg/cm <sup>2</sup> ) min.	Application Area
MPR-CN 90	20	3.00	88	0.5	3	-	-	-	-	Nozzle for Slide Gate System
MPR-LN 90	18	2.95	84	-	-	-	4	-	-	Nozzle for Slide Gate System
MPR-LN 90 S	12	2.90	90	-	-	-	2	-	-	Nozzle for Stopper Head System
MPR-LN 90 G	12	2.90	-	-	-	90	5	-	-	Nozzle for Slide Gate System

**WELL BLOCK REFRACTORIES**



Image : Well Block

Table : Properties and compositions of well block/seating block.

Brand Name	A.P (%) Max	B.D. (gm/cc) Min	Al <sub>2</sub> O <sub>3</sub> (%) Min	Fe <sub>2</sub> O <sub>3</sub> (%) Max	Cr <sub>2</sub> O <sub>3</sub> (%) Max	MgO (%) Min	F.C. (%) Min	ZrO <sub>2</sub> (%) Min	HMOR 1400 <sup>o</sup> C (kg/cm <sup>2</sup> ) Min	Application Area
MPR WB 96	-	2.90	96	-	-	-	-	-	-	Well Block / Seating Block
MPR WB LCC	-	2.75	75	0.7	-	-	-	-	-	Well Block / Seating Block
MPR WB 98	-	3.00	98	-	-	-	-	-	-	Well Block / Seating Block

**GAS PURING REFRACTORIES (POROUS PLUGS)**

Table : Properties and compositions of porous plugs.

Brand Name	A.P (%) max	B.D. (gm/cc) min	Al <sub>2</sub> O <sub>3</sub> (%) min	Fe <sub>2</sub> O <sub>3</sub> (%) max	Cr <sub>2</sub> O <sub>3</sub> (%) max	MgO (%) min	F.C. (%) min	ZrO <sub>2</sub> (%) min	HMOR 1400 <sup>o</sup> C (kg/cm <sup>2</sup> ) min	Application Area
MPR – 98 M	17	2.95	-	-	-	97	-	-	-	Continuous Casting

## TUNDISH NOZZLE & SEATING BLOCK REFRACTORIES



Image : Tundish Nozzle

**Table : Properties and compositions of tundish nozzle and seating block.**

Brand Name	A.P. (%) max	B.D. (gm/cc) min	Al <sub>2</sub> O <sub>3</sub> (%) min	Fe <sub>2</sub> O <sub>3</sub> (%) max	ZrO <sub>2</sub> (%) min	Application Area
<b>Tundish Nozzle</b>						
MPR-ZRN 66	20	3.65	-	-	65	Tundish
MPR-ZRN 75	20	3.85	-	-	74	Tundish
<b>Seating Block</b>						
MPR TWB	21	2.20	45	3.5	-	Seating Block for Zircon Nozzle



## BASIC REFRACTORIES

**Table : Properties and compositions of direct magnesia carbon bricks.**

Brand Name	A.P. (%) max.	B.D. (gm/cc) min	CCS (Kg/cm <sup>2</sup> ) min.	HMOR 1400 <sup>0</sup> C (kg/cm <sup>2</sup> ) min.	F.C. (%) min.	MgO (%) (in Magnesia used) min.	Application Area
MPR-HMR-SZ	5	3.00	300	-	10	97	Steel Ladle Slag Zone
MPR-HMR-MZ	5	3.00	300	-	8	97	Steel Ladle Metal Zone
MPR-HMR-BZ	5	3.00	300	-	8	97	Steel Ladle Bottom
MPR- FB	7	2.88	350	-	8	95	Steel Ladle free Board
MPR -HMR EAF	5	3.00	300	-	10	97	EAF Slag Zone, Hot Spot and Tap Hole
MPR--HMR-CON-1	5	3.00	300	90	8	97	LD Convertor Bottom & Tap Pad
MPR-HMR-CON-2	5	3.00	300	-	8	97	LD Convertor Llower Cone
MPR-HMR-CON-3	5	2.95	300	90	12	97.5	LD Convertor Trunion
MPR-HMR-CON-4	5	3.00	300	90	8	97	LD Convertor Top Cone
MPR- HMR-CON-5	5	3.00	300	90	8	97.5	LD Convertor Charge Pad & Tap Pad

**Table : Properties and compositions of direct alumina magnesia carbon bricks.**

Brand Name	A.P. (%) max.	B.D. (gm/cc) min	CCS (Kg/cm <sup>2</sup> ) min.	F.C. (%) min.	Al <sub>2</sub> O <sub>3</sub> (%) min.	MgO (%) min.	Application Area
MPR AMC-A	6	2.80	400	5	70	8	Steel Ladle Bottom and Metal Zone
MPR AMC-B	5	3.10	400	5	80	8	Steel Ladle Bottom and Metal Zone

## FIRE CLAY AND HIGH ALUMINA BRICKS

Table : Properties and compositions of fire clay and high alumina bricks.

Brand Name	A.P. (%) max.	B.D. (gm/cc) min.	CCS (kg/cm <sup>2</sup> ) min.	PLC (%) max.	PCE (SK) min.	RUL (°C) min.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.	Application Area
MPR-Mul-70 S	20	2.50	500	± 0.20 at 1500 <sup>0</sup> C/2 hrs	36	1700	70	0.80	Blast Furnace Hearth & Tap Hole, Glass Tank Furnace
MPR-Mul-70 (F)	17	2.55	600	± 0.20 at 1500 <sup>0</sup> C/2 hrs	36	1720	70	0.5	Blast Furnace Hearth & Tap Hole, Glass Tank Furnace
MPR-70 B (LF)	20	2.60	500	± 0.30 at 1600 <sup>0</sup> C/2 hrs	36	1480	70	2.5	EAF Roof, Ladle
MPR – BF	18	2.15	300	± 0.30 at 1450 <sup>0</sup> C/2 hrs	31	1450	36	1.70	Blast Furnace Stack Lining
MPR – BF-D	16	2.25	400	± 0.5 at 1450 <sup>0</sup> C/2 hrs	33	1500	42	1.50	Blast Furnace Lining
MPR-45 N	21	2.20	350	± 0.50 at 1500 <sup>0</sup> C/2 hrs	34	1450	45	1.50	Blast Furnace Lining, Cement Rotary Kiln Lime Calcinations Kiln, Glass Tank Furnace
MPR-45 D	16	2.30	450	± 0.30 at 1450 <sup>0</sup> C/2 hrs	34	1500	45	1.50	Blast Furnace Lining, Cement Rotary Kiln Lime Calcinations Kiln, Glass Tank Furnace
MPR 50 D	18	2.35	350	± 0.30 at 1500 <sup>0</sup> C/2 hrs	34	1530	50	1.30	Anode Baking Furnace
MPR - 55D	18	2.40	500	± 0.50 at 1450 <sup>0</sup> C/2 hrs	35	1520	55	1.50	Blast Furnace Lining, Cement Rotary Kiln, Lime Calcinations Kiln, Glass Tank Furnace
MPR-LF -60	18	2.50	500	± 0.50 at 1450 <sup>0</sup> C/2 hrs	36	1600	59	1.20	BF Hot Blast Main, Glass Tank Furnace.
MPR-LF -50	18	2.40	400	± 0.5 at 1450 <sup>0</sup> C/4 hrs	34	1520	50	1.10	Anode Baking Furnace

MPR – SIC – AL-65	12	2.65	400	-	36	1650	65	1.50	Torpedo Ladle
MPR 45 B	22	2.25	300	± 1.5 at 1350 <sup>0</sup> C/2 hrs	33	1350	45	3.5	Cement Plants
MPR 50 B	22	2.30	350	± 1.5 at 1400 <sup>0</sup> C/2 hrs	33	1370	50	3.5	Cement Plants
MPR- 60B LF	22	2.45	450	± 2.0 at 1450 <sup>0</sup> C/2 hrs	35	1420	60	2.50	-
MPR -60 B	22	2.40	400	± 2.0 at 1450 <sup>0</sup> C/2 hrs	34	1400	60	3.00	-
MPR - 62	22	2.40	350	± 0.40 at 1500 <sup>0</sup> C/2 hrs	36	1500	62	1.50	Blast Furnace Stove Checkers, BF Lining
MPR - 62 D	16	2.50	600	± 0.20 at 1500 <sup>0</sup> C/2 hrs	36	1550	62	1.20	Blast Furnace Hearth & Tuyere
MPR 62 LF	18	2.52	500	± 0.3 at 1500 <sup>0</sup> C/2 hrs	36	1600	62	1.2	Blast Furnace Checkers
MPR-70 LF	20	2.60	500	± 0.3 at 1500 <sup>0</sup> C/2 hrs	36	1550	70	1.5	Rotary Kiln Lining
MPR -70 B	22	2.55	450	± 0.30 at 1600 <sup>0</sup> C/2 hrs	35	1440	70	3.0	EAF Roof
MPR- 80B (LF)	20	2.70	500	± 0.30 at 1600 <sup>0</sup> C/2 hrs	37	1500	80	2.5	EAF Roof
MPR -80 B	22	2.70	500	± 3.0 at 1600 <sup>0</sup> C/2 hrs	35	1460	80	3.0	EAF Roof
MPR-85 TAB	20	2.70	700	± 0.5 at 1500 <sup>0</sup> C/2 hrs	37	1580	84	1.5	Aluminum Melting & Holding Furnace.
MPR-85 D	20	2.90	500	±0.5 at 1500 <sup>0</sup> C/2 hrs	37	1650	85	1.5	Torpedo Ladle Lining
MPR 88 NF	18	2.85	800	± 0.5 at 1500 <sup>0</sup> C/2 hrs	37	1580	88	2.0	Reheating Furnace Hearth
MPR-90 LF	18	2.92	600	± 0.2 at 1500 <sup>0</sup> C/2 hrs	38	1700	90	0.5	Carbon Black Reactor

**FIRE CLAY & HIGH ALUMINA CERAMIC SETTING MORTARS****Table : Properties and compositions of fire clay and high alumina plastic masses.**

<b>Brand Name</b>	<b>Setting</b>	<b>Sintering Temp. (°C) min.</b>	<b>Grading (mm)</b>	<b>Application Temp (°C) max.</b>	<b>PCE (SK) min.</b>	<b>Al<sub>2</sub>O<sub>3</sub> (%) min.</b>	<b>Fe<sub>2</sub>O<sub>3</sub> (%) max.</b>	<b>Application Area</b>
MPRPM-80	Chemical	1100	0-5	1750	38	80	1.5	Steel & Aluminum Furnace
MPRPM-90	Chemical	1100	0.5	1750	38	88	0.5	Silver Melting Furnace & Acid Regeneration Plant
MPR PM-50	Chemical	1100	0-5	1600	35	50	1.0	Incinerators for Medium & High Temperature Application with High Strength at Intermediate Temperature

# **Our Products...**

***Monolithics***

***Fire Bricks and Shapes***

***CCM Refractories***

***Insulation Materials***

***Ceramic Fiber Materials***

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