EQUIPMENTS

IREFCO

Iran refractories equipment is include:

A) Three rotary kilns to 1- Calsine the fire clay with a capacity of 16,000 tons of fire clay and bauxite per year and 2- Calsine the dolomite with a capacity of 33,000 tons per year and 3- Dead burned dolomite with a capacity of 36,000 tons per year.

B) Crushers include:
a-b) Jaw crusher, two device
b-b)Impact crusher, five devices
c-b)Hammer mill ,a device
d-b)Ball mill, fore devices
e-b)Vibration mill , five devices

C) Equipment for procesing of materials in three separate production lines include:
a-c)Vibrating sieves
b-c)Dust collector
c-c)Multiple silos of grain
d-c)Raw material flow control systems
e-c)Dosing system
f-c)Types of mixers (normal & intensive)

D) Equipments of Bag Filling consists of five separate production lines

*E) Equipment for shaping include:
e-a) mechanical Toggle presse 800-ton (Boyd- America) three devices
e-b) Hydraulic mechanical presses 1,200-ton (US- Krasly) Three devices
e-c) hydraulic presses 1250-ton (Hurn- Germany) Three devices
e-f) hydraulic toggle press 800-ton (Hurn- Germany), a device
e-g) hydraulic press 1600-ton (Bukher - Germany), a device
e-h) hydraulic press 2,000-ton (Sacmi - Italy), a device
e-i) hydraulic press 1600-ton (Lies-- Germany)

- Variety of Iran Refractories

productions will provide needs of industries refractory .
Irefco not only offers superior products, but also technical consultation for the best use of products and also after-sale services.
Irefco experts can analyze customer's requirements for all kinds of industrial furnaces and provide them with the best recommendations.
IREFCO is looking beyond Iran and looking forward to supply the neighboring countries with the required refractories factories
The main industries using IREFCO products are:
Iron and steel, Cement, Aluminum, Copper, Foundry, Glass, Tile and Ceramic, Plaster, Oil and petrochemicals and all others having high temperature process.

Corporate customers:

1)Iran's steel industry consists of all steel plants in Iran like Mobarakeh Steel complex(ESCO) and khozestan steel, Isfahan smelting of iron and other steel plants.

2)Cement industries includes more than 80 cement plants, such as Sepahan Cement, Tehran Cement and set of Fars- Khuzestan cement.

3) Copper Industries such as sarcheshmeh copper.

4) Aluminum industries, such as Iran's aluminum and Almahdi aluminum.

5) Oil, gas and petrochemical industries.

IREFCO is the one of the largest producer of refractories in Middle – East and is located in the central part of Iran near very famous city of Isfahan.

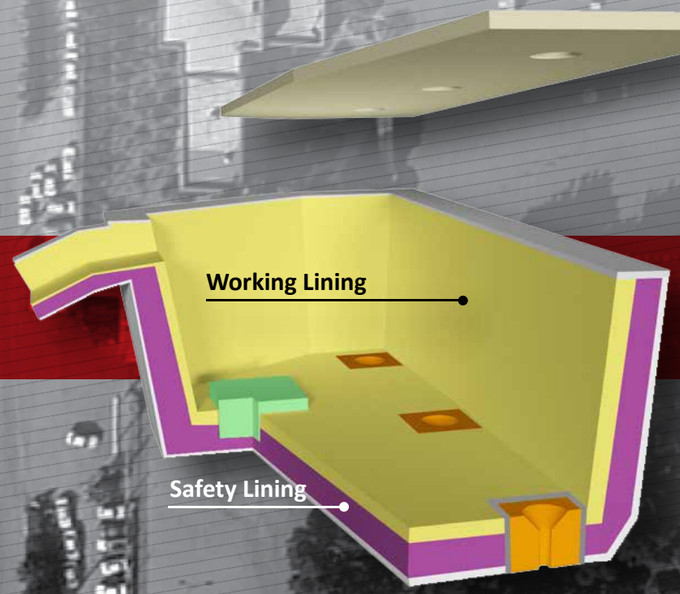
IREFCO

Tundish Working lining

Brand name	Chemical Composition					specifications				
	MgO %	SiO_2 %	CaO %	Fe_2O_3 %	Al_2O_3 %	B.D (kg/m3)	grain size (mm)	Approximate Amount of Water for Trowelling (W %)	Application Area	Temperature Service (°C)
MAGNOCOAT L86	87	6.2	3.7	2.3	0.6	After drying at 110 °C > 2700	0-1	20-22	For steel tundishes working layer	1620
MAGNOCOAT L	91.2	3.6	3.5	0.5	0.6	After drying at 110 °C > 2420	0-1	20-22	For steel tundishes working layer	1670
MAGNOCOAT LH	95.5	1	1.5	0.5	1	After drying at 110 °C > 2700	0-1	20-22	For steel tundishes working layerwith high sequence	1780

Tundish safety lining

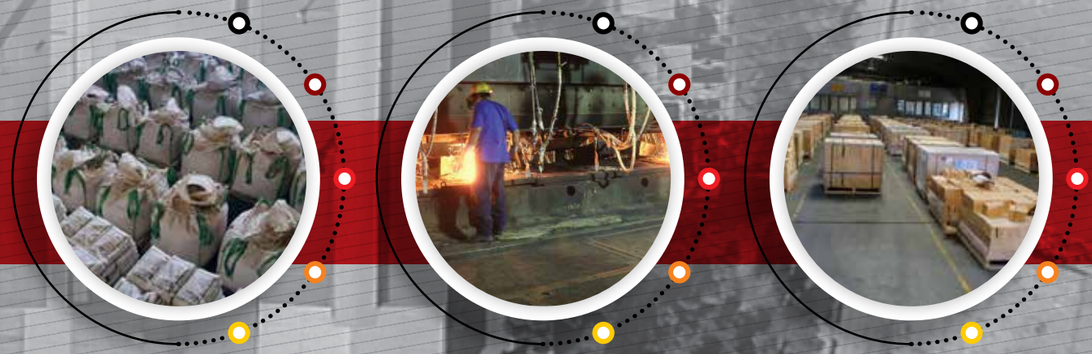
Brand name	Chemical Composition				Physical & machanical Properties				Thermomechanical Properties		
	Al_2O_3 %	SiO_2 %	Fe_2O_3 %	TiO_2 %	C.C.S (gr/cm3)	M.O.R (gr/cm2)	A.P (%)	B.D (gr/cm3)	R.U.L (T0.5 °C)	P.C.E (°C)	Reversible Linear thermal expansion(%)
ALMA 60	58-61	28-32	2-3	3-3.5	> 400	80 -150	< 19	> 2.40	Min 1350	> 34 (1763)	(1400 °C) ≈ 0.7
ALMA 70	68 -72	22- 24	2 - 3	2.8- 3.8	450 - 800	> 70	< 20	> 2.35	Min 1425	> 35 (1785)	(1400 °C) ≈ 0.8
SEMIROM	40 - 43	50 - 54	1.6 - 2.1	1.8 - 2.2	400-600	80-150	10-17	2.20-2.30	Min 1350	> 32 (1717)	(1100 °C) ≈ 0.8

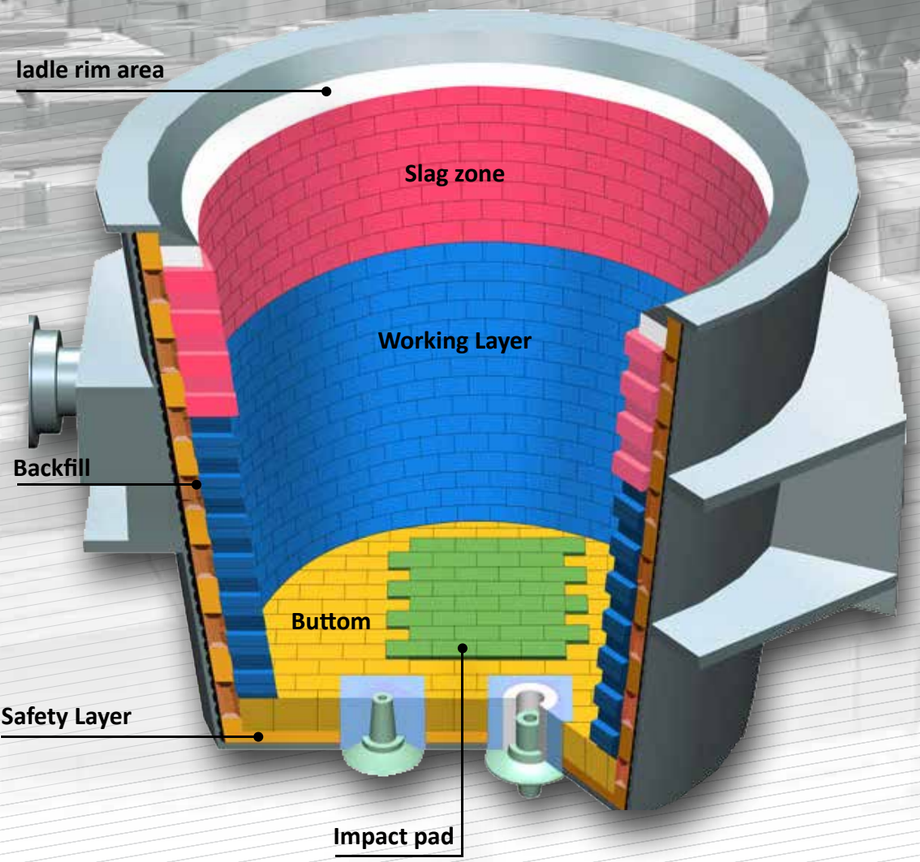


IREFCO

Castable, Mortar and other Monolithics(For Tundish)

Brand name	Chemical Composition					specifications				
	Al_2O_3 %	SiO_2 %	CaO %	Fe_2O_3 %	TiO_2 %	B.D (kg/m3)	grain size (mm)	Water required for pouring (%)	Type Of Bond	Application Area
ALMACAST	68-70	21-23	2-3	1.5-2	2-3	> 2450	0 - 5	9 -11	Hydraulic	saftey lining
ALMACAST AS	66-69	22-25	2-3	1.5 - 2	2-3	> 2450	0 - 5	9 -11	Hydraulic	saftey lining
ALMACAST A 80 LC	78-82	13-15	1.4-1.8	1-1.5	2-3	> 2640	7 - 0	5 -7	Hydraulic	saftey lining
ALMACAST A80	79-81	10 - 13	4-6	1.5-2	2-3	> 2560	9 -11	9 -11	Hydraulic	saftey lining
ALMACAST G	83-86	4 - 6	4-6	1.2-1.8	2.5-3.5	> 2650	9 -10	9 -10	Hydraulic	saftey lining
ALMACAST LC A85	84-86	8 - 9	1.2-1.5	1.5-2	2.5-3.5	2700	5 -7	5 -7	Hydraulic	saftey lining
ALMA MORTAR	58-62	30 -34	-	1.5-3	2-4	-	25 - 30	25 - 30	Ceramic	saftey lining





Ladle working Layer Bricks

Brand name	Chemical Composition					Physical & machanical Properties			Application
	MgO %	Al_2O_3 %	Fe_2O_3 %	CaO %	%C	C.C.S (gr/cm3)	A.P (%)	B.D (gr/cm3)	
IRMAG GR7 FHX	97- 98	-	0.3 - 0.5	0.8-1.2	> 7	450-550	< 5	3.05	For the wall and bottom of steel ladles (Melting Zone)
IRMAG GR10 FHX	97- 98	-	0.3 - 0.5	0.8-1.2	> 10	400-500	< 6	3.05	For the working line of steel ladles (Melting Zone)
IRMAG GR12 FHX	97- 98	-	0.3 - 0.5	0.8-1.2	> 12	400-500	< 6	3.05	For the Slag Zone of Steel Ladles
IRMAG GR14 FHX	97- 98	-	0.3 - 0.5	0.8-1.2	> 14	400-500	< 6	3.05	For the Slag Zone of Steel Ladles
IRMAG GR15 FHX	97- 98	-	0.3 - 0.5	0.8-1.2	> 15	400-500	< 6	2.85-2.95	For the Slag Zone of Steel Ladles
IRALMAG MZ	10	85	0.5	0.5	> 7	500-800	4-8	3.1-3.3	For the wall and bottom of steel ladles (Melting Zone)
IRALMAG IP	6	92	0.3	0.3	> 6	500-800	4-8	30-3.20	For impact pad area and also it can be used for wall and bottom of steel ladles

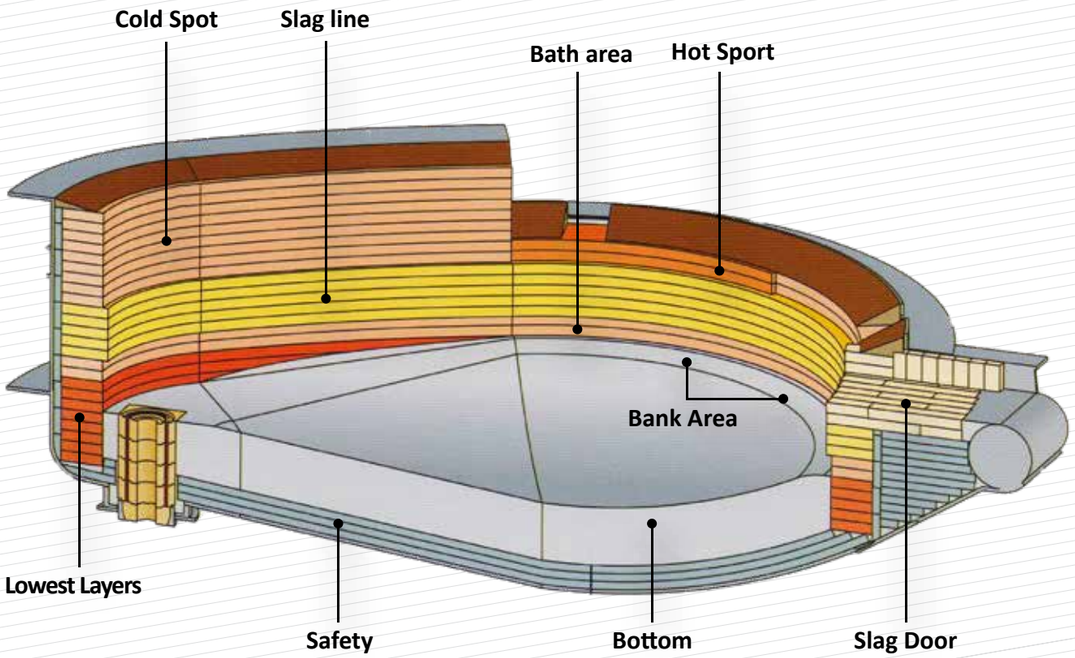
Ladle Safety Layer Bricks

Brand name	Chemical Composition				Physical & machanical Properties				Thermomechanical Properties		
	Al_2O_3 %	SiO_2 %	Fe_2O_3 %	TiO_2 %	C.C.S (gr/cm3)	M.O.R (gr/cm2)	A.P (%)	B.D (gr/cm3)	R.U.L (T05 °C)	P.C.E (°C)	Reversible Linear thermal expansion(%)
ALMA 60	58-61	28-32	2-3	3-3.5	> 400	80 -150	< 19	> 2.4	Min 1350	> 34 (1763)	(1400 °C) ≈ 0.7
ALMA 70	68 -72	22- 24	2 - 3	2.8- 3.8	450 - 800	> 70	< 20	> 2.35	Min 1425	> 35 (1785)	(1400 °C) ≈ 0.8
ALMA 80	78 - 81	12 -14	2 - 3	3 - 4	> 550	> 80	< 19	> 2.5	Min 1500	> 36 (1804)	(1300 °C) ≈ 1
SEMIROM	40 - 43	50 - 54	1.6 - 2.1	1.8 - 2.2	400-600	80-150	10-17	2.2-2.3	Min 1350	> 32 (1717)	(1100 °C) ≈ 0.8

Ladle Castable, Mortar and other Monolithics

Brand name	Chemical Composition						specifications					
	MgO %	SiO_2 %	CaO %	Fe_2O_3 %	Al_2O_3 %	TiO_2 %	grain size (mm)	Water required for pouring (%)	Type Of Bond	Temperature Service(°C)	B.D (kg/m3)	Application Area
MAGNAMI 90 CP	91.5-92.5	2.5-3.5	2-3	< 0.6	0.6	-	0-6	-	Ceramic	1730	> 2700	Used as backfield of working layer bricks in Ladle.
IR-1-96	83 - 86	7.5-9.5	2-3	<1.5	1 - 1.5	-	0-3	-	Ceramic	1750	> 2700	"
MAGNAMI 95 C	86	5.8	4.2	3	0.4	-	0-6	-	Ceramic	1750	> 2700	"
MAGNESITE MORTAR	72-74	13-15	4-6	2.5-3.5	2-3	-	0-0.6	30-36	Chemical	-	-	It is suited for laying all types of basic bricks.
ALMA MORTAR	-	30-34	-	1.5-3	58-62	2-4	0-0.6	25-30	Chemical	1400	-	It is suited for laying all types of Alomin and chomot bricks.
ALUMBOND	-	30-34	-	1.5-3	58-62	2-4	0-0.6	38-47	Chemical	1410	-	"

IREFCO



EAF Working Layer Bricks

Brand name	Chemical Composition				Physical & machanical Properties			Application
	MgO %	Fe_2O_3 %	CaO %	%C	C.C.S (gr/cm3)	A.P (%)	B.D (gr/cm3)	
IRMAG GR10 FBX	98	0.5	0.9	> 10	400-550	< 5	2.95 -35	For the working line of EAF (Cold Spot)
IRMAG GR12 FBX	98	0.5	0.9	> 12	400-500	< 6	2.90 -3	For the working line of EAF (cold spot)
IRMAG GR14 FBX	98	0.5	0.9	> 14	400-500	< 6	2.88-30	For the hot spot area of EAF slag zone and slag door
IRMAG GR15 FBX	98	0.5	0.9	> 15	400-500	< 6	2.83-2.95	For the hot spot area of EAF slag zone and slag door

EAF Safety Layer Bricks

Brand name	Chemical Composition				Physical & machanical Properties				Thermomechanical Properties		
	MgO %	SiO_2 %	Fe_2O_3 %	CaO %	C.C.S (gr/cm3)	M.O.R (gr/cm2)	A.P (%)	B.D (gr/cm3)	R.U.L (T0.5 °C)	P.C.E (°C)	Reversible Linear thermal expansion(%)
IREFMAG 90	89-91	4.5-5.5	0.5-1.5	2-3.5	450-600	90-150	< 19	2.80-2.95	Min 1470	> 37 (1820)	(1400°C) ≈ 1.9
IREFMAG 95	92-94	2.5-3.5	1.5-2.5	1.5-2.5	450-650	90-150	14-18	2.84-3.02	Min 1500	> 38 (1835)	(1100 °C) ≈ 1.4
IREFMAG 98	96-98	0.5-1.5	0.5-1.5	1-1.8	450-700	90-150	15-18	2.85-2.95	Min 1650	> 39 (1865)	(1100 °C) ≈ 1.5

EAF Castable, Mortar and other Monolithics

Brand name	Chemical Composition					specifications					
	MgO %	SiO_2 %	CaO %	Fe_2O_3 %	Al_2O_3 %	grain size (mm)	Water required for pouring (%)	Type Of Bond	Temperature Service(°C)	B.D (kg/m3)	Application Area
MAGNAMI 90 CP	91.5-92.5	2.5-3.5	2-3	< 0.6	0.6	0-6	-	Ceramic	1730	> 2700	Used as backfield of working layer bricks in EAF.
MAGNAMI 95 C	86	5.8	4.2	3	0.4	0-6	-	Ceramic	1750	> 2700	"
MAGNAMI 95 CP	94.5	2.9	1	1	0.5	0-6	-	Ceramic	1780	> 2720	"
MAGNOGUN EA	84-86	7-9	2-3	2.5-3.5	1-1.5	0-3	-	Chemical	1750	> 2100	"
MAGNESITE MORTAR	72-74	13-15	4 - 6	2.5-3.5	2-3	0-0.6	30-36	Chemical	-	-	It is suited for laying all types of basic bricks.
MAGNAMI 95 H	91.5	3.5	1.9	1.1	0.3	0-8	-	Ceramic	1750	> 2700	Used for hot bottom and bank repair of electric arc furnaces.
MAGNOBOND C	84	2.5	2	7	0.75	0-0.6	20 - 25	Chemical	1750	-	Suited for laying Irefmag 90 and Irefmag 95 Bricks. May be used successfully with other types of basic bricks.
MAGNOBOND S	93	4	1	0.6	1	0-0.6	20 - 25	Chemical	1750	-	used successfully with all types of basic brick.
MAGNOBOND	67.2	10.5	3.8	2.6	2.8	0-0.6	30 - 35	Chemical	1650	-	Suited for laying Irefmag 90 and Irefmag 95 Bricks. May be used successfully with other types of basic bricks.

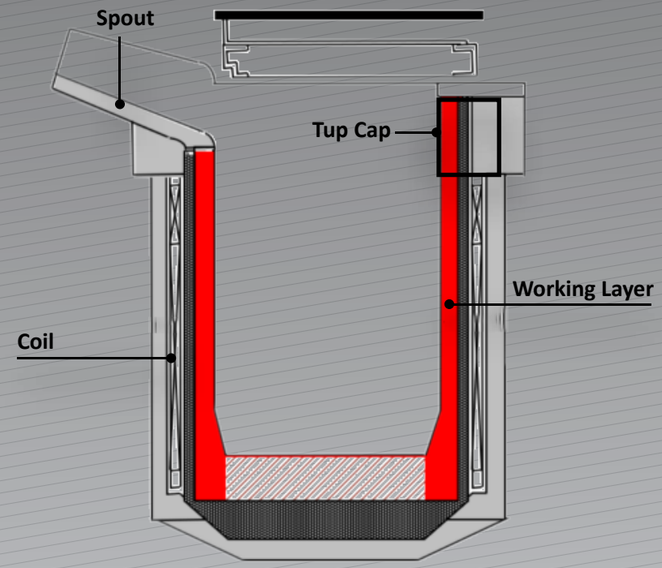
IREFCO

EAF Monolithic Roof

Brand name	Chemical Composition				specifications					
	Al_2O_3 %	SiO_2 %	CaO %	MgO %	B.D (kg/m3)	grain size (mm)	Water required for pouring (%)	C.C.S (kg/cm2) After drying at 110 °C	Temperature Service(°C)	Application Area
KORACAST SLC	90-91	< 0.5	1.6-1.8	5	After drying at 110 °C > 2950	0-6	5-7	550-650	1880	EAF Monolithic roof
KORACAST GMC	96-97	< 0.2	2.0-3.0	0	After drying at 110 °C > 2850	0-6	8-10	300-350	1800	EAF Monolithic roof

EAF Brick Roof

Brand name	Chemical Composition				Physical & machanical Properties				Thermomechanical Properties		
	Al_2O_3 %	SiO_2 %	Fe_2O_3 %	TiO2 %	C.C.S (gr/cm3)	M.O.R (gr/cm2)	A.P (%)	B.D (gr/cm3)	R.U.L (T0.5 °C)	P.C.E (°C)	Reversible Linear thermal expansion(%)
ALMA 80	78-81	12 -14	3 - 2	3-4	> 550	> 80	< 19	> 2.50	Min 1500	> 36 (1804)	(1300 °C) ≈ 1
ALMA 85 SP	82.5 – 84.5	8.5-10.5	1.3 – 1.8	2.5-3.5	> 700	> 200	< 19	> 2.65	Min 1450	>36 (1804)	(1400 °C) ≈ 1
ALMA70	68-72	22-24	2.0 – 3.0	2.8-3.8	450-800	> 70	< 20	> 2.35	Min 1425	> 35 (1785)	(1400 °C) ≈ 0.8

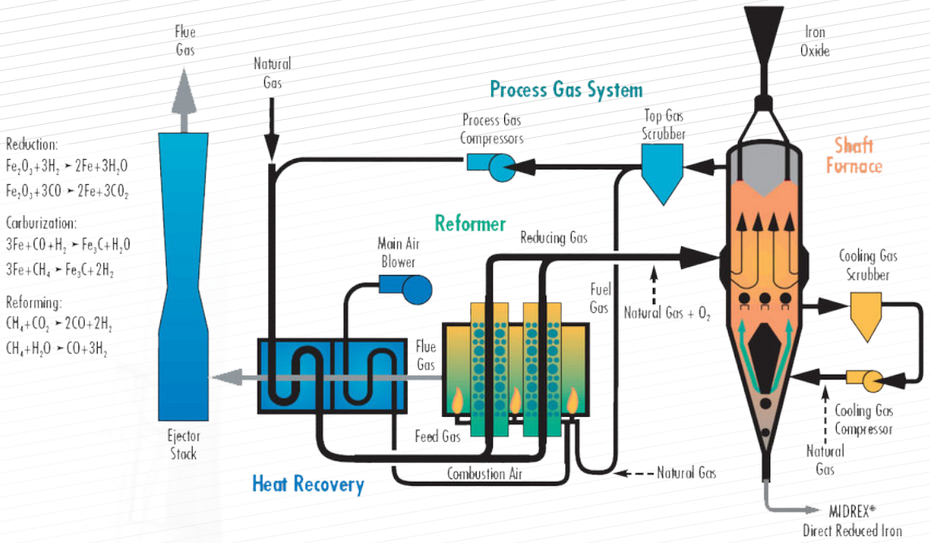


IREFCO

Induction Furnace Working Layer

Brand name	Chemical Composition					Physical & machanical Properties			Application
	MgO %	SiO_2 %	CaO%	Fe_2O_3 %	Al_2O_3 %	B.D (gr/cm3)	grain size (mm)	Type Of Bond	
MAGNAMIIF	86.5	0.8	0.9	0.7	10.2	After drying at 110 °C > 2700	0 – 5	Ceramic	High quality spinel-forming dry ramming mix from sinter magnesite and pure alumina for induction crucible furnaces. (Cold Repairs)
ALPINAL 85 IF	12.5	0.8	-	0.1	85.5	After drying at 110 °C > 2950	0 – 6	Ceramic	Excellent resistance to high temperature, abrasion and corrosion. Low shrinkage. Recommended for working layer of Induction Furnaces.
ALPINAL 85 IFX	11.5-12.5	<1.5	-	0.1	84-86	After drying at 110 °C > 2950	0 – 6	Ceramic	“
IREFCAST H	0	38-40	4-6	1.4-1.8	50-54	After drying at 110 °C > 2290	0 – 5	Hydraulic	Adaptable for gunning, casting, or troweling with Highly abrasion resistant. Used in Tup Cap area of inducton furnaces.
ALMACAST G	0	4-6	4-6	1.2-1.8	83-86	After drying at 110 °C > 2650	0–3.5	Hydraulic	Used in Spout area of inducton furnaces.

IREFCO



safety lining For Reduction Area

Brand name	Chemical Composition				Physical & machanical Properties				Thermomechanical Properties		
	Al_2O_3 %	SiO_2 %	Fe_2O_3 %	TiO2 %	C.C.S (gr/cm3)	M.O.R (gr/cm2)	A.P (%)	B.D (gr/cm3)	R.U.L (T0.5 °C)	P.C.E (°C)	Reversible Linear thermal expansion(%)
Alma70	72 - 68	22-24	2 - 3	2.8 - 3.8	450 - 800	> 70	< 20	> 2.35	Min 1425	> 35 (1785)	(1400 °C) ≈ 0.8
SEMIROM LI	40 - 44	50-54	< 1.7	1.8	400-600	80-150	10-17	2.2 -2.3	Min 1360	> 33 (1743)	(1100 °C) ≈ 0.8
SEMIROM LIS	40-44	50-54	< 1	< 2	400-600	80-150	10 -17	2.2-2.3	Min 1360	> 33 (1743)	(1100 °C) ≈0.8
ALUMO LI	> 47	< 50	< 1	*	> 800	80-150	< 15	2.3 -2.4	Min 1430	> 33 (1743)	(1400 °C) ≈0.8

Castable, Mortar and other Monolithics

Brand name	Chemical Composition						specifications			
	Al_2O_3 %	SiO_2 %	CaO %	Fe2O3 %	TiO2 %	B.D (kg/m3)	grain size (mm)	Water required for pouring (%)	Temperature Service(°C)	Application Area
IREFCAST 23 ES (LIS) 1%	35-40	37-40	10-12	< 1.1	*	1500	0 - 5	40-45	1290	hot face or back – up linings, excellent resistance to thermal shock and Co resistance
IREFCAST HB (LI)	61	28.90%	4.5	1.5	1.9	2290	0 - 4	9 -11	1600	Adaptable for gunning , casting , or trowelling
IREFCAST HLI (1%)	50-53	38-40	3.5 -5	< 1	1.5 - 2	-	0 - 4	9 -11	1550	Adaptable for gunning , casting , or trowelling
IREFCAST 20	33-38	40-45	10-16	5 - 8	*	900	0 - 3.6	45-55	1220	various industrial furnaces , boilers , incinerators , stacks and etc with excellent resistance to thermal shock Co resistance
IREFGUN 28 LI (1%)	50 -54	37 -39	6 -8	< 1	*	2200	0 -4	44 -53	1500	gunning or trowelling
ALMACAST	68 -70	21-23	2-3	1.5 -2	2-3	> 2450	0-5	9-11	1650	casting monolithic Petrochemical Industries
ALUMBOND SLI	68-71	14-17	2-3	1.4-1.7	2 -3	*	0-0.6	25 -30	1420	Recommended for laying high alumina brick of the 50 % to 70 % class in Chemical & Petrochemical Industries, particularly in Iron ore pelletizing plants.
IREFBOND LI	34-38	47 -50	*	1.4 -1.7	2.5 -3.5	1100	0 -0.6	26-30	1340	Mortar for Low Iron fireclay bricks jointing .(Air set)
IREFCAST HLI	50-53	38 -40	3.5-5	1.3-1.6	1.5-2		0-4	9 - 11	1550	use in extreme abrasion applications in equipment such as cyclones & piping , materials handling equipment, rotary kilns & etc
IREFGUN 20 (LIS)	31-38	38 -45	10 -16	< 1.7	*	< 900	0 -3.6	45-55	1170	Wherever reduction resistance required; particularly in Iron ore pelletizing plants and Petrochemical Industries, Various industrial furnaces, incinerators, stacks and as backup for other refractories.
IREFGUN 22 (LIS) (1%)	31 - 37	38 -45	8 -12	< 1.1	*	1100	0 -3.5	44-53	1240	"
IREFCAST 22 (LIS) 1%	33 - 38	40 -45	8 -12	< 1.1	*	< 1100	0 -3.5	44-53	1240	"
IREFGUN 23 ES (LI S) 1%	32 - 38	36-40	9 -13	< 1.1	*	< 1650	0 -5	29-36	1290	"
IREFGUN 28 LI (1%)	50 -54	37 -39	6 -8	< 1	*	2200	0 -4	44 -53	1500	gunning or trowelling

IRAN REFRACTORIES CO. (IREFCO)

Since, most of fundamental industries are involved in high temperatures, providing them with refractories is an essential step in this respect.

The cost of supplying refractories in manufacturing some products is considerable and this is a motive force for foundation and development of refractories industry.

Iran Refractories Company (IREFCO) was established in 1972 to provide refractories for growing industries in Iran.

The first production line of the plant has a capacity of 48000 tons per year while the second fully automatic one has capacity of about 22000 tons per year and In continuation of development projects, including the production line of basic bricks with a nominal capacity of 22,000 tons per year in 1991 and the production line of magnesia - carbon bricks with a nominal capacity of 20,000 tons per year in 2001 was put into operation.

Manufacture of special materials lines with high capacity with using modern equipment and the latest technology world has implemented and by tapping them ,produce a very wide range of refractory productions and make them available to the Industries.

Irefco is one of the few plants in the world producing fireclay, high alumina and basic bricks as well as monolithic in all categories such as: mortars, castables, gunning and ramming mixes, plastics and grain sized materials wich are producing with filing bags lines.

Iran Refractories Co. with more than two decades of using a quality management system based on standards ISO 9001, in the first self-assessment process based on the EFQM(business excellence Quality models))in 2007 was received the certificate of commitment to excellence.

The company for using of better management systems, to improve the quality level of activities and its responsibilities in industrial sustainable development ,the certificate Integrated Management System (IMS) standards including ISO9001, ISO14001, OHSAS18001 has received Informed participation in self-reported plan in industrial and productional units and environmental pollutants in the last two years also about responsibility and growing movement in this productional complex.

IREFCO modern R&D centerand exerts enable us to respond to our customers needs through prompt development of new products.

IREFCO R&D center managed to receive certification of research and development from ministry of Industries & Mines of Iran.

For the production of high quality refractories modern automatic equipments and state-of-the-art technology give the factory versatility to meet customer’s requirements promptly.