



RefractorieX

STEEL INDUSTRY REFRACTORY SOLUTION



www.RefractorieX.com



In today's competitive and advanced steel industry, the use of high-quality and optimized refractory solutions is essential. With the increasing demand for higher productivity and lower operating costs, the importance of employing innovative materials and technologies in steel production processes has become more evident. RefractorieX, as a comprehensive and innovative solution, enables significant improvements in the efficiency of steel production lines by optimizing thermal processes and increasing the durability and service life of equipment. In this pursuit, RefractorieX, leveraging its experience and expertise, continuously reviews refractory solutions to meet the evolving needs of the industry and maximize efficiency and safety for our customers. These advanced solutions guarantee improved product quality, reduced production costs, and enhanced overall performance of steelmaking systems.



Our services

Refractorix is capable of producing and supplying a wide range of refractory materials, including alumina-silicate castables, pre-shaped refractory, bricks, anchors, and more, for all stages of steelmaking. In addition, with the support of our expert technicians, we provide not only high-quality refractories but also technical and engineering solutions for installation and commissioning.



Iron concentrate is one of the raw materials of raw steel in the form of iron oxide, which is transformed into sponge iron by removing oxygen from its structure by pelletizing furnaces and direct reduction. The steps of steelmaking include melting, refining, casting and rolling. In primary steelmaking, sponge iron and iron scrap are converted into raw steel by electric arc and induction furnaces. Then, in the secondary steelmaking process, undesirable elements are removed and the chemical composition is optimized. In the casting stage, the molten steel is transformed into desired shapes (such as ingots, billets or slab). Finally, the steel becomes the desired thickness and shape, and its mechanical properties are improved.



Pelletizing

Pelleting process (Alice Chalmers and Lorgi) requires advanced equipment and technologies to produce quality and uniform pellets. In these furnaces, refractory are used to maintain a smoothness and prevent wear and tear of the walls. Also, fireproof coatings in material transfer lines protect these parts from heat caused by heating from 250°C to 1000°C.

PELLETIZING FURNACE	CAST
CLEAN GRATE	REXCRETE TR 60B-B
	REXCRETE ES 60A-AB
	REXCRETE ES 70-AB
	REXCRETE ES 80M-B
BURNER	REXIT ES 2460-TZ
	REXCRETE TR 3535-TZ
	REXIT ES 1672-AT
INLET ZONE	REXIT ES 1080-TZ
	REXCRETE ES 90M-AT
	REXIT ES 1080-TZ
OUTLET ZONE	REXIT ES 1085-T
	REXCRETE ES 90M-AT
	REXIT ES 1080-TZ
ANULAR	REXCRETE ES 70-AB
	REXIT ES 1080-TZ



Recovery

the direct reduction process, a critical step in steel production, Refractoriex provides refractory materials with low thermal conductivity and minimal iron content, designed to withstand the harsh environmental conditions and reducing gases involved in sponge iron production. By lining the walls, floors, and roofs of reduction furnaces, Refractoriex prevents high-temperature degradation and chemical reactions, extending furnace and equipment life and reducing the need for frequent repairs and replacements. Additionally, Refractoriex contributes to maintaining optimal temperatures in the cooling system during the reduction process.



DIRECT REDUCTION IRON	CAST	GUNING	INSULATING CAST	MORTAR
FURNACE	REXCRETE TR 60LI	INSUREX G90SC/Q	INSUREX 95/P	REXMOR 80LI-B
	REXCRETE ES 60LI-T	REXCRETE TRG 50LI	INSUREX 100/P	REXMOR 90LI-T
	REXCRETE ES 82TA-BT	-	INSUREX 90SC/Q	-
	REXCRETE ES 50LI-A	-	-	-
BLOWER DUCTS	-	-	INSUREX 130/R	REXMOR 60LI-A
	-	-	INSUREX 140/S	REXMOR 80LI-B
	-	-	-	REXMOR 90LI-T
	-	INSUREX G60LI/P	INSUREX 60LI/P	REXMOR 45LI
REFORMER	-	-	INSUREX 100/P	REXMOR 60LI-A
	-	-	INSUREX 130/R	-
	-	-	INSUREX 140/S	-
	-	-	INSUREX 180/S	-
RECUPERATOR	-	INSUREX G60LI/P	INSUREX 60LI/P	REXMOR 60LI-A
	-	INSUREX G90SC/Q	INSUREX 90SC/Q	-
DUCTS	REXCRETE ES 50LI-A	INSUREX G90SC/Q	INSUREX 60LI/P	REXMOR 60LI-A
	-	REXCRETE TRG 50LI	INSUREX 90SC/Q	-
	-	-	INSUREX 100/P	-



Electric ARC Furnace

Electric arc furnaces play a pivotal role in the steelmaking industry, offering an efficient and flexible process for melting steel scrap and raw materials using electricity. Refractoriex, specifically designed for the critical roof section of electric arc furnaces, can withstand extremely high temperatures and repeated thermal shocks without cracking or failing. These refractory materials exhibit exceptional resistance to abrasion caused by molten material flow and chemical attacks, resulting in extended service life and reduced maintenance requirements.

EAf	CAST
ROOF-DELTA SECTION	REXCRETE ES 97-CR
	REXCRETE ES 92-CR
	REXCRETE ES 2092-SPCR
	REXCRETE ES 2092-SP
	REXCRETE ES 85-TCR

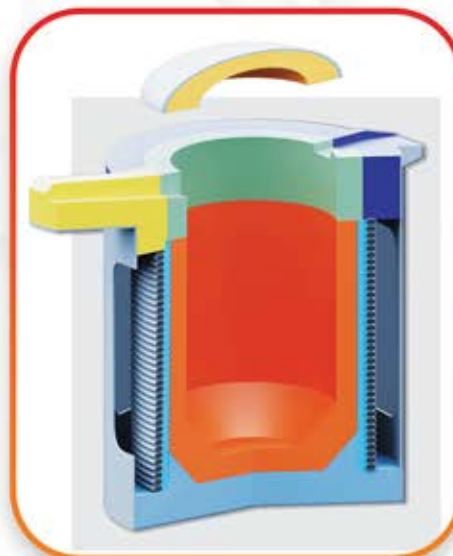




Induction furnace

Induction furnace is one of the advanced technologies in the steel industry. Due to the high temperature and harsh operating conditions, these furnaces require quality and resistant refractories. Refractorix increases the useful life of the furnace, reduces maintenance costs and improves the overall efficiency of the production process. They do not give high chemical reaction with molten metals, which helps to maintain the quality of metals.

INDUCTION FURNACE	CAST	TROWELING	RAMMING
COIL COATING	-	REXCRETE TRT 94-T	-
	-	REXCRETE TRT 90-T	-
	-	REXCRETE TRT 85-TB	-
	-	REXCRETE TRT 80-B	-
REFRACTORY LINING	-	-	REXRAM 86-W
SPOUT LINING	REXCRETE TR 60B-B	REXCRETE TRT 70-B	-
	REXCRETE ES 70-AB	-	-
PRECAST TOP AND BOTTOM BLOCK	REXCRETE ES 70-AB	-	-
	REXCRETE ES 80M-B	-	-

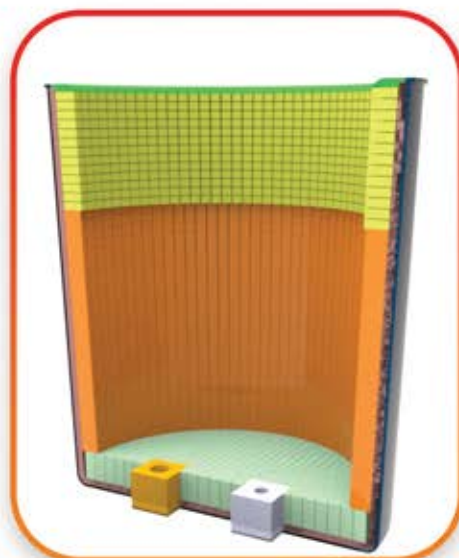




Secondary Steelmaking

In secondary steelmaking, where the chemical composition of steel is refined, impurities are removed, and mechanical properties are precisely adjusted, a ladle furnace (LF) is employed. The environmental conditions within this process, including high temperatures (1400-1600°C), pressure, chemical composition, and a corrosive atmosphere, significantly influence the quality of the steel. Considering these conditions, RefractorieX offers suitable refractory materials. The meticulous selection of these materials can reduce repair times, enhance efficiency, and improve the quality of the produced steel. Secondary Steelmaking.

LF	CAST
Roof	REXCRETE ES 2092-SPCR
	REXCRETE ES 97-CR
	REXCRETE ES 92-CR
	REXCRETE ES 80M-B
SAFETY LINING SIDE WALL	REXFLU ES 80-B
	REXCRETE ES 82A-BT
	REXCRETE ES 85M-B
	REXCRETE ES 90M-AT
	REXCRETE ES 92C-AT
	REXCRETE TR 94-T
SAFETY LINING BOTTOM	REXCRETE TR 95M-T
	REXCRETE TR 90S-TB
	REXCRETE ES 2192-SP
WELL BLOCK	REXCRETE ES 1194-SP
PURGING PLUG	REXCRETE ES 1194-SP
EDGE COVER	REXCRETE TR 60B-B
	REXCRETE ES 60A-AB
	REXCRETE ES 60-AB
	REXCRETE ES 70M-B



Steel Casting

Steel casting is a critical process in the steelmaking industry that involves producing various steel shapes and components through both continuous and discontinuous casting methods. This process consists of several stages, each playing a vital role in the final quality and properties of the product. The tundish and continuous casting machine are among the most important equipment in this section, which are subjected to very high temperatures, oxidation, and corrosion. Considering these conditions, heat losses, and the need for steel quality control, RefractorieX proposes suitable refractory materials.



STEEL CASTING	CAST
SAFETY LINING SIDE WALL	REXCRETE ES 80M-B
	REXFLU ES 80-B
	REXCRETE ES 82A-BT
	REXCRETE ES 85M-B
	REXCRETE ES 90M-AT
	REXCRETE ES 92C-AT
WELL BLOCK	REXCRETE ES 2192-SP
	REXCRETE ES 1194-SP
EDGE COVER	REXCRETE TR 60B-B
	REXCRETE ES 60A-AB
	REXCRETE ES 60-AB
	REXCRETE ES 70M-B
IMPACT PADS	REXCRETE ES 1194-SP
	REXCRETE ES 80M-B
	REXCRETE ES 90M-AT
IMPACT BOX	REXCRETE ES 2192-SP
	REXCRETE ES 1194-SP
SLAG WARES	REXCRETE ES 2192-SP
	REXCRETE ES 1194-SP
COVER	REXCRETE ES 70-AB
	REXCRETE ES 60-AB
	REXCRETE ES 80M-B
CCM	REXCRETE ES 50-B
	REXCRETE ES 60-AB





Steel rolling mill

(Pusher, Walking Beam and Circular Furnaces)

In secondary steelmaking, where the chemical composition of steel is refined, impurities are removed, and mechanical properties are precisely adjusted, a ladle furnace (LF) is employed. The environmental conditions within this process, including high temperatures (1400-1600°C), pressure, chemical composition, and a corrosive atmosphere, significantly influence the quality of the steel. Considering these conditions, RefractorieX offers suitable refractory materials. The meticulous selection of these materials can reduce repair times, enhance efficiency, and improve the quality of the produced steel. Secondary Steelmaking.

Reheating Furnace		CAST	INSULATION	PLAST
PREHEATING ZON	WALL& ROOF& BOTTOM	REXCRETE ES 60-AB	INSUREX 95/P	REXPLAST 60-A
		REXCRETE ES 60A-AB	INSUREX 110/Q	-
		REXCRETE TR 60B-B	INSUREX 130/Q	-
SOAKING ZON	WALL& ROOF& BOTTOM	REXCRETE ES 70M-B	INSUREX 95/P	REXPLAST 60-A
		REXCRETE ES 70-AB	INSUREX 110/Q	-
		-	INSUREX 130/Q	-
DISCHARGING ZON	WALL & ROOF	REXCRETE ES 80M-B	INSUREX 95/P	REXPLAST 60-A
		REXCRETE ES 82A-BT	INSUREX 110/Q	REXPLAST 90-T
		REXCRETE ES 85M-B	INSUREX 130/Q	-
	BOTTOM	REXCRETE ES 97C-T	INSUREX 95/P	REXPLAST 90-T
		REXCRETE ES 90M-AT	INSUREX 110/Q	-
		-	INSUREX 130/Q	-

Data Sheet

PRODUCT NAME	CLASSIFICATION TEMP °C	CHEMICAL ANALYSIS(%)					BULK DENSITY (gr/cm3)	Cold Crushing Strength (N/mm2)				Permanent Liner Change (%)		Main Raw Material Base
		Al ₂ O ₃	SiO ₂	Fe ₂ O ₃	Cr ₂ O ₃	MgO		100°C	85°C	100°C	1400°C	85°C	1200°C	
INSULATION CASTABLE														
INSUREX 95/P	1100	29	44	7	-	-	1	3	-	2	-	-	-	Perlite/Expanded Clay
INSUREX 95A/P	1150	29	46	2	-	-	11	3	2	2	-	-	-	Low Iron& light weight aggregate
INSUREX 130/Q	1300	37	40	7	-	-	13	6	-	4	-	-	-	Perlite/Expanded Clay
INSUREX 110/Q	1200	33	42	7	-	-	12	4	-	5	-	-	-	Perlite/Expanded Clay
INSUREX 60LI/P	1100	33	48	15	-	-	0.7	2	13	1	-	-0.8	-	Low Iron& light weight aggregate
INSUREX 90SC/Q	1260	39	41	13	-	-	0.95	3	2.5	-	-	-0.7	-	Low Iron& light weight aggregate
INSUREX 100/P	1100	43	37	13	-	-	11	6	4	-	-	-0.6	-	Low Iron& light weight aggregate
INSUREX 130/R	1400	40	45	13	-	-	13	5	4	5	-	-0.4	-	Low Iron fireclay/high alumina aggregate
INSUREX 140/S	1400	45	46	1	-	-	14	7	5	6	-	-0.4	-	Low Iron fireclay/high alumina aggregate
INSUREX 180/S	1600	56	34	13	-	-	2	15	12	13	-	-0.3	-	Low Iron fireclay/high alumina aggregate
CONVENTIONAL CASTABLE														
REXCRETE TR 3535-TZ	1600	35	20	0.5	SiC35	ZR6	2.7	80	-	90	100	-	-0.2	Tabular/Andalusite/SiC
REXCRETE TR 60B-B	1550	60	30	2.5	-	-	2.4	70	-	60	-	-	-0.3	Bauxite/ fireclay
REXCRETE TR 60LI	1600	56	38	15	-	-	2.4	70	-	60	-	-0.3	-	Low Iron fireclay/tabular
REXCRETE TRT 70-B	1600	69	22	18	-	-	2.5	40	-	-	30	-	-0.6	Bauxite
REXCRETE TRT 80-B	1650	79	11	2.1	-	-	2.6	40	-	-	40	-	-0.6	Bauxite
REXCRETE TRT 85-TB	1650	84	7	1.7	-	-	2.7	40	-	-	40	-	-0.6	Tabular/Bauxite
REXCRETE TRT 90-T	1700	88	5	0.8	-	-	2.7	40	-	-	40	-	-0.6	Tabular
REXCRETE TRT 94-T	1700	91	3.5	0.3	-	-	2.8	40	-	-	40	-	-0.5	Tabular
REXCRETE TR 90S-TB	1750	90	6	1	-	-	2.8	70	-	-	80	-	-0.3	Tabular/Bauxite
REXCRETE TR 94-T	1800	94	0.3	0.3	-	-	3	70	-	-	80	-	-0.3	Tabular
REXCRETE TR 95M-T	1800	94	0.3	0.3	-	-	3	70	-	-	80	-	-0.3	Tabular

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		Al ₂ O ₃	SiO ₂	Fe ₂ O ₃	Cr ₂ O ₃	MgO		100°C	85°C	100°C	1400°C	85°C	1200°C	
GUNNING														
INSUREX C100/C	1100	29	44	7	-	-	1	3		2	-	-	-	Perlite/Expanded Clay
INSUREX C60LI/P	1100	33	48	15	-	-	0.7	2	13	1	-	-0.8	-	Low Iron& light weight aggregate
INSUREX G90SC/Q	1260	39	41	13	-	-	0.95	3	2.5		-	-0.7	-	Low Iron& light weight aggregate
REXCRETE TRG 50LI	1480	46	47	13	-	-	2.2	45	40	35	-	-0.3	-	Low Iron FireClay
RAMMING AND PLAST														
REXRAM 86-W	1800	85	0.4	0.3	-	14	2.9	-	-	-	-	-	-	White Fused/Spinel
REXPLAST 90-T	1750	88	8	0.8	-	-	2.7	10	-	60	-	-	-0.8	Tabular
REXPLAST 60-A	1450	62	34	1	-	-	2.4	8	-	30	-	-	-0.4	Tabular/Andalusite
MORTAR														
REXMOR 45LI	1600	40	50	13	-	-	-	-	-	-	-	-	-	
REXMOR 60LI-A	1600	60	33	13	-	-	-	-	-	-	-	-	-	
REXMOR 80LI-B	1750	80	15	1	-	-	-	-	-	-	-	-	-	
REXMOR 90LI-T	1800	85	12	0.7	-	-	-	-	-	-	-	-	-	

Data Sheet

PRODUCT NAME	CLASSIFICATION N TEMP °C	CHEMICAL ANALYSIS(%)					BULK DENSITY (gr/cm3)	Cold Crushing Strength (N/mm2)				Permanent Linear Change (%)		Main Raw Material Base
		Al ₂ O ₃	SiO ₂	Fe ₂ O ₃	Cr ₂ O ₃	MgO		110°C	115°C	1100°C	1400°C	115°C	1200°C	
LOW CEMENT CASTABLE														
REXCRETE ES 50-B	1550	50	38	3	-	-	2.4	70	-	70	-	-	-0.3	Fireclay/Bauxite
REXCRETE ES 50LI-A	1480	46	45	1.3	-	-	2.2	45	-	45	-	-	-0.3	Low Iron Fireclay
REXCRETE ES 60-AB	1600	60	30	1.8	-	-	2.4	70	-	75	-	-	-0.3	Andalusite/Bauxite
REXCRETE ES 60A-AB	1600	58	31	2	-	-	2.4	70	-	70	-	-	-0.3	Andalusite/Bauxite
REXCRETE ES 60LI-T	1650	60	34	1	-	-	2.4	70	-	80	-	-	-0.2	Low Iron fireclay/tabular
REXIT ES 2460-TZ	1650	60	7	0.3	SiC 24	ZR5	3	80	-	90	-	-	-0.2	Tabular/Andalusite/SiC
REXCRETE ES 70-AB	1600	65	26	1.8	-	-	2.5	70	-	80	-	-	-0.3	Andalusite/Bauxite
REXCRETE ES 70M-B	1600	65	25	2.5	-	-	2.5	70	-	70	-	-	-0.3	Bauxite/ fireclay
REXIT ES 1672-AT	1650	72	8	0.3	SiC 16	-	2.8	80	-	90	-	-	-0.2	Tabular/Andalusite/SiC
REXCRETE ES 80M-B	1650	75	14	2.5	-	-	2.6	70	-	80	-	-	-0.3	Bauxite
REXCRETE ES 82TA-BT	1700	79	17	0.7	-	-	2.7	70	-	90	-	-	-0.2	Bauxite/Tabular/Andalusite
REXCRETE ES 82A-BT	1650	82	14	0.8	-	-	2.7	80	-	80	-	-	-0.2	Bauxite/Tabular/Andalusite
REXCRETE ES 85M-B	1650	83	8	2	-	-	2.7	70	-	80	-	-	-0.2	Bauxite
REXIT ES 1080-TZ	1700	80	6	0.3	SiC 10	ZR2.5	2.9	80	-	90	-	-	-0.2	Tabular/SiC
REXFLU ES 80-B	1650	79	13	2	-	-	2.5	60	-	90	-	-	-0.3	Bauxite
REXIT ES 1085-T	1700	82	5	0.3	SiC 10	-	3	80	-	90	-	-	-0.2	Tabular/SiC
REXCRETE ES 85-TCR	1800	86	10	0.3	15	-	2.9	70	-	90	-	-	-0.2	Tabular/Andalusite
REXCRETE ES 92C-AT	1750	92	4.5	0.2	-	-	3	70	-	90	-	-	-0.2	Tabular/Andalusite
REXCRETE ES 90M-AT	1700	88	6	1.2	-	-	2.9	70	-	90	-	-	-0.3	Tabular/Bauxite
REXCRETE ES 2192-SP	1800	92	0.1	0.1	-	5	3.2	70	-	90	-	-	-0.1	Tabular/Spinel
REXCRETE ES 1194-SP	1800	94	0.1	0.1	-	2.5	3.2	70	-	90	-	-	-0.1	Tabular/Spinel
REXCRETE ES 92-CR	1800	92	4	0.2	15	-	3.1	70	-	90	-	-	-0.1	Tabular/Andalusite
REXCRETE ES 2092-SPCR	1800	91	0.1	0.1	1	5	3.2	70	-	90	-	-	-0.1	Tabular/Spinel
REXCRETE ES 2092-SP	1800	92	0.1	0.1	-	5	3.2	70	-	90	-	-	-0.1	Tabular/Spinel
REXCRETE ES 97-CR	1800	96	0.1	0.1	2	-	3.2	70	-	90	-	-	-0.1	Tabular
REXCRETE ES 97C-T	1800	97	0.1	0.1	-	-	3.2	70	-	80	100	-	-0.1	Tabular

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