From: Feldman-Lehker, Dawn

Sent: 2/26/2015 3:55:09 PM

To: TTAB EFiling

CC:

Subject: U.S. TRADEMARK APPLICATION NO. 77873477 - MAGNESITA - MAGN6002/TJM - Request for Reconsideration Denied - Return to TTAB - Message 2 of 3

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Attachment Information:

Count: 11

Files: firebrick-4.jpg, firebrick-5.jpg, firebrick-6.jpg, firebrick-7.jpg, firebrick-8.jpg, firebrick-9.jpg, mineraltec-1.jpg, mineraltec-2.jpg, mineraltec-3.jpg, mineraltec-4.jpg, mineraltec-5.jpg

FURNAL and RESCAL 80 PA (Baked)

FURNAL and RESCAL 80 PA are 85% alumina, phosphate containing baked brick, each with a unique non-wetting matrix, which minimizes silicon pickup and facilitates fast and easy furnace cleaning. They are strong and can withstand the severe mechanical abrasive conditions encountered in today's aluminum furnaces. Dimensional stability and exacting manufacturing tolerances assure fast, long lasting installations. Both products recommended for metal contact with a broad range of aluminum alloys.

MARELAN PLANT

High Alumina Brick-Alkali and Creep Resistant

The alkali and creep resistant KRIAL brick are high purity, low alkali products based on high purity aluminas, calcined bauxitic kaolins, and high grade andalusite. Designed originally for use in blast furnaces and blast furnace stoves due to their low creep rate and carbon monoxide resistance, several of these products have also flourished in other markets including glass furnace regenerators and carbon anode baking furnaces. All of the brands listed on this page give an "A" rating in the ASTM carbon monoxide (CO) disintegration test.

KRIAL 50-A

KRIAL 50-A has a combination of creep resistance, dimensional stability, resistance to chemical attack and thermal conductivity which make it ideally suited for heat exchange applications. Its high purity micro structure with a low glass content and a high amount of mullite is extremely creep and spall resistant. It can withstand higher operating temperatures than typical low flux super duty brick. It is an ideal product for use in high-efficiency, thin-wall blast furnace stove checkers . It is also an excellent choice for

all areas of carbon anode baking furnaces where its refractoriness and superior mechanical properties are essential. Its matrix mineralogy is very resistant to the destructive silica depletion caused by fluorine attack. KRIAL 50-A offers the baking pit operator the opportunity to improve productivity by significantly raising firing temperatures and reducing cycle times.

KRIAL 60

KRIAL 60 is a low alkali, low porosity brick with outstanding hot strength. Its superior resistance to thermal shock, abrasion and alkali attack help make it the cost effective solution for a variety of severe applications. KRIAL ® 60 has seen

cost effective solution for a variety of severe applications. KRIAL® 60 has seen extensive service in blast furnace stack linings and is highly recommended for use in torpedo ladles, chemical and waste incinerators and as tie brick in carbon anode baking furnaces.

KRIAL 60-A +

KRIAL 60-A+ is the primary answer for blast furnace and blast furnace stove applications requiring a low flux 60% alumina product. KRIAL 60-A+ is a low porosity, high strength product and has become the choice for most thin wall stove checker applications. It has been quite successful in blast furnace stack linings and torpedo ladles.

KRIAL 65-A

KRIAL 65-A is recommended for use in the highest temperature areas of blast furnace stoves. It is extremelycreep resistant at 2730˚F and is primarily utilized in the uppermost checkers and dome of the stove. KRIAL 65-A is andalusite-based and provides all the benefits of high fired mullite products. It's matrix has an exceptionally low glass content.

KRIMUL

KRIMUL is an ultrahigh purity, low flux brick that provides the maximum resistance to hot load deformation and creep in the 60% alumina product range. This andalusite-based brick satisfies all ASTM requirements for classification as a mullite refractory. Its outstanding load bearing properties at 2550˚Fqualify it for severe blast furnace stove and hot blast main applications. Also, its resistance to low basicityslag make it a natural choice for torpedo ladles. KRIMUL has good abrasion and thermal shock resistance and has performed well in glass furnace regenerators due to its excellent resistance to alkali attack.

RESIN-BONDED ALUMINA-CARBON

BRICK

LadleMax 80 R5

LadleMax 80 R5 is a resin-bonded alumina-carbon brick. The brick is a metal-free, 80% alumina class product with 5% carbon content. This product is used to line the low wear areas of iron and steel ladle bottomsand sidewalls.

LadleMax BSC

LadleMax BSC is a resin-bonded alumina-carbon brick with silicon carbide brick designed for hot metal carand iron charging ladle service. This bauxite-based, iron-friendly refractory is typically used in low wear areas of the vessel sidewalls and bottoms.

LadleMax ASC

LadleMax ASC is a resin-bonded alumina-carbon brick with silicon carbide that also contains fused alumina. This product is used in the iron charging ladles and hot metal cars such as tap stream impact pads or stir quadrants.

LadleMax AMG

LadleMax AMG is an 80% alumina brick containing magnesia, antioxidants, and graphite. At steelmaking temperatures the mix ingredients react to form various carbon and magnesia-spinel phases. These reactions are expansive and provide a brick lining whcich appears monolithic. This product is recommended for ladle bottoms and barrels of steel shops making aluminum-killed steels.

LadleMax AMG SL

LadleMax AMG SL is similar to AMG, but contains a higher quantity of magnesia for improved slag resistance.

LadleMax AMG HP

LadleMax AMG HP is an 80% alumina brick containing a blend of refractory grade alumina plus magnesia, antioxidants, and graphite. At steelmaking temperatures, these mix ingredients react to form various carbon and magnesia-alumina spinel phases. AMG HP is suggested for steel ladle bottoms and barrels when a 10% to 25% life improvement is needed over regular AMG. This product has a higher purity composition than LADLEMAX AMG (higher alumina and less silica, lime, and iron oxide).

LadleMax AMG 90

LadleMax AMG 90 is similar to regular AMG, but it contains fused alumina, the alumina content is 90%. It was developed for severe operating conditions associated with tap stream impact and buffer zones between lower quality ladle barrel brick and Magnesia-Carbon slaglines. LADLEMAX AMG 90 is typically zoned with other AMG compositions to provide a balanced wear pattern to achieve maximum heat life.

LadleMax AMG 90 SL

LadleMax AMG 90 SL is similar to AMG 90, but contains a higher quantity of magnesia for improved slag resistance.

LadleMax AMG 95

LadleMax AMG 95 is similar to AMG 90 with improved chemistry. Product has shown wear rate improvement of 20-25% above AMG 90.

GENERAL PURPOSE ALUMINA BRICK

RESCAL BB

This product is a low duty fireclay backup brick for cryolite cells. This is a resale product.

KRIAL 50

This is a general purpose 50% alumina brick.

NARCAL 60

This general purpose 60% alumina brick is an excellent choice as an upgrade to super duty brick. This brick is not recommended for CO atmospheres, high temperatures, alkali environments, or load-bearing applications.

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their low modulus of elasticity gives the products excellent resistance to torsional stresses created by rotation of the kiln.

KRIAL P-70 BF

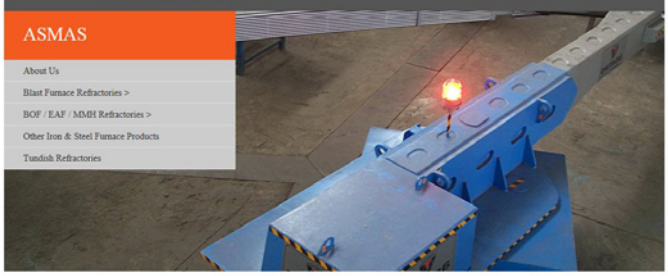
KRIAL P-70 BF is a low iron, high strength 70 % alumina brick designed for resistance to impact, abrasion, and carbon monoxide (CO) attack in severe wear blast furnace and DRI applications.

ALUMEX P-8 · SENECA 85 P

These brick are more refractory than the ALUMEX P-7, and they possess exceptional strength. They have excellent resistance to thermal spalling and are recommended for applications where very dense brick with low porosity are required and where operating temperatures are more severe. Installed in such areas, longer service life than that obtained from refractories of lesser quality is assured. Their use have proven economical in reheat furnace skid rails, ladles, cement kilns, and where erosion, abrasion, thermal shock and extremely high temperatures are encountered.

ALUMEX P-85 HS

ALUMEX P-85 HS exhibits a combination of very high strengths, high abrasion resistance, and excellent thermal shock resistance. Its high purity composition yields a refractory product that can withstand severe alkali attack. It is recommended for use in electric furnace roofs, rotary cement kilns, reheat furnace skid rails and other furnace applications where erosion and abrasion from slag and metal are severe at high temperature. XP-85 HS ceramic anchors will be made and stocked at East Canton.



Tundish Refractories

Tundish Spray Coating - Ferrocon SGS Series

FERROCON SGS series, sprayable coating material is a proven performer for tundish wear lining. Quick and clean deskulling property is the key success function of Ferrocon SGS series.

The technology for pneumatic placement of insulating refractories has led to the development of the Ferrocon SGS Series Spray Products. This concept has gained worldwide acceptance in many billet, bloom and slab casting facilities as a result of its simple operation.

It has led to lower labor costs because of the decrease in installation time. The system occupies less space, thus is applicable for even the most congested tundish assembly areas. Ferrocon SGS can be applied with zero rebound-to any tundish- regardless of geometry.

It can be sprayed on any refractory surface up to 80°C, which enables the steelmaker to utilize residual heat in the tundish helping

Asmag Tundish Products

to cure the lining. Consumption can be optimized by placing less material in low erosion zones.

Ferrocon SGS is designed to adhere to the steel skull - not the tundish - which makes skull removal a safe, simple procedure.

Product Range:

- Ferrocon SGS LT
- Ferrocon SGS 88
- Ferrocon SGS 85
- Ferrocon SGS 80
- Ferrocon SGS 75
- Ferrocon SGS 70
- Ferrocon SGS 65
- Ferrocon SGS 60

Please contact your Asmas Representative for any further information required.

Tundish Boards and Mixes - Ferrocon and FCM Series

FERROCON Tundish Boards are designed and manufactured both in magnesite and silica compositions to match specific steel production needs.

More than 10 million tons of steel per year is continuously being cast through Ferrocon tundish boards.

FERROCON-MgO is engineered to withstand ultralong sequences of high performance meltshops.

With increasingly sophisticated end use for tundish liner products, Ferrocon MgO performances such as 85 heats of 82 tons ladle lasting 76 hours, 73 heats of 100 tons ladle lasting 63 hours and many other ultralong sequence lengths are achieved with full confidence. Ferrocon MgO is tailor-made with variable thicknesses and densities as well as unique slag line support system according to tundish design and application.

Selected raw material, thorough research, rigid process control result in the consistent quality of Ferrocon MgO tundish boards. With Ferrocon MgO, back-up lining is prolonged and tundish deskulling is an easy and simple procedure.

FERROCON-Silica is engineered in different densities from standard type to the premium MULTIPOUR to completely match the liner to user application.

Carbon and low alloy steels with less than 1.2 % manganese are routinely cast with Ferrocon Silica boards.

Ferrocon Silica offers the most economic solution for low sequence casting, which does not exceed 10 hours.

In addition to the full spectrum of liner boards, **FCM series** sealing mortar and ramming mixes produced both in silica and magnesite base to match the liner compositions are available to complete the full installation of each tundish lining.

Product Range:

- FCM 10 –Silica Ramming mix
- FCM 20 – MgO Ramming Mix
- FCM 25 – High Purity MgO Ramming Mix
- FCM 30 – Alumina Ramming Mix
- FCM 50 – Silica Sealing Mortar

- FCM 50 – Silica Sealing Mortar
- FCM 60 – MgO Sealing Mortar
- FCM 70 – Al-Si Sealing Mortar

Ferrocon Tundish Board
Ready To Cast

Ferrocon Tundish Board
During Casting

Ferrocon Tundish Board
After Casting

Ferrocon Tundish Board
After Deskulling

Dry Vibratable Working Lining - Fillmix Series

FILLMIX 85T is a magnesite based moldable water-free mix for tundish coating.

Fillmix 85T is easily filled between the permanent layer of tundish and the steel former.

The former is heated up to 250 °C by a drier unit supplying hot air circulation inside the former for 1 or 1.5 hours, and then removed by crane.

Fillmix 85T is formed at designed thickness. High density Fillmix 85T performs at long sequence lengths more than 24 hours and protects the quality of your steel.

Deskulling is a safe and quick process with Fillmix 85T, reducing downtime and lowering maintenance costs. Fillmix 85T can be used in both cold and hot tundish practices.

Fillmix 85 in Application

Tundish Castables - Ferrocast Series

FERROCAST Tundish Permanent Lining Package:

Asmas has complete facilities and thorough experience for offering tundish permant lining package. The total package includes Ferrocast castables for permanent lining, insulation lining, anchor bolts, as well as, the necessary equipment and machinery for installation, such as the template, vibrators, and material mixer. Supervision and application can be provided, if it is required.

The Ferrocast tundish package becomes steelmakers' number one choice to install their tundishes at the plant start-up phases. The Ferrocast tundish package is available for single tundish reline to complete tundishes new lining.

FERROCAST is a low cement vibratable castable, uniquely designed for permanent lining of tundishes. Alumina content can be adjustable between 60 to 85 percent to match customer needs. Ferrocast's excellent physical and chemical properties and its resistance to thermal shocks provide a safe and long lasting lining for tundishes.

Tundish Furnitures and Shapes - Caston Series

CASTON tundish shapes are designed in specific shapes and manufactured in magnesite, alumina or alumina spinel qualities according to tundish requirements.

Target boxes, delta box, impact pads, dams, weirs, baffles, nozzle cones, well blocks are manufactured with superior physical and chemical properties for safe casting and clean steel production.

Precast shapes, when combined with Ferrocon wear lining, exhibits an outstanding performance for tundish long sequences and contributes to steel cleanliness for any steel grade production.

Ready to use tundish lids are a new approach to tundish covers with precise production including molding, casting and drying. Durable tundish lids are manufactured to withstand mechanical and thermal stresses during operation.

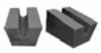
Impact Pad

Tundish Box/Delta Box

Tundish Lid

Baffle

Precast Shape-ULC Castable



Isostatic Refractories - Ferroflow Series

Asmas has recently developed its own Isostatic Refractory Technology for Tundish flow protection and control applications. Asmas is still the sole supplier of isostatic refractory products in Turkey and uses the FERROFLOW brand name for its product series.

Isostatic pressing of carbon bonded refractory oxides is a tecnology that allows complex designs in refractories for some special applications. These special applications are mostly classified in two main groups, such as protection of the stream, and controlling the liquid steel flow from tundish to mold. The FERROFLOW products are widely used for quality steels by slab and alloy steelmakers.

Ladle Shroud (LS), is used for the protection of the steel stream from ladle to tundish. The connection of LS is done to the collector nozzle of the Ladle Slide Gate with the help of a manipulator. The LS has a submerged entry to the steel bath in theTundish. Primarily, LS application will prevent the re-oxidation of the steel, reduce the Nitrogen pickup, improve steel cleanliness and create a safer environment by eliminating splashing. There are also some secondary benefits, such as less consumption of the tundish covering compound, less tundish heat loss and less radiation from Tundish to Ladle.

Stopper Rod (SR), is used to control the steel flow from the Tundish to the Mold. The SR is fixed into the Tundish on the casting strand with the help of a steel rod, fixed into the SR, and connected to manipulator arm, which can control the SR with upward-downward movements. The SR control mechanisms can be manual-controlled or automatic-driven. The SR sits on the seat area of either a Tundish Nozzle (TN) or a Submerged Nozzle (SN), which are both casting channels out from the tundish. Under the TN, a type Tundish Shroud (TS) has to be used. The TN to TS connection can be done with various possible methods, such as either direct refractory conical connection or with the help of an exchange mechanism. Depending on the connection method, TS may have different sizes and connections from the TN to the mold. Several models are designed according to customer needs. The SN is a long, one- piece solution to allow the submerged flow directly into the mold from the Tundish.

Please contact Asmas engineers or specialists for investigating suitable design and quality for your applications.

Product Range:

- Ferroflow LS – Ladle Shroud
- Ferroflow SR – Stopper Rod
- Ferroflow TN – Tundish Nozzle
- Ferroflow TS – Tundish Shroud
- Ferroflow SN – Submerged Nozzle

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