

UNIFRAX APPLICATION STORY



Product Solutions: Isofrax Moist Pak
Industry: Aluminium Production
Applications: Molten Aluminium Transfer Launder
Location: Europe

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Business Challenge

Primary aluminium is aluminium tapped from electrolytic cells or pots during the electrolytic reduction of metallurgical alumina (aluminium oxide). It thus excludes alloying additives and recycled aluminium.

The metal can be cast into ingots, or larger blocks known as sows, which are destined for re-melting. More usually the molten aluminium from the cells is transferred to a holding furnace, typically with a capacity of up to 50 tonnes of metal. There it is alloyed with a variety of elements such as iron, silicon, magnesium and copper. The alloy is then cast into extrusion billet or rolling slab using a semi-continuous process known as direct chill (DC) casting. These products can be sent directly to the extrusion presses and rolling mills for fabrication into semi-finished products, such as extrusions and sheet, plate and foil.

It is essential that the temperature of molten metal is maintained during transfer to reduce energy usage and improve casting quality.

Application

Aluminium is a versatile metal and is widely used for a multitude of applications in a variety of markets, including: packaging, transport, building and power. To fully utilise the properties of aluminium it is cast into a variety of forms, such as slabs, billets and ingots, for further production processes.

The use of melting and/or holding furnaces allows the metal to be modified (alloyed) prior to transfer to the casting area. The molten aluminium typically is transferred to the casting area using a series of fabricated mild steel channels, or launders, as they are commonly known.

To maintain metal temperature and improve casting efficiency and quality, the launders are internally insulated.

“Flexible, easily tailored solution”



Solution

A primary aluminium production site in Europe has utilised Isofrax Moist Pak to line the internal surfaces of the mild steel fabricated distribution launder channel.

The Moist Pak is supplied in standard sheets. These are supplied rolled up in polyethylene bags to retain moisture during transport and storage.

The Moist Pak is installed as two layers, each 13mm thick. The flexibility of the Moist Pak allows it to be easily fitted into the launder metalwork. Cutting to size is easily achieved using a sharp knife. This allows accurate fitting into the casing and around the various outlet holes located in the base of the launder. The joints in each layer are staggered to avoid a straight through joint.

Finally, forced air drying is used to remove the moisture from the Moist Pak. It is essential that all of the moisture is fully removed from the product before it comes into contact with molten aluminium.

The finished launder lining has a hard surface, providing a wear resistant, thermally efficient lining. It is non-wetted by molten aluminium and provides good service life.

Customer Advantages

- High temperature stability
- Low thermal conductivity
- Low heat storage
- Good erosion resistance
- Complex shape capability



About Unifrax

Unifrax is a global leader in high-performance specialty products used by many industries in a diverse group of industrial applications. Our products provide substantial improvement in thermal performance, save thousands of dollars in energy costs and can help reduce your operations environmental footprint.

Contact Us

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