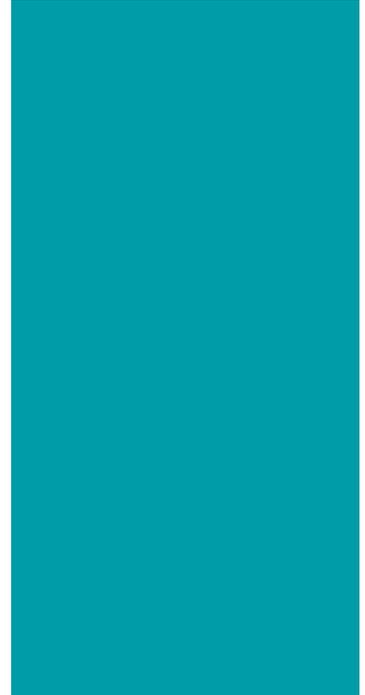


Isofrax® 1400

UNIFRAX APPLICATION STORY



Product Solution: Isofrax® 1400 Modules
Industry: Ceramic – refractory ware
Application: Ceramic kiln lining
Location: Italy

NOVEMBER 2017

Business Challenge

Our client is a renowned supplier of the full range of refractory and thermal insulation materials for all of the major industrial sectors that rely on thermal based processes. They embrace the technical challenges that form the core of these critical applications. They have gained over 30 years' experience in developing solutions that include the design of refractory and fibre based linings, the production of the most complex special shapes, installation work, the supervision of the installation of the lining and in providing after sales assistance. They select and propose the highest quality products for their clients. They combine this with comprehensive technical assistance that guarantees that the best refractory lining and thermal efficient solution can be provided. The heating and cooling cycles in the production of special fired refractory shapes requires critical firing and consistent thermal performance from the kiln.

Application

A high temperature ceramic kiln used for the firing of special refractory shapes was in need of a refurbishment. The client was looking for a replacement low thermal mass lining. Unifrax were their natural choice. An engineered solution was developed, taking into account the problems that they had experienced with the previous lining. This is a high temperature application operating at 1300 °C. The operating conditions required a unique approach from Unifrax. The design incorporated several product grades and forms for various sections of the kiln to provide the optimum performance in service.

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Solution

For the end and side walls of the kiln Isofrax 1400 Modules were chosen as the ideal product due to their thermal performance and temperature resistance. The chemistry for Isofrax 1400 also passes EU requirements for health and safety due to unique LBP (Low Bio-persistent) qualities of the chemistry.

(Photo-1)



Photo-1 Casing during stud welding

The kiln construction was a metal framework and a mesh casing. After removal of the existing lining the new stainless steel studs were welded in place. Edge stack modules with 325mm thick x 190 kg/m³ density, with the RX2 type fixing system, were installed. For the roof section and door the module grade was Saffil M-Fil grade 325mm x 130 kg/m³. A back-up layer of Insulfrax SF Blanket (aluminium foil faced) x 128 kg/m³ was installed throughout the internal area of the kiln. All modules were installed in a uni-directional pattern. For the walls a folded blanket batten strip of Isofrax 1400 Blanket 25mm x 128 kg/m³ was installed between module rows and compressed down to 36mm during installation. In the roof a single blanket strip of Fibermax Blanket 25mm x 130 kg/m³ was compressed down to 18mm.



Photo-2 Insulfrax SF Blanket back-up layer



Photo-3 Roof lining during installation

The medium sized kiln had an internal surface area of 32 m². The modules were supplied 300 x 300mm typically. The bases of the end and side walls were refractory brick construction. This is to avoid mechanical damage of the lining during loading and discharging of the kiln ware during operation. *(Photo-4)*



Photo-4 Lining after application of Silplate Mass S

Upon completion of the module installation a 5 – 10mm thickness of Silplate Mass S (a protective coating) was applied to the whole of the wall lining surface. This was gunned in place using the air driven Fraxpump. *(Photo-5)*



Photo-5 Fraxpump equipment

Customer Advantages

Both the Sales and Application Engineer worked closely together on this project with the client to develop an Engineering solution. This was accomplished by providing engineered drawings and on-site support for the successful installation of the Isofrax 1400 Module lining, as well as the Saffil M-Fil and Silplate Mass S.

The benefits included a thermally efficient lining with enhanced operating productivity. The installation guidelines allowed simple installation in the shortest time possible. As a Non-classified solution, this installation was carried out within EU Health and Safety regulations.

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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