

UNIFRAX APPLICATION STORY



Product Solution: Fiberfrax® Anchor-Loc® LT Module

Industry: Industrial Thermal Management

Application: High Temperature Kiln

Location: Unifrax CHQ, USA

JUNE 2020

Business Challenge

All industries and processes that use high temperature kiln and furnaces as part of their production process are always required to seek out the most thermally efficient lining solutions for their equipment. This helps to drive down energy costs and maintain profitability. A large proportion of high temperature industrial plants have replaced conventional brick and monolithic refractory linings with low thermal mass, low thermal conductivity refractory ceramic fiber (RCF) lining systems. Fiberfrax® ceramic fiber has been used successfully, as part of the Fiberwall lining system, since the early 1960's to provide enhanced thermal performance and enhanced service life.

Application

A significant development from Unifrax, the next generation of Fiberfrax® RCF blankets, has seen the introduction of Fiberfrax Durablanket® LT and Durablanket LT Z. They are available in two temperature grades - Durablanket LT (1316 °C) 2400 °F and Durablanket LT Z 1430 °C (2600 °F). These blankets provide lower thermal conductivity, enhanced handling and improved tensile strength. They are the ideal choice for a layered furnace or kiln lining. For high temperature applications they make excellent feedstock for Anchor-Loc Modules. Building on the established success of the well-established Anchor-Loc module family, Unifrax has introduced Anchor-Loc LT and Anchor-Loc LT Z. These new grades combine thermal efficiency with low heat storage and extensive service life. Anchor-Loc LT Modules were installed at the test kiln located at Unifrax CHQ in the USA.

**“BEST THERMAL
PERFORMANCE FROM AN
RCF POUND FOR POUND”**



Photo-1 Fiberfrax Durablanket LT is easy identifiable with its surface printing

Solution

Using an innovative, proprietary process technology, Durablanket LT and LT Z is a breakthrough RCF product that delivers outstanding thermal performance relative to current offerings. Durablanket LT and LT Z, has less shot and more fiber pound for pound, offers improved handling for safer, quicker and easier installation, as well as increased durability and tensile strength that allows it to perform for longer, even in the most extreme conditions.

Durablanket LT was used to construct Anchor-Loc LT Modules for a trial installation within the high temperature test kiln at Unifrax CHQ. The modules were 305mm (12”) thick and with a density of 192 kg/m³ (12 PCF) folded construction. They were installed using the Weld-Loc[®] fixing system. Anchor-Loc Modules made from Durablanket HP-S were also installed.



Photo-1 Anchor-Loc Modules

The kiln was fired for 96 hours at 1200 °C (2200 °F) to completely soak out the module lining. Casing (cold face) temperatures of both module grades were recorded after the 96 hour period.

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Photo-3 Kiln lining - wall installation

The lower thermal conductivity of Durablanket LT (approximately 20%) was also evident in the performance of the Anchor-Loc LT Modules. For example, cold face temperatures recorded on the roof casing of the test kiln showed a dramatic reduction. There was a difference in the cold face of around 14 °C (25 °F). This also translates to a reduction in heat loss during operation.

Result – superior thermal performance. This is also enhanced by producing a blanket with a softer feel and improved handling. Durablanket LT and LT Z are available as a needled blanket product, or as insulation modules. In either format, it is easy to work with. Little dust is given off during installation, and thanks to its smoother, softer surface, there is less likelihood of skin irritation.

Customer Advantages

Durablanket LT and LT Z or Anchor-Loc LT and Anchor-Loc LT Z Modules will enhance the Fiberfrax product range for Fiberwall lining installations in a variety of industrial sectors.

Rising worldwide energy prices mean industries of every kind are looking to reduce their energy consumption as much as they can. The use of an Anchor-Loc LT Module lining by kiln and furnace operators will raise thermal efficiency and reduce operating costs significantly. Benefits include a thermally stable lining with increased efficiency.

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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