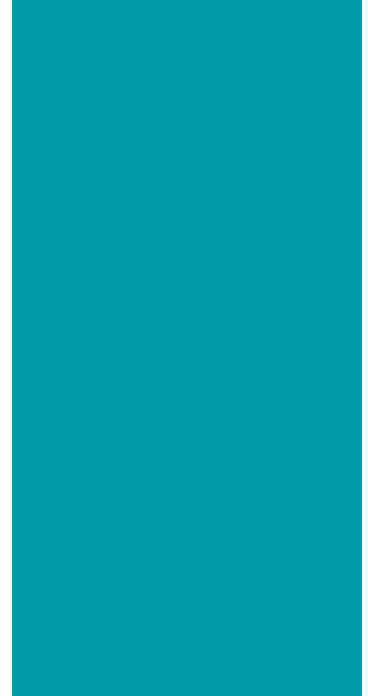


UNIFRAX APPLICATION STORY



Product Solution: Isofrax[®] 1400 Module
Industry: CPI (Petroleum Refining)
Application: Ethylene Cracker
Location: Europe

OCTOBER 2017

Business Challenge

Oil refineries provide one of the most challenging applications to service due to their infrequent shut down and maintenance schedules. Very specific specifications for components and process lend another level of difficulty when trying to determine the proper lining requirements, especially with a new product on the market.

Refineries will run two or more years between major shutdowns, so failures of the lining and/or the attachment hardware is completely unacceptable. Often applications of this type require PMI (Positive Material Identification) for all components installed. These and other quality control measures help to guarantee a lining solution that will not cause costly shutdowns.

Application

One of the ethylene cracker furnaces located at this facility was undergoing a scheduled maintenance shutdown. This shutdown required the replacement of the cracker piping, providing an ideal opportunity to replace the existing refractory grade suspended brick arch lining within the radiant section. It was determined that a low thermal mass lining would provide energy savings through efficiencies inherent to Fiber Modules. Fiber Modules also provide an installation advantage over much heavier refractory designs in this application.

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“A LINING SOLUTION THAT WILL NOT CAUSE COSTLY SHUTDOWNS”

Solution

Isofrax™ 1400 Modules were determined to be the optimal product to use in this application due to their low thermal conductivity which met the customer's energy saving expectations and temperature requirements. 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 Arch modules being installed

The arch lining consisted of a series of 300mm (12") thick modules manufactured from Isofrax 1400 Blanket. These were supplied edge-stacked without internal anchor metalwork at a density of 190 Kg/m³ (12 PCF). The modules were installed in a unidirectional system with a single batten of Isofrax 1400 Blanket, 25mm x 128 kg/m³ (1" x 8PCF) between rows of modules. This was compressed down to 20mm (3/4") during installation. A layer of Insulfrax 1400 Blanket 128 Kg/M³ (8pcf), 25mm (1") thick was used as a back-up behind the modules. The client secured the modules in place using their own metallic anchorage system. *(Photo-2 and Photo 3)*



Photo-3 Back-up blanket utilized behind modules



Photo-2 Various anchoring types may be utilized

The arch area that was lined was made up of two rectangular sections 15.460 meters (50') long and 1677mm (5'-6") wide. The modules were supplied as square blocks 300 x 300mm (12"x12"). Specialty shapes and bullnose modules were also incorporated into the design and supplied by Unifrax. Installation of the arch lining was carried out successfully and the unit returned safely to service.

(Photo-4 and Photo-5)



Photo-4 Custom fabricated corner modules



Photo-5 Modules are pre-compressed

Customer Advantages

Working closely with the client, Unifrax helped develop an Engineering solution with the customer and the installation contractor. This was accomplished by providing engineered drawings and project direction for the Isofrax 1400 Module installation.

Benefits include a thermally stable lining with increased efficiency. The ease of installation allows for a shorter installation window, and the lack of a cure out schedule means that the system could be put back into service upon completion. 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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