Isofrax®

UNIFRAX APPLICATION STORY

Product Solution: Isofrax® Blanket Module
Industry: CPI (Petroleum Refining)
Application: Natural Gas Storage
Location: Italy

February 2018

Business Challenge

Natural gas is a naturally occurring hydrocarbon gas mixture consisting primarily of methane, but commonly including varying amounts of other higher alkanes, and sometimes a small percentage of carbon dioxide, nitrogen, hydrogen sulphide, or helium.

Natural gas is a fossil fuel used as a source of energy for heating, cooking, and electricity generation. It is also used as a fuel for vehicles and as a chemical feedstock in the manufacture of plastics and other commercially important organic chemicals. Before natural gas can be used as a fuel, most, but not all, must be processed to remove impurities, including water, to meet the specifications of marketable natural gas. Natural gas can be used to produce hydrogen, with one common method being the hydrogen reformer. Hydrogen has many applications: it is a primary feedstock for the chemical industry.

Application

There are several stages within the production of natural gas and for the removal of impurities. There is also the requirement for the storage and distribution of natural gas. This particular unit, located in a gas storage facility, was 40 metres high and was comprised of 3 combustion chambers, 1 breaching section and a stack. The internal, low thermal mass lining was designed using a Fiberwall layered blanket lining to provide the optimum balance between thermal performance and ease of installation. The operating temperature was 950 °C and the internal gas velocity was 25 metres/second.

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Solution

A Fiberwall® layered lining installed using Isofrax 1260C Blanket was considered the ideal choice for use in this application due to its low thermal conductivity, ease of handling and temperature capability. The chemistry for Isofrax 1260C also passes EU requirements for health and safety due to unique LBP (Low Bio-persistent) qualities of the chemistry. *(Photo-1)*

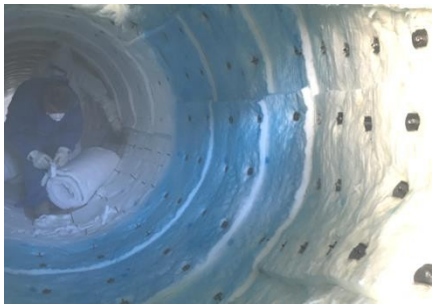

Photo-1 Hot face during Fixwool D15 application

The internal lining was comprised of Isofrax 1260C Blanket installed in three layers, 50mm x 128 kg/m³ against the casing, followed by 25mm x 128 kg/m³ and 25mm x 160 kg/m³ for the final, hot face layer. The hot face was spray coated with Fixwool Coating D15 for protection from the internal gas velocity. Stainless steel pins were welded to the casing to a pre-determined pattern in accordance with the lining design and installation drawings developed by the Application Engineering team. In some areas, where the gas velocity was likely to exceed 25 metres/second, the hot face layer of blanket was replaced with Isofrax Moist Pak. *(Photo-2 and Photo 3)*

Photo-2 Hot face joints overlapped 100mm

Photo-3 Various units during installation

The blanket joints on the hot face layer were installed with 100mm overlapped joints. These were overlapped in the direction away from the gas flow. The exposed stainless steel washers were protected with folded patches of blanket 150 x 75mm each. These were sealed using Isofrax Pumpable 120. *(Photo-4 and Photo-5)*

Photo-4 Isofrax Blanket patches applied over the fixing washers

Photo-5 Access door lining (typical)

Customer Advantages

The Application Engineer for this project worked closely with the Unifrax client and developed an Engineering solution. This was accomplished by providing engineered drawings and guidance for the successful installation of the Isofrax 1260C Blanket lining.

The development of an engineered Fiberwall lining system designed around established lining techniques, with the use of Isofrax 1260C Blanket, delivered a practical, thermally efficient solution. 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

To learn more about Unifrax Thermal Management Solutions, contact your Unifrax sales representative or the Unifrax Application Engineering Group in your region:

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