

Aerogel Insulation Improves Both Fire Protection and Thermal Performance

Minimal disruption during
installation



CASE STUDY

DETAILS

Owner: Petrobras
Project: REGAP Fire Protection
Location: Minas Gerais, Brazil
Insulation Contractor: Isolenge

CHALLENGES

- Provide both thermal insulation and fire protection in a single application on the REGAP Nafta hydrodesulfurization and treatment unit.
- Permit a rapid installation.
- Meet UL testing standards for passive fire protection.

SOLUTIONS

- Between four and seven layers of **Pyrogel® XTF (10 mm)** were installed depending on individual equipment requirements. Stainless steel banding and jacketing were applied as part of the specified system for passive fire protection.
- During installation, Pryogel XTF was secured to the equipment with 3M spray adhesive as a temporary hold prior to banding and installation of the jacketing.

BENEFITS

- Insulation thickness reduced from 150 – 200 mm to 40 – 70 mm.
- Hydrophobic nature of Pyrogel XTF will not be affected by eventual water ingress.
- Passive fire protection compliant with UL 1709 testing standard.
- Rapid and clean installation with minimal disruption to the plant.
- Long service life.

Background

Replacement of deteriorating calcium silicate thermal insulation on the REGAP Nafta hydrodesulfurization and treatment unit (HDS and HDT) was required on 12 different pieces of equipment including vessels and towers. This requirement was paired with a need to provide passive fire protection on the equipment. This unit had been previously protected with a combination of calcium silicate for thermal protection and a surface application of cementitious fire protection. The calcium silicate had deteriorated over the five years since installation through continued water ingress. Insulation thicknesses for the existing calcium silicate ranged from 6 to 8 inches (150 – 200 mm). The client sought a solution with both improved performance and durability. The combined thermal and fire protection performance of Pyrogel XTF allowed for the refurbishment to be completed with a single product, without the need to spray apply the fire protection. Pyrogel XTF was selected for its ability to provide improved thermal performance with reduced thickness, and its excellent passive fire protection performance per the UL 1709 testing standard. With Pyrogel XTF, insulation thicknesses on the equipment were reduced to 40 – 70 mm.

