

FOAMGLAS®

FOAMGLAS® insulation as fire protection for vertical reaction vessel containing inflammable liquids.

Pittsburgh Corning

www.foamglas.com

Emery Oleochemicals, a 50:50 joint venture between Sime Darby Plantation and PTT Global Chemical, is one of the world's leading producers of natural-based chemicals predominantly made from natural oils and fats such as palm kernel oil and tallow. Their Loxstedt plant specializes in producing additives for the coatings, lubricants and plastics industry.

Insulation requirements and risks

The main issue with chemical product processing is the high flammability risks, especially with tanks where a leakage or overflow is possible. Insulation materials with a permeable or open-cell structure will absorb fluids and create a great risk of having a hazardous reaction with the oxygen in the air.

This "wicking-effect" can cause even non-flammable fibrous insulation materials to catch on fire. Even sparks from metallic welding close to the soaked insulation can cause an ignition. Another important issue is the high risk of spontaneous combustion. Due to the fine dispersion of the chemicals inside the fibrous insulation, the ignition flash point drops and when dismantling the metal cladding, large amounts of oxygen will get into contact with the flammable medium and auto-ignition (auto-oxidation) can take place with an explosive force.

Why only FOAMGLAS® insulation suited to their needs

In order to avoid these detrimental effects, Emery Oleochemicals GmbH decided to use FOAMGLAS® cellular glass as the thermal insulation for their reaction vessel.

FOAMGLAS® insulation is completely inorganic, it consists of pure glass, so it does not burn. FOAMGLAS® insulation is a 100% closed cell insulation, this means that no inflammable liquids or gases can pass through so this fully eliminates the risk of wicking.

PROJECT PROFILE

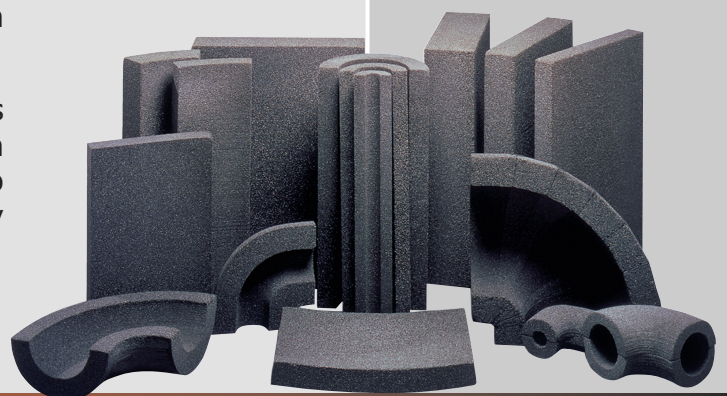
Facility owners:
Emery Oleochemicals GmbH

Contractor:
IIG Industrieisolierungen
GmbH

Supply scope:
FOAMGLAS® Insulation TSG
and SHS segments

Insulation fabricator and technical advice:
Pittsburgh Corning
Europe, represented by
Die Deutsche FOAMGLAS®
GmbH

Period of construction:
2012





Dimensions and execution

The 6 meters (19.7 feet) high vertical reaction vessel with an external diameter of 2.8 meters (9.2 feet) was insulated with a double layer of FOAMGLAS® insulation. The vessel was insulated using FOAMGLAS® insulation tank segments (TSG segments) with a thickness of 100 mm (3.93 inches). The operating temperature of the reaction vessel was +250 °C (482 °F).

The lower head (torispherical) which holds the heating coils was insulated with a double layer of 100 mm (3.93 inches) thick FOAMGLAS® insulation. The upper head was insulated with only one layer of 100 mm (3.93 inches) thick FOAMGLAS® insulation. Both heads were insulated with prefabricated spherical head segments (SHS segments) and finished with metal cladding.

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