



Oil & Gas.

Customer Success Story



Location	Gulf Coast Region, United States
Application	Oil/Gas Flare
Operating Temperature	2,000°F (1,095°C)
NUTEC Products	MaxBlock® 2600 Modules, MaxWool® 2600 Blankets
Anchoring Method	H-Anchor Attachment System
Installation Technique	Unidirectional Construction with Single Folded Batten Strips

Commonly used in the refining and petrochemical industries, flares are important safety devices for processing facilities.

Flares are hot chambers used to burn off any excess hydrocarbon gases which cannot be efficiently recovered or recycled. Often flares are used in remote extraction or processing locations, and anywhere there aren't pipelines to transport waste gases.

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The Challenge.

NUTEC was recently engaged by a gas processing company to provide high temperature insulation for a flare chamber.

Some of the challenges for similar applications are that flare chambers are sited outside and are continually subject to all types of weather exposure.

Another challenge is that flares can be intermittent, meaning they oscillate rapidly between being off and on, full-heat to no-heat very quickly. Therefore, the refractory system within the

flare is subject to thermal shock due to the repeated start-up/shutdown process. The insulation must be able to withstand such rapid and repeated temperature changes, and be of the right high heat insulation specifications to insulate the gas flares.

The actual fastening of the insulation needed to be considered for this project too, because the diameter of the flare made for a tight install and internal anchoring for the insulation wasn't a good option.

Solution & Product Selection.

NUTEC's MaxBlock 2600 ceramic fiber insulation modules and **MaxWool 2600** ceramic fiber blankets are rated for applications up to 2,600°F (1,425°C).

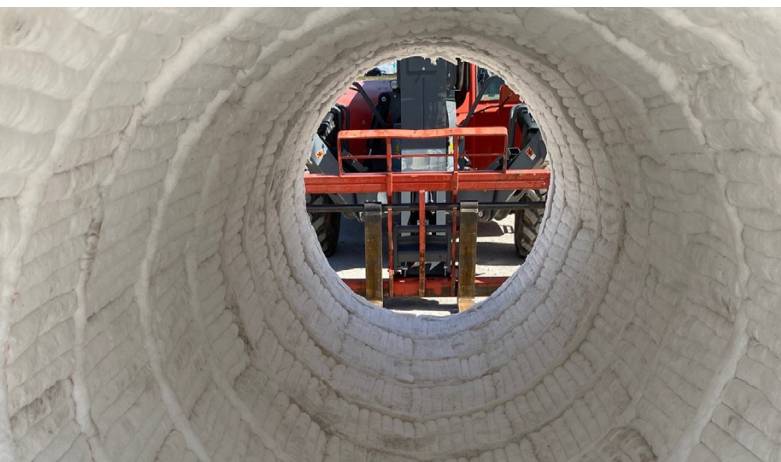


Fig. 1 **MaxBlock 2600** ceramic fiber modules lining with H-Anchor System

Given the repetitive nature of the application and the critical safety role flares play in a petrochemical complex, this high-performance grade of product was specified. It can stand up to both the thermal shock, and the continual weather exposure demanded by the nature of this application.

For fastening insulation, **NUTEC** offers a variety of attachment options; each with its own design that best suits any particular application. In this case **NUTEC's H-Anchor system** was selected for use. This system utilizes **MaxBlock** ceramic fiber modules, and does not have any internal anchoring hardware.

The H-Anchors are pushed into the **MaxBlock** module and then welded in place on to the flare casing. The next module is then fixed to the protruding sides of the previously welded H-Anchor and the process repeats itself for the entire ring/row of modules.

Folded batten strips were then used between each ring of modules as a gasket and to seal against any potential openings in the lining. Other refractory options for this application can have performance issues due to weather exposure (layered blanket construction) and/or thermal shock (traditional hard refractories).

Results & Benefits.

NUTEC's tailor-made solution afforded the following customer benefits:

Thermal Shock Resistance. The low mass of the **MaxWool** products makes them completely immune to thermal shock. The flare operators do not need to consider potential damage to the refractory system due to rapid start-up/shutdown of the flare – something which is often required.

Refractory Weight. Relative to a traditional castable refractory, the weight of a **MaxBlock** lining system is much less, resulting in potentially reduced structural steel requirement, and easier handling during erection.

Installation. The **H-Anchor system** provides flexibility for the installer when working in tight spaces. Since there are no internal module anchors, the **MaxBlock** modules can be easily trimmed / cut as required to fit lining channels for items such as air nozzles, etc.

The Takeaway.

More than being just a material supplier, **NUTEC's** expert engineering team will review each application and provide the very best product and design options based upon its unique requirements.

NUTEC's broad product line of fiber products and variety of module attachment options make it possible to satisfy the most challenging and demanding of applications.