

# PROJECT REFERENCE

## IVG CAVERNS, ETZEL

**Armaflex<sup>®</sup>, ArmaSound<sup>®</sup>,  
Arma-Chek<sup>®</sup>**



- **Summary**

Originally used for underground crude oil storage, the Etzel IVG Caverns have converted multiple caverns for gas storage and is now one of the largest gas storage sites in the world. To control noise levels and condensation in the gas processing facilities and pipelines, ArmaSound Industrial Systems were applied.

- **Place**

Etzel, Germany

- **Operator**

EKB Etzel Kavernenbetriebsgesellschaft mbH

- **Insulation contractor**

Kaefer

- **Installation date**

2011

- **Market segment**

Oil & Gas onshore

- **Medium**

LNG

- **Insulation systems used**

2 500 m<sup>2</sup> of ArmaSound Industrial System C (comprised of layers of HT/Armaflex, ArmaSound RD240, ArmaSound Barrier, Arma-Chek Mastic, Arma-Chek R)



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In the Etzel salt dome in North Germany, underground caverns have been used to store petroleum since the 1970s. During the past five years, the IVG Caverns have developed from storage facilities for crude oil into one of Europe's largest gas storage sites. The caverns are leased by renowned companies in the energy sector and national petroleum stockpiling agencies. One of the four operators is the Etzel-Kavernenbetriebsgesellschaft mbH & Co. KG (EKB), a joint venture between BP, DONG Energy and Gazprom Germania.

For three years, the company worked on the construction of the gas-processing facilities on the IVG site in Etzel, which have now gone into service. The highly sophisticated complex consists of various facilities for gas storage and withdrawal. In order to reduce the volume of the natural gas prior to storage, it is compressed to the desired pressure. The compressors, pumps, control and relief valves generate significant noise levels which are transmitted through the pipework.

To provide thermal-acoustic insulation on the pipework and other installations, ArmaSound Industrial System C was used. The sandwich product is a multilayer insulation system: the closed-cell, hightemperature insulation material HT/Armaflex reliably protects the insulated installations against water vapour ingress and energy losses. The acoustic foam ArmaSound RD 240 has excellent sound absorption properties and greatly reduces noise. Noise control is further enhanced by a 4 mm-thick layer of ArmaSound Barrier E, a sound control barrier mat made of vinyl. The rubber-based cladding system Arma-Chek R gives the installations effective protection against corrosion under insulation (CUI) and mechanical impact. In comparison to traditional



insulation constructions, ArmaSound Industrial Systems meet the noise-control requirements with reduced insulation thickness and weight.

The thermal-acoustic insulation system was installed by Kaefer Industrie GmbH (Bremen, Germany). As the employees were using the new insulation system for the first time, prior to beginning work they received comprehensive application training in two workshops led by Vance Brownhill, Armacell Installation & Project Support Manager. All in all, around 2 500 m<sup>2</sup> of ArmaSound Industrial Systems were used, which were supplied by VTI-Hamburg, a branch of the German insulation wholesaler WeGo Systembaustoffe.

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