

Object report: SABIC Europe, Netherlands



## KAIFLEX PROTECT ENSURES EFFICIENT PRODUCTION AT SABIC IN GELEEN, THE NETHERLANDS

**Industrial production processes are often complex and energy intensive. A company can gain a competitive advantage even from minimal optimisation. Insulation makes a key difference at the chemicals manufacturer Sabic. Here, around 1,700m<sup>2</sup> of Kaiflex KKplus and 1,900m<sup>2</sup> of Kaiflex Protect Alu-TEC provide reliable pipeline protection against frost and heat, and ensure efficient production processes.**

Everyday objects such as plastic bags, freezer bags, bottle crates, rubbish bins as well as cable insulation and medical implants all generally contain polyethylene. Providing industry with this plastic, which is used globally, involves an extremely costly procedure and this in turn requires major investment and the highest level of process control. SABIC is one of the world leaders in the chemicals industry and produces polyethylene and polypropylene at the Industriepark Chemelot in Geleen (Netherlands). This requires, amongst other things, transporting ethylene through multiple pipelines. At a diameter of 168 mm, these cover a distance of around 1.1 km both at ground level and at a height of 8 metres via pipeline routes around level crossings on roads and across the industrial park site. It is vital here that the ethylene temperature of  $-100^{\circ}\text{C}$  is maintained along the entire route.

### Temperature loss from insulation leakages

The previous insulation had been installed according to the latest technology at the time using PUR/PIR insulating materials. This material is, however, insufficiently vapour-proof and therefore loses its low-temperature insulating properties over time. This resulted in temperatures not being maintained along the pipeline, thereby causing fluctuations in other processes and leading to substantial energy losses in summer. A first attempt to get the problem under control involved installation of additional insulation in the form of 30 mm mineral wool padding with a metal covering. However, since mineral wool is not fully vapour-proof, this measure failed to achieve the desired result. Ice continued to build up on the pipes and supports, especially during the winter. A new, long-term and efficient solution was therefore urgently required that securely insulated pipelines both at the high temperatures in the summer months as well as at the negative temperatures in the winter. In order to achieve this, the optimal solution was jointly planned between SABIC, BRAND Energy & Infrastructure.



### Intelligent application for long-term efficiency

Taking the pipelines out of action was not an option for technical reasons and therefore the mineral wool padding and metal covering was removed and replaced by Kaiflex. BRAND Energy & Infrastructure Services carried out the installation by applying two layers. A 25 mm thick layer of Kaiflex KKplus was installed first. Even just a minimal insulation thickness of the flexible insulation material reliably prevents condensation and reduces energy loss over the long term. Its closed cell structure provides a long-lasting vapour barrier effect to efficiently prevent vapour escaping and guarantees reliable insulating performance over the entire operating life of the system. To increase diffusion resistance of the low-temperature insulation at the Sabic site, a thin 80-100  $\mu\text{m}$  layer of aluminium film was installed between the synthetic rubber layers. To guarantee the highest possible diffusion resistance, the aluminium film, as a vapour barrier between the layers, was sealed using aluminium tape at the joints and open points. A 25 mm

layer of Kaiflex KKplus Protect Alu-TEC was used as a second layer. The metal-look covering system is made up of a flexible hard film clad in a weather-resistant aluminium surface. Its features include low-emission properties and it protects the Kaiflex insulation from mechanical damage and the effects of UV rays. Kaiflex Protect Alu-TEC is easy to work with and offers an economical alternative to metal coverings. To prevent moisture penetration and the build-up of ice, all joints were sealed using Protect butyl tape, and Protect sealing compound was used for the hard to reach sections such as fillet welds and brackets.



### Service-based support included

Successful renovation work not only requires high-quality products but also quality installation, especially in such complex projects with highly technical requirements as in the Sabic case. Kaimann's technical documentation therefore includes highly detailed instructions and drawings which optimally reflect the specific requirements of the project. Thanks to the combination of high-quality products and a professional technical customer service function which works closely with the user, Kaimann was able to deliver a complete solution which met the high demands of Sabic. The intelligent and carefully applied system of Kaiflex products ensures long-term and secure insulation which will provide key optimisation of the entire production process at Sabic over the coming years.

#### Property

Pipelines on the site of SABIC Europe, Netherlands

#### Length of pipelines

Length of pipelines: up to 1.1 km

#### Renovation time

Since 2015

#### Products

Kaiflex KKplus (25 mm, approx. 1,700 m<sup>2</sup>)

Kaiflex KKplus Protect Alu-TEC (25 mm, approx. 1.900 m<sup>2</sup>)

KKplus Tape (194 rolls, each 15 m)

Protect Butyl Tape (125 rolls, each 25 m)

Kaiflex adhesive 414 (51 cans, each 2,200 gr)

