

Hot flue gas pipeline

DSM - Geleen

In the chemical industry, operating costs are an ever-increasing point of concern.

Corrosion problems are one of the main causes of costly maintenance stops. This is

why an Atlac based GRP pipeline was installed on the production site of Geleen to

connect the waste gas exhaustion system of a new plant with the incinerator.



HOT WASTE GAS

Due to the high temperature exposition in combination with low molecular weight organic materials, water and air, the environment is highly corrosive. When selecting the optimal material, all possibilities were thoroughly evaluated. The decision was to use DSM Composite Resins new high solvent resistant resin, Atlac E-Nova FW 2045.

THE ATLAC SOLUTION

Weight saving was an important factor in this project. The new Atlac E-Nova FW 2045 proved to be the perfect solution, because it gave better mechanical properties than alternative systems. This resulted in a thinner walled pipe which is lighter in weight, but still fulfilled all the necessary requirements when it comes to pressure classification and reliability. In previous tests, carried out on filament wound pipe sections, Atlac E-nova FW 2045 displayed considerably better mechanical properties than standard epoxy and epoxy-novolac vinyl ester systems.

The total length of the pipe system is 800 meters with a diameter of 800 mm. Since the temperature reduces over the length of the pipeline, water condenses in the system. Special drainage was installed to discharge the condensate.

The engineering company Engiplast (The Netherlands) has engineered the pipe system. Squassero SpA produced the 12-meter pipe segments and Verstedden Leidingsystemen manufactured the prefabs and installed the pipeline on site.

Cooperation between partners is essential nowadays when time and money are playing an ever more important role in the process industry. The close cooperation between all partners has proven to be very valuable in this project.

PARTNERS

SUMMARY

> Waste gas pipeline

OPERATING CONDITIONS

> Hydrocarbons, Air and Water

Working temperature 60°C

Design temperature 90°C

Design pressure 4 bar

ATLAC SOLUTION

> Atlac E-Nova FW 2045

IN SERVICE

> Project start: March 2002

In operation since August 2002

BENEFITS

> Light weight

Corrosion free

can withstand temperatures exceeding 90°C

REMARKS

> The ideal combination of high temperature performance and chemical resistance, combined in a resin that is as easy to work with as a standard ISO polyester.

About DSM

DSM Composite Resins is the largest producer of unsaturated polyester resins in Europe. With production facilities in many different European countries, DSM Composite Resins offers a wide range of resins, matching every conceivable processing and end-use requirement, in the most diverse applications. Local Sales offices and Technical Service laboratories enable close cooperation and partnerships between customers and DSM Composite Resins. Central Research & Development is fully equipped to develop and test new resins and to tune systems for optimal results in specific processing techniques. The development, service and manufacture of composite resins are certified according to ISO 9001.

About Atlac

For several decades Atlac resins have proven themselves highly suitable in applications where chemical and thermal resistance in combination with high mechanical properties are required. Atlac resins have outstanding corrosion resistance to a wide range of organic and inorganic acids, alkalines, solvents and bleaches. They are widely used for fibre-reinforced applications such as storage tanks, vessels, pipes and ducts. The Atlac resins can be processed by means of a wide range of fabrication techniques, including filament winding, hand layup, spray-up, and polymer concrete.

Contact

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Technical details	
Application	Hot flue gas pipeline
Medium	Hydrocarbons C6, C7, C8, water and air
Conditions	Working temperature 60°C.
	Working pressure 0.3 bars.
Construction details	No special construction was used.
Resin	Atlac E-Nova FW 2045
Commissioning	August 2002
Inspected	
Manufacturer	pipes: nSquassero Spa, Fittings and installation: Versteden Leidingsystemen
End user	DSM
Location	Chemelot - Geleen
Remarks	Engineering by Engiplast Engineering bv, Middelburg NL