

Press release

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New PFA system protects Mannheim power station

BEKAFLON from STEULER-KCH is a special mechanically anchored system of materials for the highly demanding corrosion protection requirements of raw gas heat exchangers, outlet ducts and scrubber inlets.

The innovative BEKAFLON lining system was installed during the course of maintenance work on the Mannheim power station. 240 square metres of the highly corrosion-resistant PFA lining were fitted in the raw gas duct and mechanically fixed in place using bolts. The heads of the bolts were covered with caps made of PFA and welded to the lining to form a watertight seal. In power stations like Mannheim, "warm, dry" flue gases are cooled down to a "cold, wet" state prior to the flue gas scrubbing process. The flue gases produced by burning fossil fuels, such as coal or fuel oil, often contain high amounts of sulphur compounds (SO_2 , SO_3 , SO_4 , H_2SO_4), hydrochloric acid (HCl) and hydrofluoric acid (HF). When the heat is extracted, a highly aggressive condensate is formed that presents problems even for high alloy stainless steels. This isn't the case with fully fluorinated PFA materials: they are basically immune to corrosion. Another advantage of PFA film linings is their excellent non-stick properties.

The major refit at the Mannheim power station had become necessary because the lining fitted a few years previously had peeled off. Plastic and steel naturally expand at different rates when subjected to changes in temperature. Vibration and movement are other factors that cause high surface pressure to develop at the lining attachment when it is simply bolted in place. This leads to indentations in the plastic material that over time result in material failure and the thermoplastic lining breaking away.

The client was therefore looking for a reliable technology that would ensure long-term protection of the highly stressed plant components. They found just what they needed with the corrosion protection specialist STEULER-KCH from Siershahn, Germany. BEKAFLON is a safe PFA thermoplastic lining that can be installed in vessels, process equipment, ducts and channels using bolts, even retroactively. The approach taken with the BEKAFLON system reliably avoids excessive surface pressure at the fixing points of the thermoplastic material. With BEKAFLON, a leak-proof PFA thermoplastic lining is installed inside the sheet steel pipes or vessels. The STEULERFLAKE SPC TOPCOAT coating system is applied beneath the film to enhance the dry-running properties and enable electrical testing of the PFA welds to be performed. As a result, the excellent properties of the highly chemically resistant thermoplastic material can be reliably exploited to line steel equipment used in the plant construction and process engineering industries.

As a highly experienced specialist in power station lining systems, the contract gave STEULER-KCH the opportunity to prove itself in other areas of the Mannheim site too. Besides the raw gas duct, sections of the clean gas duct and large parts of the flue gas scrubber rubber lining were renewed using KERABUTYL[®] BS too. This lining system is characterised by an unusually long service life and very good abrasion resistance. The corrosion protection on two HCL vessels was renewed in addition.

Project manager Ralf Kleinwechter had this to say:

"This maintenance project once again required coming up with competent, ad hoc solutions and implementing them quickly and professionally. We immediately had the perfect solution for the requirements to hand with our BEKAFLON system. We were able to provide the customer with everything they needed ourselves and thus avoid unnecessary third-party involvement."



Lining of the flue gas duct (nearly 6 m in diameter) in the Mannheim power station with BEKAFLON from STEULER-KCH. The heat exchangers can be seen in the bottom-right of the picture.

STEULER-KCH is a leading full-service supplier of Industrial Linings/ Equipment and pool construction. With a team of experienced industry professionals, the global player is known for innovative developments, proven application technology, detailed consultancy, planning and engineering services.

STEULER-KCH is a member of the **Steuler Group** of companies. The Steuler Group operates worldwide with a portfolio of leading brands and innovative technologies in the fields of Industrial Linings and Equipment, Equipment Engineering/ Environmental Engineering, Pool Construction and Tiles. Founded in 1908, the midmarket company today employs over 2,500 employees at 25 locations around the world.

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Press Contact:

Claudia Neubauer
Steuler Group | Marketing and Communication
claudia.neubauer@steuler.de
Phone +49 2624 13-220
www.steuler-kch.com