HEGGEL®

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NEWSLETTER

HEGGEL® FRP 320

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Advanced Corrosion Protection for Fertilizer Plants

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Reliability, Durability, Safety: Solution for Fertilizer Producers

> Sulphuric Acid: Essential Yet Destructive

Fertilizer plants depend on sulphuric acid to produce the world's most widely used fertilizers, but this essential chemical is also their greatest corrosion challenge.
Fertilizer plants are the backbone of modern agriculture, producing the essential nutrients that sustain global food supply. At the center of this production chain lies phosphoric acid, the building block of phosphate fertilizers such as DAP, MAP, and NPK. To make phosphoric acid, facilities consume enormous volumes of sulphuric acid, typically at concentrations of 93–96%. While indispensable, sulphuric acid creates one of the most aggressive environments in the chemical industry. Unprotected steel and concrete in absorbers, tanks, and containment areas deteriorate rapidly under continuous exposure. Even minor leaks can escalate into unplanned shutdowns, environmental hazards, and costly repairs. In a large fertilizer complex, a single day of downtime can mean millions in lost production value.

Process Conditions in Fertilizer Plants

Harsh operating conditions make corrosion protection a critical requirement in fertilizer plants. Phosphate rock reacts with concentrated sulphuric acid to release phosphoric acid, which is later concentrated and transformed into fertilizers. The reaction environment involves high acid strength, operating temperatures often above 50°C, and constant exposure to vapors, splashes, and liquid contact.
This combination creates a relentless attack on concrete foundations and steel equipment. Absorber towers, circulation tanks, pump basements, and containment areas are all exposed to sulphuric acid on a daily basis. Without reliable protection, corrosion is not a question of "if" but "when."

Sulphuric Acid is Indispensable

Globally, more than 60% of sulphuric acid production is consumed by fertilizer plants. The acid is irreplaceable in phosphoric acid manufacturing and in the production of the world's most widely used fertilizers. This makes sulphuric acid handling units among the most strategic assets in the industry. In large integrated complexes, sulphuric acid plants often operate continuously for decades, supplying downstream phosphoric acid and fertilizer units with a constant flow. If they fail, the entire supply chain is disrupted, from the chemical process line inside the plant to farmers across continents. Ensuring their reliability is, in effect, securing food production.

The Corrosion Problem

Continuous exposure to concentrated sulphuric acid quickly compromises the integrity of steel and concrete. On steel, hot acid strips protective films and causes localized pitting, thinning and eventual perforation. Concrete suffers chemical reaction with its cement matrix, forming gypsum and salts that crack and weaken the structure. Even vapors are destructive. acid mist condenses on cooler surfaces, triggering hidden corrosion beneath insulation and at joints.

The combined effect is progressive structural loss, leaks, and costly downtime. In fertilizer plants handling 96% sulphuric acid daily, corrosion is an immediate operational threat that requires reliable protective systems.

HEGGEL's Protection Portfolio

HEGGEL offers a complete portfolio of corrosion protection technologies, including brick and tile linings, rubber linings, sprayable coatings and resin-based laminate systems. Within this spectrum, fiber reinforced polymer laminates (FRP) play a distinctive role. They are lightweight, strongly adhesive to steel and concrete, and able to bridge cracks in substrates.

HEGGEL FRP 320 is a phenolic resin-based laminate whose proven resistance to concentrated sulphuric acid makes it an excellent solution for fertilizer plant applications.

HEGGEL FRP 320: Applications in Fertilizer Plants

HEGGEL FRP 320 delivers its best performance in fertilizer plant environments where sulphuric acid of up to 96% concentration is handled. It provides dependable protection in pump basements, where it shields floors and walls from splashes and minor leaks.

Around storage tanks and within containment bunds and secondary containment areas, **HEGGEL FRP 320** creates a durable chemical barrier that preserves the integrity of concrete structures and prevents acid from reaching the environment.

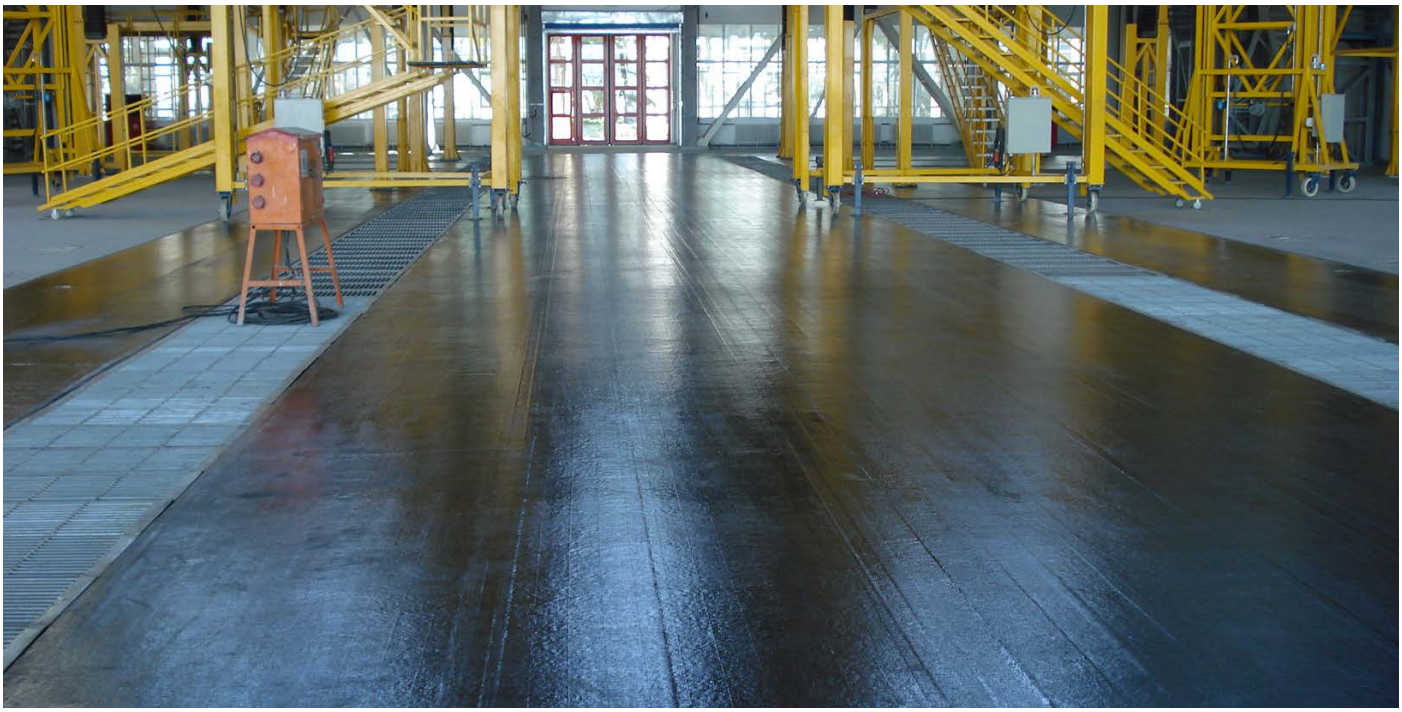
Benefits for Fertilizer Producers

By protecting these critical areas, **HEGGEL FRP 320** helps fertilizer producers achieve safe and reliable operations. In pump basements, it eliminates surface damages from leaks; and around tanks and containment areas, it provides lasting protection against seepage and environmental contamination.

Thanks to its chemical resistance, crack-bridging capability, and strong adhesion to concrete, **HEGGEL FRP 320** reduces unplanned maintenance, and supports compliance with safety and environmental standards.

The Protective Power of HEGGEL FRP 320

HEGGEL FRP 320 combines chemical resistance, mechanical strength, and practical application features in one system. Built on a phenolic resin base, reinforced with high-strength glass fiber mats, it offers a unique advantage in fertilizer plant environments. phenolic resins are known for their exceptional resistance to concentrated sulphuric acid, giving **HEGGEL FRP 320** a distinct edge in areas where this chemical is handled daily. In addition to sulphuric acid, the system also performs reliably against a wide range of other aggressive media, including solvents, oils, and hydrocarbons, making it a durable and versatile solution for long-term asset protection.



Key Technical Specifications

Property	Value	Unit
Temperature Resistance	Up to 60	°C
Adhesion Strength	> Inherent tensile strength of concrete	MPa
Shore D Hardness	> 60	Shore D

HEGGEL FRP 320's chemical resistance withstands concentrated sulphuric acid, while its temperature stability prevents blistering under real process conditions. Strong adhesion to steel and concrete keeps the laminate securely bonded, and its hardness ensures durability against abrasion and wear in demanding areas such as absorbers, tanks, and containment areas.

HEGGEL FRP 320 provides a proven, durable, and cost-effective solution for these environments. It enables safe, continuous operation, reduces downtime, and lowers long-term maintenance costs.

Take the Next Step Now!

Strong plants start with strong protection. With **HEGGEL FRP 320**, fertilizer producers can protect walls, floors, and critical assets against sulphuric acid while ensuring safe and reliable operations for years to come.

Click here to get in touch with HEGGEL GmbH today our technical team is ready to assess your plant's needs and recommend the best protection solution!

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