

HEGSEL® Corr 220 AF

Advanced Anti-Fouling Chemical Resistant Coating

You Build, We Protect!

Description:

HEGSEL Corr 220 AF represents an innovative nano-technology-based coating, enriched with advanced fillers and designed with anti-fouling properties. It is meticulously engineered for the protection of components frequently exposed to highly aggressive chemicals, particularly in the chemical industry. This coating is notable for its superior chemical and fouling resistance at elevated temperatures. With its exceptional adhesion properties, **HEGSEL Corr 220 AF** is ideal for use on steel and concrete surfaces, especially in extensive secondary containment areas.

Characteristics:

- Ultra-High resistance to full immersion in concentrated organic/mineral acids, alkalis, and solvents at both room and elevated temperatures
- Prevents fouling and sludge build up
- Cures at ambient temperature
- Exceptional adhesion strength
- Outstanding abrasion resistance
- Self-priming single-coat application

Application Areas:

- Chemical storage tank/process vessel internal linings
- Internal pipe lining
- Road / sea chemical tankers
- Marine equipment
- External coating for insulated pipes, operating at sub-ambient temperatures
- Secondary containment areas
- Concrete walls/floors
- heat exchangers and evaporators

Chemical Resistance:

- Sulphuric acid 98%
- Hydrochloric acid 37%
- Glacial acetic 100%
- Methylenechloride
- Sea water
- Phosphoric acid 84%
- Nitric acid 50%
- Sodium hydroxide 50%
- Tetrahydrofuran
- Demineralised water
- Sodium hypochlorite 15%
- Phenol 100%
- Hydrazine
- MEK
- Carbon Disulphide

Application Data:

Finish	Glossy		
Colour	Black, Red and Grey		
Number of Coats	1		
Practical Consumption	Approx. 2.2 kg/m ² @ 800 microns DFT		
Recommended Dry Film Thickness (DFT)	Tanks / Vessels / Pipe internals: 600 – 800 microns Equipment externals: 300 – 500 microns Concrete surfaces: 600 – 800 microns		
@Temperature	20°C	30°C	40°C
Pot Life	Brush: 50 min Spray: 60 min	Brush: 35 min Spray: 40 min	Brush: 20 min Spray: 25 min
Tack Free / Drying Time	120 min	-	-

Note 1: The practical consumption and DFT are subject to specific project conditions and will adjust accordingly to ensure optimal results. Please consult HEGSEL!

Note 2: All the provided values are approximate and should be used as guidelines for specifications.

Note 3: Use concrete sealer and glass matting to reinforce concrete to stop it cracking if temperature loads are to be encountered.

Technical Data:

Title	Standard	Value
Density (Mix)	-	1.75 g/cm ³
Solids Content	-	100%
Mixed Viscosity Brush Grade	20°C	40,000 ± 5.000 mPa.s
Mixed Viscosity Spray Grade	20°C	25,000 ± 5.000 mPa.s
Abrasion Resistance	ASTM D4060 (Taber CS-17/1kg/1000 cycles)	26 mg weight loss
Impact Resistance	ASTM G14	Forward: 10 Joules Reverse: 3 Joules
Adhesion Strength Brush Grade	ASTM D4541	19.3 MPa (cohesive failure)
Adhesion Strength Spray Grade	ASTM D4541	30.9 MPa (cohesive failure)
Elongation to break	BS 6319: Part 7: 1985	1.5%
Tensile Strength	BS 6319: Part 7: 1985	40 MPa
Elastic Modulus	BS 6319: Part 2: 1983	10 GPa
Compressive Strength	BS 6319: Part 2: 1983	120 MPa
Temperature Resistance	NACE TM0174	Immersed: +130°C Non-Immersed: +150°C

**Packaging:
Storage:**

3 kg and 5 kg kits

+36 months in sealed original containers under dry and cool conditions. Protect from heat and freeze!

1. Surface Preparation

To effectively prepare a surface for coating, initially use a metal scraper to remove any loose rust and dirt. Clean the surface of oil or grease using solvents like methyl ethyl ketone (MEK) or acetone, ensuring no residue is left post-evaporation. For optimal adhesion, roughen the surface using tools such as a needle gun, angle grinder, or preferably through grit blasting with angular grit to achieve a minimum blast profile of 75 microns and attain an SA 2.5 level of surface cleanliness. Afterward, eliminate any residual dirt and grit with a vacuum. Surfaces previously immersed in salt water should be thoroughly rinsed with fresh water prior to blasting. Immediate coating of the prepared surface is crucial to prevent oxidation and contamination.

2. Mixing

To ensure optimal performance of the product, thorough mixing is essential. Make sure both base and hardener components are kept between 20 and 30°C before mixing and always keep the materials in a shaded area before, during and after mixing. Upon opening the base tin, any substance on the lid must be incorporated into the tin. Gradually incorporate the hardener into the base, ensuring a slow stirring motion with the power mixer. Once the entirety of the hardener has been seamlessly added, elevate the power mixer's speed to its maximum. Proceed with this for an additional two minutes, while concurrently using a sturdy spatula or palette knife to scrape the interior walls of the container. This method ensures comprehensive blending of all materials.

The usability of the mixed material lasts for a duration approximately equal to the pot life. Refrain from mixing a quantity of material that exceeds what can be used within the pot life span.

3. Environmental Conditions

Prior to the application of the coating, make sure that the temperature of the surface is no less than 15°C, the temperature of the air is at least 3°C above the dew point, and ensure the relative humidity is less than 80%. In case the substrate's temperature falls below 15°C, it may be necessary to use external heating to elevate the ambient temperature and subsequently heat the substrate. For outdoor applications, create an enclosure around the equipment to be coated using plastic sheeting and then pump warm air into this enclosed area. Be careful to prevent recontamination of the surface which is prepared from close

sources. Avoid applying the coating in windy conditions unless there is no other choice in these instances, encase the equipment in plastic sheeting as mentioned earlier.

4. Application Tools

Brush Grade: Application of the mixture can be performed using a stiff bristle brush, with a width of approx. 7.5 cm and bristles not exceeding 5 cm in length. If you are using a new brush, ensure to condition it by forcefully bending and yanking the bristles to eliminate any loose ones. This step is significant to avert the coating from being contaminated by bristles while the application is taking place.

Spray Grade: utilize a single-component airless spray unit with a 63:1 ratio, equipped with a 21 thou reversible fluid tip and a fan angle of approximately 60°. Smoother coating finish can be achieved using a 19 thou tip. Eliminate all internal filters from both the pump and spray gun. For optimal spray characteristics, run the equipment at 5000 psi. In cases where the pump uses a suction hose to transport coating from the tin to the pump, ensure that the hose is made of stainless steel or rubber.

5. Application

Apply a stripe coat to corners, edges, and welds. For Spray Grade, initiate the wet on wet application of **HEGGEL Corr 220 AF** by applying onto the stripe coat and build up to the specified film thickness in a single coat. For Brush Grade, apply **HEGGEL Corr 220 AF** by firmly brushing into the substrate to ensure surface wet out and then proceed to form the specified film thickness in a single layer. Frequently monitor the wet film thickness with the help of a wet film thickness gauge particularly when dealing with concrete substrates where it is not feasible to measure DFT. After every two kit applications, clean the tools using MEK or acetone-based thinners.

N/B: **HEGGEL Corr 220 AF** should be applied in a single coat (wet on wet). If an additional coat is required, the first coat should be blasted prior to the application of the second coat. Please seek our consultation!

The equipment after coating should be immediately cleaned with MEK or acetone-based thinners. However, if the equipment is used in hot climates for a lengthy period, then it must be cleaned after every 60 minutes before spraying can re-commence. Once cleaned it can be

used for a further 60 minutes without stopping and so on.

6. Quality Control

Between 12 to 24 hours after application inspect the integrity of the coating applied with a 90V DC Wet Sponge holiday detector. Make sure that the coated surface is completely soaked by repeatedly running the sponge across it. An alternative approach involves utilizing a wire brush high voltage spark tester set at 800-1000 V. An inductance type electronic dry film thickness tester can be employed to provide a quantitative assessment of the dry coating thickness.

7. Repairing Defects

If the coating has been applied 25% beneath specification, repairs should be made. Use a distinctive marker pen to identify pinholes, misses, and areas with thin coating for repair. Any loose material surrounding the defect must be removed to leave behind firmly adhered coating. Subject the defect to spot grit blasting until the bare metal surfaces with at least SA 2.5 cleanliness and a minimum profile of 75 microns is achieved. Also, it is imperative to sweep blast 5 cm of the surrounding sound coating to create a rough surface as repair overlap. Prior to applying the repair of **HEGGEL Corr 220 AF** clean the blasted area with xylene. Brush firmly into the surface profile to ensure complete wet out and then build to required thickness in a single coat. Apply the repair mix firmly into the surface profile with the brush to guarantee complete wet out, subsequently building to the needed thickness in a single layer.

8. Curing Time Schedule

After approximately 120 minutes the applied coating would be touch dry at 20°C. A minimum curing period of 3-4 days at 20°C should be provided before exposing to a chemical load. If the ambient temperature rises above 30°C, the coating can be put into service 24 hours following the final holiday testing and necessary repairs. For coating surface decontamination or to improve chemical resistance after ambient curing, subject the coating to 100°C steam for roughly 4 hours.

9. Safety Measures

The material safety data sheets of the individual components, the safety instructions on the packing (label) as well as the legal requirements for handling hazardous materials must be observed.

HEGGEL Corr 220 AF; Revision No: 2.10 / Last Revision Date: 20.09.2023

All information contained herein is based on the current state of our knowledge and practical experience at the time of release. Therefore, please make sure that this is the latest edition of the Technical Data Sheet. All data are only intended as a guideline for informational purposes and do not constitute a legally-binding warranty of the suitability for a certain purpose of use, due to its dependence on site conditions and possible processing, use and applications. All information contained in this technical datasheet is subject to change without notice.

HEGGEL GmbH

Huttropstr. 60
45138 Essen
Germany

Tel: +49 201 17003 270

Fax: +49 201 17003 277

E-Mail: info@heggel.de

Web: www.heggel.de