

HEGGEL Corr 211

2-C High-Tech Coating

Description:

2-component, hybridized epoxy offering temperature resistance coating, from -50°C to +170°C (338°F) immersed and +230°C (446°F) non immersed.

Characteristics:

- Excellent broad range chemical resistance
- In situ application to exterior of hot surfaces
- Resistant to CUI conditions
- Single coat curing at ambient temperature
- Very high fouling resistance

Product:

HEGGEL Corr 211 is an advanced coating system derived from a novel technology that combines, on a molecular level, both organic and inorganic molecules. It offers superior broad range chemical resistance from sub ambient to elevated temperatures in excess of 170°C, after only an ambient cure. The cured coating has excellent sliding abrasion resistance coupled with a very smooth finish that enhances fluid flow and prevents sludge build up.

Application Areas:

- Chemical tanks
- Process vessels
- Evaporators
- Scrubber units
- Heat exchangers
- Condensers
- Distillation units
- Autoclaves

Technical Data:

Internal coating of pipe-work, pumps and valves. External coating of equipment operating from sub ambient to high temperatures suffering from CUI such as insulated pipes/spools and process vessels. Possibility of application to hot surfaces while equipment is operational.

Physical Properties:

Finish	Glossy
Solids Content	100%
Mixed Viscosity @20°C	Brush grade: 37.000 +/- 5.000 mPa.s Spray grade: 17.000 +/- 5.000 mPa.s
Recommended Dry Film Thickness (DFT)	Vessels / Pipe internals: 600 – 800 microns Equipment externals: 200 – 400 microns Concrete surfaces: 600 – 800 microns
Number of coats	1
Practical Coverage	Approx. 0.40 m ² /kg @ 800 microns DFT
Pot Life at 20 °C	Brush grade: 55 minutes Spray grade: 65 minutes
Tack Free/ Drying Time (20°C)	Brush grade: 150 minutes at 20°C Spray grade: 160 minutes at 20°C
Specific Gravity	1.75 gms/cm ³ (Base + Hardener)

Abrasion Resistance	ASTM D 4060
	25 mg weight loss (Tabor CS-17/1kg/1000 cycles)
Impact Resistance	ASTM G14
	Forward: 12 Joules
	Reverse: 2.8 Joules
Adhesives Strength	ASTM D4541
	26 MPa (cohesive failure)
Temperature Resistance	NACE TM0174
	+170°C Immersed
	+230°C Non Immersed

Colour:

Dark Brown, Black, Grey, Red

Storage:

+36 months in unopened containers

1. Surface preparation

For optimum results grit blast surface to remove the old coating system and then wash using high-pressure water jetting to remove any surface chemical contamination and soluble salts.

Allow the substrate to dry and then re-blast the surface using angular grit to obtain a blast profile of at least 75 microns (Swedish Standard SA 2.5). Remove residual dust and grit. If surface has been immersed in salt water it needs to be grit blasted, left for 24 hours and then washed with fresh water before blasting again. New surfaces must be thoroughly degreased before final grit blasting. Once the surface is prepared it should be coated immediately.

2. Mixing

Thorough mixing will give optimum product performance. Ensure base and hardener are below 30°C before mixing and always keep material in the shade before, during and after mixing. When the base tin is opened any material on the lid must be added to the tin. Hold the tin firmly between the feet to avoid the can spinning when mixed using a power mixer to maximum and mix for further 2 minutes simultaneously scraping the inside wall of the can with a firm spatula or pallet knife so that all material is properly mixed. The brush grade mixed material remains usable for a time approximately equal to the pot life i.e. 55 minutes at 20°C, 35 minutes at 30°C and 15 minutes at 40°C and these values are 65 minutes at 20°C, 40 minutes at 30°C and 20 minutes at 40°C for spray grade mixture. Do not mix more material than can be used within the pot life period.

3. Application

Before coating ensure that the surface temperature is at least 15°C and that the air temperature is 3°C above the dew point with a relative humidity below 80%. If the temperature of the substrate is below 15°C then external heating may be required to increase the ambient temperature and so warm the substrate. If outdoors, plastic sheeting should be used to construct an enclosure around the equipment to be coated before applying warm air into the space within the construction. Avoid re-contamination of prepared surface from nearby sources. Do not apply coating in windy conditions unless absolutely necessary, in which

case enclose the equipment in plastic sheeting as described above. Stripe coat corners, edges and welds.

Brush grade: Apply **HEGGEL Corr 211** by initially brushing firmly into the substrate to achieve surface wet out before building to specified film thickness in a single coat. Check regularly the wet film thickness using a wet film thickness gauge especially on concrete substrates where DFT measurements are not possible. The brush should be cleaned with MEK or acetone based thinners after application of every two kits.

Spray grade: Apply **HEGGEL Corr 211** and build to specified film thickness in a single coat. Check regularly the wet film thickness using a wet film thickness gauge especially on concrete substrates where DFT measurements are not possible. The spray 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 recommence. Once cleaned it can be used for a further 60 minutes without stopping and so on.

4. Application Equipment

Brush grade: Stiff natural bristle brush, 3 inches wide and bristles no more than 2 inches long. If the brush is new then condition by vigorously bending and pulling bristles to remove all loose ones. This is an important step to avoid bristles contaminating the coating during application.

Spray grade: Single component 63:1 airless spray unit. 19 thou reversible fluid tip with a fan angle of 60° or near.

5. Dry Coating

24 hours after application check the continuity of the applied coating using a Wet Sponge holiday detector set at an operating voltage of 90V DC. Ensure that the coated surface is thoroughly wetted out by repeated passage of the sponge over it. A quantitative measure of the dry coating thickness can be obtained using an inductance type electronic dry film thickness tester. Coating should be repaired if applied 25% below specification. Pinholes, misses and thin areas of coating should be identified for repair using a distinctive marker pen. Repair by spot blasting the defect to bare

metal with a profile of at least 75 microns and additionally sweep blasting / feather a 2 inches radius of sound coating surrounding the defect for overlap of the repair. The prepared area is cleaned with xylene before application of the repair.

6. Repair of Existing Coating

All loose material around the defect must be removed to leave sound firmly bonded coating. Spot grit blast the defect to bare metal having at least Sa2.5 cleanliness with a minimum 75 microns profile. Also sweep blast 2 inches of surrounding sound coating to roughen it in order to accept overlap of the repair. Wash blasted area with xylene before applying **HEGGEL Corr 211** repair. Brush firmly into the surface profile to ensure complete wet out and then build to required thickness in a single coat.

7. Chemical Resistance

- 98% Sulphuric acid
- 37% Hydrochloric acid
- 100% Glacial acetic
- Methylenechloride, vinyl chloride, benzyl chloride
- Carbon Disulphide
- Molten Sulphur + acidic vapour
- Sodium hypochlorite, sodium perchlorate
- 50% Sodium Hydroxide

8. Cure Schedule

Coating is touch dry after ~ 150 minutes for brush and 160 minutes for spray grade material at 20°C. Unless stated otherwise allow a minimum period of 3 – 4 days to reach full cure before exposing to a chemical load. For decontamination of the coating surface or to maximise chemical resistance the coating can be exposed to 130°C steam after 3-4 days ambient cure.

9. Dry Film Thickness

The typical dry film thickness for **HEGGEL Corr 211** ranges between 300 to 800 microns. However, based on the process conditions and customer requirements, we are able to customize the product that it could be applied in thicknesses other than the mentioned range.

Therefore, we strongly advise a consultation with **HEGGEL GmbH**.

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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 actual 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.

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