

HEGSEL Corr 220

High Aggressive Chemicals Resistant Coating

Description:

HEGSEL Corr 220 is an advanced resin based coating system modified by PTFE which is designed to protect components that carry highly aggressive chemicals found in the chemical industry. Chemical resistance is especially superior at elevated temperatures where other such coatings will more often than not fail. The coating has exceptional adhesion directly to steel and concrete surfaces and so is ideal for large secondary containment areas.

Characteristics:

- Nano-technology based coating with ultra-high resistance to full immersion in concentrated organic/mineral acids, alkalis and solvents at room and elevated temperatures.
- Cures at ambient temperature.
- Excellent adhesion.
- Excellent abrasion resistance.
- Single coat application without primer

Applications:

Chemical storage tank/process vessel internal linings, internal pipe lining, road/sea chemical tankers and concrete walls/floors. Secondary containment areas. External coating for insulated pipes, operating at sub-ambient temperatures.

Typical Chemical Resistance: (full immersion)

- 98% Sulphuric acid
- 37% Hydrochloric acid
- 100% Glacial acetic
- Methylenechloride
- Tetrahydrofuran
- 84% Phosphoric acid 50% Nitric Acid
- 50% NaOH (Caustic)
- Monoethanolamine
- Carbon Disulphide
- Diglycolamine (DGA)
- Methyl-diethanolamine (MDEA)
- 15% Sodium Hypochlorite
- 100% Phenol
- Hydrazine
- MEK

Technical Data:

Finish	Glossy
Solids Content	100%
Mixed Viscosity @20°C	Brush grade: 40.000 +/- 5.000 mPa.s Spray grade: 25.000 +/- 5.000 mPa.s
Recommended Dry Film Thickness (DFT)	Vessels / Pipe internals: 600 – 800 microns Equipment externals: 300 – 500 microns Concrete surfaces: 600 – 800 microns
Number of coats	1
Practical Coverage	Approx. 0.45 m ² /kg @ 800 microns DFT
Pot Life at 20 °C	Brush grade: 50 minutes Spray grade: 60 minutes
Tack Free/ Drying Time (20°C)	Brush grade: 120 minutes at 20°C Spray grade: 120 minutes at 20°C
Specific Gravity	1.75 gms/cm ³ (Base + Hardener)

Physical Properties:

Abrasion Resistance	ASTM D 4060
	26 mg weight loss (Tabor CS-17/1kg/1000 cycles)
Impact Resistance	ASTM G14
	Forward: 10 Joules
	Reverse: 3 Joules
Adhesives Strength	ASTM D4541
	Brush grade: 19.3 MPa (cohesive failure)
	Spray grade: 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
	10.0 GPa
Compressive Strength	BS 6319: Part 2: 1983
	120 MPa
Temperature Resistance	NACE TM0174
	+130°C Immersed
	+150°C Non Immersed

Colour:

Black, Red and Grey

Storage:

+36 months in unopened containers

1. Surface preparation

Remove all loose rust and dirt using a metal scraper. Remove oil or greases from surface using cleaning solvents that leave no residue once evaporated such as methyl ethyl ketone (MEK) or acetone. Surface should be roughened using a needle gun, angle grinder or ideally grit blasted using angular grit to give a surface profile greater than 75 microns (SA 2.5). Remove residual dirt and grit using a vacuum. If surface has been immersed in salt water then surface needs to be washed with fresh water before blasting. Once the surface is prepared it should be coated immediately to avoid surface oxidation and contamination.

2. Mixing

Thorough mixing will give optimum product performance. Ensure base and hardener are between 20 and 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 (electric or air operated). Add hardener gradually to the base while stirring slowly with the power mixer. When all the hardener has been added to the base increase the speed of 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. 50 minutes at 20°C, 35 minutes at 30°C and 20 minutes at 40°C and these values are 60 minutes at 20°C, 40 minutes at 30°C and 25 minutes at 40°C for spray grade mixture. Do not mix more material than can be used within the pot life period.

3. Application Equipment

Brush grade: Stiff brush with natural or synthetic bristles, 3 inches wide and bristles no more than 2 inches long. If the brush is new, 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. 21 thou reversible fluid tip producing a fan angle of approximately 60°. Smoother coating finish can be achieved using a 19 thou tip. Remove all internal filters from pump and spray gun. Operate equipment at 5000 psi to achieve optimum spray characteristics. If pump has a suction hose to transfer coating from tin to pump then this must be made from stainless steel or rubber.

4. Application of HEGGEL Corr 220

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 but if time constraints force application in such conditions then enclose equipment to be coated in plastic sheeting as described above. Stripe coat corners, edges and welds.

Brush grade: Apply by 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. After coating, the brush must be immediately cleaned with MEK or acetone based thinners.

Spray grade: Apply **HEGGEL Corr 220** 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.

5. Dry Coating QC

12 to 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.

Alternatively, use a wire brush high voltage spark tester set at 800-1000V. 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 it is 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 a 2 inch 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. Cure Schedule

Coating is touch dry after ~ 120 minutes at 20 °C. Allow a minimum period of 3 - 4 days at 20 °C to reach full cure before exposing to a chemical load. If ambient temperature is above 30 °C the coating can be put into service 24 hours after final holiday testing and repairs. For decontamination of the coating surface or to maximise chemical resistance after the ambient cure the coating can be exposed to 100 °C steam for approximately 4 hours.

7. Dry Film Thickness

The typical dry film thickness for **HEGGEL Corr 220** 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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