HEGGEL

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HEGGEL Fix 830

Super Abrasion Resistance Repair Composite

Description:

HEGGEL Fix 830 is a hand applied coating specifically designed for providing very high abrasion resistance to areas suffering erosion and wear damage from impacting particles and especially resistant to fine particle abrasion. Can be applied up to a DFT of 15 mm.

Characteristics:

- Ultimate wear resistant engineering grade repair composite.
- Specially designed to repair and rebuild machinery and equipment suffering from severe wear and erosion damage.
- Easy application due to extended pot life with short hardening and service time.
- Self-priming bonding tenaciously to steel, stainless steel, cast iron, copper, bronze, aluminium, alloys and concrete.
- Excellent resistance to impact from impinging particles either dry or within fluid.

Applications:

Coal bunkers, pulverised fuel lines, ash handling systems, mineral storage / clinker silos and any substrate prone to erosion and wear. Also suitable for leaks and damage to pipes, valves and tanks due to particle erosion chemical attack. Not recommended for turbulent fluid flow cavitation – refer to **HEGGEL GmbH** for a suitable product in this situation.

Physical Properties:

Abrasion Resistance: ASTM D 4060
4 mg weight loss (Tabor CS-17/1kg/1000 cycles)

Barcol Hardness: ASTM D-2583
52

Adhesive Strength: ASTM D4541
235 kg cm^{-2} (cohesive failure)

Compressive Strength: BS6319 Part 2 1983
814 kg cm^{-3}

Impact resistance: ASTM G14
Forward: 12 Joules
Reverse: 6 Joules

Temperature Resistance: NACE TM0174
90ºC Immersed
+150ºC Non Immersed

Typical Chemical Resistance (full immersion)

- Crude Oil (Sweet or Sour)
- Kerosene
- Sulphuric Acid (50%)
- Hydrochloric Acid (35%)
- Demineralised Water
- Nitric Acid (15%)
- Acetic Acid (30%)
- Acetone
- Diethanolamine
- Diglycolamine
- Sour Gas
- Sodium Hydroxide (50%)
- Sodium Hypochlorite (15%)
- Methanol

Coating Data:

Finish: Rough and Semi-gloss
Colours: Light Grey
Solids Content: 100%
Mixed Viscosity: 75,000 +/- 5000 cPoise
Typical Wet Film thickness: up to 15 millimetres
Number of Coats: 1 - 2
Coverage of 1kg kit @ 5 mm: 0.1 m^2
Pot Life / Working Life at 20ºC: 25 minutes Initial Set / Drying Time at 20ºC: 240 minutes Machining Time at 20ºC: 8 hours
Dry Service Time at 20ºC: 2 days
Immersion Service Time at 20ºC: 3 days
Storage Life: 72 months minimum in unopened containers when maintained between 5 and 35ºC.
Packaging: 1 and 2.5 kg composite kits.
Specific Gravity: 2.5 gms/cm_3 (Base + Hardener)

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 50 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

Ensure that the base and hardener temperature is no higher than 20$_{o}$C before mixing. The base is mixed continuously as the hardener is added. Allow further 1 minutes mixing time after addition of hardener. Scrape inside surface of the container with a pallet knife so that all material receives a good mixing. Do not mix more material than can be used within the pot life period.

3. Application Equipment

Stiff bristle brush or trowel

4. Application of HEGGEL Fix 830

Stripe coat corners and edges. If the surface to be coated is porous and very rough then it may be necessary to thin the mixed coating with 1 – 2% xylene before applying a thin primer layer to wet out and seal the substrate. As soon as this primer coat is dry then apply xylene free main build coat. Press material into substrate so that it is completely wetted out before applying further material to fill the eroded area so that it is flush with the original surface of component. If a second coat is needed then this should be applied the same day otherwise lightly abrade the cured coating surface before applying another layer. After coating the brush / trowel should be immediately cleaned with MEK or acetone based thinners. See above Coating Data for details of cure time required before putting into service.

5. Dry Coating QC

24 hours after application check the continuity of the applied coating using a holiday detector set at a DC operating voltage of 100V/mil. A quantitative measure of the dry coating thickness can be obtained using an inductance type electronic dry film thickness tester. 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 ~ 240 minutes at 20$_{o}$C. Allow minimum period of 3 days at 20$_{o}$C to reach full cure before exposing to a full chemical load. To maximise chemical resistance after the 3 days ambient cure the coating can be post cured at 100$_{o}$C for 4 hours.

7. Recommended System

- Internal coating of gas pressure/separator vessels and down-hole tubulars:

Single coat @ 175-225 microns DFT.

- Internal coating of oil/water pressure/separator vessels:

Single coat @ 800 microns DFT.

- Internal coating of cyclones:

Single coat @ 1000 microns DFT.

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