

HEGSEL® Fix 831

High Abrasion Metal-buildings Repair Filler

You Build, We Protect!

Description:

HEGSEL Fix 831, a multi-purpose metal repair compound, is specifically developed for repairing and rebuilding machinery and equipment impacted by severe wear and erosion. Ideal for steel and iron materials, it efficiently addresses damages arising from mechanical, corrosive, or chemical factors. This hand-applied coating delivers exceptional abrasion resistance, effectively protecting against erosion and wear from impacting particles, and is notably resistant to fine particle abrasion. **HEGSEL Fix 831** can be applied in a single coat up to a Dry Film Thickness (DFT) of 15 mm. For diverse service conditions, top coating with **HEGSEL Corr** products is recommended. **HEGSEL Fix 831** is not advised for situations involving cavitation erosion. Please consult **HEGSEL GmbH** for suitable product recommendations under cavitation conditions.

Characteristics:

- Self-priming
- 100% solids content
- Exceptional abrasion resistance
- Superior mechanical strength
- Easy application owing to extended working time, rapid curing and service time
- Strong bonding to steel, stainless steel, cast iron, copper, bronze, aluminum, alloys, and concrete

Application Areas:

- Coal bunkers
- Pulverised fuel lines
- Ash handling systems
- Mineral storage/clinker silos
- Repairing leaks and damage in pipes, valves, and tanks
- Rebuilding flange faces affected by corrosion, particle erosion, or chemical attack

Chemical Resistance:

- Crude oil (sweet or sour), kerosene
- Acetone
- Sulphuric acid 50%
- Hydrochloric acid 35%
- Demineralised water
- Nitric acid 15%
- Acetic acid 30%
- Diethanolamine, diglycolamine
- Sodium hydroxide 50%
- Sodium hypochlorite 15%
- Methanol

Application Data:

Mixing Ratio (Parts by Weight)	Base: Hardener = 83 : 17
Finish	Rough
Colour	Grey
Typical Wet Film Thickness	Up to 15 mm
Number of coats	1 - 2
Practical Consumption	2 kg/m ² @ 1 mm DFT
Pot Life (20°C / 30°C /40°C)	25 min / 15 min / 10 min
Initial Set / Drying Time (20°C)	240 min
Machining Time (20°C)	8 hrs
Dry Service Time (20°C)	2 days
Immersion Service Time (20°C)	7 days

Technical Data:

Title	Standard	Value
Density (Mix)	-	2.5 g/cm ³
Mixed Viscosity	20°C	150,000 +/- 5000 cPoise
Solids Content	-	100 %
Abrasion Resistance	ASTM D4060 Tabor CS-17/1kg/1000 cycles	12 mg weight loss
Compressive Strength	BS6319 Part 2 1983	79.83 MPa
Adhesion Strength	ASTM D4541	23.04 MPa (cohesive failure)
Barcol Hardness	ASTM D2583	52
Tensile Strength	BS 6319 Part 7 1985	34.32 MPa
Temperature Resistance	NACE TM0174	Immersed: +90°C Non-Immersed: +150°C

Packaging:

1 and 2.5 kg kits

Storage:

72 months minimum in unopened containers when maintained between 5 and 35°C.
Protect against 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, creating a surface profile exceeding 50 microns and SA 2.5 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

Before mixing, make sure that both the base and hardener temperatures do not exceed 20°C. Continuously mix the base while gradually adding the hardener. Once the hardener is added, mix for an additional minute. Use a pallet knife to scrape the container's inside surface, ensuring thorough mixing of all materials. Mix only the amount of material that can be utilized within its pot life period.

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

Stiff bristle brush or trowel

5. Application

Apply a stripe coat to corners and edges. For porous and very rough surfaces, thin the mixed coating with 1-2% xylene and apply a thin primer layer to wet out and seal the substrate. Once the primer dries, apply the xylene-free main build coat. Ensure the material is pressed into the substrate for complete wetting out before adding more material to fill the eroded area flush with the component's original surface. If a second coat is required, apply it on the same day or lightly abrade the cured coating before adding another layer. After achieving the desired thickness, lightly brush the surface for an even finish, using a brush lightly soaked in xylene for better results. Clean the brush or trowel immediately with MEK or acetone-based thinners after coating.

6. Quality Control

24 hours after application, inspect the integrity of the applied coating utilizing a holiday detector, set at an operating voltage of 100V/mil (DC). 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 **HEGSEL Fix 831** 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.

8. Cure Schedule

After approximately 240 minutes the applied coating would be touch dry at 20°C. A minimum curing period of 3 days should be provided before exposing to a chemical load. To enhance the chemical resistance, the coating can undergo a post-cure at 100°C for 4 hours, following a 3-day ambient cure.

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.

HEGSEL Fix 831; Revision No: 1.10 / Last Revision Date: 15.09.2023

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.

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