

MetalBuild

Product Summary

- Multi purpose 100% solids engineering grade repair filler compound specially designed to repair and rebuild machinery and equipment suffering from severe wear and erosion damage
- Easy application due to extended potlife with short hardening and service time
- Self priming bonding tenaciously to steel, stainless steel, cast iron, copper, bronze, aluminium, alloys and concrete

DuraPol MetalBuild 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 in a single coat. Top coat with DuraPol Super Alloy, Super Abrasion, UHT or ElastoPol depending upon final service conditions.

Application Areas

Coal bunkers, pulverised fuel lines, ash handling systems, mineral storage / clinker silos. Also suitable for leaks and damage to pipes, valves, tanks, flange face rebuild due to corrosion, particle erosion or chemical attack. Not recommended for cavitation erosion – refer to DuraPol for a suitable product in this situation.

Physical Properties

Abrasion Resistance: ASTM D 4060
12 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)

Tensile Strength: BS 6319 Part 7 1985
350 kg cm⁻²

Compressive Strength: BS6319 Part 2 1983
814 kg cm⁻³

Temperature Resistance: NACE TM0174
90°C Immersed
+150°C 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

Colours: Grey

Solids Content: 100%

Mixed Viscosity: 150,000 +/- 5000 cPoise

Typical Wet Film thickness: up to 15 millimetres

Number of Coats: 1 - 2

Coverage of 1kg kit @ 5 mm: 0.1 m²

Pot Life / Working Life at 20°C: 25 minutes

Initial Set / Drying Time at 20°C: 240 minutes

Machining Time at 20°C: 8 hours

Dry Service Time at 20°C: 2 days

Immersion Service Time at 20°C: 7 days

Storage Life: 72 months minimum in unopened containers when maintained between 5 and 35°C.

Packaging: 1 and 2.5 kg composite kits.

Specific Gravity: 2.5 gms/cm³ (Base + Hardener)

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.

Mixing of DuraPol MetalBuild

Ensure that the base and hardener temperature is no higher than 20°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.

Application Equipment

Stiff bristle brush or trowel

Application of DuraPol MetalBuild

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 required thickness has been applied lightly brush surface to get even finish. This can be greatly assisted if the brush is lightly soaked in xylene and then used to brush over repaired surface. After coating the brush / trowel should be immediately cleaned with MEK or acetone based thinners. See above Coating Data for details of time required for type of service envisaged.

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.

Cure Schedule

Coating is touch dry after ~ 240 minutes at 20°C. Allow minimum period of 3 days at 20°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°C for 4 hours.