TECHNICAL DATA SHEET
Concrete Waterproofing & Admixture

ERO SEAL110

Elastomeric cementitious waterproof coating

Product Description

ERO SEAL110 is an elastomeric cementitious coating, used for waterproofing water retaining structures and water excluding structures.

ERO SEAL110 provides an elastomeric waterproof coating suitable for use in potable water tanks, reservoirs, canals and culverts.

The material which can be used on concrete, brick and block-work substrates exhibits good crack bridging qualities even after long term water immersion. This is a conditions a number of cementitious coatings cannot satisfy.

ERO SEAL110 has been developed to readily accommodate the maximum permissible crack widths recommended in BS8007:1987 the British Standard Code of Practice for the design of concrete structures for retaining aqueous liquids.

Advantages

- Approved by Drinking Water Inspectorate (DWI).
- Withstands high positive and negative hydrostatic pressures.
- Excellent crack accommodation after immersion.
- Excellent bond to concrete and masonry.
- Long working life.
- Easy application by brush, roller trowel or spray.
- Bonds to green or damp concrete.
- Effective barrier to sulphates and chlorides.

Standards compliance

- BS6920:1990 Effect on Water Quality.
- Water Byelaws Scheme approved.
- DIN 1048 : Water Penetration Test.
- Fire Tested to BS476 : 1987 Parts 6 and 7.
- DWI Regulation 25 (I) (a) approved.

HEADQUARTERS : 343 Gamal Abd Elnaser Street, Next to Alasafra Gas.
Factory : Al-Ghafoor Al-Rahim Mosque Street, behind Abu Sitta, Merghem Industrial Area.
Phone: 035526119 Mobile: 01032093209 – 01557893209 - 01557493209
Email: ERMA INNOVA@gmail .com
www.erma-egy.com

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Description

ERO SEAL110 two-component polymer modified cementitious coating is supplied in pre-packaged form. The product is designed to be easily mixed on site using a slow speed drill fitted with a mixing paddle and then applied to the substrate using either brush, trowel or spray. Roller application may also be used, however, finishing the surface with a trowel is recommended for best results.
ERO SEAL110, available in grey and white, cures to form and elastomeric impermeable membrane.

Technical support

ERMA offers a comprehensive range of high performance, high quality repair, maintenance and construction products. In addition, **ERMA** offers a technical support package to specifiers, end users and contractors, as well as on-site technical assistance in locations all over the world.

Specification clause

The waterproofing coating shall be ERO SEAL110 , an elastomeric cementitious coating approved under the U.K. WBS (WRc Listed). The cured coating, after immersion, shall be capable of withstanding cracked substrate cyclic movement from 0 - 300 - 0 microns at 15oC for 6,000 cycles without failure. It shall have the capability to resist,a positive water pressure of 7 bar and a negative water pressure of 3 bar when tested to DIN 1048.

Estimating

Powder component (grey or white):	20 kg bag
Liquid polymer component:	5.5 kg plastic container
Coverage rate at 1 mm wet film thickness:	14 m2 per25.5 kg pack

The coverage figure given is theoretical - due to wastage factors and the variety and nature of possible substrates, practical coverage figures will be reduced. A minimum coverage of 3.6 kg/m2 applied in not lessthan two coats is recommended.

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Product Properties

Pot life at 20°C:	2 hours
Pot life at 35°C:	1 hour
Colour:	Grey or White
Mixed density:	1850 kg/m3
Minimum application temperature:	5°C

Properties of cured coating (21 days cure at 23°C followed by 28 days immersion at 23°C)
The values obtained are for **ERO SEAL110** when applied in two coats each of 1 mm wet film thickness.

Resistance to positive water pressure (DIN 1048):	7 bar (7 m head of water)
Resistance to negative water pressure (DIN 1048):	3 bar (30 m head of water)
Static crack accommodation:	> 1.0 mm
Mixed density:	1850 kg/m3
Minimum application temperature:	5°C

Dynamic crack accommodation capability 0 - 300 – 0 microns cycling after 28 days immersion (University of Surrey method)

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15°C :	6,000 cycles (no failure
0°C :	6,000 cycles (no failure
-12°C:	6,000 cycles (no failure

Note: ERO SEAL110 will bridge an existing crack up to 0.3 mm wide and still withstand a positive water pressure of 7 bar.

Application instructions

Surface preparation

All surfaces which are to receive the coating, must be free from oil, laitence, grease, wax, dirt or any other form of foreign matter which could affect adhesion. Typically, concrete surfaces can be cleaned using a high pressure water jet. Poor quality, friable or contaminated concrete may require grit-blasting.

Spalled surfaces or those containing large blowholes, and other such defects, should be repaired using ERO PROOF 50 or a ERMA approved repair mortar. Care must be taken when choosing the repair mortar to ensure that it has all necessary approvals for contact with potable water.

If the surface contains small blowholes, typically less than 1 mm wide, the coating can be applied directly onto the substrate without the need for a treatment.

Cracks which are less than 0.3 mm in width can be overcoated as long as the crack is not likely to open up to greater than 0.3 mm (this is greater than the maximum permissible cracks widths recommended in BS8007:1987, the British Standard Code of Practice for the design of concrete structures for retaining aqueous liquids). Cracks which are greater than 0.3 mm in width should be
chased out to 4 mm in width and approximately 15 mm in depth. This should be filled with ERMA products When the material in the crack has hardened the coating should be applied over the crack.

Mixing

The liquid component (5.5 kg) is poured from the plastic container into a plastic or metal drum having a volume of at least 25 litres

To this, the powder is gradually added (20 kg) whilst mixing with an approved Conbextra mixing paddle or other approved spiral paddle attachment on a slow speed drill.

Mixing is continued, constantly moving the paddle around the drum until a lump free slurry is obtained. This should take a minimum of 3 minutes and a maximum of 5 minutes.

Note: the preferred drill speed is between 280 to 640 rpm.

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Pre-wetting of the substrate

Thoroughly dampen the substrate surface with water using a brush roller or spray bottle.

High porosity substrates will require more dampening than dense substrates. Do not apply the coating when the substrate is wet, but allow the water to soak in until the substrate is just visibly damp prior to proceeding.

Any excess water should be removed using a sponge.

Any running water should be stopped with a suitable plugging mortar such as ERO Plug. Contact the local ERMA office for further advice on other suitable water stopping materials.

For optimum use of the product, ERO SEAL110 white should be applied as the first coat, with ERO SEAL110 grey as the second coat. This gives a visual indication of coverage.

The first coat should be applied at a wet film thickness of

1 mm (approximate coverage per coat is 1.8 kg/m2 or 1litre m2). To ensure the correct thickness is achieved measure out an area (for example 200 m2) then calculate how much material will be needed to cover this area.

Monitor the coating thickness during application at regular intervals using a wet film gauge. Care must be taken to attempt to fill all imperfections such as blow holes during the application. If not they can be filled while the coating is still fluid by using a dry sponge. If the coating has dried before these imperfections are found they can be filled using fresh material.

All the mixed material should be used within one hour of mixing.

Allow the first coat to cure for a minimum of 4 hours at 20°C per 50% RH and longer at lower temperatures or higher humidities.

The exact drying time will depend on surface temperature, relative humidity and air movement. High temperatures and/or low humidity will reduce the drying time. This can vary from 1 to 16 hours.

The first coat should be left to dry until firm and unmarkable to the touch. There is no maximum time between coats, however the surface may need cleaning with water prior to the application of the second coat to remove potential contamination.

The second coat should also be applied at a wet film thickness of 1 mm. Pre-dampening of the surface is not necessary prior to applying the second coat.

No curing membrane is necessary, however the freshly applied coating should be protected from rain and strong wind or until firm to the touch to prevent damage to the wet coating.

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Brush application

The most suitable type of brush is a soft bristled wallpaper paste brush (120 to 220 mm wide).
Where larger areas are to be applied it is advisable to use a brush with a handle. Load the brush up well and spread the material to the required thickness. If the brush begins to drag during application, do not add water to the material, but dampen the surface again. Finish in one direction for a neat appearance. For floor application, a soft bristled broom is recommended. Pour the material on to the substrate and then spread to the required thickness.

Roller application

Application by roller has the benefit of speed over brush application, particularly on smooth substrates. A good quality medium hair roller is recommended. The roller should be well loaded for ease of application. A heavy roller pattern will be left, therefore it is important to use a finishing tool to produce a smooth coating, with a uniform 1 mm wet film thickness.

Finishing tools

Application with a steel plastering trowel also has the benefit of speed over brush application, as well as producing a superior finish. It is recommended that a scratch coat of ERO SEAL110 be applied prior to the first coating to fill blow-holes, which should be allowed to cure for the equivalent of 2 hours at 20°C.

Finishing tools

A finishing tool may be required to produce a smooth finish or to repair film defects. Example of suitable tools include a steel plastering trowel, a caulking tool and a hard sponge. All of these must be used immediately after coating application, otherwise the coating may drag or tear. When using a hard sponge it should be dry or very slightly damp. A wet sponge should not be used as this will cause polymer to come to the surface of the coating which causes an unsightly white, streaky effect.

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Spray application

Spray application should be carried out using the ERO SEAL110 Application Unit Model E4 (consult separate data sheet and instructions for use) or other recommended unit. This is the preferred method for applications over 150 m2.

In smaller tanks with restricted access it may be beneficial to spray. This means the material will be pumped into the restricted area rather than having to be physically carried.

Mixing should be carried out as previously described, with particular care being taken to ensure that no lumps remain in the mix. The mixing container should be placed on plastic sheeting to prevent contamination in the mix.

Material should be scraped from the mixing vessel above the wet line following every mix. The mixing paddle should also be cleaned to remove hardened material which if ingested may cause blockage in the pump.

Pour the material into the hopper. Scrape the sides of the hopper down at regular intervals to prevent hardened material from contaminating the mix. Place a cover over the hopper to prevent product skinning caused by water loss.

The mixed material is pumped through the hose to the spray gun. Substrate preparation and coverage rates described above should be adhere to. Wet film thickness should be measured using a wet film thickness gauge every 2 to 3 metres initially until the spray operator has judged the ideal application speed and distance from the substrate. Any areas less than 1 mm thick should be resprayed.

Subsequent film thickness measurements should be carried out approximately every 10 m2.

Storage

Shelf life is 6 months in unopened packs. The liquid component must not be allowed to freeze.

Clean Up

Spillage of **ERO SEAL110** can be removed with water.

Health and Safety

This product is for industrial use only by trained operatives. It is potentially hazardous if not used correctly. Please refer to the Material Safety Data Sheet (MSDS) prior to the purchase and use of this product

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