

Project:

Repair and waterproofing of a dam gallery

Location:

Iznájar – Córdoba (Spain)

Project completed:

2010

Owner/s:

Confederación Hidrográfica del Guadalquivir

Applicator/Contractor:

Construcciones Glesa

Designer/Architect/Specifier:

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Market sector:

Water Management Industry

Products used & amounts:

MasterEmaco S 5400 (approx. 310 tons)

MasterSeal M 338 (approx. 2600 kg)

DAM IZNÁJAR

Concrete repair and waterproofing of dam gallery



View of the Iznájar dam in Córdoba (Spain)

The background

The Iznájar dam and reservoir is located on the Genil river, and is owned by the river basin authority (Hydrographic Confederation of Guadalquivir river). The dam was inaugurated in 1969.

The Iznájar reservoir has a capacity of 9812 million cubic meters and a perimeter of 118 km. The gravity dam has a height of 101 m from the bed and a crest length of 406.89 m.

The main purposes of the dam were protection against flooding of the Genil river, water supply (for an estimated population of 200,000), irrigation and also power generation.

The challenge

The objective of the project was to repair the concrete of the structure in direct contact with water in the galleries and to waterproof the galleries with a membrane that would protect the concrete.

The main degradation was related to rebar corrosion. The water was analyzed and high sulphate and sulphide concentrations were identified. These accelerate the damage.

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Concrete repair and protective waterproofing work on the gallery

Our solution

For the repair of damaged concrete MasterEmaco S 5400 was used. Intensive surface preparation was required for the application of the repair mortar, the service was cleaned, and damaged concrete was removed by manual brushing and high-pressure water jetting.

MasterEmaco S 5400 was applied by spraying. Following application, the mortar was troweled to obtain a smooth surface.

After the hardening of the mortar, the two-component water based epoxy coating MasterSeal M338 was applied.

The customer's benefit

The main properties of MasterSeal M 338 required for this project was:

- Water-based: the product does not contain any solvents and can therefore be applied without risk in a closed environment
- Can be applied manually or by spraying. In this case the product was applied manually.
- It has excellent adhesion to mineral substrates with residual humidity and high-water vapor permeability that reduces the risk of blistering.
- Very low permeability to carbon dioxide. Protects concrete against carbonation.
- High chemical resistance to solutions of inorganic non oxidizing salts such as sulphates.

The product has also CE marking in accordance with EN 1504-2.

Projects facts at a glance

- Application of cementitious repair mortar and water-based epoxy membrane reduce application time as all products are humidity tolerant.
- Approx 6,000 m² of treated surface.

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