KEMICA COATINGS
Reinventing coatings

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Waterproofing

WATER TOWERS AND RESERVOIRS

TECHNICAL PROBLEMS

Water towers and reservoirs are major, high-value engineering works. It is essential that they have an effective water seal to protect the reinforced concrete from corrosion. The fluctuating water load and varying temperatures are a source of stress for the structure and can cause cracks to appear. What's more, any water contained within them which is destined for human consumption must be free of any bacteria and micro-organisms.
The rough surface of untreated concrete can incubate bacteria, rendering the water unsanitary.

TRADITIONAL SOLUTION

• apply a water-proof primer: this does not solve the waterproofing problem if the concrete is cracked and cannot satisfactorily resolve the bacteria incubation problem.
• treat cracks with injections or epoxy resin
• lining: this is only a partial and temporary solution to the problem of new cracks appearing elsewhere.
• apply a reinforced resin coating: the coating is rigid, and susceptible to cracking. Cracks can only be bridged by lifting a long section of coating (because of the reinforcement), and the slightest problem with the seal (micro-crack, pinhead) will create a pathway for the liquid to pass between the coating and the concrete.
For reservoirs with several compartments, it is essential that the coating can resist counter-pressure: a leak in one compartment will cause counter-pressure to form in the neighbouring one.
The resin is susceptible to chalking.

SOUPLETHANE TECHNIQUE

SOUPLETHANE has all the qualities you need for this type of application:
• excellent concrete adhesion
(> 30 Bars depending on the quality), preventing any risk of water flowing between the sealant layer and the concrete.
• although it is extremely adherent, it can bridge cracks of up to 2 mm in concrete.
• no porosity, so there is nowhere for bacteria to develop.
• a food-safe, completely inert coating - even suitable for demineralised water.
• easy to maintain and repair, no chalking.
• a continuous coating across the entire support, even over expansion joints.
• extremely durable: after 30 years, it still maintains 50% of its original mechanical properties.
• resistant to counter-pressure (10 Bars).

SPECIFICATION

• prepare the substrate:
- sand and degas the concrete
- screed any damaged zones
- preliminary treatment for any visible steel

• apply SOUPLETHANE
- water-based PU concrete primer (1 litre per 7 m²)
- apply SOUPLETHANE using an airless twin-component high-pressure pump, in a layer of 2mm thick (approximately).

TESTS AND CERTIFICATIONS

• STER 81 qualification from the Bridges and Roads Laboratory for seals on major engineering works
• SNCF authorisation for major structural works
• Certified food safe from the Poitiers Ianesco laboratory
• Ageing tests: 30 years
• Can bridge cracks of up to 2mm in concrete: CEBTP tests LCPC tests
• ACS.

WORK REFERENCES

• Compagnie Générale des Eaux: The City of Rennes (surge chamber, water tower)
• Lambert Frères & C.
• Water towers (Saudi Arabia, OGER Company)
• The SERTRAS Company