



TSIRCON CO LTD

MANUFACTURERS & TRADERS
OF BUILDING MATERIALS

Ημ. έκδοσης 03/2016

TSIRCO-FLOPROOF 1

Crystalline integral waterproofing admixture

Product: Integral water-repellent admixture and permeability eliminator based on crystallization process for mass and reinforced concrete, renders and screeds.

Composition: Complex blend of inorganic silicates carried in an inert gelatinous dispersing agent.

Purpose: To prevent water absorption by cement-bound mixes and to eliminate their permeability.

Usage: 5-6 litres TSIRCO-FLOPROOF 1 are required to dose 1 cubic meter of concrete. For screeds and renders, TSIRCO-FLOPROOF 1 should constitute a part equal to 10% of the volume of the gauging water.

Pack: 4, 20,210 litres drums and in bulk.

Advantages:

Tsirco-Floproof 1 due to its unique properties it can permanently waterproof renders, concrete and any cementitious mix and offer the following advantages:

- Economical integral waterproofer.
- Resists positive and negative hydrostatic pressure of more than 100m water head.
- Becomes an integral part of concrete.
- Seals pores and cracks up to 0.4mm making it suitable to be used also for mortars.
- Increases durability of concrete.
- Resists aggressive chemicals like chlorides and sulphates
- Gives better appearance to the concrete and eliminates efflorescence.
- Due to its liquid phase, the dispersion of the material in the mix is uniform.
- Protects steel reinforcement in concrete



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Introduction:

All concrete structures can be penetrated by water not only through the joints, but also through the pores, created in the concrete by the evaporation of excess water not taken up by the hydration of cement. The penetrating water may cause corrosion of the steel reinforcement leading to spalling, or in the case of mass concrete, renders and screeds, it may cause serious damage by alternative freezing and thawing. The penetrating water may also carry deleterious substances or atmospheric impurities, which will cause damage in depth to the structure due to chemical attack. TSIRCO-FLOPROOF 1 is specially formulated to protect concrete structures against such deterioration, by reducing or eliminating the permeability of concrete and by making it water repellent. Thousands of waterproofing contracts have been carried out successfully both in Cyprus and overseas.

Properties:

TSIRCO-FLOPROOF 1 is a complex blend of materials incorporating inorganic silicates carried in an inert gelatinous dispersing agent. It is supplied in the form of a slight yellowish liquid. If the material is to be added at the building site, it is recommended that the product is pre-diluted with water at a ratio of 1:1 before it is used. Added to concrete or mortar, TSIRCO-FLOPROOF 1 causes an insoluble water-repellent lining which is formed around the pores of the entire mix. It also causes insoluble crystals which are formed in the pores themselves, in this way it reduces the permeability of the hardened mix. TSIRCO-FLOPROOF 1 is carefully formulated to protect the mix from excessive air entrainment thus the strength of the concrete is kept unaffected specially when combined with a water reducer or otherwise use TSIRCO-FLOPROOF 1H. TSIRCO-FLOPROOF 1 does not affect the setting time of concrete or mortar.

TSIRCO-FLOPROOF 1 is highly recommended as a waterproofing admixture for concrete and renderings. Its excellent water-repelling qualities will prevent dirt and other atmospheric impurities from penetrating into the structure. As they are washed off by rain, the clean natural appearance of the building will stay unaffected for longer periods. TSIRCO-FLOPROOF 1 will also increase the resistance of Ordinary Portland Cement against attack by oils, thus extending the life of screeds and renders which are liable to be attacked by oily or other chemical substances. TSIRCO-FLOPROOF 1 is suitable for use with ordinary or rapid hardening Portland cement and with sulphate-resisting cement. TSIRCO-FLOPROOF 1 may be used in conjunction with any other admixtures manufactured by TSIRCON CO LTD.

In cases that extra workability or increase of strength compared to the control mix is required we recommend the use of Tsirco-Floproof 1H at the dosage of 6-7lt/m³. This material is exactly the same as Tsirco-Floproof 1 but it also contains water reducer / plasticizing admixture.



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Test results: Results of Tsirco-Floproof 1 as performed by Messrs Enco Srl are shown on the histograms below.

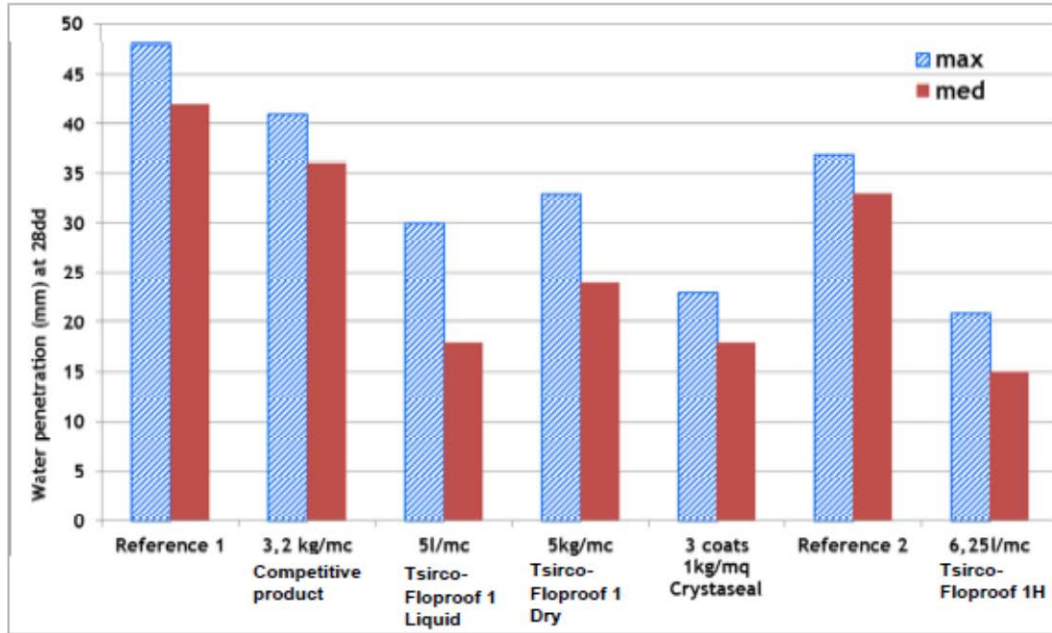


Fig 3a: water permeability results at 28dd

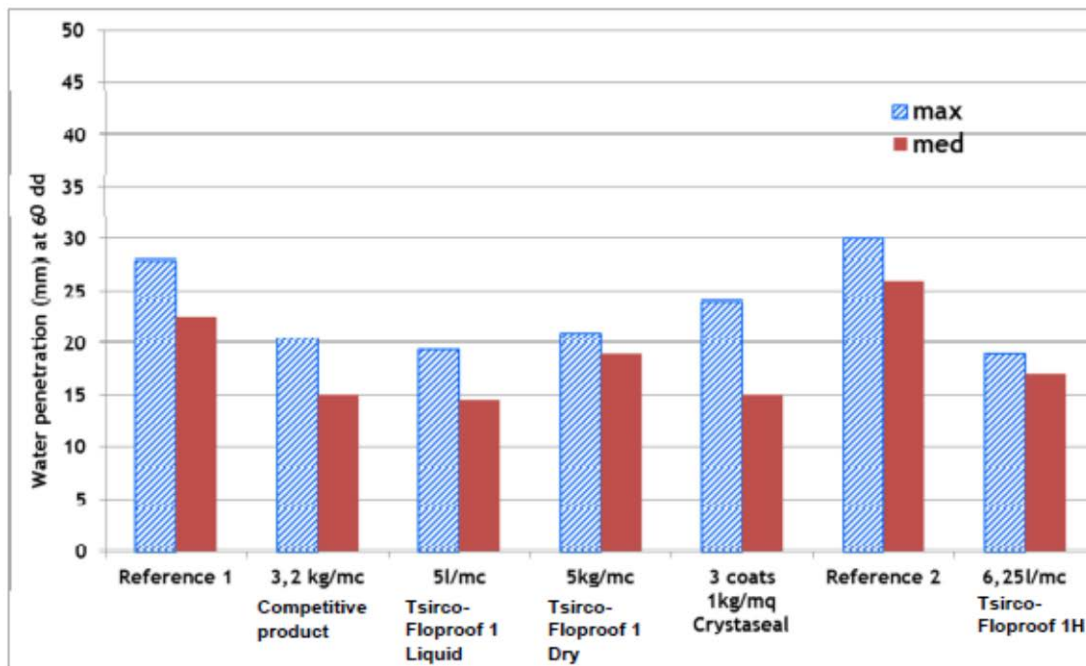


Fig 3b: water permeability results at 60dd



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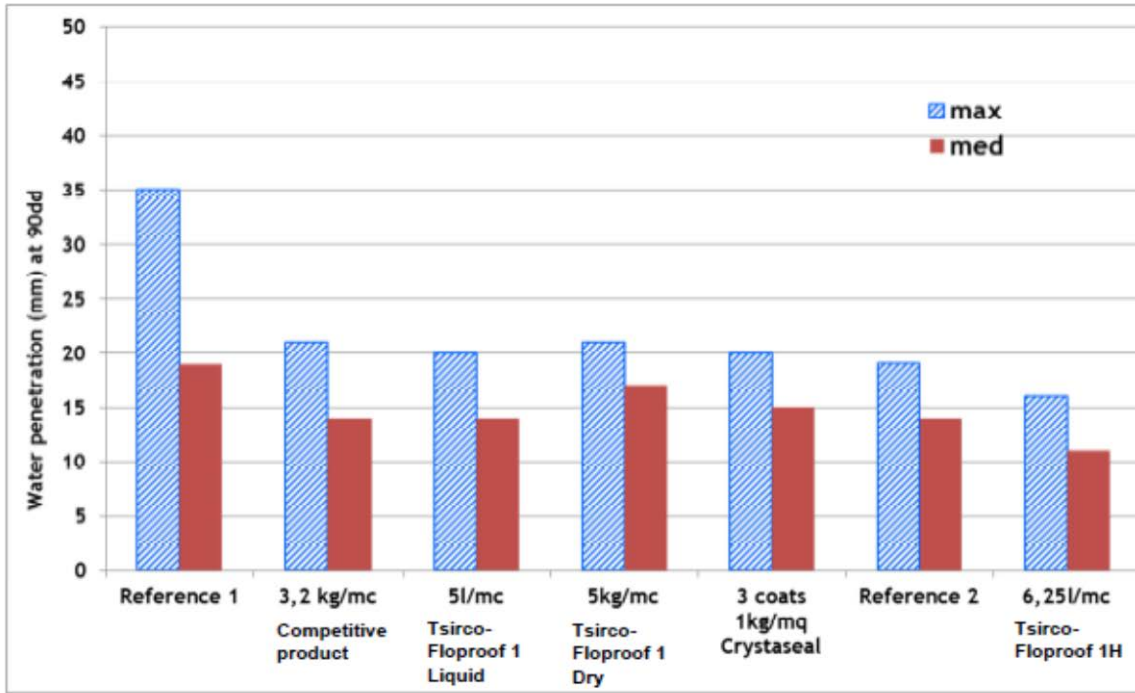


Fig 3c: water permeability results at 90dd

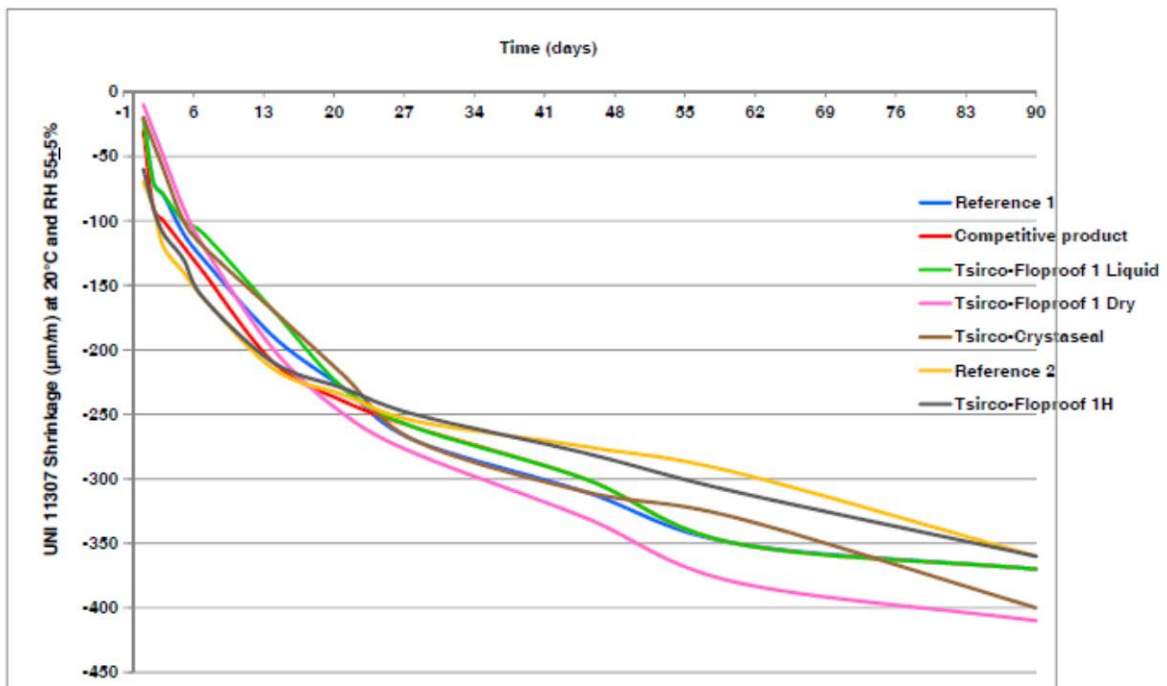


Fig 4: hydraulic shrinkage as a function of the time



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Where to use: TSIRCO-FLOPROOF 1 will have an excellent and long-lasting waterproofing effect on mass and reinforced concrete, sand /cement screeds and renders, precast concrete units, artificial stone and granolithic pavings. The product has been extensively used for waterproofing concrete structures which come frequently in contact with water. Examples of structures where the material can be used are:

- Basement structures/ retaining walls
- Foundations
- Sewage Treatment Plants
- Desalination and Chemical tanks
- Swimming Pools
- Water Reservoirs
- Tunnels
- Structures prone to corrosion
- Port/marine structures

How to use:

1. To obtain waterproof concrete

Add a dose of 5-6 litres of TSIRCO-FLOPROOF 1 for every cubic meter of concrete. Material is recommended to be added at the batching plant. If it is to be added at the site, it is recommended that the material is pre-diluted with water at a ratio of 1:1 prior to its addition to the concrete. When calculating the amount of water to be added in the mix the amount of TSIRCO-FLOPROOF 1 and the water for the dilution must be deducted.

2. To obtain waterproofing screeds and renders

Apply a dose of 1 part TSIRCO-FLOPROOF 1 to 10 parts of mixing water. At this ratio 4,5-5 litres of TSIRCO-FLOPROOF 1 will be sufficient for the following:

Thickness of screed or render	3:1 sand/cement mix	2 ½: 1 grano mix
12mm	22m ²	19m ²
20 mm	15,5 m ²	13 m ²
25mm	11 m ²	9,5 m ²

The figures provided in the table above should be used for guidance only. The actual quantities of TSIRCO-FLOPROOF 1 required for any particular mix will depend on the cement and water contents of the mix. TSIRCO-FLOPROOF 1 must be thoroughly



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dissolved in the mixing water before incorporating into the mix if it is to be added at the site.

Important note: Material should be stirred well before its use in the mixes.

Storage Life: Not less than one year provided the product is kept in manufacturers sealed containers and kept in frost-free conditions and away from direct sunlight. If the product becomes frozen it must be thawed out completely and stirred well before use.

How to Specify: Concrete/screed/render* shall be waterproofed with TSIRCO-FLOPROOF 1 used strictly in accordance with the instructions of the manufacturers TSIRCON CO LTD.

*Delete as applicable.

