



TSIRCON CO LTD

MANUFACTURERS & TRADERS
OF BUILDING MATERIALS

Ημ. έκδοσης 03/2016

TSIRCO-FLOPROOF 1HC

Crystalline integral waterproofing admixture for concrete

Product: Integral water-repellent admixture and permeability eliminator based on crystallization process reinforced with new generation superplasticizer.

Composition: Complex blend of inorganic silicates carried in an inert gelatinous dispersing agent blended together with high performance super plasticizer.

Purpose: To prevent water absorption of cement-bound mixes and to eliminate their permeability, improving at the same time the strength and workability of the mix

Usage: 6-7 litres TSIRCO-FLOPROOF 1HC are required to dose 1 cubic meter of concrete.

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

Characteristics:

- Physical state: Liquid.
- Density: 1.08kg/dm³ ± 0.02kg/dm³
- Colour: white
- Ph: 7±1
- Superplasticizer's dry content in admixture: ≈13%

Advantages:

Tsirco-Floproof 1HC due to its unique properties it can permanently waterproof 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
- Increases durability and workability of the concrete.



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- 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
- Contributes to the strength of the concrete.

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 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 1HC is specially formulated to protect concrete structures against such deterioration, by reducing or eliminating the permeability of concrete and by making it water repellent. TSIRCO-FLOPROOF 1HC has been tested by independent laboratories. Thousands of waterproofing contracts have been carried out successfully both in Cyprus and overseas.

Properties:

TSIRCO-FLOPROOF 1HC is a complex blend of materials incorporating inorganic silicates carried in an inert gelatinous dispersing agent. It is supplied in the form of a slightly 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, TSIRCO-FLOPROOF 1HC 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 1HC is carefully formulated to protect the mix from excessive air entrainment and furthermore with the incorporation of the superplasticizer it assists in the workability and strength of the concrete. With Tsirco-Floproof 1HC there is no need for the addition of any other workability agent. Setting time of concrete is not affected.

TSIRCO-FLOPROOF 1HC is highly recommended as a waterproofing admixture for all kinds of construction. 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 1HC will also increase the resistance of Ordinary Portland Cement against attack by oils, thus extending the life of concrete which is liable to be attacked by oily or other chemical substances. TSIRCO-FLOPROOF 1HC is suitable for use with ordinary or rapid hardening Portland cement and with sulphate-resisting

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cement. TSIRCO-FLOPROOF 1HC may be used in conjunction with any other admixtures manufactured by TSIRCON CO LTD.

Test results: Results of Tsirco-Floproof 1H as performed by Messrs Enco Srl are shown on the histograms below. Tsirco-Floproof 1HC is a more concentrate form of Tsirco-Floproof 1H.

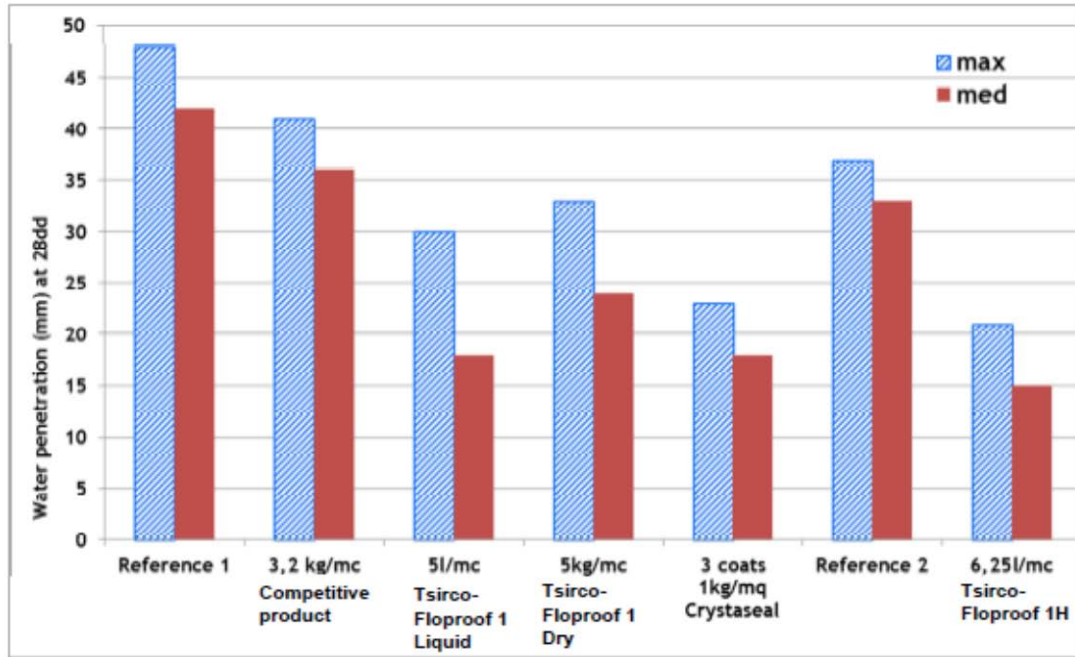


Fig 3a: water permeability results at 28dd



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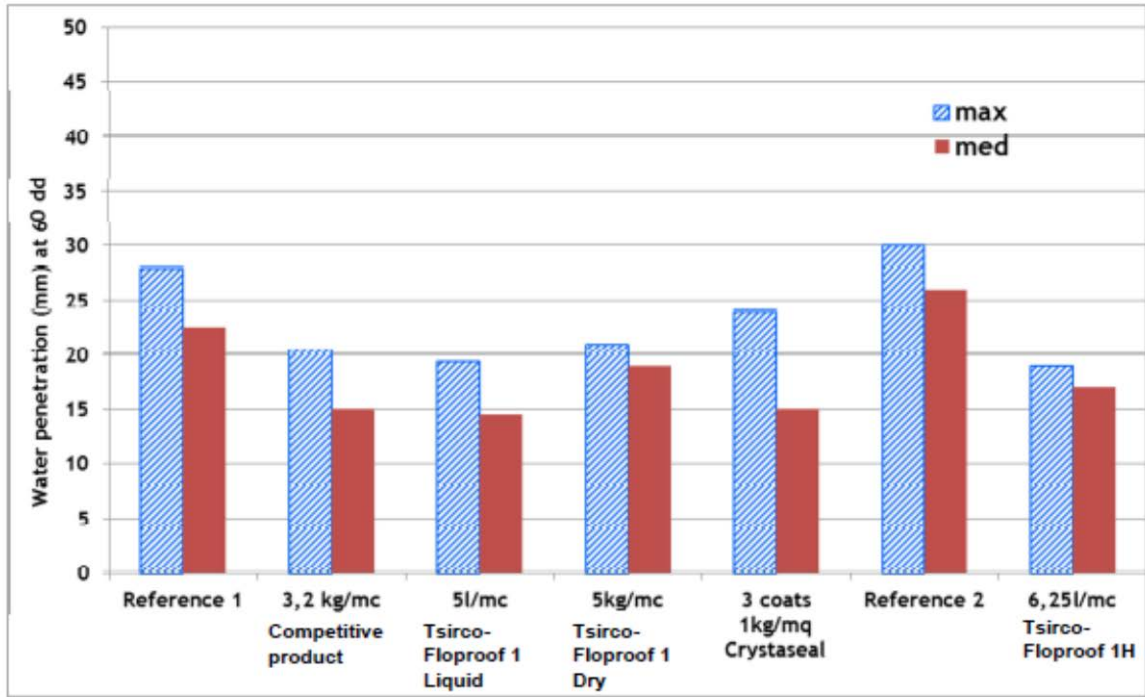


Fig 3b: water permeability results at 60dd

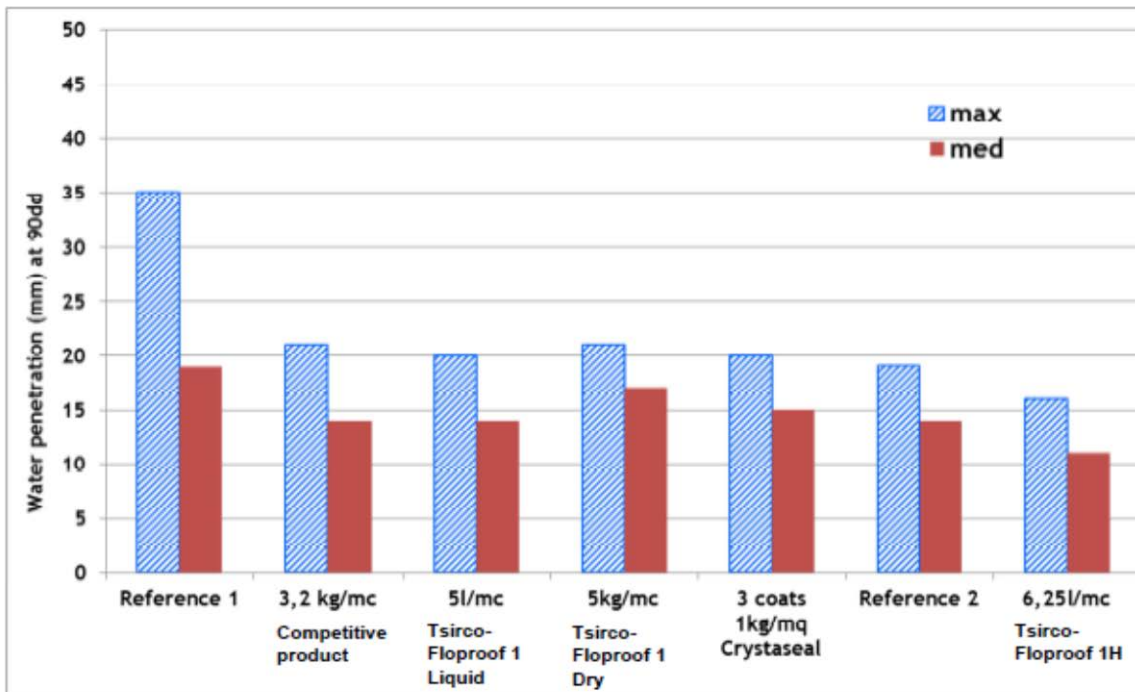


Fig 3c: water permeability results at 90dd



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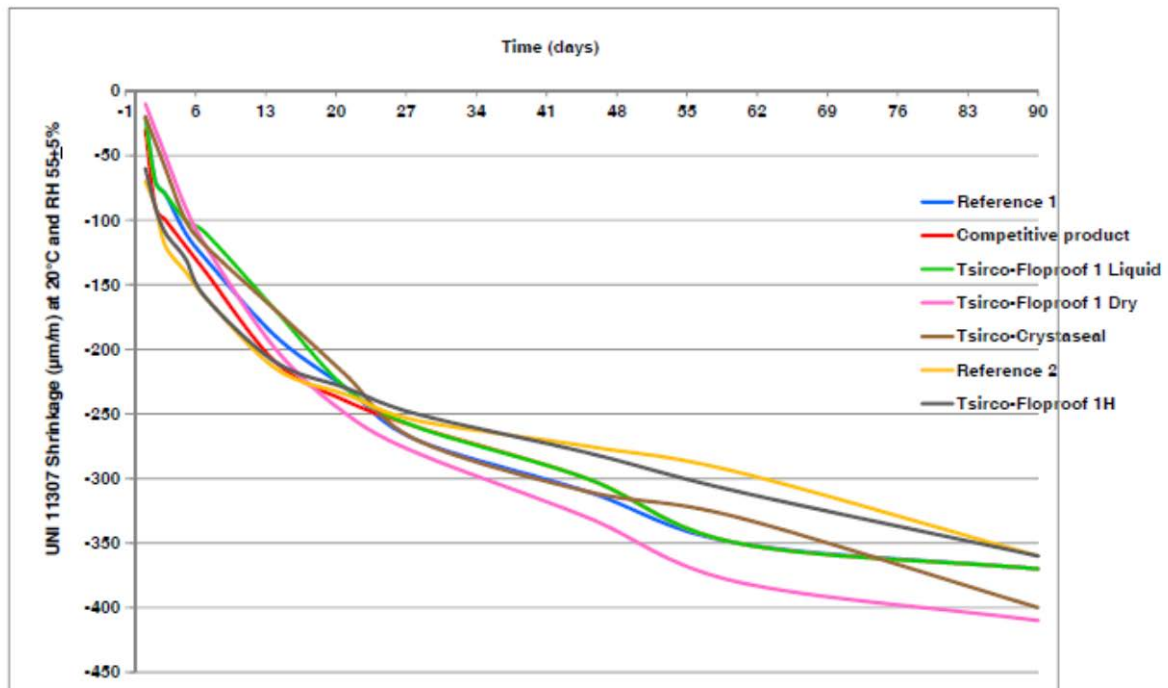


Fig 4: hydraulic shrinkage as a function of the time

Where to use: TSIRCO-FLOPROOF 1HC will have an excellent and long-lasting waterproofing effect on mass and reinforced concrete, sand /cement screeds, 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
- Roofing slabs



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How to use:

To obtain waterproof concrete & screeds

Add a dose of 6-7 litres of TSIRCO-FLOPROOF 1HC 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, care must be taken to take into account the superplasticizing effect of the admixture. In such a case, it is also recommended that the material is pre-diluted with water at a ratio of 1:1 prior to its addition to the concrete.

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* shall be waterproofed with TSIRCO-FLOPROOF 1HC used strictly in accordance with the instructions of the manufacturers TSIRCON CO LTD.

*Delete as applicable.

