



# Sika® Watertight Concrete

A Two Phase Admixture System for Concrete

## Technical Data Sheet

### DESCRIPTION

A two phase system incorporating a high range water-reducing admixture (**Sikament 10**) and an inorganic pore-blocking admixture (**Sika 1**) to provide watertight concrete with enhanced durability and improved protection against reinforcement corrosion.

### USES

- \* Basements
- \* Roofs
- \* Tunnels
- \* Culverts
- \* Marine structures
- \* Car park decks
- \* Bridge decks
- \* Utility vaults
- \* Water retaining structures
- \* Sewers and pipelines
- \* Precast, pre-stressed, post-tensioned, readymixed, reinforced, slip formed and pumped concretes.

### ADVANTAGES

- \* Certified by the British Board of Agrément.
- \* Can be used in contact with potable water.
- \* Compatible with OPC and SRC.
- \* Compatible with **Sika Watertight Jointing Systems**.
- \* Complies with Building Regulations (England, Wales, Scotland, North Ireland).
- \* Suitable for Type B construction as described in BS 8102:1990 Grades 1-4.
- \* Reduced porosity.
- \* Reduced permeability.
- \* Increased water resistance.
- \* Increased corrosion resistance.

### Technical Data (typical)

<b>Water absorption (%)</b>	BS 1881:Part 122	1.8
<b>Water permeability (ms<sup>-1</sup>)</b>	Taywood/Valenta	1.61 x 10 <sup>-13</sup>
<b>Drying shrinkage (%)</b>	BS 6073: Part 1	0.023
<b>Wetting expansion (%)</b>	BS 1881:Part 5	0.016
<b>Freeze/thaw expansion (%)</b>	BS 5075: Part 2	0.17
<b>Compressive strength (Nmm<sup>-2</sup>) 28 day</b>	BS 1881:Part 116	62.9
<b>Initial surface absorption test (ISAT) (mlm<sup>-2</sup> s<sup>-1</sup>)</b>	BS 1881:Part 208	
<b>10 mins</b>		0.16
<b>30 mins</b>		0.06
<b>60 mins</b>		0.03
<b>Water vapour permeability gm (Ns)<sup>-1</sup></b>		510 x 10 <sup>-12</sup>
<b>Typical concrete vapour permeability gm (Ns)<sup>-1</sup></b>		3000 x 10 <sup>-12</sup>

### FRESH CONCRETE CHARACTERISTICS

#### Workability

The workability of **Sika Watertight Concrete** depends on the dosage rate of the **Sikament 10** component. Variation of this component within the mix design limits can facilitate the design of the required concrete.

#### Compatibility

The system components are compatible with pulverised fuel ash, ground granulated blastfurnace slag, silica fume blends and other regular concreting materials.

## GENERAL

Refer to Agrément certificate and separate product data sheets.

## TYPICAL MIX DESIGN

The system components should be added to the concrete mix at the rate of:

**Sikament 10** 0.7-1.2% by weight of cement  
(approx 3.5 ltr/m<sup>3</sup> of concrete)

**Sika 1** 7 ltr/m<sup>3</sup> of concrete

The concrete must have a minimum cement content of 350 kgm<sup>-3</sup> and be batched with a maximum water/cement ratio of 0.5. Further details of suitable mixes can be obtained from Sika Limited.

The system components should be added separately to the concrete mix. They may be premixed with separate batches of the mixing water. On no account should they be added to the dry concrete constituents.

**Sika Watertight Concrete** is normally supplied as ready-mixed concrete but may be prepared on sites where there is adequate mix control.

## SETTING AND HARDENING CHARACTERISTICS

The setting and hardening characteristics of **Sika Watertight Concrete** are similar to the equivalent plain concrete.

## PLACING

All aspects of placing must be carried out in accordance with BS 8000: Section 2.2: 1990.

Once mixed, further materials must not be added to the fresh concrete.

**Sika Watertight Concrete** should be fully compacted and not be placed in temperatures of 5°C or below.

**Sika Watertight Concrete** should be placed in the same way as plain concrete, in accordance with the manufacturer's health and safety guidance and the normal routine precautions for handling concrete.

## FINISHES

When waterbased products are used to coat the **Sika Watertight Concrete**, a bonding agent may need to be applied.

### Handling Precautions

Sika products are generally harmless provided that certain precautions normally taken when handling chemicals are observed. The materials must not, for instance, be allowed to come in contact with foodstuffs or food utensils and measures should also be taken to prevent the uncured materials from coming in contact with the skin, since people with particularly sensitive skin may be affected. The use of protective clothing, goggles, barrier creams and rubber gloves is required. The skin should be thoroughly cleaned at the end of each working period either by washing with soap and warm water or by using a resin-removing cream - the use of powerful solvents is to be avoided. Disposable paper towels - not cloth towels - should be used to dry the skin. Adequate ventilation of the working area is recommended. In case of accidental eye or mouth contact, flush with water - consult a doctor immediately. Health and Safety information on Sika Products is available and we strongly advise that this is read prior to their use. Sika products are for professional use and should be stored in sealed containers away from the reach of children.

### Important Note

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Technical Data Sheet for the product concerned, copies of which will be supplied on request.

Please consult our Technical Sales Department for further information

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## CURING

Curing must always be carried out for the absolute minimum time as generally recommended by BS 8110 and protected from evaporation for at least 3 days in all cases, more when exposed to aggressive conditions.

Ambient Conditions	Minimum Curing Time (Full 24 Hour Days)		
	at 5-10°C	at 20°C	at 30°C
<u>Good</u> RH>80% Protected from Sun & Wind	maintain protection for minimum 3 days		
<u>Average</u> Intermediate RH>50-80% Partially Protected from Sun & Wind	5	4	3
<u>Poor</u> RH<50% Not Protected from Sun & Wind	7	3	3

### Note:

**Sika Watertight Concrete** curing times (adapted from BS 8110: Portland and Sulfate Resisting Cement).

## WATERTIGHT JOINTS

The sealing of expansion and construction joints can be achieved using joint sealing systems such as **Sika Injectoflex System, Sikadur Combiflex** and **SikaSwell Systems** - dependent upon Grades.

Penetrations of the concrete, such as pipe entries or formwork ties, must also be securely sealed to maintain watertightness.

## PACKAGING

**Sika 1** and **Sikament 10** 200 litres, 1000 litres

## STORAGE AND SHELF LIFE

Minimum 1 year when materials are stored in original unopened containers in dry conditions between 10°C and 30°C. Protect from frost.