

Water based hydrophobic additive for cement based materials

PRODUCT OVERVIEW

3001 hydrophobic agent is a concentrated emulsion of silanes and modified polysiloxanes designed for the formulation of water-based hydrophobic impregnations, admixtures, penetrating sealers and primers. Engineered to become a permanent part of the cementitious materials, 3001 provides a deep-embedded permanent protection of the complete mass of the material produced. Its penetration and subsequent chemical reaction within the capillary system of cement based materials allow it to provide a permanent protection by significantly reducing the ingress and transport of liquid water in the capillary pores, and any dissolved salts that the water may carry.

As a VOC-free, water-based solution, it offers a sustainable approach to enhancing the structural integrity and aesthetic longevity of cement-bound building materials. It delivers superior resistance to moisture and efflorescence, ensuring long-term durability for all cement-based building materials and any product made out of it.

Key Benefits of Bulk Impregnation:

By adding 3001 directly to the mix, you achieve a complete and permanent water repellent effect through every part of the material. Here is how that translates to performance:

- **Long-Term Durability:** Since the protection is throughout the entire material, surface wear or minor chips don't expose untreated concrete. This effect is permanent and last as long as the bulk material.
- **Reduced and no Efflorescence:** It minimises the migration of salts to the surface, preventing that unsightly white powdery build-up.
- **Environmental Resistance:** Significant reduction in water and chloride (salt) adsorption, which is critical for preventing re bar corrosion and improving freeze-thaw resistance.
- **Structural Integrity:** Observations show a reduction in shrinkage cracks during the curing process.
- **Cost Efficiency:** Eliminates the labour and equipment costs associated with applying a secondary topical treatment after the concrete has set.

Unlike a surface coating that is exposed to the elements and can wear off over time, 3001 is mixed directly into the screed, render, or concrete. It becomes a permanent part of the substrate's mass material.

Once mixed, the agent reacts chemically with the calcium silicate hydrate in the cement. This process lines the internal pores with a water-repellent layer.

Crucially, 3001 does not block the pores. This allows the material to remain vapour-permeable (it can "breathe"), but it fundamentally changes the surface energy of the capillaries.

Instead of water being sucked in, it is actively pushed out.

This creates a permanent, lifelong barrier against moisture, rising damp, and efflorescence and stops moss and algae surface related concrete discolorations permanently as well.

Its penetration and subsequent chemical reaction with the concrete allow it to provide permanent protection for cement based materials by significantly reducing the ingress of any dissolved salts that the water may carry or that is coming from salt contaminated sand and aggregates.

RECOMMENDED FOR

3001 is ideal for the integral or surface treatment of cement-based building materials, such as:

- Tile Screed
- Concrete
- Concrete moulds
- Pavers,
- Bricks, Brick Mortar
- Render and mortars
- Fibre Cement products
- Roof tiles

FEATURES & BENEFITS

- **Water based, environmentally friendly**
- **Use with tap water**
- **Significant reduced water absorption**
- **Dilution stable after thinning for up to 6 months**
- **Salt resistant**
- **Excellent moisture regulation**
- **Stops efflorescence permanently**
- **Significant reduced algae and moss**
- **Permeable to vapour**
- **Create Frost resistant cement based products**

PRODUCT SPECIFICATIONS

Supply form	Liquid
Colour	milky
Density	Approx 1.0
Solvents	< water
Flashpoint	N/A
Storage temperature	+4°C /39°F / + 35 °C
Application temperature	4 to 35 °C / 39 to 92°F

3001 Hydrophobic Agent

PRODUCT MIXING & PREPARATION

Shake 3001 well before using. For the mixing of the 3001 concentrate clean containers must be used. The general dilution rate is simple: 1 part 3001 to 100 parts of water.

If a permanent protection is wanted, this must not be compromised.

Critical Mixing Tip:

Always add the 3001 to the water first, before adding it to the dry ingredients, screed, render, concrete, or mortar etc. This guarantees the product is evenly distributed through the whole batch.

Make sure that the hydrophobic agents don't "clump" in one area of the sand or cement, which could lead to inconsistent water resistance in the mix

Dilution Example:

If you are using 100 litres of mixing water, you would add 1litre of 3001 concentrate into the 100 litre of water.

For 10 litres mixing water you would add 100 ml 3001, to the 10 litres water.

The mixed solution can be used for up to six months if stored air tide in a drum and stored in ambient temperatures.

Normal clean tap water must be used for the dilution.

If the formulation is used by volume, between 1.2 liter and 1.80 liter 3001 concentrate should be used for 1 cubic meter of concrete.

If a longer storage is planned a clean and air tide storage container is essential. For a good efflorescence

Ensure cleanliness during the dilution process to avoid contamination with solvent-borne impregnating agents and tin-containing materials. Place the appropriate amount of 3001 Concentrate into the mixing container first. Then add the water to the emulsion. The container should be kept tightly closed after mixing, if not immediately used after.

BULK IMPREGNATION

The recommended dilution ratio is 1 part 3001: with 100 parts of clean tap water. For better dilution and faster and accurate mixing, the concentrate must be added to the water first then added to the dry mix. Place the appropriate amount of 3001 Concentrate into the mixing container first. Then add the water to the emulsion while mixing continuously.

Mixing Procedure

1. **Pre-Dilution:** The **3001 concentrate** must be added to the batch mixing water first.
2. **Agitation:** Stir the water-concentrate mixture until fully dispersed. Adding the concentrate into the mixing container first then add the total water volume ensures rapid and uniform dispersion.
3. **Integration:** Add the prepared liquid emulsion to the dry mix components. This sequence ensures faster integration and consistent hydrophobic performance throughout the material.

Dilution Reference Table: 3001 Concentrate

The following table provides standardized formulations for diluting **3001** with varying volumes of water:

3001 Concentrate	Water Volume	Total Yield
100 ml	10 Litres	10.1 Litres
500 ml	50 Litres	50.5 Litres
1 Litre	100 Litres	101 Litres
2 Litres	200 Litres	202 Litres
10 Litres	1000 Litres	1010 Litres

As a guideline, between 1.2 litre and 1.80 litre 3001 concentrate should be used for 1 cubic meter of concrete.

Dry pressed concrete roof tiles and pavers can require a lower amount of the 3001 / water solution.

When using the Bulk Impregnation 3001 in concrete or masonry mixes that contain other additives / admixtures it is essential to test and calibrate the mixture for optimal performance. Users must perform a series of tests to determine the optimum dilution rate when combining 3001 with other chemical admixtures.

To achieve a more pronounced visible hydrophobic (water beading) effect on the surface, the concentration of 3001 can be increased accordingly.

Technical Support: If you require assistance in determining the correct ratio for your specific project, please contact Nanovations for detailed technical guidance.

Download Video How to Mix and Test 3001 :



3001 Hydrophobic Agent



CURING

In bulk impregnation 3001 will cure in conjunction with the curing of the concrete. First results will be visible after 24 hours.(low water absorption) The loss of water by evaporation or otherwise will be slightly delayed, resulting in better hydration and lower risk of curing problems in hot conditions. Hardness of the concrete is not affected by the additive. 7 days hardness can be actually higher, were 28 days compression strengths is the same as untreated concrete.

During application and drying, the temperature should not drop below +4°C/ 41°F.

The drying time varies with the temperature / humidity and surface conditions. Protect the mix from rabbit water loss.

The low water absorption properties appear after 24 hours in bulk impregnation.

CLEANING

Tools should be cleaned with clean water after use.

PACKAGING

1 litre / 20 litre drums, 1000 litre Tank .

STORAGE

3001 Concentrate can be stored in tightly sealed original containers for at least 24 months, if kept dry and at moderate temperatures. 1000 litre tanks be filled in smaller containers, max. 20 litres within 4 – 6 month.

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Store in room temperature and protect from heat, freezing and direct sunlight.

The product is sensitive to frost and heat . Do not store at temperatures below 0° C or in excessive heat. Irreparable damage is possible above 40° C. In the case of suspected frost or heat damage, the usability of the product has to be checked before processing.

The product can change after prolonged standing, and can form sediment or separate. Please stir well before use.

Diluted formulations typically remain stable and suitable for application for up to 6 month. It must be stored in clean air tide containers.

If stored over longer periods, the diluted formulation may separate. In this case, the formulation must be vigorously stirred before application.Please contact the technical department.

PRECAUTIONS

READ ALL SAFETY DIRECTIONS AND WARNINGS ON PACKAGING BEFORE USE. REFER TO MATERIAL SAFETY DATA SHEET FOR HANDLING PROCEDURES.

3001 Concentrate is not classified as dangerous goods. Adequate protective personal equipment should be used. Please read the Material Safety Data Sheet.

The information, and, in particular, the recommendations relating to the application and end-use of the products, are given in good faith based on 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.

Technical information and services are freely available from the Web site www.nanovations.com.au

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