

# HYGROSMART® - MICROCEMENT-1K

## Single-Component, Fast-Drying, Shrinkage-Compensated Microcement for Decorative Applications

### DESCRIPTION

**HYGROSMART® MICROCEMENT-1K** is a high-performance, single-component cementitious coating formulated with advanced hydraulic binders, synthetic resins, ultra-fine fillers, and specialized admixtures. It is designed for the creation of seamless, decorative floors and walls. Thanks to its excellent adhesion, stress-free surface, and resistance to primary efflorescence, it ensures the formation of durable, premium-quality finishes.

### COMPLIANCE - CERTIFICATION

**HYGROSMART® MICROCEMENT-1K** complies with **CDPH Method Version 1.2 (2017)**, **LEED v4.1**, and **BREEAM (2016 & 2021) VOC emission** requirements and meets **VOC content** requirements as per **US EPA Method 24**.

### RECOMMENDED FOR

- ✓ **Decorative floors and walls** in retail spaces, residential properties, and commercial environments.
- ✓ **Seamless coatings** for floors, walls, and ceilings with a troweled finish.
- ✓ **High-end surfaces** in bars, cafés, and restaurants.
- ✓ **Elegant flooring** in hotel lobbies, showrooms, and reception areas.
- ✓ **Civil engineering and architectural applications** requiring a smooth or textured cementitious coating.

### FEATURES AND BENEFITS

- ✓ **Smooth, seamless finish** – Provides a refined, high-end appearance.
- ✓ **Shrinkage-free formulation** – Ensures dimensional stability and crack resistance.

- ✓ **Rapid drying** – Allows for faster project completion and reduced downtime.
- ✓ **Efflorescence-resistant** – No salt stains on the surface after full curing.
- ✓ **Versatile application** – Suitable for both vertical and horizontal surfaces.
- ✓ **Ultra-high adhesion** – Bonds exceptionally well to a variety of substrates.
- ✓ **Superior mechanical strength** – Withstands wear and impact in high-traffic areas.

### LIMITATIONS/OBSERVATIONS

- ✓ **Apply only on sound, properly prepared substrates.**
- ✓ **Do not exceed the recommended water dosage.**
- ✓ **For interior use only – not suitable for exterior surfaces.**
- ✓ **Do not add lime, cement, or gypsum to the mix.**
- ✓ **Not suitable for application on metal surfaces.**
- ✓ **Ensure application is carried out within the specified temperature range: +5°C to +30°C.**

### APPLICATION

#### Substrate preparation

For optimal adhesion and long-term durability, the substrate must be **clean, stable, and free from contaminants** such as dust, loose particles, paint, wax, oil, rust, or any other substances that may hinder bonding.

To achieve the best surface quality, **mechanical preparation** is recommended. This should be done by **grinding with a diamond disc**, followed by **thorough vacuuming** to remove all residual dust.

**Surface irregularities and cracks** should be **repaired using EPOXY RESIN-21-T** to ensure a uniform, stable base before applying **HYGROSMART®-MICROCEMENT-1K**.

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**Avoid** chemical treatments such as **acid washing** and **impact tools** that may compromise the integrity of the substrate.

### ■ Priming the Substrate – Horizontal Surfaces

After completing the **surface preparation**, **horizontal concrete or ceramic substrates** should be primed with **AQUASMART® DUR-2K** to enhance adhesion.

#### Application Steps:

1. **Mixing:** Combine **equal volumes** of **AQUASMART® DUR-2K Component A and Component B** until a uniform mixture is achieved.
2. **Application:** Pour the mixed primer onto the prepared surface and **spread evenly** using a **smooth trowel** to ensure full coverage.
3. **Optional Step:** While the primer is still wet, **broadcast quartz sand** across the surface to improve mechanical bonding and facilitate the application of the microcement layer.
4. **Final Preparation:** Once the primer has fully cured, **remove any loose or excess sand** using a vacuum cleaner to create a clean and uniform base.

### ■ Priming the Substrate – Vertical Surfaces

The appropriate primer must be selected based on the substrate's absorbency to ensure optimal adhesion of **HYGROSMART® MICROCEMENT-1K**.

**Non-Absorbent Surfaces (e.g., ceramic, porcelain, glazed tiles)**

Apply **HYGROSMART® GD-PRIMER** using a **brush or roller**, ensuring uniform coverage.

**Absorbent Surfaces (e.g., plaster, drywall, porous concrete)**

Prime with a **single coat** of **AQUASMART® PRIMER**, a styrene-acrylic emulsion, **diluted 1:1 with water** before application.

### ■ Preparation of the Product

#### Mixing Instructions:

1. **Measure & Add Water:** In a clean container, mix **32% water by weight** with the dry product.
2. **Mixing:** Use a **low-speed electric mixer** to blend until a **smooth, homogeneous, and lump-free paste** is achieved.
3. **Batch Size:** Due to the product's **high yield and fast curing**, it is advisable to prepare only small quantities at a time.

The product can be **pigmented** using **powdered colorants** or **water-based pigments** available on the market.

### ■ Application of the Product

#### 1. Base Application:

- Apply **two or more coats** of **HYGROSMART® MICROCEMENT-1K** using a **smooth rubber trowel**, working the material to **zero thickness** until the desired finish is achieved.

#### 2. Surface Preparation Between Coats:

- Once the first coat has **fully dried**, sand the surface using **80 to 200 grit sandpaper**, depending on the required level of smoothness.
- **Thoroughly vacuum** to remove all sanding dust before proceeding.

#### 3. Priming Between Layers (Adhesion Promoter):

- Apply **AQUASMART® PRIMER** as an adhesion promoter between coats to enhance bonding.

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- **Dilute the primer 1:1 with water** and apply it **using a roller**.

- Allow the primer to **fully dry** before applying the next layer of **HYGROSMART® MICROCEMENT-1K**.

#### 4. Final Application:

- Repeat the process until the required texture and finish are achieved.

#### 5. Finishing & Protection:

- After the **final coat has fully cured**, apply **two coats** of **AQUASmart® -TC Protection Varnish**, a **water-based, two-component, aliphatic polyurethane varnish**.
- It provides **excellent resistance** to **UV exposure, water, chemicals, and abrasion**, enhancing the **durability and longevity** of the decorative coating.
- **Application:** Use a **roller** for an even and uniform finish.

#### CONSUMPTION

Depending on the substrate roughness and thickness of layer applied. As a guide: **0.3 – 0.5 kg/m<sup>2</sup> per coat**.

#### PACKAGING

**HYGROSMART® MICROCEMENT 1K** is available in 4 kg aluminum bags.

#### STRENGTH DEVELOPMENT

The **mechanical strength** of **HYGROSMART® MICROCEMENT 1K** is influenced by several factors,

including **water dosage, ambient temperature, and humidity levels**.

The table below presents the **average strength values** of **HYGROSMART® MICROCEMENT 1K** at **25°C**, when mixed with **1.3 liters of water per 4 kg of product**.

For the **compressive and flexural strength measurements**, **40 × 40 × 160 mm prisms** were used.

| Days           | Compressive strength (N/mm <sup>2</sup> ) | Flexural strength (N/mm <sup>2</sup> ) |
|----------------|-------------------------------------------|----------------------------------------|
| <b>1 day</b>   | >20                                       | >5                                     |
| <b>7 days</b>  | >25                                       | >8                                     |
| <b>28 days</b> | >35                                       | >12                                    |

#### CLEANING

Clean all the tools with plenty of water after use. Hardened material can only be removed by mechanical means.

#### SHELF LIFE

Can be kept for 12 months in the original unopened bags in dry places and at temperatures of 5-25°C.

#### SAFETY INFORMATION

The product contains Portland cement. The MSDS (Material Safety Data Sheet) is available on request.

## HYGROSMART® - MICROCEMENT-1K

### TECHNICAL SPECIFICATIONS

| PROPERTY                                                                            | UNITS           | RESULT       |
|-------------------------------------------------------------------------------------|-----------------|--------------|
| Color/Consistency                                                                   | -               | White powder |
| Water requirement                                                                   | %               | 32           |
| Density of dry mix                                                                  | Kg/ltr          | 0.95-1.05    |
| Density of wet mix                                                                  | Kg/ltr          | 1.65-1.70    |
| pH                                                                                  | -               | 10-11        |
| Flexural strength (After 28 days)                                                   | MPa             | >12          |
| Compressive strength (After 28 days)                                                | MPa             | >35          |
| Pot life (at 20°C)                                                                  | min             | 30-40        |
| Setting time                                                                        | min             | 80           |
| Light foot traffic                                                                  | hours           | 3            |
| Recoat time                                                                         | hours           | 3-6          |
| Adhesion                                                                            | MPa             | >3.5         |
| Resistance to abrasion after 28 days with Taber Abraser H22 Wheel (500g – 200 revs) | Weight loss (g) | <0.1         |

## HYGROSMART® - MICROCEMENT-1K

### VOC EMISSION AND CONTENTS RESULTS

According to CDPH Method Version 1.2 (2017), LEED V4.1, BREEAM International (2016 & 2021) and US EPA Method 24

#### CDPH 1.2 (2017):

| MS-240326-076 | TVOC and Individual V.O.C.'s of Concern |             | Formaldehyde            |             |
|---------------|-----------------------------------------|-------------|-------------------------|-------------|
|               | Criterion                               | Compliance  | Criterion               | Compliance  |
|               | TVOC: < 0.5 mg/m <sup>3</sup>           | <b>PASS</b> | ≤ 9.0 µg/m <sup>3</sup> | <b>PASS</b> |
|               | Individual VOC: < Limit                 | <b>PASS</b> |                         |             |

Compliance results of HYGROSMART® MICROCEMENT-1K, according to LEED v4.1, BREEAM International (2016 & 2021) standards (tested in a standard private office and a standard school classroom):

#### LEED v4.1:

| Volatile Organic Compound                    | Concentration in private office & school classroom (mg/m <sup>3</sup> ) | Maximum allowable concentration (mg/m <sup>3</sup> ) | PASS / FAIL |
|----------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------|-------------|
| T.V.O.C                                      | < 0.010 / < 0.010                                                       | ≤ 0.5                                                | <b>PASS</b> |
|                                              |                                                                         | 0.5 - 5.0                                            | -           |
|                                              |                                                                         | ≥ 5.0                                                | -           |
| Acetaldehyde                                 | < 0.003 / < 0.001                                                       | 0.070                                                | <b>PASS</b> |
| Formaldehyde                                 | < 0.003 / < 0.001                                                       | 0.009                                                | <b>PASS</b> |
| Single VOC compounds found with defined CREL | N.D.                                                                    | According to list of CREL (App. 3)                   | <b>PASS</b> |

## HYGROSMART® - MICROCEMENT-1K

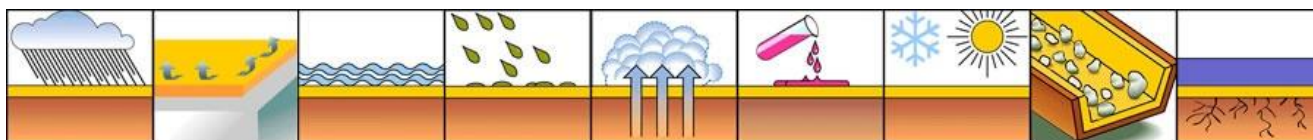
### **BREEAM International (2016 & 2021):**

| Volatile Organic Compound | Concentration in private office & school classroom (mg/m <sup>3</sup> ) | Maximum allowable concentration (mg/m <sup>3</sup> )          | PASS/FAIL   |
|---------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------|-------------|
| T.V.O.C                   | < 0.010 / < 0.010                                                       | 1.0 (emission criteria)                                       | <b>PASS</b> |
|                           |                                                                         | 0.3 (exemplary level emission criteria)                       | <b>PASS</b> |
| S.V.O.C.                  | < 0.003 / < 0.001                                                       | 0.1 (exemplary level emission criteria)                       | <b>PASS</b> |
| Carc cat 1A+1B            | < 0.001 / < 0.001                                                       | 0.001                                                         | <b>PASS</b> |
| Formaldehyde              | < 0.003 / < 0.001                                                       | 0.06 (emission criteria)                                      | <b>PASS</b> |
|                           |                                                                         | 0.01 (exemplary level emission criteria, only for the office) | <b>PASS</b> |

### **US EPA Method 24 (1kg sample):**

| Parameter                           | Test Method | Units | Result |
|-------------------------------------|-------------|-------|--------|
| Volatile Organic Compounds (V.O.C.) | US EPA 24   | g / L | < 1    |

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Certified quality, environmental and occupational health & safety management systems:  
ISO 9001/14001 & ISO 45001.

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