

ARMOURCOAT®

SUSTAINABLE LUXURY FINISHES

TECHNICAL DOCUMENT

DECORATIVE PAINT - LIMEWASH





TECHNICAL DOCUMENT

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DECORATIVE PAINT - LIMEWASH

1. PRODUCT DESCRIPTION

Armourcoat Limewash is a natural ecological mineral paint composed of slaked lime putty, white Kaolin clay and chalk. It is pigmented with natural oxide pigments to create a breathable surface with soft tonal variation. The colour range consists of 45 beautiful limewash tones but a wider range of natural colour tones are possible.

Armourcoat Limewash gradually hardens as it absorbs CO₂ from the atmosphere in a process known as carbonation. The mineral nature of the product combined with this ability to absorb CO₂ from the atmosphere ensures the product has a significantly lower GWP (Global Warming Potential) than conventional water-based paints.

Armourcoat Limewash contains no VOC's and is entirely free from biocides, formaldehydes, and other harmful chemical additives. Due to the naturally high PH of lime putty the product has natural antibacterial properties. As a natural limewash it has no emissions other than water vapour and meets IAC Gold for indoor air emissions.

Properties

- Natural mineral limewash paint
- Non-combustible A1 Fire Standard EN13501
- Zero VOC content
- No off-gassing and zero emissions
- Ultra Low embodied carbon
- Naturally breathable finish
- Excellent water vapour permeability
- Environmental Product Declaration
- Health Product Declaration
- LBC Red List Compliant
- Wide range of colours



2. TEST DATA

Armourcoat Limewash has been subjected to testing for Fire, VOC, and Indoor Air quality.

2.1. FIRE TESTING

2.1.1. European Fire Test Results

Independent tests were carried out in the UK for classification of reaction to fire performance in accordance with EN13501-1:2018.

| REACTION TO FIRE CLASSIFICATION |
|---------------------------------|
| A1 |

2.2. VOLATILE ORGANIC COMPOUND (VOC) TESTING

2.2.1. VOC Content Testing

A sample of Armourcoat Limewash was tested by an accredited European laboratory (Eurofins) to ASTM D2369, Standard Practise for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.

Test Result

| TEST METHOD | VOC (G/L) | VOC (LBS/GAL) | LIMIT OF DETECTION (G/L) |
|------------------|-----------|---------------|--------------------------|
| ASTM D2369- 2020 | <1 | <1 | 1 |

Evaluation of result

| TEST METHOD | CONCLUSION | VERSION OR PROTOCOL |
|-------------------------|------------|---------------------|
| SCAQMD Rule 1113 | PASS | February 2016 |
| LEED v4.1 (VOC Content) | PASS | February 2021 |

2.2.2. VOC Emissions Testing

A sample of Armourcoat Limewash was tested by Eurofins to a wide range of emissions standards including EN 16516, ISO 16000-6, AgBB and French and Belgian VOC regulations.

Evaluation of results

| REGULATION OR PROTOCOL | CONCLUSION | VERSION OF REGULATION OR PROTOCOL |
|--------------------------|-----------------|--|
| French VOC Regulation | A+ | Decree of March 2011 (DEVL1101903D) and Arrêté of April 2011 (DEVL1104875A) modified in February 2012 (DEVL1133129A) |
| French CMR Components | Pass | Regulation of April and May 2009 (DEVP0908633A and DEVP0910046A) |
| Italian CAM Edilizia | Pass | Decree 11 October 2017 (GU n.259 del 6-11-2017) |
| ABG/AgBB | Pass | Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (June 2021) |
| Belgian Regulation | Pass | Royal decree of May 2014 (C-2014/24239) |
| Indoor Air Comfort® | Pass | Indoor Air Comfort 7.0 of May 2020 |
| Indoor Air Comfort Gold® | Pass | Indoor Air Comfort GOLD 7.0 of May 2020 |
| BREEAM International | Exemplary Level | BREEAM International New Construction v2.0 (2016) |
| LEED v4.1 BETA | Pass | February 2021 |

2.2.3 Environments Building Certification

LEED ASTM D2369- 2020 V 4.1 certified as a 'Low emitting Materials'

BREEAM International – Exemplary status for VOC Emissions

Full Certificates supplied on Request

2.3. ENVIRONMENTAL PRODUCT DECLARATION (EPD)

In accordance with ISO 14025, ISO 21930 and EN 15804 - The EPD Hub.

Core environmental impact indicator EN 15804 +A2 PEF (All categories cradle to grave)

Global Warming Potential (GWP) 0.271 kg CO₂e

Coverage rate 0.2 kg/m² in two coats

GWP per m² 0.054 kg CO₂e / m²

Full EPD can be downloaded from our website and is also published by EPD Hub & EPD International

2.4. HEALTH PRODUCT DECLARATION (HPD)

Armourcoat Limewash does not contain any REACH materials that are listed as materials of very High Concern.

A full Health product declaration has been carried out for this product and is available here: <https://hpdrepository.hpd-collaborative.org/Pages/Results.aspx#k=armourcoat#l=1033>

2.5. LIVING BUILDING CHALLENGE (LBC)

Living Building Challenge (LBC) Red List Approved is a status indicating that a product is compliant with the requirements of the LBC Challenge. Armourcoat Limewash has met this challenge and contains no materials that appear on the LBC Red List - March 2022.

3. SUITABLE SUBSTRATES

Armourcoat Limewash can be applied directly to a wide range of natural building materials including clay brick, blockwork, lime mortar, cement render, mud bricks and straw bale. Limewash can also be applied to plasterboard surfaces that have been prepared for decoration as well as existing painted surfaces.

Limewash is a brush applied coating that will reflect exactly the shape or surface of the wall.

Unless the application is to a brick, blockwork, or render substrate, a flat or true substrate is recommended to achieve the best aesthetic results.

Preparation and Application should be carried out generally in accordance with BS 6150: 2006.

Ensure all substrates to be coated are thoroughly clean and dry.

Ensure that both internal and external corners are clean cut and true. External angles must not be formed using paper tape beads. Walls must have an even surface with any board joints flush. The Limewash is a thin coating therefore poorly constructed and prepared substrates may affect the final appearance. Silicone and mastic products are not appropriate for coverage with Armourcoat Limewash.

3.1. PLASTERED SURFACES

Plastered surfaces must be completely dry and installed as per manufacturers guidelines. Good site practice should be followed as set out in BS5492: 1990 Code of Practice for Internal Plastering. Once the plaster is completely dry, prime the surface with a good quality plaster sealer/consolidator such as Dulux Plaster Sealer. This will promote adhesion of all subsequent layers and ensure a clean masking tape removal should there be a need to tape directly to the limewash surface.

3.2. DRY-LINED SURFACE

Dry-lined surfaces should be finished as ready for painting; taped, jointed and prepared with a drywall primer.

3.3. WOOD AND COMPOSITE WOOD BOARD SURFACE

Prior to the application of Armourcoat Limewash, ensure that all materials are totally dry and then apply a suitable wood primer. Follow the primer manufacturers' guidelines on drying times before overcoating.

3.4. EXISTING WALLS

3.4.1 BREATHABLE SURFACES

Existing breathable surfaces like brickwork, bare blockwork, lime mortar, cement render, mud bricks and straw bale can all be decorated with Limewash. Any loose or friable material should be removed from the surface prior to the application of the limewash. Absorbent surfaces should be damped down with clean water prior to the application of the first layer of limewash to stop premature drying and ensure the limewash bonds well with the surface.

Armourcoat Limewash has excellent vapour permeability and will not affect the breathability of the walls.

3.4.2. PREVIOUSLY DECORATED SURFACES

Armourcoat Limewash can be applied to previously decorated surfaces provided the surface is sound and there is no peeling or flaking paint. Gloss paint or any shiny surface will need to be roughened up by sanding the surface with 80 or 120 grit abrasive paper before priming with K40 primer. If there has been staining of an old wall, the wall will need to be treated with a suitable stain blocking primer prior to the application of K40 primer and Limewash.

3.5. TIMING OF WORK

As decorative finishing is the final stage of any project, the application should be programmed as late as possible in the contract, ideally after installation of lighting. Heavily trafficked areas should be protected until completion of construction work. All products demonstrate reasonable/good strength, but this builds up gradually over a period of 2 weeks depending on conditions as it dries. The product will be touch dry but not hard on the same day of application.

4. CARE AND MAINTENANCE

4.1. CLEANING SURFACE DIRTY AND GRIME

The quickest and simplest way of removing small areas of surface grime and finger marks is to rub the affected area with a pencil eraser. The eraser will remove all but the most stubborn surface marks without significantly affecting the surface of the limewash.

4.2. REPAIRS

Armourcoat Limewash is a natural mineral paint and is not designed for high traffic areas subject to a lot of wear and tear. Very small repairs will not be too obvious but larger repairs or patches will be noticeable as you tend to get a slight halo where the limewash is reapplied. The best course of action is a reapplication of the limewash to the affected surface from corner to corner.

5. WARRANTY

1 year materials warranty for interior use.