



Limewash

Application Guide

Limewash - Introduction

Lime work should be finished with a vapour permeable paint, traditionally this would have been a limewash.

Limewash has been and is still used throughout the world as a decorative and protective coating. It was used on most buildings from humble agricultural barns through to high status buildings like castles and cathedrals.

The Victorians preferred to see the stone or brickwork and so the tradition of limewashing began to die out but, if you look closely at old buildings, you can often see evidence of old plasters and limewash. There is a renewed interest in re-limewashing many buildings, including castles and churches, to help protect them.

Limewash, because it is mildly antiseptic, was regularly used in agricultural buildings, and still is, this is probably where the idea comes from that 'limewash needs doing annually' which is not true, but it probably was done annually for this reason in certain buildings.

Limewash is usually made using a high calcium (fat) lime putty. It sets when exposed to Carbon Dioxide in the air. It has a flat, matt finish and a 'depth' which most modern paints lack. It reflects light and tends to 'glow' in sunlight. If it is pigmented, there is a tendency for slight colour variation across the surface. This slight blotchy effect is quite normal and is generally considered to be part of its beauty.

The adhesion of limewash relies on suction from the surface to which it is being applied as well as a 'finger hold'. It sticks well to lime plasters and renders, stone, brick and similar materials, but does not usually adhere so well to modern materials and finishes. However, other paints and / or additives are available to help with this, see below.

Limewash is suitable for internal and external use, it is naturally white and can be coloured using pigments. A limewash becomes more opaque as it dries. The colour of the limewash in the tub is considerably stronger than the final colour on the wall.

Please note

Anyone using limewash must be aware that it cannot be used in the same way as modern paints. The advice below covers a few golden rules:

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Preparation

- thoroughly stir limewash before application. It is a 'suspension' and all the heavy particles settle to the bottom. Remember to stir it up again every 30 minutes to prevent it settling in the bucket.
- protect surfaces and surrounding areas with plastic sheeting - as limewash is a thin solution that requires applying vigorously, there is a tendency for it to get on the floor etc, although it can be washed off stone or paving, it is easier to protect areas first!

- protect your eyes and skin, this is one of the easiest times to get lime in your eye as it is in a liquid form, wear goggles, gloves and cover your skin. Keep eyewash close to hand.

Preparing the surface

- make good any stone or brickwork where required by re-pointing or dubbing out
- thoroughly clean and dampen the surface before applying the limewash to ensure moisture isn't sucked out too rapidly. A limewash will carbonate whilst it is moist. If it dries out before it has carbonated, it will fail and turn to dust.

Application of shelter coat (if required)

- depending on the condition of the surface, it may be wise to apply a shelter coat. A shelter coat is a thin surface coating of lime putty and fine aggregate mixed with water into solution, it is a sacrificial, protective coat which will need to be re-applied over time as the layers wear away. A shelter coat will provide an excellent 'key' for the subsequent coats of limewash as often, when limewashing over bare stone, especially if the stone is hard and non-porous, it can be difficult to get pure limewash to stick and/or remain on the surface.
- apply the shelter coat vigorously using a soft brush. Working well into surface avoid pooling.
- mix constantly.
- allow the shelter coat to fully carbonate – remember to protect from wind, sun and rain. Do not attempt to shelter coat in cold weather where temperatures are likely to fall below 5°C.

Application of limewash

- **use as thin as possible.** If a limewash is put on too thick, it will crack and crumble. Apply in thin layers at about the **consistency of single cream.**
- **apply vigorously.** It is best to use a relatively **stiff brush** and use a slight pushing action. This will compress it slightly and ensure that crevices are filled. Long-haired brushes should be used, we find that dust-pan brushes work well if proper limewashing brushes are not available.
- **apply at least three thin coats**, allowing at least **12 hours** for each coat to carbonate. Gently mist between coats with a garden sprayer.

Protection

- **protect external limewashes** in dry and windy weather or in direct sunlight with damp hessian or plastic sheeting to **prevent rapid drying**. In less extreme conditions, **gentle spraying** may be necessary.



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- **avoid limewashing during inclement weather conditions.** New limewash is susceptible to damage from frost and heavy rain in the first day or so.
- **don't panic.** When a limewash is first applied, it is quite **translucent**. Within a few hours it will become **opaque**.
- **durability** - limewashes will need further coats over the years but a well-applied limewash onto a well prepared substrate can last many years.
- **gentle misting** may be required up to 4 times a day for approx 3 days after the application of the final coat of limewash depending on atmospheric conditions. This is essential to avoid dusting of the limewash, and to make the finish as durable as possible.

Adding pigment to limewash

Limewash can be coloured using powder pigments. Strong colours are hard to achieve with a limewash as the lime is a strong white and, although it is different for different pigments, there is only so much pigment that the paint can take. To make a colour:

- soak pigment in enough warm water to cover the powder, preferably overnight, and mix well to create a liquid paste.
- pour the paste into the limewash ideally through a fine sieve, be cautious add a little at a time.
- stir with a whisk until completely blended – a drill with a whisk attachment is best.
- test the colour by painting a sample on a piece of board/card/textured paper – allow it to dry in the sun/ near a radiator. If you want a stronger colour repeat steps 2 to 4.
- for making up large batches, try to mix the pigment in with as much limewash as is required to complete the job e.g. in a large barrel, to ensure consistency.
- keep the recipe!

Alternatively, ready made colours are now generally available, see www.lime.org.uk.

Storage

Limewash can be kept indefinitely, if stored in an airtight container and away from frost.

It is recommended that limewash be used within 4 weeks of purchase, however it can be kept indefinitely if stored in an airtight container and away from frost.

Other additions to limewash

As well as adding fine aggregate to make a shelter coat or pigments to produce a colour, it is possible to add other ingredients to limewash, some of the most popular are:

- casein, to help it adhere to the background. Only add 500g casein powder (mixed into a paste), to a 20 litre bucket of limewash. We would recommend that this is

used **internally** where a limewash aesthetic is required but where e.g. residues on the wall means that a pure limewash will struggle to adhere.

- raw linseed oil can also be used, usually externally at a ratio of a 100ml per 20 litre bucket.
- tallow - again this helps the limewash to bind and weather, as it is a 'fat', it is best added when the quicklime is 'slaked' (so that it dissolves when the limewash is 'hot'), it is possible to buy pre-made 'tallowed limewash' which avoids having to deal with quicklime yourself.

It should be noted, that additives can compromise the vapour permeability of the wall and so should be used with caution. Many limewash 'paints' on the market may have acrylics or other additives that may not be desirable technically for the building or environmentally - always check!



Approximate coverage rates

20 litres covers 60-80 sqm per coat, depending on the substrate.

Three coats is usually the minimum.

See our quantity calculators on www.lime.org.uk to assist you with selection of materials and quantities required.

Health and Safety Information

WARNING



Skin Irritation 2 H315 Causes skin irritation.

STOT SE 3 H335 May cause respiratory problems.

DANGER



Eye Damage 1 H318 Causes serious eye damage.

Precautionary Statements

P102 Keep out of reach of children.

P280 Wear protective gloves, eye protection/face mask.

P305 + P351 + P310 If in eyes rinse cautiously with water for several minutes and immediately get medical assistance.

P352 + P352 If on skin, wash affected parts immediately with plenty of soap and water.

For further information about the whole subject and illustrated diagrams of lime plastering and pointing techniques, see **The Lime Handbook** now available to order on www.lime.org.uk

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