



COMPARISON BETWEEN KEIM MINERAL PAINTS AND TRADITIONAL LIMEWASH

MATERIAL COMPOSITION

Limewash:

Limewash is a traditional coating that provides a breathable decorative finish that soaks into the underlying materials to which it is applied. Limewash is primarily composed of slaked lime (calcium hydroxide) with a low proportion of an organic binder such as tallow. The calcium hydroxide sets slowly by combining with carbon dioxide to form calcium carbonate, the principal component of limestone and marble. Alternative to tallow include casein, which reacts with the slaked lime to form calcium caseinate to produce an insoluble bond, and pozzolanic additives such as fly ash, which cause it to set on contact with water through a more complex reaction.

Keim Mineral Paints:

Paints sold today are based on the original Keim mineral formulations. Keim Mineral Paints are liquid silicate paints which combine a potassium silicate binder with inorganic fillers, such as feldspar and natural earth oxide colour pigments. Mineral binders such as potassium silicate react chemically with the substrate. Silicate systems are based on the silicification of the binder with the mineral substrate, a chemical process in which the binder potassium water glass reacts with the mineral substrate. A strong, permanent bond is created between the paint and the underlying substrate (render, natural stone, concrete etc.). This bond is one of the factors crucial to the unequalled durability of Keim Mineral paints. Keim mineral paints are water borne, odourless, non-toxic and low VOC, manufactured with natural ingredients using a low energy manufacturing process. Keim Mineral Paints contain neither solvents nor any petro-chemical derivatives, are inherently non-combustible and do not give off any toxic gases.

MAIN PROPERTIES

Limewash:

Breathable

Traditional

Varying composition

Keim Mineral Paints

Breathable

Environmentally Friendly.

Light fast and light reflectance.

Natural

Manufactured to meet ISO14001 standards



SUBSTRATE COMPATIBILITY

Limewash:

As a coating for lime based render, stucco and limestone, Limewash is in many ways comparable in nature to that of the underlying material, with similar porosity, alkalinity and coefficient of thermal expansion. Limewash can help to consolidate friable limestone surfaces. Limewash is compatible with a wide range of building surfaces, including brick, plaster and stonework.

Keim Mineral Paints

Compatible with all mineral substrates: The Keim paint system takes on the same co-efficient of expansion as the mineral substrate to which it is applied, allowing existing or any possible future structural defects to be effectively monitored.

HISTORICAL USE

Limewash:

Used historically as a readily available, easy to use and cheap product.

Keim Mineral Paints

Invented in 1878 by A. W. Keim in Bavaria to provide a paint system to give a comparable appearance to that of lime fresco, but be capable of withstanding the harsh Bavarian climate. All paints sold in the UK are blended and canned in Shropshire.

PERFORMANCE AND LIFETIME

Limewash:

Limewash decorated surfaces often show signs of distress within a few months and require complete redecoration within a few years. In areas of high acid rainfall, streaks can appear on Limewash, causing degradation. Once this occurs run marks are noticeable due to the acid reacting with the Limewash and dissolving it. With time, the entire façade can be attacked and degraded. Limewash provides protection for the surface as a sacrificial coatings, in that it is destroyed more rapidly than the material below it. The high porosity and permeability of limewash enables walls to breathe.

Keim Mineral Paints

Long term weathering: the colour pigments in Keim Paints do not fade under the action of sunlight or UV radiations, will take on a slightly dusty appearance, often similar to that of Limewash. When applied onto previously unpainted surfaces, Keim Mineral paints will normally give 20 to 30 years satisfactory performance before redecoration is required. Keim Mineral Paints form a micro crystalline bond between the substrate and the potassium silicate binder of the paint, this has a slight consolidating effect on the substrate, preventing dusting and friable substrates from further decay. This also allows the substrate to breathe, whilst at the same time preventing ingress of driven rain. The fillers in the paints (feldspar) and colour pigments are held in this crystalline structure on or near to the surface of the substrate.

Many examples of Keim Mineral Paints performing satisfactorily on lime render substrates for periods more than 100 years. Mineral Paints are resistant to both strong acids and alkalis, The silicate structure is highly stable and able to resist acid and alkali attack.



APPEARANCE

Limewash:

Limewash produces a surface glow due to the refraction of calcite crystals.

Keim Mineral Paints

Flat matt in appearance, with good light reflectance characteristics due to their micro crystalline nature. Only earth oxide colour pigments are used, similar to those used in many lime washes, to give a comparable appearance to Limewash.

OVER COATING AND REDECORATION

Limewash:

Periodic redecoration of building facades with Limewash every few years tends to be the norm, with specific compositions varying on a building by building basis, relying heavily on past experience, local availability of raw materials, and previous experience.

Keim Mineral Paints

Continual surface abrasion, such as wind borne sand on a sea facing elevation, will breakdown the crystalline structure and eventually remove the filler and colour, requiring that the surface eventually requires redecoration. A single coat of the paint system is all that is usually required for redecoration.

COST COMPARISON

Limewash:

In the short term, Limewash is a relatively economical coating.

Keim Mineral Paints

Litre for litre Keim Mineral paints are more expensive than Limewash, but assuming a minimum lifespan of 15 years compared to 5 years for Limewash then long-term maintenance economies favour the Keim system.