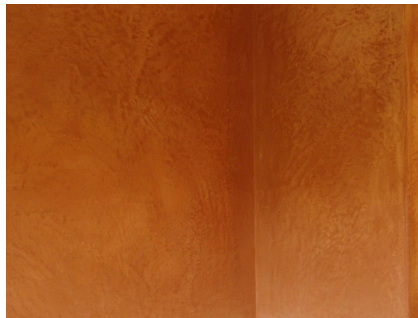


Pro Kit International HB S-442 35 Kungälv, Sweden info@prokit.se	Lime Products - Tadelakt Technique Surface Treatment	June 17, 2025
		Replaces March 20, -08
		Page 1 of 3

Introduction

The common term **lime** can be real confusing as there are several kinds of “limes” within the building industry.



Lime when Using the Tadelakt Technique

Tadelakt is **not a product**. Instead it is a very old technique.

The lime produced in Marrakesh, Morocco, is produced by heating to a temperature around 850°C. Where palm fronds are the fuel instead of coal, gas or oil. The heating process is made in big holes working as kilns where chunks of limestone are piled. After cooling the lime is slaked with water to get a dry powder, where the result is not a true genuine non-hydraulic lime.

Instead it is more similar to hydraulic lime. For reasons that residues of the burnt palm fronds have been converted to a pozzolanic material – **wood ash**. Which properties the Romans understood several thousands years ago how to use.

Fact is that the production of lime in Marrakesh today is not unique. It is a **myth**. A myth probably created by a marketing company during the last years.

Because a similar technique has been used here in Sweden for about 1 000 years and still used to get a suitable lime for the renovation of old historical buildings. Also in countries as England, France and Italy. The Swedish National Heritage Board responsible for historic environment issues will not allow other limes, or OPC to be used. Therefore this very special production continues.

Used limestone contains >95% of calcium carbonate. However, instead of palm fronds for the burning is used firewood locally available to reach a temperature about 900°C. And the firing continues for about three days.

Then the lime is slaked with water that starts to boil within one minute. The limestone is dissolved into a white slurry, which is strained into pits and matured for minimum one year. During which time the surplus water disappears and the result is a Lime Putty.

Between industrial produced lime and the lime produced the old-fashioned way there are some fundamental differences. **1.** The burning temperature. **2.** The fuel used for the burning. **3.** The fineness of final product.

A lime produced the old-fashioned way has a price of about EUR 5.20 per kilo. As a typical mixture contains 25% of lime it means about EUR 1.30 per kilo.

Nevertheless, it is a fact that the Tadelakt technique can be used where special hydrated lime type S (non-hydraulic) is the binder when it is combined with a selected hydraulic lime (NHL).

Pro Kit International HB S-442 35 Kungälv, Sweden info@prokit.se	Lime Products - Tadelakt Technique Surface Treatment	June 17, 2025
		Replaces March 20, -08
		Page 2 of 3

Price for bagged special hydrated lime is roughly EUR 1.30 per kilo. So 25% involved means EUR 0.33 per kilo.

To be compared with lime produced the old-fashioned way is roughly four times higher in price.

Never use OPC in combination with non-hydraulic or hydraulic lime. Should a pozzolanic be included, use a material such as very fine pulverised ground glass powder (<35 µm) from flat window glass. Which are becoming more and more popular thanks to increased brilliance when polished. Another advantage is improved working consistency.

Regarding the **Tadelakt** technique by using a small smooth stone to compact and polish the lime plaster it is something for enthusiasts that have no knowledge of products involved. For reasons that when the Tadelakt technique started some thousands years ago there were no knowledge and access to **graded** fillers.

Ungraded fillers mean there are roughly 30-40% of air voids. Consequently these must be compacted to get rid of the extra air voids. Where today there are no problems to get graded fillers as per Füller's Formula. So compacting with a small stone is not necessary. Just a waste of time.

Furthermore, the lime produced in Marrakesh, Morocco has a very coarse fineness:

Fineness 150 µm	30%
Fineness 400 µm	30%
Fineness 700 µm	25%
Fineness 1 mm	15%

To be compared with an industrial produced hydrated lime that has a fineness of <75 µm. However, by using a coarse very white calcium carbonate (whiteness 86) with a CaCO₃ content of 99% and correct graded with mean particle sizes 100-150 µm, and top cut 150-400 µm the result will be an almost identical product.

Using Black Soap as Sealer

Black Soap, used for the **Tadelakt** technique, is made from black olive oil and mineral salts.

To use Black Soap, or olive oil, is something that belongs in the past. Because it is well-known that the combination of air (oxygen), heat and light can cause olive oil to turn rancid with a smell like cardboard boxes. Also there is a risk that olive oil can support mould growth if humidity is high.

In fact there are suitable reactive sealers that will make the surface zone harder and also reduce the water absorption much better and more or less permanent. Reactive sealers that undergo a chemical reaction with the lime. Impregnators that have been used here for the past 150 years why the durability is well recorded.

Reactive sealers that also can be coloured in almost any colour from white to black.

Remarks: On the world market there are companies who recommend sealers based on acrylic or urethane acrylic. However, such sealers are **film-forming** sealers and will not chemical react with the calcium hydroxide. Instead they form a film-layer on the surface which highly reduces the carbon dioxide (CO₂) uptake. Where the CO₂ uptake is important for the carbonation of the lime. Consequently, film-forming sealers are not suitable to use on lime products.

Pro Kit International HB S-442 35 Kungälv, Sweden info@prokit.se	Lime Products - Tadelakt Technique Surface Treatment	June 17, 2025
		Replaces March 20, -08
		Page 3 of 3

A so called CO₂ diffusion equivalent air layer (S_d) of >50 m means a coating to be considered as a carbonation retarder, why CO₂ cannot pass through easily. And the higher the value, the slower the rate of CO₂ diffusion. Where typical acrylics have values >100 m and even much higher. Products that also normally contain VOC.

To be compared with Reactive Sealers where a typical figure can be <0.05 m, which means the CO₂ can easily pass through. And contain **zero-VOC**.

Conclusion

A **true lime plaster** with an extremely appearance similar to the original lime produced in Marrakesh: The ingredients of a suitable lime plaster for the Tadelakt technique will cost roughly **EUR 0.65 to EUR 1.30** per kilo depending on kind of lime.

At a thickness of 4 mm there is needed about 6 kilos why the material cost can be estimated to EUR 3.90 – EUR 7.8 per square metre depending on kind of lime. However, one alternative is to use a coloured Lime Paint where the cost will be EUR 0.98-1.95 per m². Where is should be pointed out that a Lime Paint is so much easier to apply.

1. **Never** include OPC (Ordinary Portland cement). If so it is a **faked** lime.
2. For **interior** walls where **humidity is normal** a non-hydraulic lime can be used as the binder. Keep in mind that necessary time for the carbonation (curing) can be a month. Otherwise use non-hydraulic lime and hydraulic lime (NHL 3.5) ratio 75/25.
3. For **interior** walls where **humidity is high** such as bathrooms, showers, etc. a blend of non-hydraulic lime and hydraulic lime (NHL 3.5) ratio 75/25 or 50/50. Sets within a day or two.
4. For **exterior** walls use a blend of non-hydraulic lime and hydraulic lime (NHL 3.5) ratio 50/50 or 25/75. Sets within a day or two.
5. If available, include a **white** pozzolan (5-10%) such as ground granulated blast slag (GGFS or GGBFS) or very fine (<35 µm) pulverised ground glass from flat glass waste.
6. For plaster, do not use quartz sand. Instead use a coarse filler of very white calcium carbonate or dolomite that is correct graded as it gives a better colour.
7. Lime products can be integral coloured with Pro Colorant for Reactive Sealers. Or after the application of uncoloured lime products, can be treated with Pro Reactive Sealer coloured with Pro Colorant for Reactive Sealers.
8. Sealing with Pro Reactive Sealers is always recommended in order to reduce the water absorption. For exterior façade walls exposed to heavy wind driven rain as well as for bathrooms and showers, Pro Lithium Sealer can be used which reduces the water uptake with approx. 90%. Also making the walls more or less self-cleaning.
9. Suitable reinforcement meshes are excellent to use to avoid cracks.

Further detailed information are available free of charge upon request.

These information are the properties of the Pro Kit International, Sweden. All rights reserved.