Lime, a traditional and eco-friendly building material

- Fiches thématiques -

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Description:
Tadelakt, lime paints, coloured decorative cement, restoration using lime, lime renders, lime frescoes, hemp and lime... a whole range of techniques that all use one of the oldest and most eco-friendly materials around.

Bâtiencien-ariège : Savoir-faire et patrimoine des Pays d'Ariège
Different kinds of lime

Lime is a natural product produced by heating limestone of varying degrees of purity. Different kinds of lime are produced according to the chemical composition of the limestone. There are two main kinds in use in Europe: Natural hydraulic lime and non-hydraulic lime.

Non-hydraulic lime

Non-hydraulic lime is a product of the calcination of a rock consisting mainly of calcium carbonate, i.e. limestone. It has very few impurities. It has many different uses. Used as mortar, setting, or carbonatation, is a slow process which takes place when the lime is in contact with the air.

Pure naturally occurring hydraulic lime

Pure, naturally occurring hydraulic lime is produced through calcination of a limestone that is high in calcium carbonate but also contains elements which, when heated, are transformed into calcium silicate and calcium aluminate compounds. If the lime is used as mortar, these elements, if there are enough of them, cause it to set hydraulically at first. It reacts when it comes into contact with water, whereas non-hydraulic lime begins to set when it comes into contact with the surrounding atmosphere. Pure, naturally occurring hydraulic lime can also be used in bonding agents, giving them added qualities which are highly appreciated by professionals in the building trade.

History

Lime is the king of building materials. It has been mans helpmate for thousands of years, resisting every technological development: a traditional material, yet also the material of the future, thanks to its exceptional properties. Lime was first used in Mesopotamia in 5000 BC (now Iraq). During this period it was used as distemper. First the Greeks, then the Romans, used it widely and with great success as a building mortar as well as for decorative effects and as a soil treatment. Edifices built with lime, such as Greek temples, Roman roads and the famous Pont du Gard, still stand today, having withstood the passage of time. It was the most used building material in Ancient times, in the Middle Ages and right up to the Industrial revolution.
In the 19th century, progress in scientific analysis led to research into the production of quick-setting bonding agents. In the 20th century, era of destruction and subsequent urgent rebuilding, artificial bonding agents like cement were preferred. Today, lime, whether used pure or in new, ready-to-use products, is making a comeback. Its proven physical and aesthetic qualities are unequalled when it comes to building and decoration. As in days gone by, you can build, restore and decorate naturally when you use lime. In the future, lime will let your walls breathe, enhance your local sands, soils and oxides and adapt to the movement of both historic buildings and new ones.

Uses

A completely natural product that has been in use for a very long time, lime can be used for a wide variety of applications. Non-hydraulic lime is used by the steel industry, the water-treatment industry, agriculture and building. Pure, naturally occurring hydraulic lime has always been mainly used for building and soil treatment.

Lime in the building industry

Naturally occurring hydraulic lime has been used as a building material for thousands of years. Its unique properties make it the perfect bonding agent at every stage of construction: in the mortar for the foundations, for brick-laying, tiling, wall screeds and roofing.
Lime, a traditional and eco-friendly building material

Its hydraulic properties mean that it sets faster than non-hydraulic lime and has greater mechanical resistance. Whether applied manually or mechanically, it is equally easy to use, making it a product that everyone can use. Today as in the past, lime is the perfect product for durable building, because it adapts so well to all natural building materials.

Lime used in decorating

Bricklayers and decorators are increasingly turning to lime for both exterior and interior decoration of old and new buildings. The consistent whiteness of naturally occurring hydraulic lime enhances local sand and earth when used for coloured render or plaster. It is a good insulating and protective coating and adapts better than artificial bonding agents to wall movement.

Non-hydraulic lime is the best choice for all artistic interior finishes such as distemper, frescoes or stucco.

More than any other bonding agent, natural lime is the best way to achieve the desired finished result, aesthetically and with respect to protecting both our heritage and the environment.

We would like to thank Socli Socli Limes for providing this text

Photos by Gérard Roux, Muriel Andrin, Dominique Charles, click on photo to enlarge.