Forest and agricultural economics

ITALCALCE S.r.l.

In pre-historic times, when lime was used by chance to extinguish an outdoor fire, and the pieces of lime decomposed under the flame and in contact to water, they turned into a white powder: our ancestors had produced and diluted lime without knowing it, thus transforming it into calcium hydroxide. Millions of years went by, prior to reach the conclusion that quicklime and calcium hydroxide can be used in endless ways. In our century, the use of this product has become so widespread that, together with carbon, petroleum and iron, it belongs to the group of the most important raw materials used in the production processes of human kind.

Italcalce

Founded in 1969, ITALCALCE is today one of the most skilled production companies of lime destined to the most advanced and modern applications, and it represents the best Italian tradition in this sector. Equipped with highly technological plants managed by integrated computerised systems, blast furnaces of last generation and top quality production systems, ITALCALCE boasts a production output of over 150,000 tons per year, strictly checked by an innovative chemical-physical analysis laboratory, ISO 9001/2008 certified, that ensures a constant quality level, also guaranteed by the CE marking. The company is located in Terracina, a charming city by the sea, in Lazio, on the Tyrrhenian coasts. Thanks to the enviable strategic position at the centre of Italy, at only 100 kilometres from the port of Naples and 140 kilometres from that of Civitavecchia, ITALCALCE has developed business relations with many international maritime companies.

Lime

Lime is a material with a natural base, versatile and cost-effective, extremely diffused at global level. Used by iron and steel industries, construction and chemical industries, in agriculture, to treat soils and waste, lime is also used as a natural reactant, through the best technologies, for treating waste, civil and industrial waters, to hygienize biological sludge, to depurate smokes of incinerators and thermo-power plants, and it is certainly the most compatible material with the environment, in terms of costs and benefits.


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Calci da costruzione

Italcalce S.r.l.

The technological cycle

In ITALCALCE, the modern technological cycles are divided in:

- Extraction, processing and screening of the raw material, lime;
- Production and refinement of quicklime in blast furnaces;
- Production of calcium hydroxide, slaked lime and ready-to-use mortar.


INDUSTRIA CALCE
ITALCALCE


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The products

The range of products offered to the market by ITALCALCE includes:

Calcium oxide in lumps

Calcium oxide, or quicklime, is mainly used in the iron and steel industry. When processing steel and iron, fluidifying the slag, quicklime contributes to remove impurities like sulphur and phosphorous. Another important and essential use consists in the production of sugar, where the task of lime is to separate, through alkalinisation, organic acids and albumins from the juice of beetroots and sugar canes.

Micronized calcium oxide

Micronized calcium oxide is a product obtained from grinding lump quicklime. Its use is essential for those applications linked to the stabilization of soils, decrease of sulphur emissions from thermal power plants, and for the production of calcium-silicate and calcium-sandy bricks. The finished product, of white colour and porous texture, is sold in bulk or in big bags.

Granular calcium oxide for agricultural use

Granular calcium oxide is an essential calcium and magnesium compound in agriculture. It neutralises the acid reactions of soils and favours softness. It is also used as natural manure to boost the growth of vegetation and as substance to improve the quality and properties of the soil.

Calcium hydroxide

Calcium hydroxide, or hydrated lime, is a product of superior quality. In construction, mixed with pozzolana or calcareous sands, it produces mortars and plasters, and it is used for the construction of various works and depuration of waters. It is also used to reduce the acidity of smokes in thermal power plants and in incinerators of solid urban waste, as well as in the filtering systems of glassworks. Our product, with its high content of Ca(OH)2, perfectly fulfils the needs to protect the environment.

Slaked lime (lime putty)

Slaked lime is an excellent hydraulic binding agent for the preparation of coats and finishes on plasters; it is left to settle for over 12/16 months and used for the production of paints, restoration of archaeological buildings and recovery of ancient monuments. A suitable mixing with marble powder or micronized limestone confers outstanding plasticity and breathability to the coat.

Fine mortar

The wet fine mortar is a finishing plaster made up exclusively of natural materials such as lime putty and fine grain silica sand. It is used for interior finishing of walls that have the traditional plaster or the premix. For outdoor applications it is advisable to add 6-8% of cement.

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Agricultural economics

Plants' nourishment

In agriculture, calcium oxide is used as sterilizer and neutraliser of soils' acidity, often caused by various and complex phenomena. The soil's acidity excess has a remarkable influence on the development of crops; on the other hand, the addition of lime favours the perfect assimilation of the main nutritive substances.

Calcium is useful in the plants' physiology because it acts in the:

- cellular relaxation and division processes;
- resistance of tissues and formation of pollen;
- development of the roots.

Magnesium, instead, acts in the:

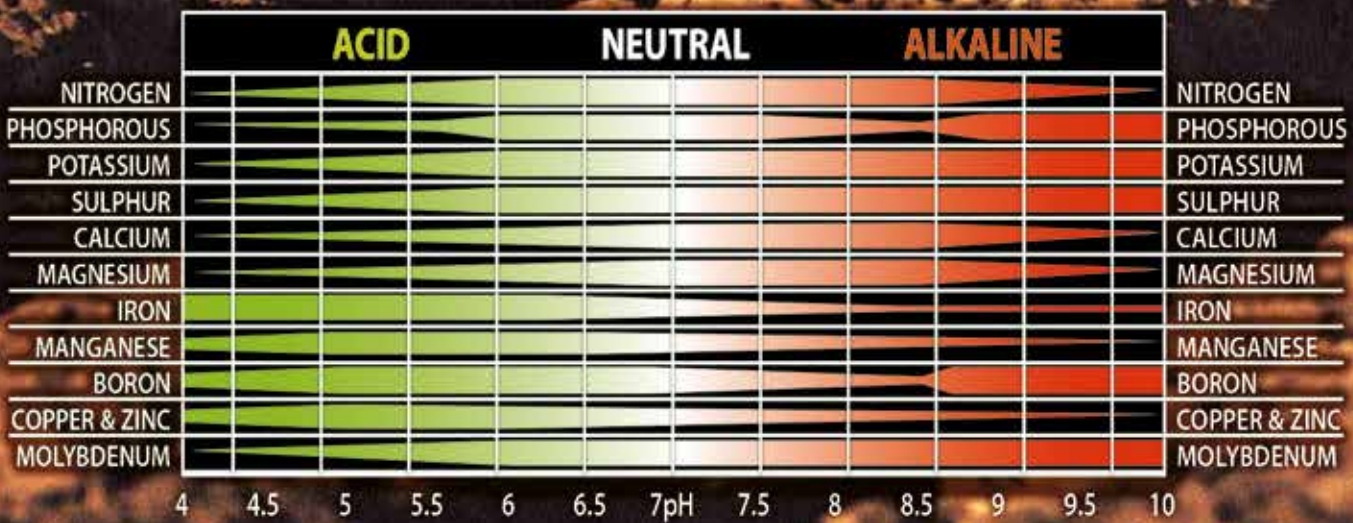
- composition of the chlorophyll molecule;
- mechanisms that prevent water drop.

Structure of the soil

The presence of lime in the soil has a positive influence also on the physical and mechanical properties of it, facilitating the structural aggregation phenomena, improving permeability to water and allowing to bring the pH value close to the neutral value, that is pH 7. In most cases an adequate treatment of the soil with lime determines a valuable increase in crop production, and the value of this increase highly exceeds the cost of manure and its laying.

Growth of micro-organisms

The biological conditions for the presence of useful micro-organisms are present only in soils rich of lime. Therefore, the addition of lime in soils influences the growth of bacteria and formation of nitrate, which can be seen from the quick increase of CO2 formation, nitrogen content and formation of enzymes. The grain structure of the soil is favoured by annelids, in particular worms, whose galleries favour water distribution by deviating excess rain water in the sub-soil.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10

Phenomena caused by lime depletion

In all agricultural soils lime is depleted due to erosion and constant harvests.

If these lacks are not compensated, phenomena caused by lime depletion will occur in a short period of time, mainly at the beginning of the growth period, when there is the maximum absorption of nutritive substances.

In light soils said phenomena occur first of all as acid damages, while in uniform soils as structural damages.

Lime additions

Lime depletions are not only due to the aforementioned causes, but also to specific mineral manures, that boost the acidity in the soil.

Therefore, prior to carry out the process of manuring, the soil must be carefully evaluated.

To create or preserve favourable growth conditions for useful plants, lime depletions must be quickly re-integrated.

The quicklime required for manuring must be used in granules of 2-6 mm, since this format is more soluble and therefore it reacts quicker.

The manuring period with quicklime is not strictly related to a specific time, but spreading the product prior to the vegetation period, in mid spring, improves the soil's structure significantly.

Other lime applications in agriculture are: use of limewash or lime water to disinfect cellars and stables after adding pesticides; paint the trunks of orchards to protect the plants from sun rays during the summer and from frost during the winter, and to increase protection against the aggression of parasites; favour decomposition and disinfection of carcasses, in addition to recover and reclaim contaminated soils.

ITALCALCE has improved its systems to produce granular lime of 2-6 mm, characterised by a total lack of powder that makes it suitable for spreading for agricultural use, also during windy days.

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