

## 58100 - 58150 Chalk of Bologna

Our product 58100 Chalk of Bologna is a natural mixture of calcium sulfate (gypsum) and calcium carbonate (chalk).

The product 58150 Chalk of Bologna, easily a particularly fine-particle and light variety of set gypsum and consists of calcium sulfate. The term chalk is usually reserved for chalk (calcium carbonate,  $\text{CaCO}_3$ ) in artist paint production.

Gypsum is a naturally occurring sulfate mineral. It is known that there are more than 2,400 million tons of gypsum reserves worldwide. Gypsum is formed in nature by precipitation during evaporation of seawater, which naturally contains 0.13% slurried gypsum. Raw gypsum is mined in the form of gypsum stone in opencast mines and shipped to the respective production sites for industrial processing.

The first stage of production consists of drying and crushing the rock lumps and processing them into powder. The gypsum powder obtained in this way is heated to approx.  $165^\circ\text{C}$ , which removes 75% of the chemically bound water from it. The result of this process is the so-called stucco gypsum, which is further refined and formed into plasterboard between two layers of cardboard. In the further processing stage, the great flexibility and malleability of gypsum board enables it to be used in an almost unlimited variety of products.

Today, gypsum is an indispensable part of modern construction almost everywhere in the world. But the special properties of gypsum as a natural product were already discovered in ancient Egypt, about 5000 years ago. Mixed with marl, gypsum served as mortar for building the pyramids.

In 1775, the French chemist Lavoisier found the chemical formula for gypsum:  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ . When it was discovered that gypsum consists of calcium sulfate and crystalline water, nothing stood in the way of the industrial processing of this material. In 1888 the American Sackett invented a machine for the production of plasterboard, and in 1901 the first plasterboard factory was built in the USA.

The urbanistic history of Bologna shows how closely the city is linked to gypsum. Since the city is particularly close to gypsum outcrops, this stone was used for buildings. In fact, the first walls that surrounded Bologna were built with blocks of gypsum. Nevertheless, it is since the end of the 19th century and after the Second World War that mining developed and endangered the whole karst area. In 1973 the gypsum quarries were closed for this reason.

The Cava a Filo was the only quarry that used screw wire instead of explosives. For this reason it was the last to be closed. The quarry unfortunately damaged a karst well that was very interesting from a paleontological point of view. Fossils and animal skeletons were found here. This karst depression has been covered with introduced gypsum. The Palestrina was formed from a quarry that dates back to the Roman period. Its name refers to the fact that for some years it has been used as a climbing wall (palestra). Once you reach the top of the wall, you can enjoy a wonderful view over Bologna, the plain and the gypsum outcrops of the Miserazzano plateau. The wall of Palestrina is marked by Marienglas.

The data given below are to be considered as typical values. Variations are possible.

## 58100 Chalk of Bologna

### Chemical analysis

Calcium carbonate,	CaCO <sub>3</sub>	48,37 %
Calcium oxide,	CaO	16,98 %
Sulfur trioxide,	SO <sub>3</sub>	23,45 %
Silicon dioxide,	SiO <sub>2</sub>	0,86 %
Aluminum oxide,	Al <sub>2</sub> O <sub>3</sub>	0,34 %
Iron-III-oxide,	Fe <sub>2</sub> O <sub>3</sub>	0,12 %
Magnesium oxide,	MgO	1,07 %
Bentonite		0,90 %
Water		7,91 %
Grain size 30 - 40 µm		

## 58150 Chalk of Bologna, light

Grain size: 50 - 60 µm