



Manufacturing

Firing

After grinding, the pieces from the underground quarries, of a grade of between 0 and 150mm, are mixed with a set quality of coal before being put into conventional vertical kilns.

The stones are fired in this type of kiln at a low temperature, and over a broad thermal spectrum, between 500 and 1,200°C. This is due to several factors:

- variable intensity of draughts inside the kiln due to the heterogeneous distribution of grade among the stones. This creates greater or lesser local combustion;
- unequal distribution of coal, whose ashes can cause local fusion of stones;
- presence of organic material in the stone, which adds calories during the burning phase.

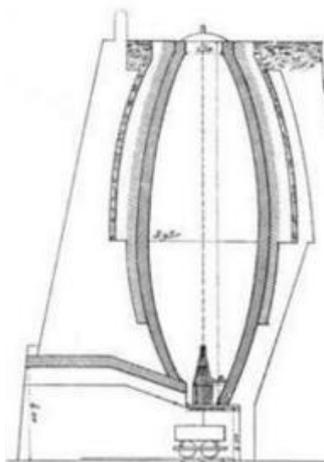
The process leader uses different parameters to run the kiln:

- visual examination of the surface of the top of the kiln;
- temperature of smoke given off;
- adjustments to ventilation;
- visualisation of the hearth using thermocouples.

He can adjust the kiln operation by altering:

- the number and volume of loads;
- the proportion of coal used;
- ventilation settings;
- extraction time.

When the material comes out of the kiln, the stones are called “blocks”. They can be categorised into three categories: unbaked, baked and overbaked (**cf. mineralogical characteristics**) according to the firing level to which they have been subject. A good natural cement can be identified by a good mixture of these different blocks. With a modern firing process, such as a rotating kiln, it is possible to fire the raw material at control temperatures of, for example, between 800 and 900°C. This produces a cement which remains natural, but whose mineralogy is not representative of the natural cements of the 19th century. The firing process used has remained unchanged since the 19th century.



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