# The Standard Sand SNL-CEN EN 196-1

# Trust in your cement certification

# Pillar of your process optimization.

**The standard sand CEN EN 196-1 is not a simple commodity but an industrially developed complex sand that is essential to ensure normative compliance of cement and allow process optimization.**

**The sand of the SNL developed and improved since 1910 is therefore a lever to generate significant cost reductions and CO2 emissions.**

In this article, we will develop further:

1. The key role of standardized sand:
2. The essential qualities of a standardized sand
3. Quality as a performance vector
4. How to reduce one's standard deviation?
5. How the SNL can help you develop your quality plan.

## 1) The key role of standardized sand:

Standard sand is component of the mortar (water - cement - standard sand) forming strength test specimens according to CEN EN 196-1 as part of the certification of cement.

Certification is an important process that certifies that the product complies with the standard.

In order to measure only the variation of the cement, it is important that the other two variables of the mortar are constant.

As a result, the more constant the sand, the higher the confidence in certification.

## 2) The essential qualities of standardized sand

We saw previously that the regularity of sand is a prerequisite.

Standardized sand can therefore only be produced in a modern and precise workshop to ensure its regularity, which implies a certain cost.

The manufacture of standard sand also involves strict compliance with the conditions of the standard with frequent quality controls, audits of conformity to the standard by accredited laboratories and a comparison against a reference sand.

It is also the result of a multi-criterion selection of fractions used in its composition, allowing high performance of the results of the specimens.

### 3) Quality as a performance booster

The regularity of the measured resistances of cement both in absolute value and by its small standard deviation is a major vector for performance and optimization in cement manufacturing.

High resistance and low standard deviation indeed allow to optimize the process (combustion, grinding), the cement-clinker ratio, the carbon weight (CO2) of cement and to avoid overdosing cement in concrete by the confidence in the values of strength of cement.

As an example, one of our clients was able to increase its cement-to-clinker ratio and replace 25,000 t of clinker with 25,000 t of limestone by improving its standard deviation to 28 days: it achieved an improvement of more than $700,000 and a reduction of 23,000 tons of CO2. This improvement was made possible through collaboration with the SNL on laboratory methods, equipment calibration and the use of the SNL's standardized sand and its different reference materials.

We can therefore see that the true value of standardized sand is also in the optimization of the cement it allows.

Buyers should not consider standard sand as a commodity but as an investment in certification and an important optimization lever for the cement plant.

The very regular and performant SNL standard sand allows you to maximize the C/K ratio which translates into a financial and environmental benefit that far exceeds the price of the sand itself.

### 4) How to reduce one's standard deviation?

Reducing the standard deviation on resistances to 2, 7 and 28 days involves a combination of good practices:

- An efficient and regular standardized sand like that of the SNL
- Equipment that complies with the standard and is regularly checked
- A well-mastered and regularly compared methodology
- Well-trained operators with precise and accurate results whose performances are compared with those expected from a reference cement and/or participation in an inter-laboratory test.

### 5) How can the SNL help you develop your quality plan?

- You can get from the SNL:
  - A standard sand CEN EN 196-1 having high and regular performances whatever the type of cement.
  - A reference cement RESI 25 to compare the results of your operators with the expected results of RESI 25
  - Reference materials facilitating the control and calibration of your equipment for fineness and chemistry
- The SNL can put you in contact with equipment suppliers compliant with the CEN standard 196-1 and quality experts who can carry out audits in your cement works.
- . You can request to participate in the annual inter-laboratory trials of the French cement industry (France-Ciments) and thus join a community of 170 laboratories worldwide by contacting Alain Bonnet (a.bonnet@france-ciment.fr)
- Obtain from SNL a copy of its numerous good practice and calibration guides, such as the calibration guide sold with the SNL XRF-FB KIT.