

Process Report



Argos Free-Trade Zone



Company: Cementos Argos

Country: Colombia

Plant: Free-Trade Zone in
Cartagena

Kiln: 4

Kiln brand: FLS

Operating since: 2010

Pre-calcination: 5 stages,
with in-line calciner

Capacity: 5,200 T/D

Background: The installation of the Seal Plus seal system by Motofrenos was installed at the annual maintenance of kiln 4 in the year 2015.

During the kiln's performance assessment we concluded that given the volume control determined for kiln 4, there is false air intake in the process;

- Increase in energy consumption
- Decreased efficiency of the ID fan
- Calcining process out of control
- Crystal formation due to changes in the cooling area





Original seal

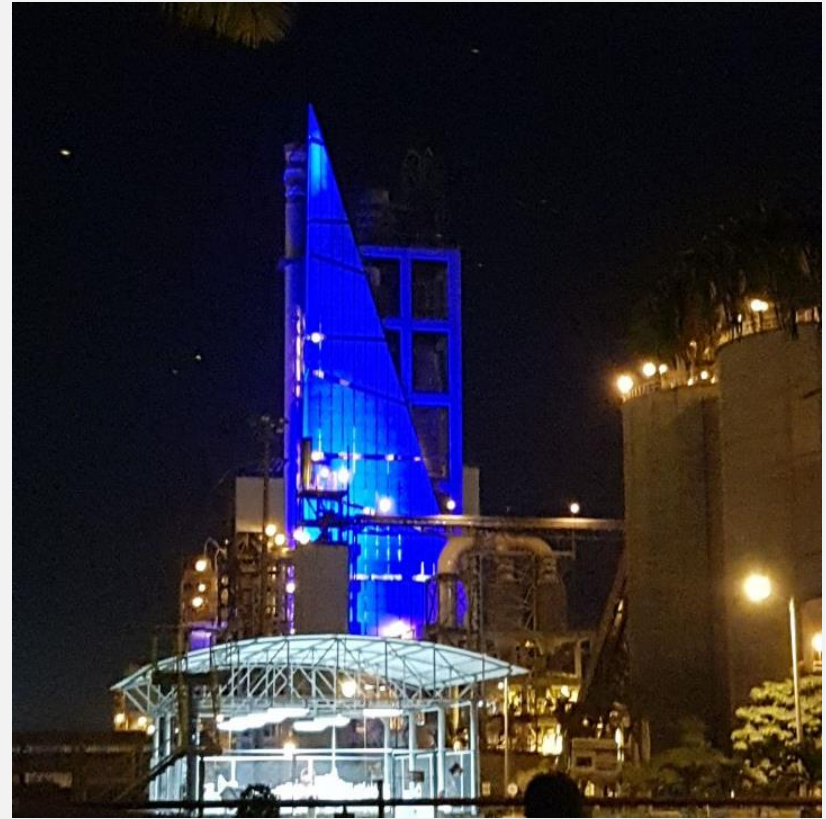


Sealplus seal



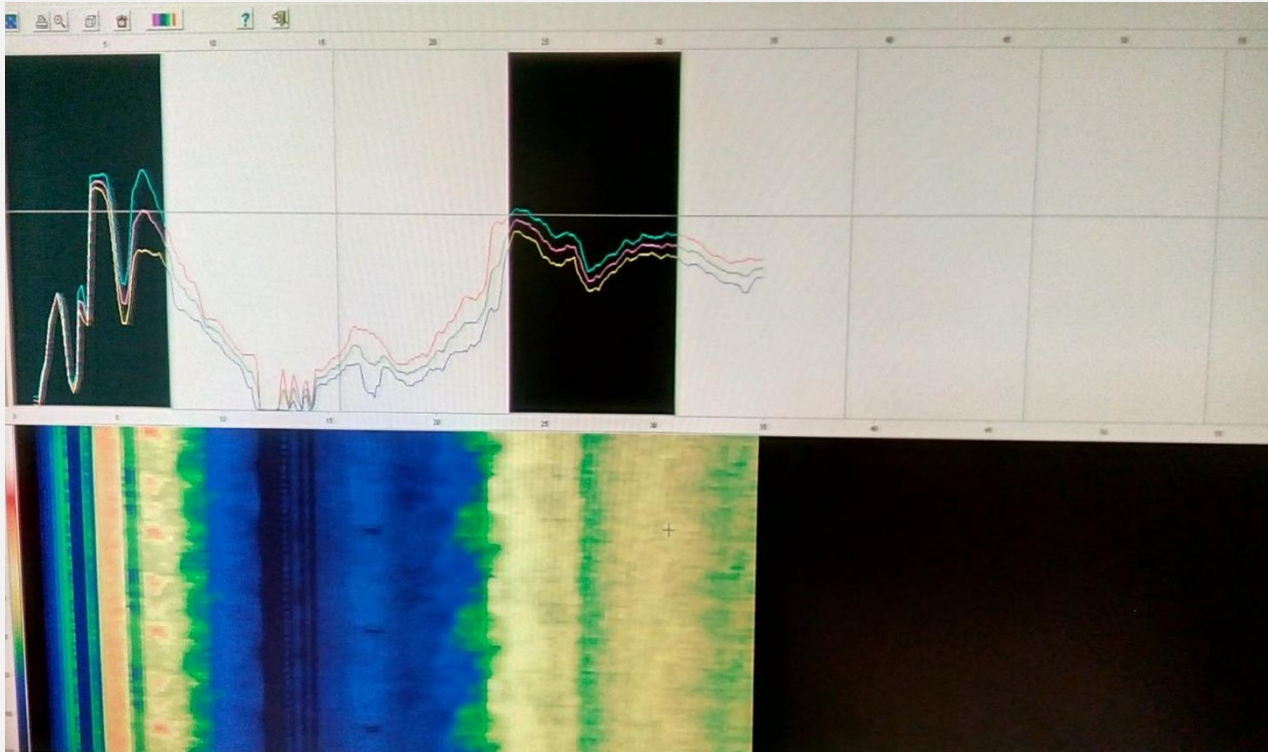
Increase in energy consumption:

The false air intake is calculated based on the percentage of oxygen in the system. At the beginning of the kiln's outage, the amount was 9.5% of O₂ and after stabilizing the equipment after the installation, the amount was 4.5%, these were measured between the inlet and the discharge of the kiln.



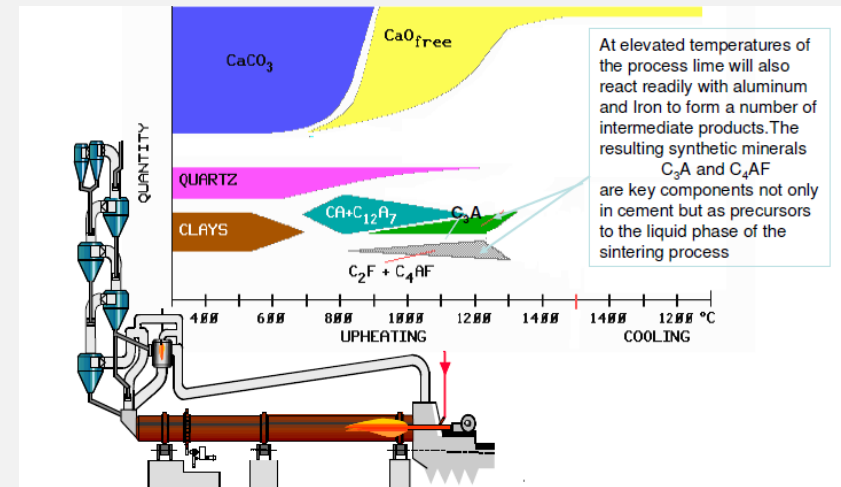
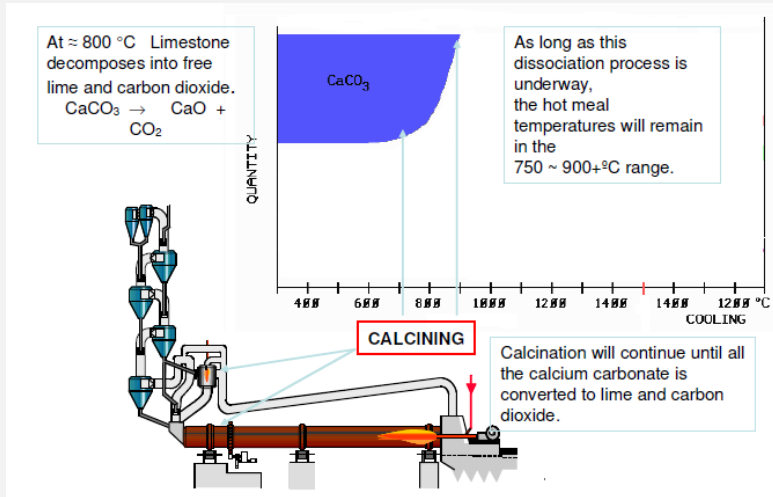
Efficiency improvement of the ID fan:

The false air at the ID fan was reduced 5%, which allowed lowering the speed of operation, increasing the range of control by manipulation of the fan.



Calcining process out of control:

The unstable dynamics of air flow entering through the discharge seal modified the performance of the flame, causing negative issues in the process and wear of the refractory at the kiln's inlet and discharge.



Crystal formation due to changes in the cooling area:

The changes in the cooling area due to false air in the calcination system causes changes in the structure of C_3S , C_4AF , C_3A crystals that affect directly the quality of the produced Clinker.

THANK YOU