

Brazil

Burners and their Influence on Refractories Lifetime in Rotary Kilns

Since we've always heard that combustion systems are a key factor to enhance rotary kilns refractory lifetime, it is of interest to see what *GRECO* of Sao Paulo (Brazil), one of the leading international burners suppliers have to comment. Below is a discussion with the President of *GRECO*, *Adriano Greco* (AG).

rwf: *Why the burner is an important factor for the refractory lifetime in a rotary kiln?*

AG: In fact the burner is not an independent factor for the brick lifetime in a rotary kiln. Several factors, starting by choosing the right refractory composition for each kiln zone are responsible for that. Considering that the other factors are well controlled, it is important to have a proper flame shape allowing the temperature profile of the kiln to be smoothly distributed, avoiding hot and red spots on the kiln shell. It is also important to create an adequate coating inside the kiln that protects the brick. This is also a good function of the burner, however depends on raw material composition as well.

rwf: *Refractory lifetime is a challenge that is usually faced by burner manufacturers?*

AG: Yes. No doubt that several of the enquiries we received for substitution of burners are due to poor refractory lifetime. In any case it is important to first carry out a comprehensive diagnosis to check if the cause of the problem is the burner itself or other factors not considered beforehand by the plant operators.

GRECO Sao Paulo
Adriano Greco
 01451-000 Brazil
adriano@grecotec.com
www.grecotec.com



Fig. 1 Rotary kilns

rwf: *What are the main factors that lead to a poor refractory lifetime?*

AG: Usually it is the burner itself that is creating a not adequate temperature profile along the kiln but it is important to check other factors are raw material chemistry, actual refractory map, fuels being used, presence of CKD injection (for cement kilns), heat power compared with kiln diameter and length among several other factors.

rwf: *What else is important for a burner manufacturer to consider?*

AG: In fact it is important to see the burner as a process tool that can lead you to the success or not. The burner is the heart of the kiln. If it does not work well the whole plant will stop. What is needed to be understood is that any kiln is a cooking process and if you do not "cook" well you will have a bad product, so the burner plays a very important role on the product quality, but on the other hand the economical issues should be con-

sidered. For instance you need to work today with a lot of alternative fuels to make production costs lower. This is the new challenge. Low cost with good quality.

rwf: *Considering it, what is the best solution to achieve good results?*

AG The secret is to concentrate on customized solutions. The several options of fuels combined with another great range of kiln types and process types, obligated the leading suppliers to work in customized solutions. The key of cost effectiveness is customizing. Even if the actual cost for implementation is higher than a shelf solution it will lead you to a lower operational cost, less kiln stoppages and in the end of the day – saving money. There are other important equipments that help us to do it as kiln shell scanners, laser point alignment systems, among others.

rwf: *Thank you talking to us.*



Fig. 2 Rotary kiln flame pre-heating



Fig. 3 Inside kiln & laser target