SSV's integrated approach for the assessment of quality and reliability of refractory materials

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Abstract

In a Globalized World where low-cost suppliers of limited renown have entered the market of refractory materials for glass furnaces with products having very aggressive pricing, but "uncertain" performance level, the chance of striking a profitable deal today might be counterbalanced tomorrow by the risk of encountering service life issues, ranging from questionable glass quality to early catastrophic failure.
In order to avoid to fall prey either of conservative prejudice or of blind trust, Stazione Sperimentale del Vetro has developed an integrated approach to support glass producers in making a technically grounded choice of refractories suppliers for their furnace rebuilds.

The process consists of three main steps: first a reference performance benchmark is created on the basis of experimental characterisations of well known materials, having demonstrated good performances during past furnace campaigns.

Second, a detailed sampling and analytical plan, tailored for each specific furnace zone, is put in place to compare the key performances of various products of different suppliers, both among themselves, for the identification of the best candidate, and with the reference benchmark.

In particular, depending on the furnace zone, static or dynamic corrosion tests at various temperatures, exudation tests, alkali vapour resistance tests, blistering tests, etc are performed in SSV laboratories.

Third, the reliability of the suppliers, especially in the case of AZS materials, is assessed through an in depth audit of their production facilities, performed by experts of fused cast AZS science and technology.

In particular, the main parameters investigated during the audit are: installed technologies, production capabilities, technical proficiency and know-how, process control, quality management system, traceability, logistics, etc.
This integrated approach provides the glassmaker not only a wealth of information for the choice of refractories supplier, but also allows to assess an estimate of the future defect generation potential by furnace blocks.

Keywords: Glass melting furnaces, Refractories, AZS, Quality, Performance, Audit

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