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# R4<sup>th</sup>ort

## INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“INTEGRATING CLEANER PRODUCTION INTO SUSTAINABILITY STRATEGIES”

### **Optimization of Packaging Raw Materials in Ceramic Refractory Manufacturing Process**

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#### **Abstract**

In the manufacturing of refractory ceramic there are many variables that contribute to the problems in the final product. Some of them can be easily identified. Others, however, require a more comprehensive evaluation and use of specific tools of quality management system to help to identify the real causes of the problem and therefore their elimination in the shortest time. Considering the process itself, the final products presented problems of density variation, fact of material compaction (with expansion deformation of the parts), burn facility in the dryer, weakness, increased water amount and more time-consuming drying parts. These problems caused losses in both, production and financial departments, in addition a considerable energy heat waste, the reprocessing need and eventually waste generation that required final disposal of such materials. Some analysis was performed in the production process so that it was possible to identify the largest possible number of causes that contributed to the emergence of the listed problems. This paper intends, through the application of quality tools (brainstorming and cause and effect diagram or Ishikawa diagram), to identify failures modes of the process so that they will be corrected by implementing actions plan to occur without problems recurrence, making the plant more economic in financial terms as well as more environmentally responsible, generating less waste.

**Keywords:** *Refractorie Ceramic; Sawdust, Silo, Waste Generation.*

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