

STUDY ON AN ECO-DESIGN METHOD OF INDUSTRIAL SOLID WASTE REUSED PRODUCTS: A CASE STUDY OF MULLITE PRODUCED FROM FLY ASH

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Key Words: Eco-design, Industrial solid waste, Life cycle assessment, Fly ash, Mullite.

With the increasing growth of solid waste used as raw materials, it is essential to focus on eco-design of the solid waste reused products to reduce environmental impacts and ensure safe use. In this research, an eco-design and evaluation method is established for the industrial solid waste reused products, with the characteristic of the reuse technology and process of industrial solid waste. This method is established based on the existing eco-design method for general products and life cycle assessment, considering the quality problems as well as the environmental risks in heavy metal, remaining acid and alkali and so on in the recycling products. This method is employed in the fly ash reuse process of producing mullite products. The process is optimized and evaluated by the method with the steps of raw material applicability analysis, process control, products application and safety analysis of final disposition. The results indicate that the process design basically accords with the eco-design purpose of industrial solid waste reused products and it is feasible to implement.

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