SYNTHESIS OF ALUMINA BASED ON INDUSTRIAL WASTE MATERIAL

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INTRODUCTION

Nowadays environmental policies of industrialized countries aim not only to eliminate or reduce waste generation, but seek to save natural resources through the secondary resources management. This strategy is promoted by the Directive of the European Parliament and of the Council on Waste.

In this work, a hazardous waste obtained by the tertiary aluminium industry, was used as aluminous raw material for the synthesis of alumina. Polymorphic aluminium oxides (Al$_2$O$_3$) are extensively used in numerous industrial applications (ceramics, abrasive materials, absorbents, catalysts, biomaterials, composites, pigments, etc). This means working to transform an hazardous waste on a added-value material.

EXPERIMENTAL

A hazardous waste can be used as raw material for other industries to contribute to the reduction of natural resources.

The process developed allows to obtaining 1t of nanometric sized corundum particles with an aluminium oxide content of 95% from 4t of hazardous waste.

The morphological and crystallographic characteristic α-Al$_2$O$_3$ would allow its use for the ceramic industry.

The inert solid residue generated consisting principally of spinel, corundum and quartz with possible uses in cements or glass industry.

REFERENCES


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