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## USE OF ZINC ASH FROM GALVANIZATION AS A SOURCE OF ZINC OXIDE

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### Abstract

This paper reports the possibility of using zinc ash as a secondary source for zinc oxide, which can be further used as white pigment. For the extraction of zinc from zinc ash, sulphuric acid was used. The impact of different parameters (ash fraction, contact time, sulphuric acid concentration and liquid:solid (L:S) ratio) upon the extraction degree of metallic ions from zinc ash was studied. The optimum conditions for the metallic ions extraction are: 20 % H<sub>2</sub>SO<sub>4</sub>, 30 minutes contact time, 1:1 L:S ratio and the fraction of the ash <0.315 mm. The obtained solid zinc products were submitted to a complex study: chemical analysis, thermal analysis and X-ray diffractometry. It was established that from the resulting zinc ash from the hot-dip galvanizing process the zinc ions can be recovered and reused as useful products avoiding the negative impact of these wastes on the environment and at the same time it was shown that these wastes represent valuable zinc sources. Based on the experimental data, the non-polluting technological process scheme of reuse of zinc ashes in useful products was proposed.

*Keywords:* extraction, recovery, zinc ash, zinc sulphate, zinc oxide

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