

**INCORPORATION OF SOLID WASTE FROM GALVANIZATION PROCESS IN
THE PRODUCTION OF INORGANIC PIGMENTS**

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The solid waste in the effluent treatment from the galvanization process, its sludge, has received special attention due to the nature of its constituents. This waste presents in its composition, a high concentration of alkaline and transition metals. Inadequate discharge or storage of this waste could cause damage to the environment and to health. This work purposes an alternative for the inertization of galvanic wastes incorporating them into inorganic pigments formulation. In general, such inorganic pigments are formed by metallic oxides, which after thermal treatment form crystalline crystals. The sludge was classified as class II – non-inert, through leaching and solubilization tests according to the NBR10004. To incorporate the sludge into inorganic pigments formulation, it was characterized by elemental chemical analyses techniques such as X-ray fluorescence and atomic absorption spectroscopy, it was also characterized by thermogravimetry and X-ray diffraction. After waste characterization, metallic oxides were added for correcting the composition and obtaining the inorganic pigment. Pigment formation was followed through X-ray diffraction, where the formation of spinel phases containing the metals Fe, Cr and Zn were observed. The pigment was characterized through scanning electron microscopy, distribution of the particle size using laser, differential thermal analysis and thermogravimetry. The obtained pigments were applied in ceramic substrates for the colorimetric tests and evaluation of the thermal behavior during burn. The 8 hours cycle calcinated pigments formed crystalline spinel phases, where we can say that the present metals in the sludge became inert. It was possible to incorporate up to 20% of the galvanic waste in the production of Fe, Cr and Zn based inorganic pigments.

