

## COMPARATIVE STUDY OF GRINDING PROCESSES USED IN THE PREPARATION OF ENVIRONMENTALLY-FRIENDLY ACTIVATION BATH CONCENTRATES

### SROVNÁVACÍ STUDIE MLECÍCH POSTUPŮ POUŽITELNÝCH K PŘÍPRAVĚ KONCENTRÁTU AKTIVAČNÍ LÁZNĚ ŠETRNÉ K ŽIVOTNÍMU PROSTŘEDÍ

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#### Abstract

*Corrosion is a spontaneous reaction between a material, often a metal, and its surroundings. This process leads to deterioration of the material. The protection of metal objects against unwanted corrosion is a key issue in the chemical industry. There are several corrosion prevention methods which aim to create a protective barrier between the metal surface and corrosive stimulators. Such methods most often include surface modifications, barrier coatings and paint systems. At the beginning of 20th century, the tri-cationic phosphating method was developed. This newly established corrosion prevention method is a type of conversion coatings and today, it is commonly used in many industries. The process of tri-cationic phosphating can be divided into two main steps – the activation step and the phosphating step. The activation step plays an important role in this process as it can determine the qualitative and quantitative nature of the resulting phosphate layer. However, this process is burdened by the use of heavy metals, such as nickel and cobalt. This study concerns the first innovation phase of this process and compares different grinding methods. Their optimization of these methods leads to the development of an effective grinding process that would be used in the preparation of novel, heavy metals free activation concentrates.*

#### Graphic abstract



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