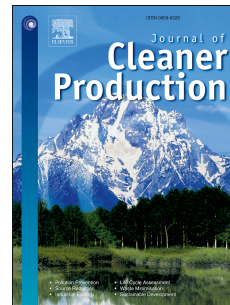


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## Technological, environmental and economic assessment of sodium tripolyphosphate production - a case study

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**Abstract:** In recent years, as a consequence of an increase in environmental awareness of consumers, issues related to the improvement of the quality of chemical products and environmental protection in the strategies of companies and international organizations have risen in importance. The paper presents a comprehensive evaluation of two variants for sodium tripolyphosphate (or tripolyphosphate) STPP production technology. The first variant studied was the classic spray method commonly used for the production of STPP. The second variant was a dry, single-stage method developed and tested under laboratory conditions. The two methods were evaluated using Best Available Techniques Not Entailing Excessive Costs (BATNEEC) options and the technology quality method. In addition, each variant was assessed for the economic efficiency of investment projects using net present value and internal rate of return approaches. The results showed that the dry, single-stage method of STPP production is more beneficial (economically and ecologically) in comparison with the dry spray method. Therefore, from the investment point of view, the dry, single-stage method should be used more frequently on an industrial scale.

**Key words:** sodium tripolyphosphate (tripolyphosphate), dry, single-stage method, classic method, technology assessment, economic assessment

### 1. Introduction

The main, long-term objectives of companies worldwide are sustaining development, making profits, and remaining competitive (Przychodzen and Przychodzen, 2015). In general, companies that work towards these goals find success in the market and achieve growth and prosperity. To achieve these objectives, businesses need to take an active approach to investing. In a global market, competitive access to essential import markets and growing awareness of the ecological problems associated with business activity open new

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