São Paulo - Brazil - May - 22nd to 24th - 2013

4th INTERNATIONAL WORKSHOP
ADVANCES IN CLEANER PRODUCTION

''INTEGRATING CLEANER PRODUCTION INTO SUSTAINABILITY STRATEGIES''

Application of the Theory of Inventive Problem Solving as a Cleaner Production Method for Solar Heating Optimization Proposals

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Abstract

The global growing concern regarding minimizing negative environmental impacts of industrial and commercial products, processes and services has generated an increasing need for detailed studies related to clean technologies and renewable energy sources. In this context, this study applied the Theory of Inventive Problem Solving (TRIZ) as method to identify and support to develop cleaner production opportunities, towards a contribution to the development of solar heating systems more efficient and innovative. Then, we conducted a case study on a solar heating systems manufacturing company, using TRIZ fundamental concepts and contradiction matrix as data collection and analysis technique. Results show the subsequent formulation of inventive solution proposals, based on the obtained information, to minimize harmful functions found in the technical system investigated. We concluded that TRIZ has potential contribution in the creative process for new solar heating systems.

Keywords: *Theory of Inventive Problem Solving, Fundamental concepts, Contradiction matrix, cleaner production, solar heaters.*