



3rd
INTERNATIONAL WORKSHOP
ADVANCES IN CLEANER PRODUCTION

“CLEANER PRODUCTION INITIATIVES AND CHALLENGES FOR A SUSTAINABLE WORLD”

Environmental Performance Comparison of Carbon Black Production Process with the Implementation of Environmental Control Actions

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Abstract

This study presents initiatives to improve the environmental performance applied in a specific sector of chemistry industry – carbon black production. The first step of this project was to study all the manufacturing technologies of carbon black in Brazil and abroad and understand all the energy and mass flows in the manufacturing step in order to identify all environmental aspects. The second step was to identify the major environmental aspects and impacts in order to propose Cleaner Production initiatives – enhance efficiency in the use of natural resources; energy and raw materials; reduction, reuse and recycling all effluents generated (solid, liquid and gaseous), which provide environmental, occupational health and economic benefits. This project also considered the adoption of Environmental Post-Combustion Control techniques applied for the wastewater treatment and air pollution control system associated in the industrial process to attend environmental regulations and decrees. It is important to point that the benefits generated are classified according to the approach used (cleaner production initiatives or environmental post-combustion control). As a final result of this study, the improvement of environmental performance of carbon black was obtained both qualitatively and quantitatively, and various management actions were proposed to reduce the environmental impacts of this activity, for example: reduction of 100% wastewater sent out to the environment (total wastewater generated is reused), reduction of the energy used (100% to electricity energy and savings in thermal energy sources) and approximately 80% reduction in nitrogen oxide emitted into the atmosphere (NO_x), and others improvement.

Keywords: *carbon black production, environmental performance, cleaner production, best practices.*

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São Paulo – Brazil – May 18th-20th - 2011