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“CLEANER PRODUCTION TOWARDS A SUSTAINABLE TRANSITION”

Energetic Inventory in Automotive Industry

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Abstract

The constant automobile production growing in Brazil has lead the society and industries to review the concepts of product and process development, including environmental concerns. In Brazil, automotive industries develop their products using tools like Eco-Design (DfE – Design for Environmental), (DfR – Design for Recyclability), (DfD – Design for Disassembly) in a shy way. However, lean tools that reduce the production time are widely used. For environmental impact process researches Life Cycle Assessment (LCA) is the methodology that best adapts to this kind of approach for allowing ecological and economic feasibility studies. The main objective of this paper was to perform a Life Cycle Inventory (LCI), restricted to electric power consumption, in a needle roller bearing manufacturing process. The manufacture of this roller bearing comprises 3 production steps: internal and external rings manufacturing, needle manufacturing and cage manufacturing. Considering only the power consumption of the equipment used in the roller bearing manufacturing, the rings production represents 69%, needle manufacturing 27% and cage manufacturing 4%. The heat treatment furnaces used consumes 58% of all electricity used inf the roller bearing production and should be the main focus concerning environmental impact reduction.

Keywords: *Life Cycle Assessment, Life Cycle Inventory, automotive industry, Roller bearings*