

LIFE CYCLE ASSESSMENT IMPROVEMENT FOR MEDIUM VOLTAGE CABLE FOR FRENCH MARKET

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ABSTRACT

For several years, GENERAL CABLE France has integrated eco-design in the heart of its activity. The life cycle assessment of the cable is used to identify environmental impact of products. This includes the extraction of raw materials, its end of life in terms of natural resources consumption (materials, energy ...), their production impacts but also wastes generated.

With the concern of environment respect and in addition to life cycle assessment of our Medium Voltage products for French market, the authors have chosen to describe the launched approach to minimize the environmental impact of cables.

Assessments conducted through EIME software (Environmental Information and Management Explorer) enabled to clearly identify the impacts and to highlight potential improvements of MV products with new raw materials or appropriate design.

KEYWORDS

ECO-DESIGN, LIFE CYCLE ASSESSMENT (LCA), EIME

INTRODUCTION

Environmental impact is more and more taken into account and the aim of eco-design method is to decrease it. Industries must integrate in enterprise policy which includes design, manufacturing and commercialization, an eco-responsible approach.

Establishing a Life Cycle Assessment (LCA) allows to quantify and after, to compare environmental impacts in order to see new sources of improvement.

The objective of this paper is to introduce the Life Cycle Assessment process, and to highlight potential solutions to improve environmental impact of Medium Voltage cables used for the French Market.

ECO-DESIGN THEORY

The objective is to introduce during design or re-design step environmental criteria with the same importance than technical and economic criterias. This approach can have different sources:

- Regulation respect (European directives : ROHS, REACH ...)
- Standardization (ISO, HQE ...)
- Market requirements
- Consumer demand
- Project and corporate culture

According to AFNOR definition, it is « Sustainable Development » if « Ecosystem components and their functions are preserved for present and future generations (2012) ».

The objective of sustainable development is to define a viable and coherent scheme reconciling the 3 ecological, sociological and economical aspects of human actions as described in Figure 1.



Figure 1: Sustainable development

Life cycle assessment, in addition to determine environment impact of existing product, is used as a basis for evaluating environment performances of new solutions.