

Life Cycle Management in the Aluminum Industry: Implementation of LCA for Internal Applications

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Life Cycle Management (LCM) aims at expanding the scope of the environmental management system of a company to address the up- and downstream impacts associated with the activities of its suppliers and customers. In addition, LCM takes a perspective that focuses on products and the corresponding processes rather than only on facilities and production sites. Therefore, the Life Cycle Assessment (LCA) methodology plays a central role in implementing LCM.

At Alcan, the worldwide second largest producer of aluminum materials and products, LCA as the core element of LCM is being used for a variety of applications. These include strategy planning, marketing, and applications to improve the environmental performance on an internal and supply chain level (including end-of-life activities). The former two are primarily joint activities of the aluminum industry on a European or global level. The latter, however, are firm and product specific and aim at analyzing, assessing, and improving the processes and products of Alcan. To identify hot-spots and to minimize the life cycle impacts caused by its products, Alcan is conducting LCAs for all of its product groups.

In order to achieve the aforementioned objectives of LCM and to ensure efficient decision support, the LCAs are performed in a simplified mode. Simplifications predominantly concern up- and downstream processes outside of Alcan's direct control as well as impact assessment procedures, the re-use of internal life cycle inventory analysis modules, and the aggregation and presentation of the results for top-management and other internal decision-makers.

The presentation will give insights into the internal application patterns of LCA and its role in LCM at Alcan and will discuss specific methodological challenges and proposed solutions for using LCA in the environmental management of a multinational corporation. The implementation will be demonstrated with selected results from recent LCA activities regarding aluminum products for the building and transport sectors.