

Life Cycle Analysis for Copper Products

Terms and Definitions

These provide an overview of the most important terms and definitions to guide the user through the subject and to identify the approaches used.

This Life Cycle study has been performed through cooperation between the Deutsches Kupferinstitut (DKI), IME Aachen, PE Europe, the European Copper Institute and the global copper industry.

Life Cycle Standards

All activities linked to Life Cycle are standardised in EN ISO 14040 ff. and its associated series of standards. The aim of these is to ensure that the underlying assumptions are fair, particularly when making comparisons with other studies or materials. Amongst other issues, a peer review of any results, before publication, is a prerequisite.

Life Cycle Inventory (LCI)

A Life Cycle Inventory analysis involves the compilation and quantification of inputs and outputs for a given product system throughout its life cycle (EN ISO 14040, 1997).

This LCI have been compiled mainly from information obtained through industry questionnaires and site visits, with remaining gaps filled using literature data.

Life Cycle Assessment (LCA)

Life Cycle Assessment is defined as the compilation and evaluation of the inputs and outputs and the potential environmental impact of a given product system throughout its life cycle (EN ISO 14040, 1997). While this study does not include the use phase, it does include explanatory notes on how to use the data in an LCA context.

Impact Categories

An impact category is a class representing environmental issues of concern into which the LCA results may be assigned (EN ISO 14042, 1997).

The following six standard impact categories, often used in Life Cycle Assessments, have been quantified in this Life Cycle Inventory:

Use of Energy and Resources: Primary Energy	(PE)
Climate Change: Global Warming Potential	(GWP)
Acidification of Land and Water Resources: Acidification Potential	(AP)
Eutrophication: Eutrophication Potential	(EP)
Destruction of Ozone Layer: Ozone Depletion Potential	(ODP)
Formation of Photochemical Oxidants: Photochemical Ozone Creation Potential	(POCP)

Toxicity impact categories for metals are not reliable and are under review by the SETAC/UNEP Initiative. A number of critical issues, such as metal speciation, natural cycling and essentiality are not taken into account in the current characterisation models for ecotoxicity. These serious limitations were recognised and published in the Apeldoorn Declaration (United Nations Environment Program/Society of Environmental Toxicity and Chemistry, April 2004).

Last updated January 2012

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