

## *A Hybrid Approach for the life cycle inventory assessment*

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Streamlining life cycle inventory analysis (LCI) is an indispensable condition to make LCA cost effective and therefore applicable to a wide spectrum of users. On the other hand, a satisfactory degree of accuracy has to be achieved when performing the LCI. The paper will present an approach which completes the generally used Process Chain Analysis by a model based on Input-Output-Tables and data on sector specific elementary flows. The model based on Input-Output-Tables serves as a background inventory data (BID) system which is used to estimate consistently the environmental interventions caused by the supply of products and services not included in the process chain, but necessary for the product system in question. The presented approach is characterized by the following items:

- a monetary balance is performed for each process of the process chain in order to estimate the amount of "missing commodity inputs"
- there are fixed rules on how the amount of "missing commodity inputs" of each process is estimated and how it is assigned to the sectors of the Input-Output-Tables depending on the kind of product which is supplied by the process in question. This allows an automatic and therefore effective use of the Input-Output-Tables as a BID system.
- the amount of "missing commodity inputs" is assigned to the sectors of the Input-Output-Tables in a consistent manner, i. e. does not depend on the structure of the process chain. E. g. the manufacturing of a product can be modelled by one process or by a set of processes. In both cases the approach leads to the same result.
- The BID system is derived from Input-Output-Tables in a manner that also imports and the depreciation of investments are included in the assessment.

### RELATED PRESENTATIONS::

1) Marheineke, T., Friedrich, R., Krewitt, W.: Application of a Hybrid-Approach to the Life Cycle Inventory Analysis of a Freight Transport Task. In: SAE 1998 Transactions - Journal of Passenger Cars, Section 6 Volume 107. Society of Automotive Engineers (SAE), Warrendale PA, U.S.A. 1999

2) Marheineke, T., Stekeler, J.: Ein Hybrid-Ansatz zur ganzheitlichen Bilanzierung - Möglichkeiten und Grenzen am Beispiel einer konkreten Transportaufgabe im Verkehr. Vortrag auf der 16. VDI/VW-Gemeinschaftstagung Ganzheitliche Betrachtungen im Automobilbau, 27. - 29. November 1996, Congresspark Wolfsburg. In: VDI-Bericht 1307, VDI-Verlag GmbH, Düsseldorf 1996

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