"Material Efficiency Module for the MEErP" (http://meerp-material.eu)

Metal industry response to the study

Date: 6 Sept 2013

General comments

As metals do not lose their properties through recycling the main objective for metals should be to ensure that metals are collected at the end of life and recycled again and again. Therefore, among the different possible concepts aiming at including material efficiency in Eco-Design, the option consisting in considering full benefit of recyclability is the most appropriate. In this concept, the end-of-life treatment optimisation and the "design for recycling" – i.e. product dismantability and easy identification and recycling of materials – should be considered as potential criteria.

However, the metal industry feels that the present study lacks clarity in terms of objective, scope and process and transparency as stressed in the following points which need clarifications:

- Objective of this methodology update

While promoting the "design for recycling" concept within the eco-design of products makes sense, the metal industry does not recommend using the study's approach to promote material substitution as such in a generic tool. Indeed, in many cases, LCA data quality and methodology are not robust and precise enough for comparing products made of different materials. The option of material substitution should be analysed very carefully on a case by case basis and should clearly demonstrate improvement of the overall environmental performance of the product from a full life cycle perspective and having made an economic/feasibility analysis. As a result, the metal industry does not recommend then developing criteria supporting material substitution in MEErP.

- Selection process of priority materials

The five step approach to establish the list of priority materials is not clear and looks far from useful. Environmental impact cannot be presented as an intrinsic property of materials or of their origin. The environmental impact assessment should be only considered from a full product life cycle perspective. More transparency about such a procedure is recommended in order to be able to understand it and to identify the best way to include material efficiency in the Ecodesign of product.

- Use of the "material module" in the eco-report tool

Currently, the eco-report tool (version 2.06) already includes several indicators which can be calculated along the life cycle of the product, e.g. production, use and end of life. Environmental aspects of materials or semi-finished products are calculated by using default scenarios for the production and end of life stages (e.g. recycled content, end of life recycling rates, etc.).

The metal industry would appreciate to get clarification about the implementation of these new criteria into the eco-report tool and their possible interaction with already existing methodology or parameters.

- Use of the previous study from JRC Ispra

The study "Integration of resource efficiency and waste management criteria in European product policies" developed by JRC Ispra is quite well documented and clearer in term of possible material criteria, feasibility and implementation issues. The metal industry recommends using more intensively this JRC study to address material efficiency within the eco-design methodology. .

Specific comments to Indicators:

- ADP (Abiotic Depletion Potential)

The most established Abiotic Resource Depletion (ADP) methodology is the one developed by Guinée et al 2002[1]. The ADP is defined as "*the decrease of availability of function of resources, both in the environment and in the economy*". This methodology has developed a set of characterisations factors intrinsic to each metal. This indicator still presents big weaknesses that lead to unfair and misleading conclusions mainly due to the two following issues:

1) **Lack of characterisation factors**: As mentioned in the report, the characterization factors are not available for all materials, therefore there is a big risk that materials which are transparent on their current economic scarcity are discriminated versus others, for which the supply and demand picture is less transparent.

2) **High variability of ADP Results**: ADP indicator results strongly depend on the LC impact assessment methodology used. To illustrate this issue, in its contribution to the workshop "*Security of supply and scarcity of raw material, Ispra 2013*" Serena Sala, presented the "Assessing resource depletion in LCA…" slides, where ADP indicator was calculated for the most significant LCA impact assessment methods. As shown in the following diagram, ADP indicator results may differ by several orders of magnitude.

Relative ranking of the different methods

- Relative ranking considering iron as reference
- Several orders of magnitude of difference in CFs

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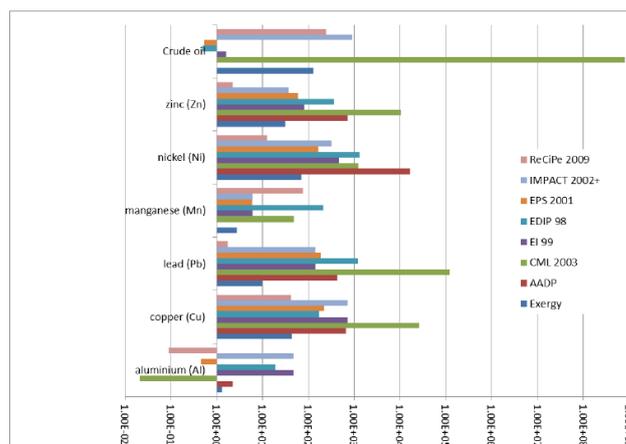
[1] "*Handbook on Life Cycle Assessment*" Guinée, Jeroen B. (Ed.), 2002 p74

Concluding, the inclusion of the ADP indicator in the eco-report tool may be counterproductive with the overall objective of **resource efficiency** and may lead to confusing and wrong interpretations by the LCA practitioners.

The metal industry agrees that ADP should not be included in the methodology.

- Material footprint

Material footprint is a methodology and concept which is not very well known by stakeholders. Moreover, as mentioned in the report, the characterization factor are not available for all materials, therefore, it will generate discrimination. In any case, this material footprint will require a much more practical and risk-based approach in order to become of practical use.

In this context, it is premature to use this indicator among the potential criteria into the MEErP and the metal industry agrees that it should not be included in the methodology.

- Recyclability benefit rate

While the metal industry supports the idea to promote design for recycling and best end of life practices to maximise high quality metal recycling, the metal industry does not recommend using the land fill case as base scenario.

For many products falling under the eco-design scope, there are in most MS recycling schemes and practices which are already in place. Hence, the base case scenario should be based on these current practices and not on a full landfilling case approach. It may happen that the current legislation and EoL practices are already appropriate for some product groups while some efforts still need to be made for others. A priority list of product groups connected to targeted materials would help to identify the possible smarter options regarding these EoL practices. In this end of life treatment optimisation, "design for recycling" parameters like compatibility of materials, easiness of material identification, product dismantability should be considered in order to justify the best case scenario.

Based on these requirements for "design for recycling" and the optimised end of life operations and recycling, the best case scenario can be modelled and the associated environmental benefits can be calculated and compared to the base case scenario.

The metal industry considers that measuring these additional environmental benefits resulting from smarter product design (e.g. "design for recycling") and end of life practices compared to current practices would be more appropriate to define recyclability criteria which will effectively lead to more material-efficient products.

The proposed methodology based on the recyclability benefit rate seems quite theoretical and maybe too far from reality to lead to concrete criteria for improving the product recyclability.

- Recycled content

Due to the economic value of metal scrap, metals are systematically recycled. However, due to the long lifespan of, volume wise dominant, metal applications such as buildings and transport vehicles, the available quantity of end-of-life metal scrap today is limited to what was put on the market many

years ago. Hence, in spite of the recycling of most metal-containing products at their end of life, recycled metal cannot meet alone the growing demand.

As already stated, the recycled content criterion is not adapted for metals which are already recycled for ages. Requesting a certain level of recycled content in specific metal products will create market distortion by directing metal scrap towards these products without any overall environmental benefits (to the contrary).

The metal industry agrees that this criterion should not be applied to metals in MEErP.

- Lifetime

In addition to recyclability, durability is a clear asset of metal products. Hence, metal products conserve their initial characteristics and performances on very long lifetime, even in outdoor conditions where appropriate corrosion protection are applied. Hence, the life time of metal products or components are usually surpassing the typical life time of competing products or components made of other materials.

While securing long lifetime is surely relevant for several product groups, especially from a consumer perspective, it should not be applied systematically. Indeed, technology developments are pretty fast in Energy-using products and in energy-related products, i.e. product which are under the scope of the eco-design. Hence, from a life cycle perspective, new products are often more efficient than old product and a product substitution may appear more beneficial (especially if the impact of the use phase dominates) than the extension of the life span.

The metal industry thinks that it would make more sense to develop a reasonable timeframe during which reparability can be ensured and then the performances of the product maintained. As example, it makes no real sense to secure a lifetime of a computer beyond 5-6 years while maintaining performances of windows on 30 years makes sense. Hence, a case by case analysis is probably more adapted than a generic methodology to be implemented into the eco-report tool.

- CRM

CRM is a complex issue and is related mainly to economic issues - not only environmental issues. In Dec 2012, JRC organised a stakeholder workshop on LCA and critical raw materials. The outcomes of this WS have clearly demonstrated that LCI datasets and LCA can help to address the scarcity issue. However, criticality and scarcity are also linked to geo-politics which cannot be addressed through LCA. Hence, a more qualitative and in-depth approach is needed to grasp the scarcity or criticality dimension, such as the methodology currently used by the European Commission to identify CRMs.

Hence, the concept of critical raw materials has no direct link with material efficiency, it combines economic importance, political and geographical risk aspects and demand to define supply risks. This issue should be separated from a material efficiency objective.