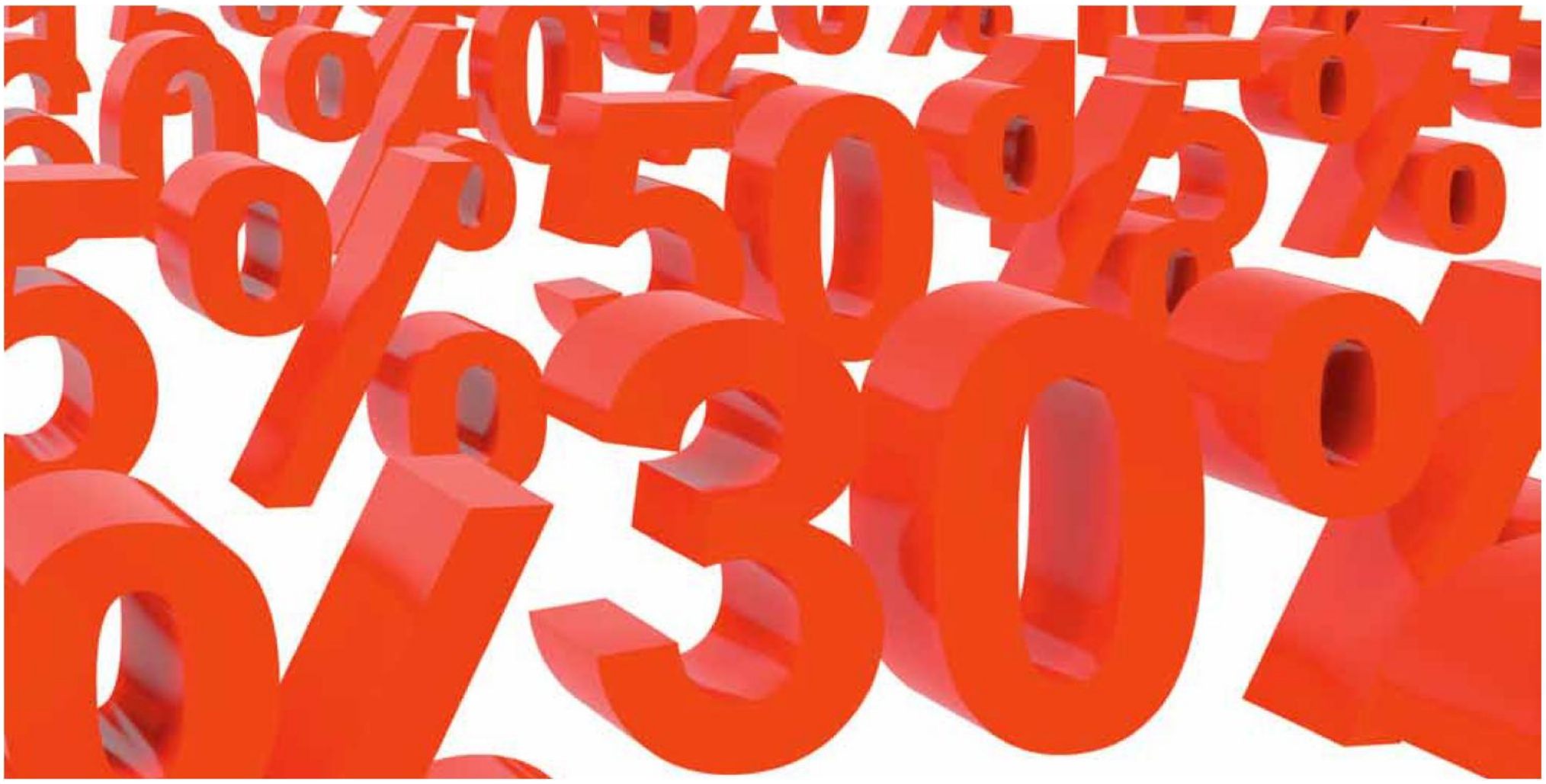
Misleading figures on recycling



Meaningless. Recycling rates are often misguiding with regard to the real degree of recycling. Rules and logic describing how to evaluate recycling are missing.

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High rates of recycling are of course a goal. However, problems arise as recycling is not definitively defined, and recycling rates are often misleading compared to the real degree of recycling. Below some examples are given along with suggestions on how to create a more accurate picture of the recycling system.

Recycling is regarded as equal to the amount supplied to the recycling facilities

Today, the amount of recyclable material is based on the materials that are supplied at a facility, defined as a recycling facility. The recycling is assessed solely on the input to the facility, regardless of the output of the facility in the form of actual material for reuse. As an example, paper is considered as a recyclable material regardless if a fraction is sorted out for incineration or land filling. Similar conditions apply to recycling of plastics, electronics, biologically degradable waste and composting/gasification. Another obscure example here exists as the water content is included in the assessment despite that only the dry fraction of the waste has an actual value.

Plastics are ultimately incinerated

In Japan plastics are collected separately. However, ultimately, 75% of the collected quantities are incinerated. In Austria plastic containers are also collected, here 75-80% of the collected quantity is ultimately incinerated.

Source separation of plastics can be a quite excellent solution in countries that lack incineration capacity, and are thus not capable of harnessing the energy content of the plastic for energy production. However, for countries that have adequate incineration capacity, it is not environmentally justifiable to establish schemes for recycling of the plastic fraction that is ultimately incinerated for energy production due to the plastic being too contaminated or for some other reason considered ineligible for recycling. The amount of source separated plastics that are ultimately incinerated in Denmark is not known – but you are allowed to guess.

Recycling of bottles

A grotesque and unfortunate example hereof exists in the Danish recycling system for glass bottles used for beer and non-alcoholic beverages. These bottles are collected, washed and re-used up to 33 times. This supreme form of recycling at best accounts as recycled once, when the bottle is discarded. For the sake of recycling rate, it would have been better to use the bottle only once and discard of it in a glass recycling container. The 32 times the 300 gram bottle is re-used in the recycling system should in reality account to 10 kilograms of recycling. The system we have for assessing recycling is flawed. So what can we do about it?

New definition for real recycling

Based on the examples mentioned in this article, there is a need for a formula and a set of rules equivalent to the R1 formula for waste incineration, which defines degree of energy recovery. The R1 formula is based on outputs of the waste incineration facility, i.e. electricity and heat sold and not what enters the facility.

In the same manner as the R1-formula, a formula for recycling should exist that classifies the value of output products from recycling facilities. By having such a formula it would be possible to determine a recycling rate, which reflects the actual quantity of recycled materials. Furthermore, utilizing a R1 equivalent formula will enable to grade recycling to visualize if the recycling results in same quality products or if the recycled material is downgraded to a less valuable material. The grading in the formula must be determined based on Life Cycle Assessment, attributing values corresponding to the raw materials and resources depleted

Recycling will be realistic

The result of a new way of evaluating recycling will be that the recycling rate, not just in Denmark but globally, will change. For high-value output products, the rate will increase whereas the rate will decrease for low-value output products. By measuring the output instead of the input, a true picture of how much is in reality recycled will arise.

What we gain with real recycling:

- It becomes meaningful to talk about recycling
- There will be incentives to increase the quality of recyclable products
- All waste handling initiatives will be somewhat comparable

So the conclusion is:

- The existing assessments of recycling rates makes no sense
- Let us have a formula that defines real recycling
- Real recycling rates gives an applicable data basis to increase recycling, where it actually matters.

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