

HIGH MATERIAL LOSSES ON SHORT-LIFE PRODUCTS, EVEN AT HIGH COLLECTION AND RECYCLING RATES - ALUMINIUM CASE

In order to support the circular economy in Flanders, OVAM (the Public Waste Agency of Flanders) is focused on the sustainable management of metals, such as aluminium, in consumer goods. To this end, OVAM is working to achieve high resource efficiency in industry, and for a small material footprint of Flemish consumption. OVAM is therefore trying to gain a better understanding of the loss of valuable, finite materials from our economy.

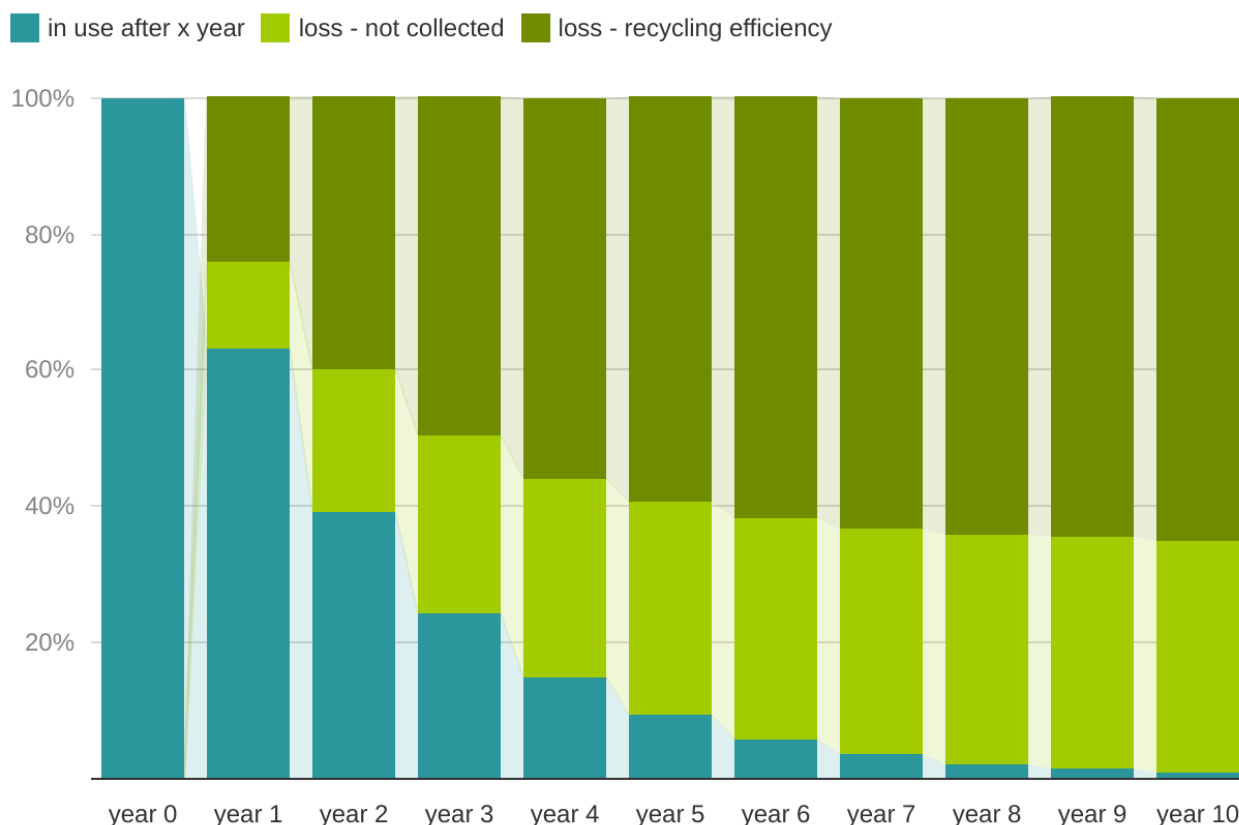
Aluminium is a metal. It is used for various purposes. It can be found, for example, in coffee machines, aeroplanes, beverage cans and aluminium foil (“tinfoil”). Despite the fact that aluminium is abundant in the earth’s crust, the technically and economically exploitable reserves of aluminium are limited. Worldwide, it is estimated that 85,079 ktonnes of aluminium were put into use in 2016, of which 12,842 ktonnes were destined for Western Europe (The International Aluminium Institute, 2018).

Short-cycle products, such as aluminium in cans, result in **large losses** of valuable materials, despite high collection and recycling rates. Cans represent the fourth largest use of aluminium in Western Europe (8%), after cars and small trucks (27%), buildings and construction (17%), and machinery and equipment (9%).

HIGH ALUMINIUM LOSSES DESPITE HIGH COLLECTION RATES AND HIGH RECYCLING EFFICIENCY

The figure below shows how quickly the **aluminium in cans** that are put into use in year 0 (100%) gets lost after several life cycles. A can has a short lifespan of a few weeks. During each cycle from production to consumption and recycling, part of the aluminium is lost. Consequently, even with a collection and recycling rate of more than 95%, there is a significant loss of aluminium in a short period of time. In concrete terms, after four years, approximately 85% of the aluminium used in cans is lost as a result of the accumulated loss after each life cycle.

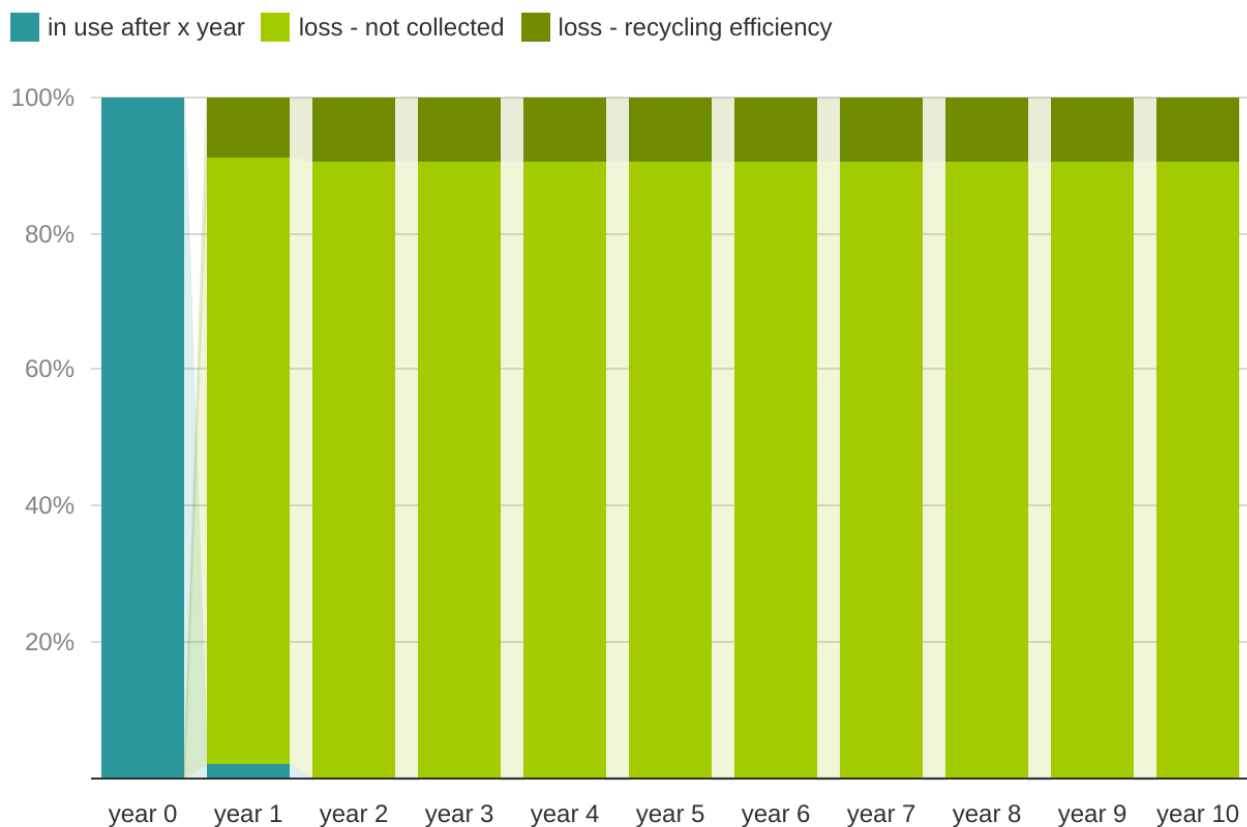
Loss of aluminium when used in cans



Loss of aluminium when used in cans. 100% = put into use in “year 0” in Flanders. Source: Van der Linden et al. (2015)

With **soft aluminium packaging** the loss is even more extreme. The aluminium placed on the market disappears *almost completely* from the chain after one year. This is clearly shown in the figure below. Of the aluminium in soft packaging placed on the market in year 0, only 2% is still in use one year later. 88% of aluminium from soft packaging is lost after one year because it was not collected selectively and because it is almost completely lost during the incineration of residual waste. The remaining 10% is lost during recycling.

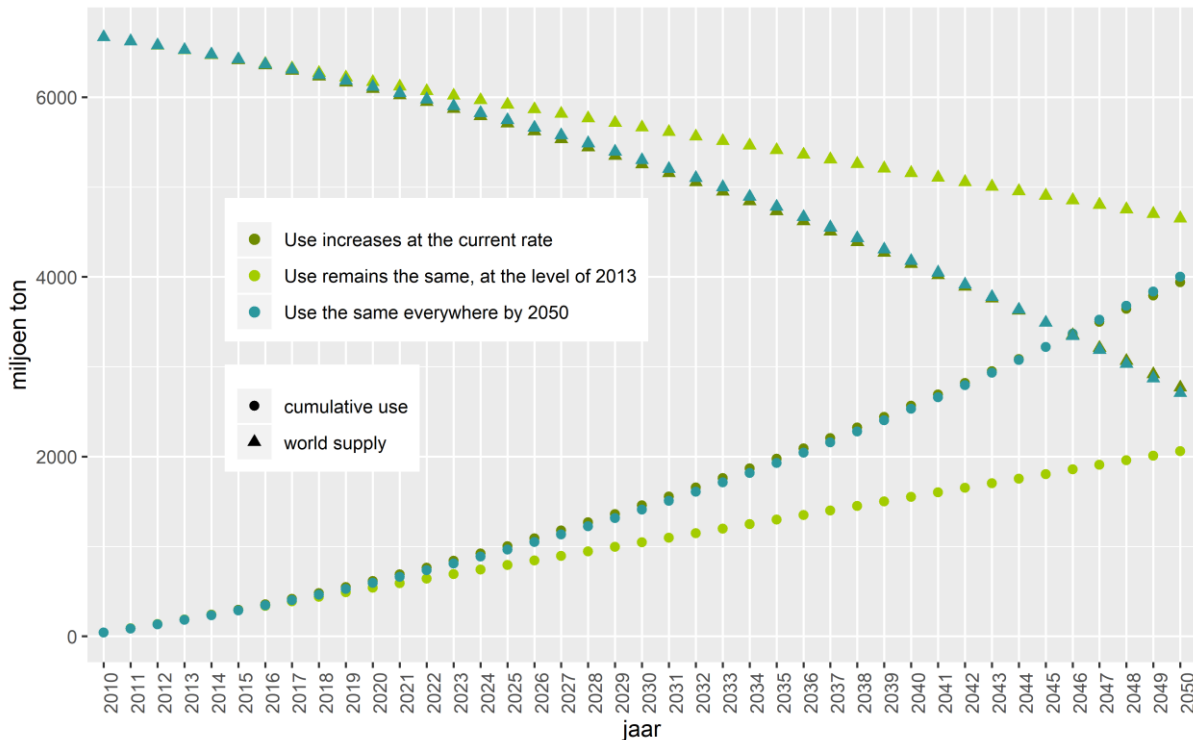
Loss of aluminium when used in soft packaging



Loss of aluminium when used in soft packaging. 100% = put into use in “year 0” in Flanders. Source: Van der Linden et al. (2015)

WHY IS THIS A PROBLEM?

The extraction of primary aluminium is an energy-intensive process. In addition, the (easily) exploitable supply of aluminium is finite. Van der Linden et al. (2015) calculated for different scenarios the cumulative use of primary aluminium for various applications, including, for example, packaging and vehicles. The figure below shows the results of these estimates by scenario and the evolution of the (known) world’s supply of aluminium by scenario.



Projection for cumulative use and world supply of primary aluminium for different scenarios. Source: Van der Linden et al. (2015)

“Use remains the same, at the level of 2013.”

If annual aluminium consumption stabilises at the level of 2013, then we have enough aluminium for more than 100 years.

“Use increases at the current rate.”

If aluminium consumption continues to rise at the current rate (2013), by 2046 half of the world’s current supply of aluminium will have been used up. By 2067, the world’s supply will be completely exhausted.

“Use the same everywhere by 2050.”

In this scenario, which assumes that, by 2050, every world citizen is using as much aluminium per capita as a European in 2013, half of the world’s supply will again be exhausted by 2046. Full exhaustion follows five years earlier than in the previous scenario. By 2062, the world’s supply will have dwindled completely.

WANT TO KNOW MORE?

More regulation...

The Public Waste Agency of Flanders (Openbare Vlaamse Afvalstoffenmaatschappij, OVAM) is a Flemish government service that ensures that we in Flanders deal with waste, materials and soil in a well-considered and environmentally conscious manner.

Among other things, OVAM implements the waste and materials policy in the Flemish Region. Packaging waste is subject to a take-back obligation in Belgium, introduced by an interregional cooperation agreement between the three regions. The take-back obligation makes industry responsible for the collection and processing of packaging waste. The take-back obligation distinguishes between packaging waste of household and commercial origin. The business community has set up [Fost Plus](#) for household waste; commercial waste is managed by [Valipac](#).

In Belgium, Fost Plus is responsible for the collection and recycling of household packaging (Fost Plus, 2019). This includes, for example, beverage cans, in addition to other PMD waste (plastic bottles and flasks, metal packaging and drinks cartons), glass and paper, and cardboard. At the beginning of January 2019 the OVAM awarded a new recognition to Fost Plus. The recognition stipulates, among other things, that Fost Plus must collect and recycle even more packaging.

Fost Plus coordinates the collection and recycling of packaging and the cooperation between the various parties, such as municipal authorities, intermunicipal waste associations and sorting centres. In addition, the organisation works to raise awareness by means of sorting campaigns and supports companies. Finally, Fost Plus is also responsible for financing the collection, sorting and recycling of household packaging (Fost Plus, 2019).

More figures...

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In Belgium, an estimated 849 ktonnes of household packaging were put on the market in 2017, of which 77 ktonnes were metal packaging. In the same year, Fost Plus recycled approximately 75 ktonnes of metal packaging (Fost Plus, 2018).

According to the annual report to OVAM, Fost Plus collected 25.3 ktonnes of metal packaging in Flanders in 2017, of which 6.3 ktonnes was aluminium.

SOURCES

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