



european  
aluminium association

ALUMINIUM PACKAGING:  
**CONVENIENT, SAFE AND  
INFINITELY RECYCLABLE**



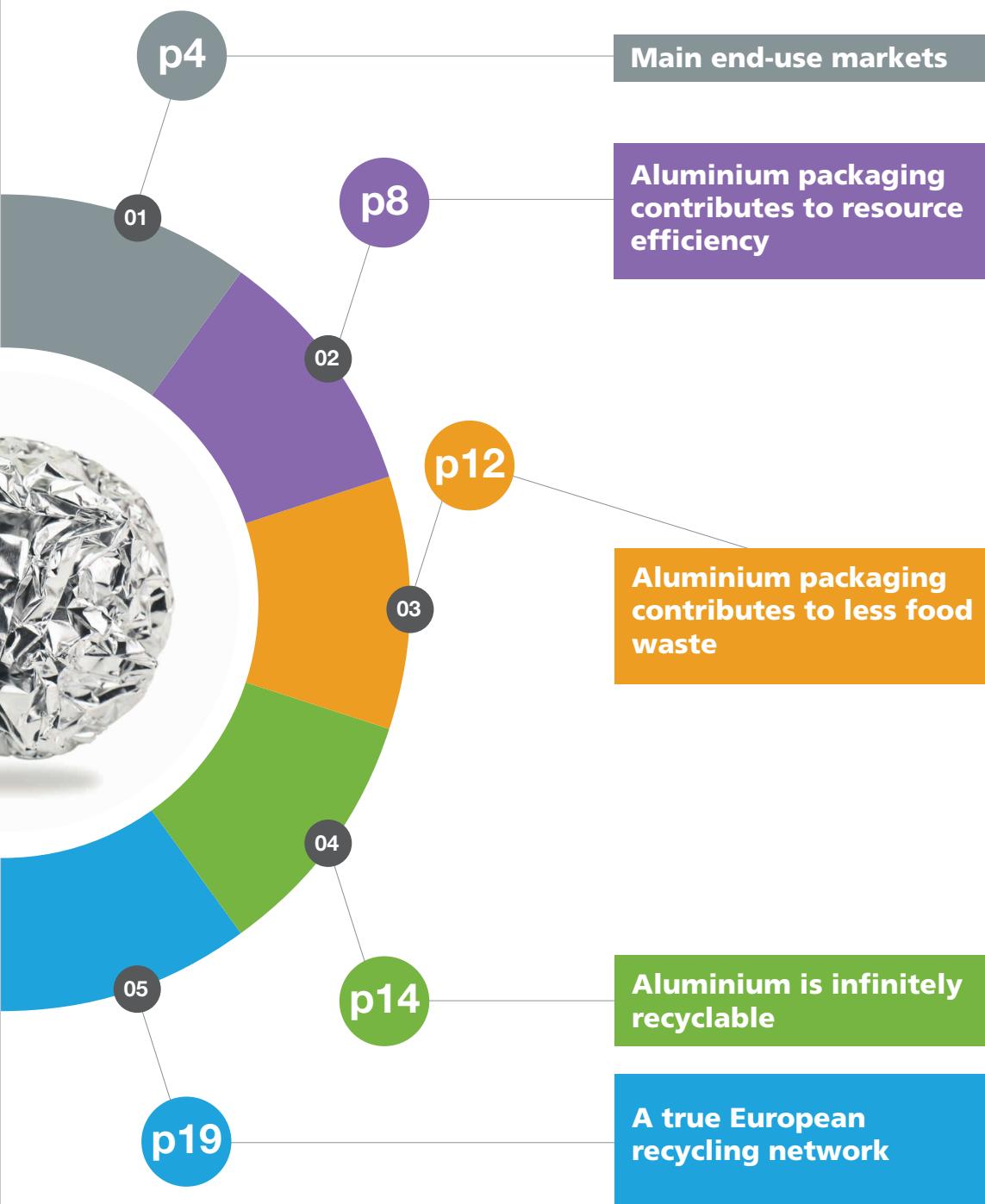
# CCC

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## EAA Packaging Brochure



# Main end-use markets

*Aluminium is used in a wide range of packaging applications, from beverage cans to food or pet food containers, aerosols or tubes, and in numerous other applications such as closures, foil trays, capsules, lids, wraps and - together with other packaging materials - in laminated foil packs such as blister packs, pouches and beverage cartons. The latter examples might – depending on the aluminium content – also be defined as plastic or paper / carton packaging.*



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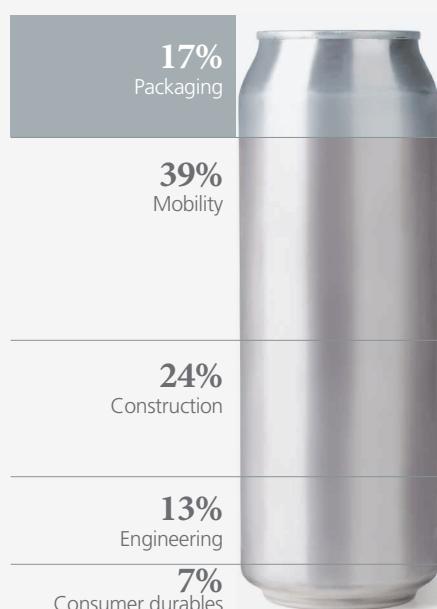
Due to its unique intrinsic properties – high formability, lightweight but strong, attractive metallic look, total barrier to light, gasses and moisture and infinite recyclability - aluminium is one of the preferred packaging materials for food and drinks manufacturers as well as for consumers and recyclers.

More than one hundred years ago aluminium foil was used for the first time, when a famous Swiss chocolate producer began wrapping its chocolate bars with foil, and so began the widespread use of aluminium in packaging.



More recently the 1960s heralded a number of major new market developments where the versatility and protective properties of alufoil were used to good effect against light and oxygen. For example, thin alufoil is used in conjunction with paper and plastic to create a laminate for aseptic beverage cartons. Foil containers are preferred for packing ready-made meals, and in combination with household foil ensure gentle cooking on the barbecue.

#### Main end-uses for aluminium products in Europe 2013



*Fifty years after its introduction the aluminium beverage can has become one of the world's most popular- drinks containers, with about 300 billion cans consumed annually and close to 50 billion units in greater Europe. Beverage cans are widely used for packing mineral water, soft drinks and beer and have become the 'iconic' pack for energy drinks. Cans are now even used for cocktail drinks and sparkling wines! New sizes and shapes keep on being introduced to offer consumers 'the right quantity at the right time and at the right place'.*



Examples of modern and innovative markets for aluminium are the famous coffee capsules and the increasingly popular aluminium closures on wine bottles. Attractively shaped aluminium bottles are more and more used for positioning high quality drink brands and the aluminium aerosol can is rapidly gaining market share in the healthcare and cosmetics market.

## Main aluminium (using) packaging applications

Estimated repartition, tonnage based  
(Sources: EAA, EAFA, AEROBAL, 2013)

(1) Beverage cans, aerosol cans, food containers

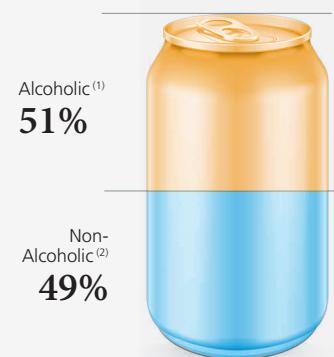
(2) Menu trays, food- and petfood containers, tubes, closures

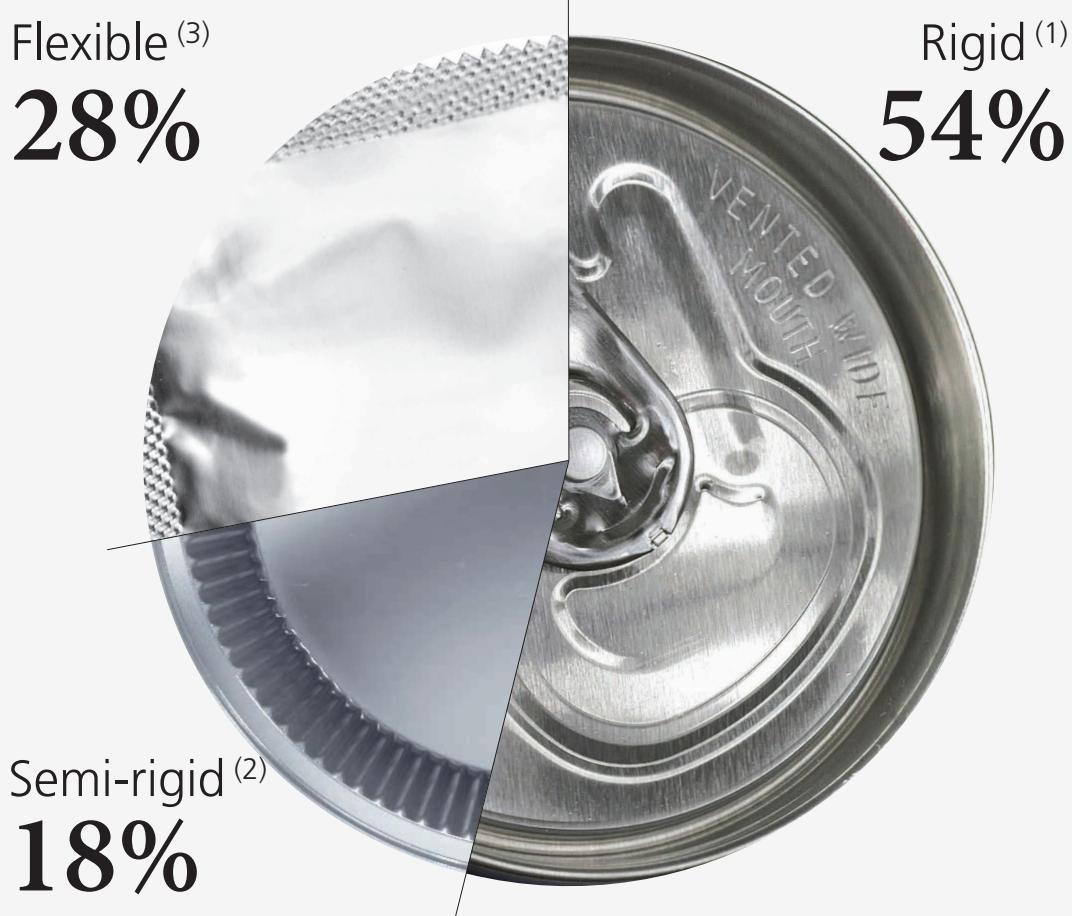
(3) Foil and laminated foil (often defined as plastics or paper packaging)

## Can fillings for alcoholic drinks <sup>(1)</sup> and non alcoholic drinks <sup>(2)</sup>

(Source: BCME, 2013)

(1) Beer, flavoured alcoholic beverages, wine  
(2) Soft drinks, juices, water





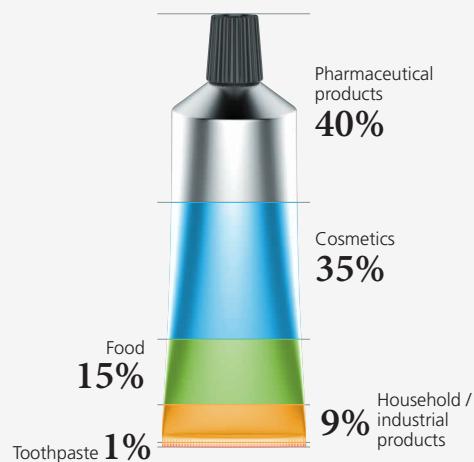
#### Aluminium aerosol cans - breakdown by market sector

(Source: AEROBAL, Europe 2013, %)



#### Aluminium tubes market - breakdown by market sector

(Source: Production European aluminium tube manufacturers – ETMA members and others, ETMA, 2012, %)



# Aluminium packaging contributes to resource efficiency

## Prevention and packaging optimisation

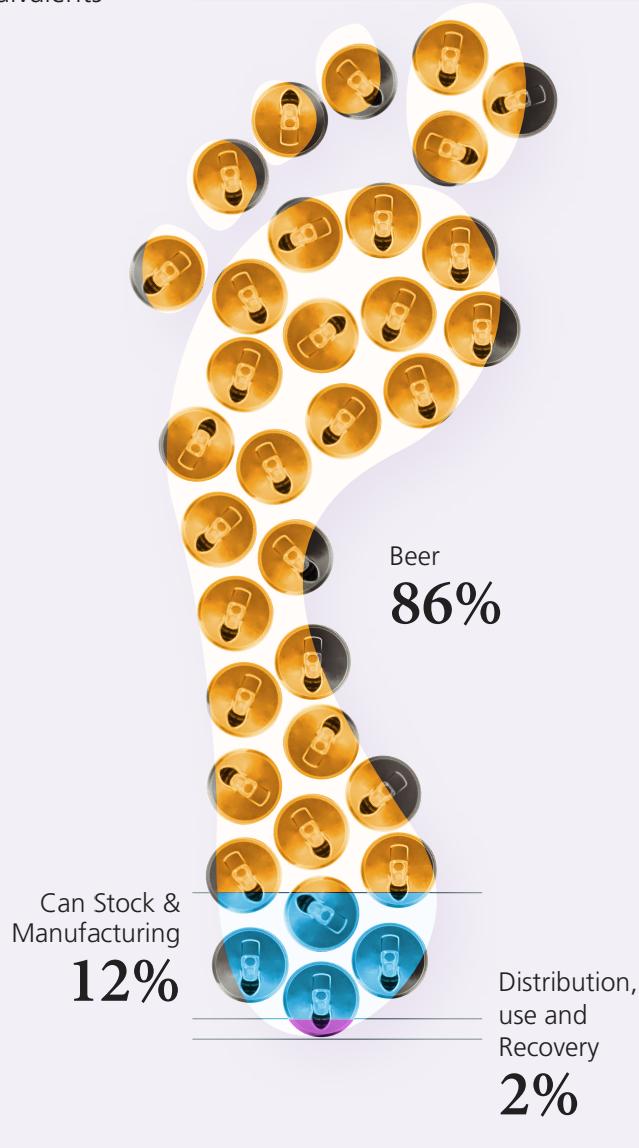
Lean production and packaging lightweighting can minimise resource use and prevent waste being produced. Aluminium packaging producers and their customers, the beverage can manufacturers and the foil converters, have been able to gradually reduce the thickness of cans and of several foil applications without compromising the performance of the product. A light weight beverage can or a thin foil-based coffee pouch use very little packaging material and often have a considerable lower environmental footprint than their contents.

Light weighting and material efficiency have been a constant objective: In the case of beverage cans the average weight per unit of volume has dropped by more than a third in the last 20 years for beverage cans.

## Carbon Footprint of 500 litre beer supply ready for consumption in aluminium cans

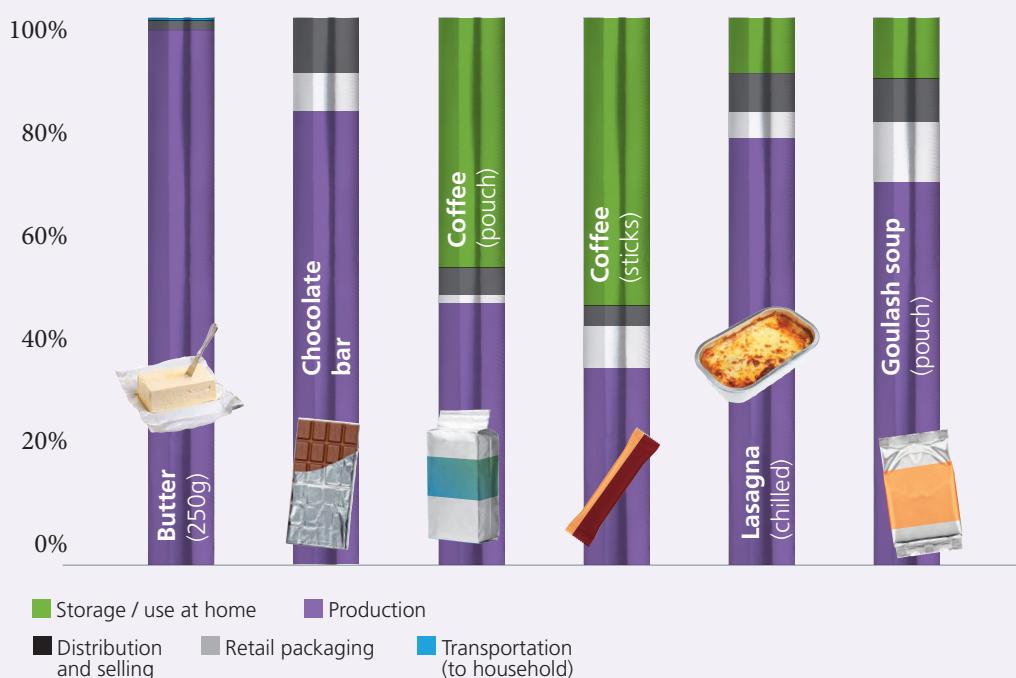
1000 x 0.5 litre cans, at 60% recycling rate, 841 kg CO<sub>2</sub> equivalents  
(Source: PE International, 2009)

Repartition CO<sub>2</sub> equivalents



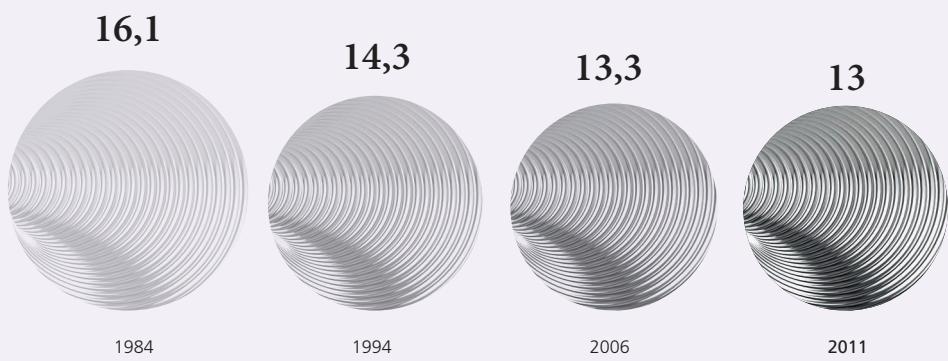
### Aluminium saves more resources than it consumes

Carbon Footprint (Global Warming Potential) – aluminium foil packaging as percentage of the total  
(Sources: ESU Services, EAFA)



### Downdgauging of aluminium beverage cans (1984 – 2011)

Amount of Aluminium (kg) used for 1000 beverage cans of 33cl  
(Source: BCME 1984-2011)





Foil thicknesses have been reduced in the range of 28 to 40%, without jeopardising the quality of the contents the foil protect. However, further reductions will be more challenging from a technical point of view.

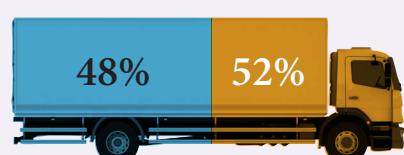


Lower pack weights don't only mean material savings but also lower transport costs resulting in lower transport-related CO<sub>2</sub> emissions, while still maintaining the highest protection.

#### Transport efficiency savings through lightweighting

for a fruit-based drink, 0.2 litres  
(Source: Deutsche Sisi Werke, 2002)

Traditional  
packaging



Laminated  
pouch

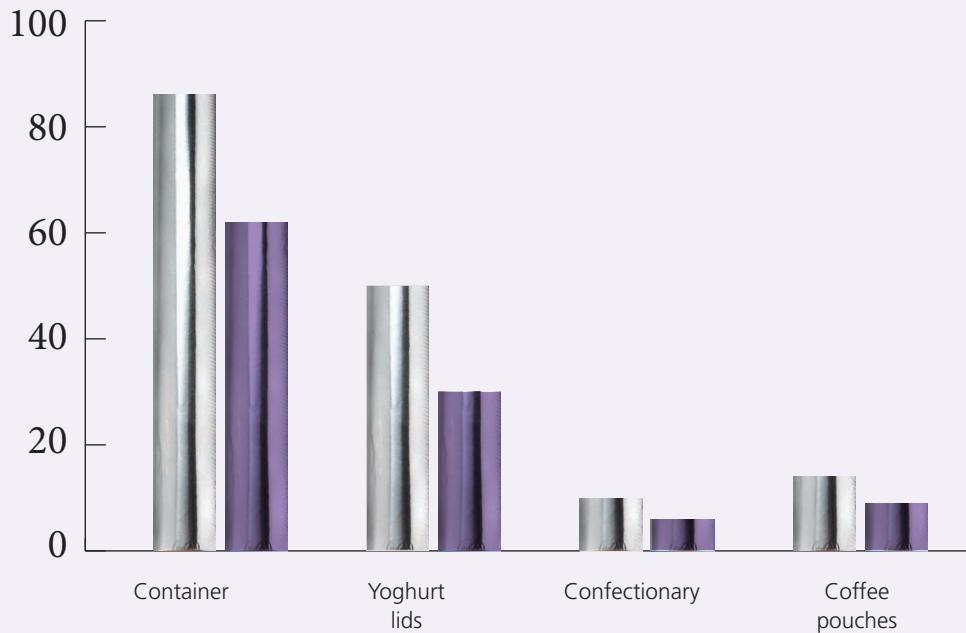


■ Beverage  
■ Packaging

## Downgauging various aluminum foil applications (1974 – 2014)

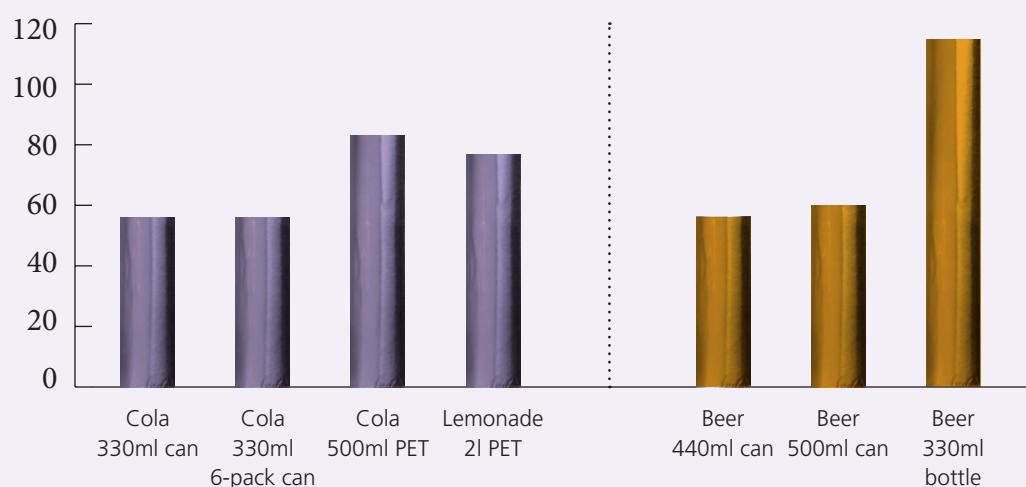
1974  
2014

Material optimisation for the same function in microns (Source: EAFA, 2014)



## Transport & packaging CO<sub>2</sub> emissions carbonated softdrinks and beer - UK, France & Benelux

(Source: Beverage Can Makers Europe, 2008, carbonated softdrinks and beer - UK, France + Benelux)



## Aluminium packaging contributes to less food waste

*Up to 50% of food production in the developing world is lost due to poor preservation and deterioration. In Europe food wastage among the supply chain, and in particular at household level, is a critical issue. Due to the excellent and absolute barrier function of aluminium, drinks and foodstuff are better preserved, giving a longer shelf-life, thus resulting in less food waste and spoilage.*



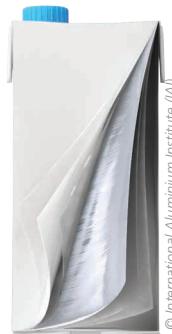
- > Portion packs, such as a single-serving stick pack for a cup of coffee, can save a lot of resources and increase sustainable consumption.



- > Aluminium foil's hygiene properties, heat conductivity and strength combined with its ability to be used in a microwave oven make it a perfect material for 'ready meal' containers, saving time and resources during preparation.



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> In the case of bottled wine an independent full life cycle assessment has shown that systems using aluminium closures have a better environmental performance and prevent wine spoilage.

> Just 1.5 grammes of alufoil in a laminated beverage carton weighing 28 grammes, enables one litre of milk to be transported and stored for several months without refrigeration.



> The introduction of new slimmer cans offers beverage brands not only attractive eye-catching formats but allows consumers to choose, portion-controlled or low-calorie drinks.

> Aluminium packaging has a major role to play in addressing the environmental challenges of the wider packaging industry: It makes food lasting longer while retaining its nutritional quality.

# Aluminium is infinitely recyclable

*Once a beverage or food can, a menu tray or a closure reaches the end of its useful life, the aluminium from which the products have been formed can be recycled without losing its material properties. The metal can be used again to make new packaging, or other valuable products such as engine blocks, a building facade or a bicycle. Recycling of used aluminium saves up to 95% energy compared to primary production and an equivalent amount of greenhouse gas emissions.*

Aluminium is endlessly recyclable and as such should be regarded as a permanently available resource from which we can use metal for the manufacture of new aluminium products each and every time it is recycled. Obviously the used aluminium should be collected and sorted in an effective and efficient way so that it stays within a closed material recycling loop.



## Collection (separate)



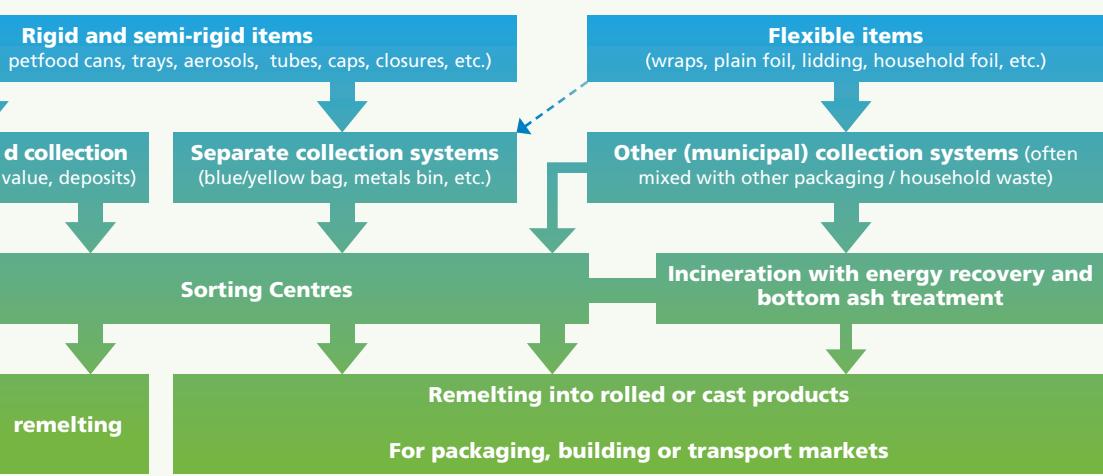
## Used aluminium

- Mono-mate (e.g. can-to-can)
- Within the additional
- Incineration from bottom

From cans end



## & sorting routes for used aluminium packaging and/or in combination with mixed systems)

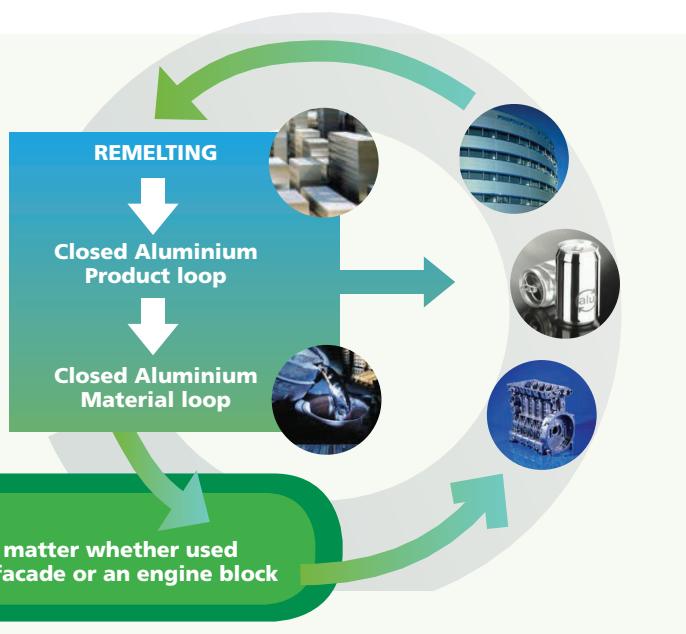


### Aluminium packaging fits in all recovery routes

Material / mono-packaging collection  
can recycling)

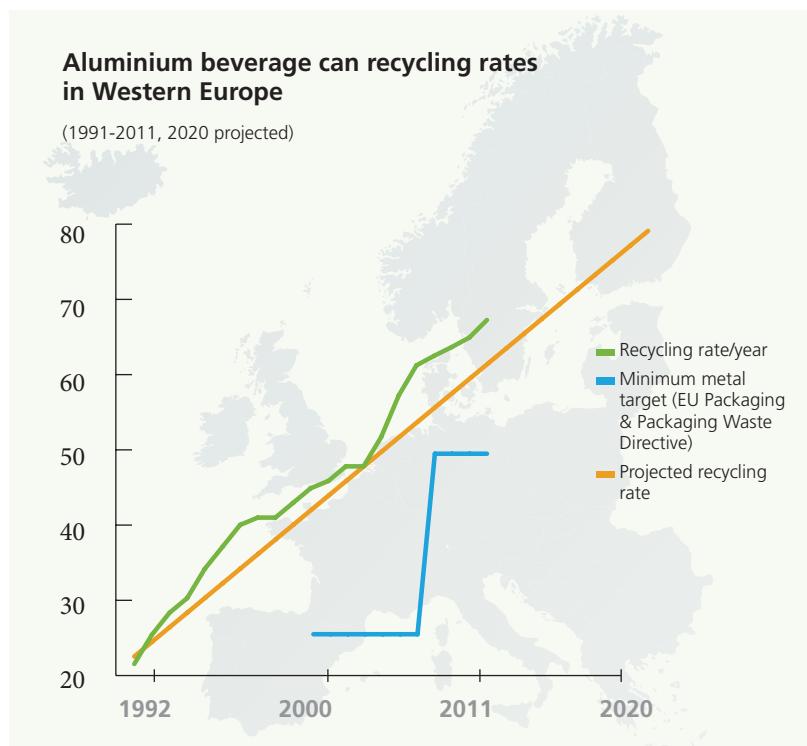
metal / mixed container packaging fraction,  
collection + sorting needed

with energy recovery + aluminium extraction  
ashes



The latest recycling rate for the aluminium beverage can stands at 68% (2011, EU 27+EFTA) while it is estimated that more than 55% of all aluminium packaging is being recycled. In addition, very thin and laminated foil items are incinerated and the energy recovered, resulting in a total aluminium packaging recovery rate of about 60%.

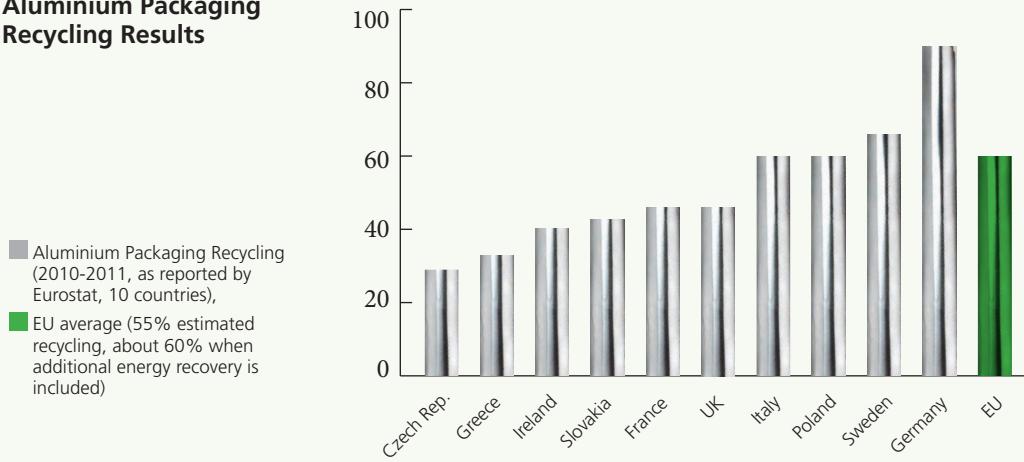
If the can recycling results of the EU and EFTA countries are combined with the remaining European countries and Turkey it can be safely stated that more than 25 billion cans are recycled in Europe annually. This represents a total amount of 365,000 tons of recycled aluminium, avoiding 3 million tonnes of greenhouse gas emissions!



The European Aluminium Association (EAA) is confident that the aluminium beverage can recycling rate will further increase towards the voluntary targets set by the industry for 2015 (75%) and 2020 (80%). EAA also has the ambition to further increase the recycling and recovery of other aluminium packaging items in the next decade, providing sufficient and innovative collection and sorting systems are put in place.

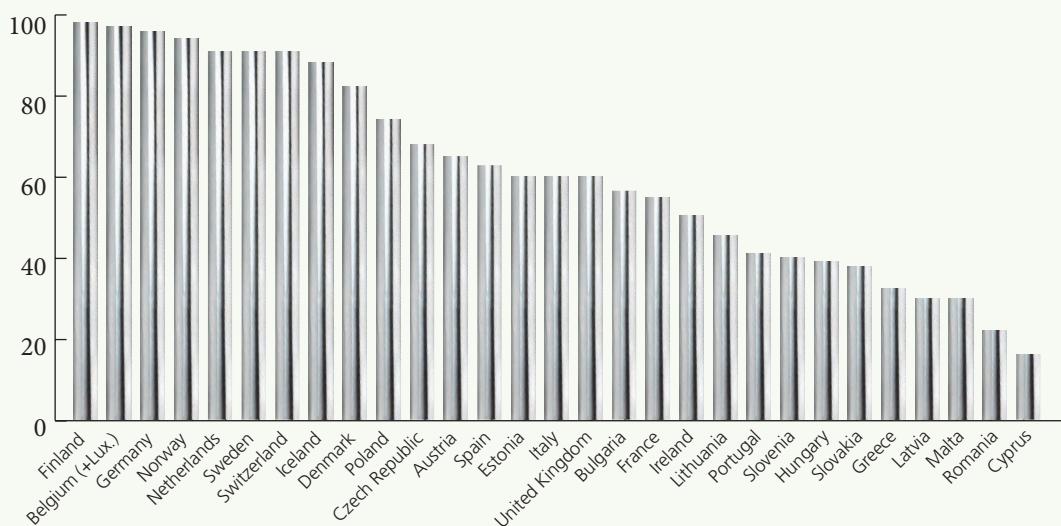


### Aluminium Packaging Recycling Results



### European aluminium beverage can recycling rates (2011, EU 27 + EFTA countries)

Data sources: Extended Producer Responsibility Schemes (Green Dots, others), Deposit Refund Systems (cans only), EUROSTAT (metal packaging), Industry Reports, PRN Notes (UK)



Depending on the sorting system in place some aluminium items, such as smaller thin and laminated foils can end up in an incinerator. Some of the aluminium material will become oxidised and the energy recovered, for electricity or heat generation. The remainder, especially the thicker parts, will end up in the bottom ashes of the incinerator and - with the help of the latest eddy current sorting technology – can be recovered for material recycling.

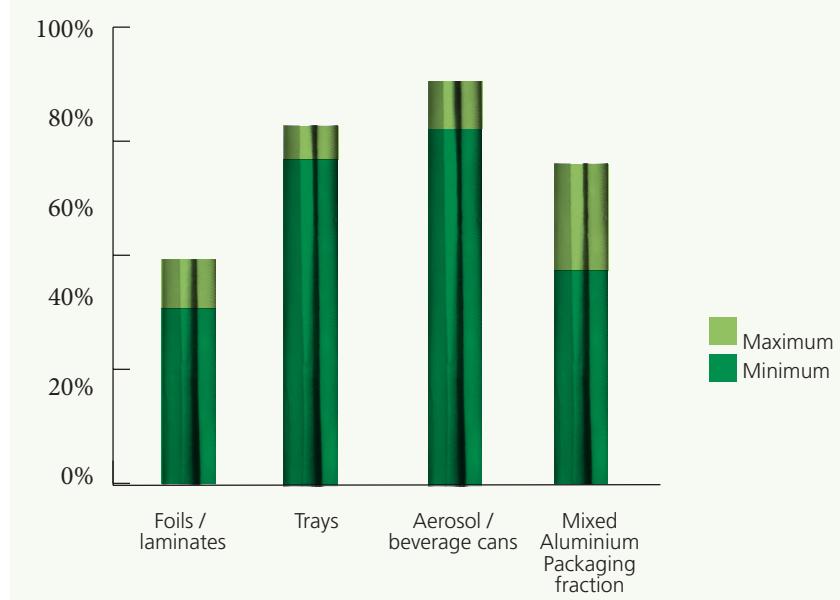
However, bottom ash recycling is a complementary solution and increased effort should be made to remove metals from the collected waste fraction prior to incineration, through more and better sorting of the waste stream, using the best available separation technologies.

When it comes to landfilling, the aluminium packaging industry supports the introduction of a progressive landfill ban on untreated waste. Metals are too precious to waste and should stay in the material loop for their next end-use application.



#### Metallic Aluminium in Incinerator Bottom Ashes – high transfer ratios, even for foil

(Source: Article by EAA expert Mr François Pruvost: Aluminium packaging finds its way through incineration - Metal transfer ratios higher than expected; International Aluminium Journal, pages 81-83, June 2013)



# A true European recycling network

The EAA Packaging Group and its member companies have established together with their partners a number of aluminium packaging recycling initiatives throughout Europe. In some countries the aluminium companies work closely with existing schemes (extended producer responsibility or 'green dot' schemes, deposit systems, etc.) and provide additional help and assistance to further increase the aluminium packaging recycling results. In other countries EAA teams up with partner industries such as the can makers, the foil container and closure manufactures, the drinks and food producers and other interest groups like green and consumer groups and local authorities. Together we develop specific

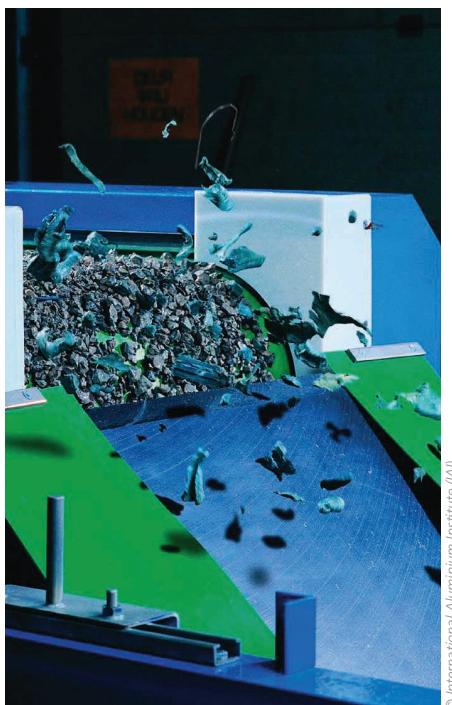


activities aimed at raising the awareness among the public at large that collection and recycling of aluminium packaging makes a lot of sense.

More information:  
[www.alurecycling.eu](http://www.alurecycling.eu) and  
[www.aluminium-closures.org](http://www.aluminium-closures.org)



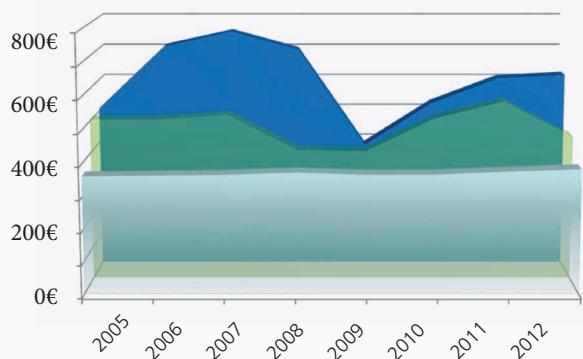
Extended producer responsibility schemes should recognise the scrap value of well-sorted aluminium packaging fractions and, together with the local authorities responsible for the collection of various packaging (and household) waste streams, should use modern sorting technologies such as advanced eddy current separators.



### High aluminium scrap value helps to minimize and even offset collection and sorting costs

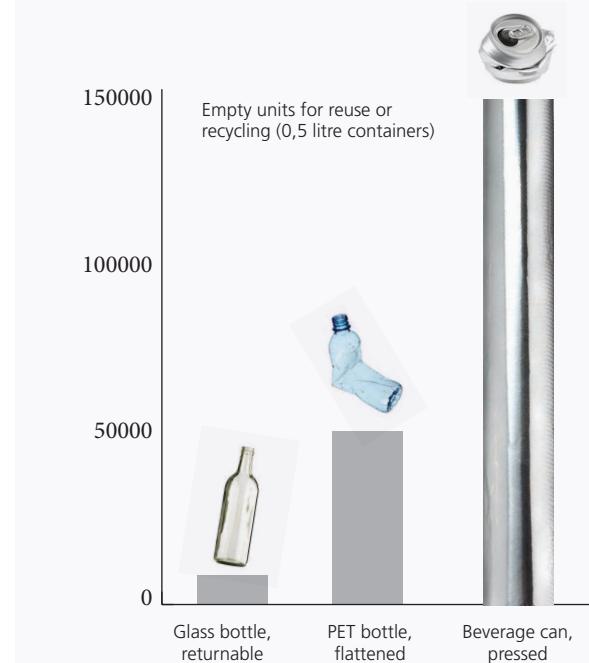
(Belgian Green Dot system Fost Plus, Annual Reports 2005-2012)

█ Collection & sorting costs (PMD fraction)  
█ Collection & sorting costs (PMD) + Green Dot fee aluminium  
█ Average annual scrap price sorted aluminium fraction



### Transport efficiencies for empty beverage cans versus other drink containers

(using a 40 tonnes truck with a max. loading capacity of 22 tonnes)  
 (Sources: IFEU Okobilanz Report 2013, BGVZ, Novelis)



# Every Can Counts

## A European Beverage Can Initiative to promote the collection and recycling of 'out-of-home' cans



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Equally important is the role of the consumers who are willing to sort a limited number of packaging items, provided that their national collection and sorting systems are accessible and easy to use. Consistent sorting instructions are instrumental in obtaining less contaminated fractions, which can subsequently be easily recycled.

Awareness programmes such as the 'Every Can Counts' campaign, originally developed by the aluminium industry in conjunction with the can makers in the UK, but now implemented in eight other countries, are proving very helpful when it comes to focusing on the need to collect and recycle beverage cans consumed outside the home, such as in workplaces, and at festivals and sport events.

More information:  
[www.everycancounts.eu](http://www.everycancounts.eu)



# EAA Packaging Group vision and mission

This brochure is published by the European Aluminium Association (EAA) and its Packaging Group, in close cooperation with the European Aluminium Foil Association (EAFA). EAFA is the Foil Division of EAA. The EAA Packaging Group represents the producers of semi-fabricated aluminium can and foil stock for the manufacturing of a wide range of packaging end-use applications and runs a Europe-wide network of aluminium packaging recycling initiatives.

## According to the vision of the EAA Packaging Group aluminium

**packaging actively contributes to resource efficiency and prevention of waste. As recycling is a key part of the success story for aluminium our mission is to pro-actively communicate this benefit to all stakeholders concerned.**

The EAA adopted a specific aluminium packaging strategy paper. To implement our strategy, we actively engage at EU and Member States' level to promote the concept of a resource efficient and circular economy, therefore advocating for an ambitious EU waste policy framework.

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The European Aluminium Association (EAA), founded in 1981, represents the whole value chain of the aluminium industry in Europe. We actively engage with decision-makers and the wider stakeholder community to promote the outstanding properties of aluminium, secure growth and optimise the contribution our metal can make to meeting Europe's sustainability challenges. Through environmental and technical expertise, economic and statistical analysis, scientific research, education and sharing of best practices, public affairs and communication activities, EAA promotes the use of aluminium as a permanent material that is part of the solution to achieving sustainable goals.

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