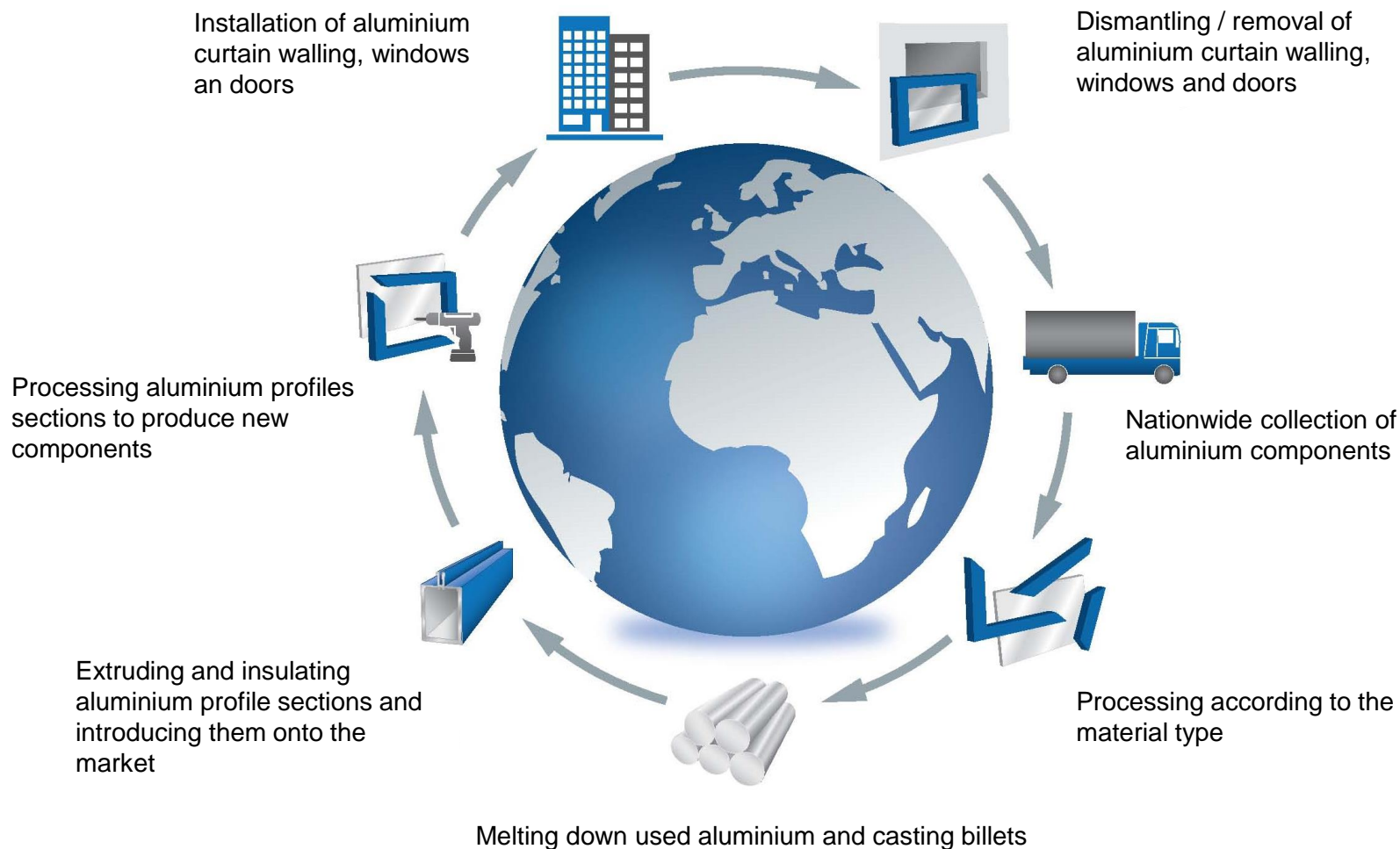


# Aluminium recycling in the window and curtain walling industry



## Aluminium profile sections in the recycling loop



### Aluminium – good reasons for recycling

There are good reasons for recycling this light, adaptable material again and again and again.

Aluminium can be recycled an **unlimited number of times with no deterioration in quality**. Primary and secondary aluminium display **exactly the same level of product quality**.

To produce secondary aluminium from recycled material, **only approx. 5 %** of the energy is needed in comparison to the primary production.

Aluminium is simply **too valuable** to be used just once. Aluminium scrap is traded on the market for high prices and represents a **considerable** amount of capital.

Image: Fotolia 51349670

## Aluminium recycling in the window and curtain walling industry

## Objectives and members of the A|U|F



The A|U|F is an association which aims to support the disposal or treatment of components and building profiles of windows, doors and curtain walling of aluminium for the purpose of material reuse (recycling) to the destination. Another objective of the association is the promotion of the collection production-related profile offcuts and production-related tension remains from aluminium and their recycling and reusing. The aim is an environmentally friendly and resource-saving material cycle of the material aluminium .

The members of the A|U|F are suppliers and manufacturer of aluminium building profiles for windows, doors and curtain walling, metalworker, components distributors, recyclers and companies interested in the topic of **closed material cycle** for aluminium.

With targeted educational work the A|U|F wants to eliminate reservations of the decision relating to construction to the valuable and ecologically compatible aluminium.

The A|U|F association is a non profit organization.

Image: Fotolia 66040116

## Aluminium recycling in the window and curtain walling industry



## Based on the law of life-cycle management



### A closed recycling loop

Initiated by the AUF, the recycling loop for aluminium meets **all the requirements** of the German recycling law and the resource efficiency program of the Federal Government.

In corresponding agreements the **product responsibility, redemption and return obligations** of the parties are clearly defined.

The active participation is confirmed by a certificate and **reviewed annually**.

Image: AUF

## Aluminium recycling in the window and curtain walling industry

## Recyclable products



### Recyclable products

Various construction products made of aluminium - painted, with or without bond - go into the **recycling circuit of the AUF**.

- Windows
- Doors
- Aluminium fittings
- Curtain walling components
- Production waste
- Dismantled windows, doors, curtain walling

Images: Fotolia 51349670 / AUF / Raico / Anders Metallbau

## Aluminium recycling in the window and curtain walling industry

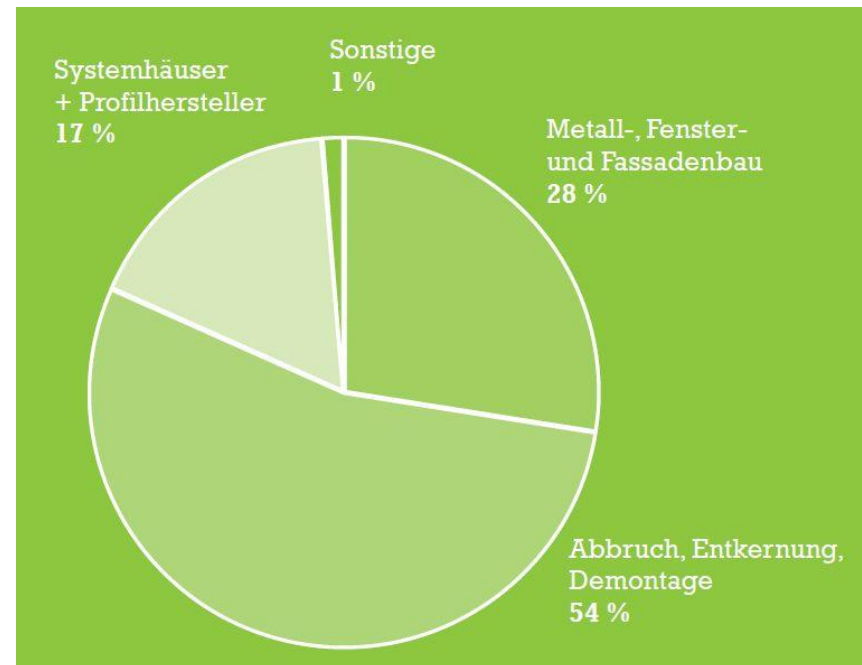
## How much recycled material is produced?

### Aluminum scrap from building construction:

- 2014: about 93.000 tons
- of these: 58.700 tons (63%) from waste disposal (post consumer scrap), In the context of demolition, de-coring or dismantling work
- 34.600 t (37%) from production and processing of metal-, window and facade manufacturers or system suppliers and profile manufacturer

### Recovery of old material:

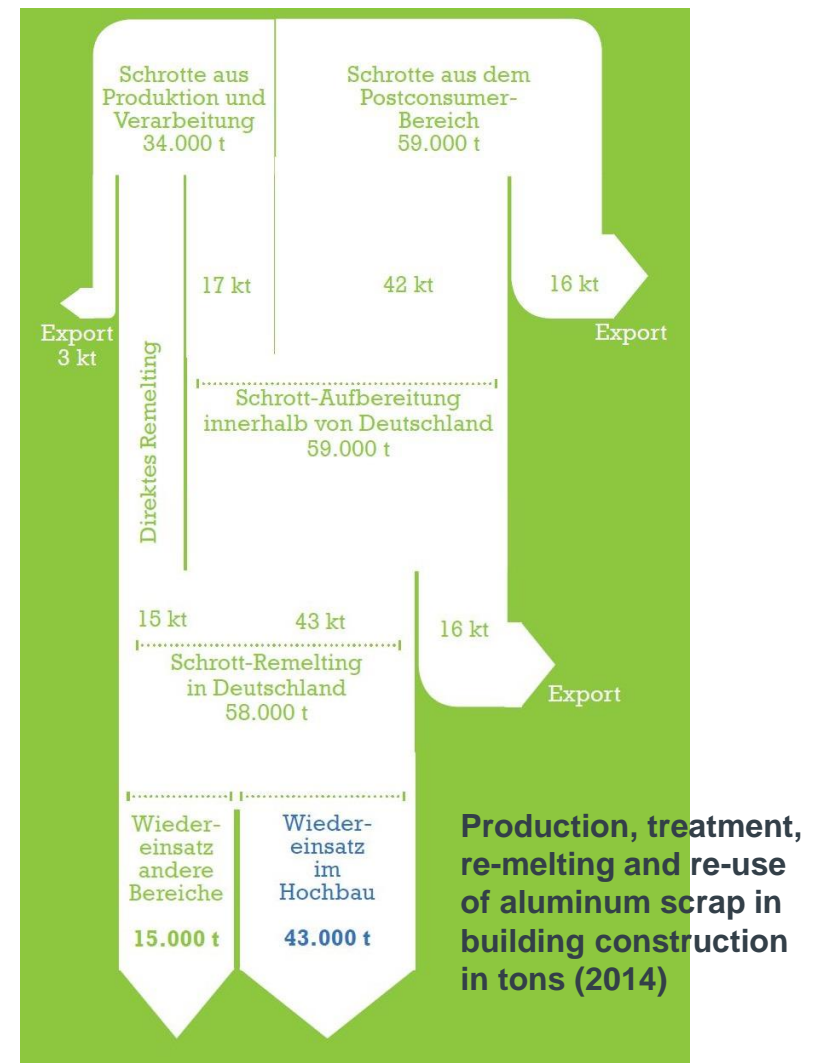
- saves in comparison with the production of primary aluminum about 95 percent primary energy and
- reduction of carbon emissions in the same scale



**Seize of aluminum scrap from building construction (2014) - total 93.000 t**

## What happened with the material?

- > 60% of annual German aluminum scrap → re-use
- Nearly 40% are exported, mainly to other European countries
- National level amount (2014: 74.000 t) passes first treatment (59.000 t) or directly (15.000 t) were re-melted
- Melted press- and roller bars (58.000 t) of which 43.000 t of re-use for construction products
- For this quantity, a closed recycling loop is achieved
- ~ 35.000 t of exports are lost in the closed loop at the national level
- ~ 15.000 t go after melting in other areas outside building construction
- In total, about 50.000 t , or more than 50% of the total amount are lost in the closed recycling loop





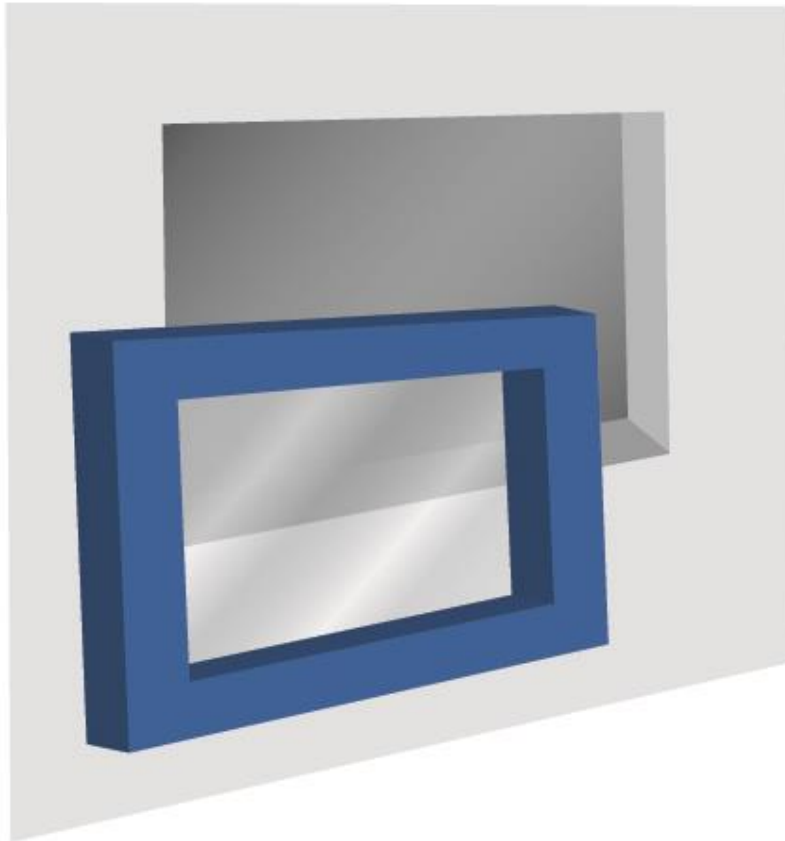
## The recycling loop



### The individual stages of the recycling loop

1. Dismantling / removal of old aluminium curtain walling, windows and doors
2. Nationwide collection of aluminium components
3. Processing according to the material type
4. Melting down used aluminium and und casting extrusion billets
5. Extruding and insulating aluminium profile sections and introducing them onto the market
6. Processing aluminium profile sections to new components
7. Installation of aluminium windows, doors and curtain walling





### The first step

Responsible handling of aluminium begins as soon as the used parts are dismantled.

The AUF members know that already the dismantling is the first step in the aluminium recycling process.

### Participants

- Metal construction companies
- Suppliers of windows and doors
- Distributor of components
- Assemblers
- Demolition companies

# The recycling loop

## Collection



### Collection

The A|U|F offers members a nationwide network of collection points to which they can return their used aluminium and production waste. The members collect accumulating aluminium scrap, which is supplied to the

#### collection partners

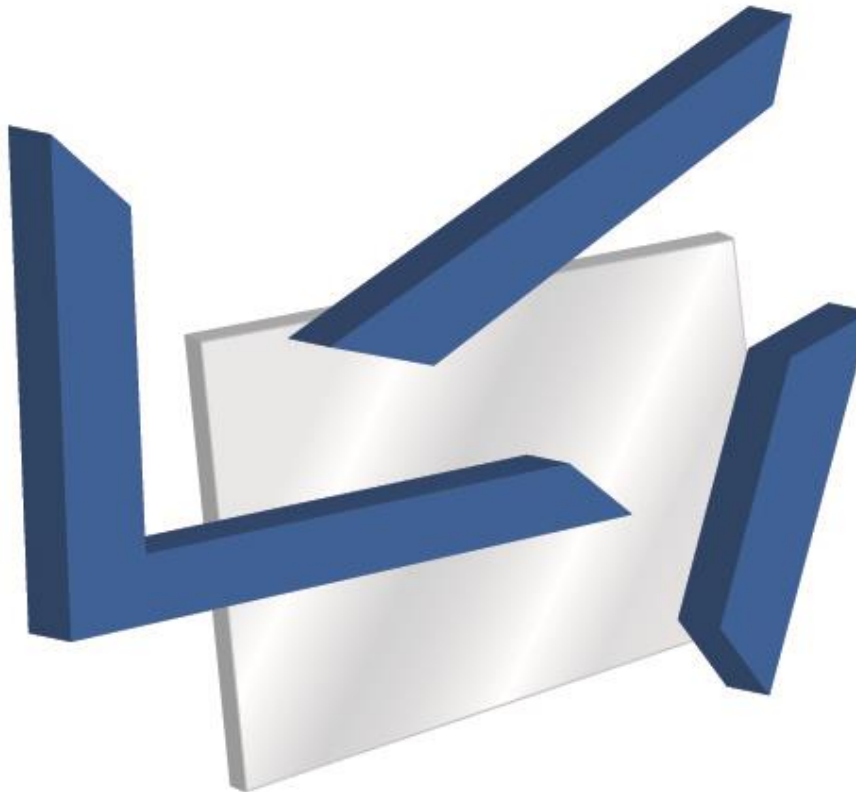
or there are containers provided on site. In return they receive payment which is based on the current market price.

### Participants

- Metal construction companies
- Suppliers of windows and doors
- Distributor of components
- Assemblers
- Demolition companies
- Certified recycling partners  
collection partners

# The recycling loop

## Processing according to the material type



### Classification, breaking up, separating, analysing

The aluminium components are crushed in shredder.

Separators are used to separate the majority of the foreign materials from the aluminium.

Continuous analyses are performed throughout the entire process.

The recycling partners deliver the varietal shredded materials to German and European foundries.

### Participants

- A|U|F certified recycling and collection partners

# The recycling loop

## Melting down used aluminium and casting extrusion billets



### Melting down and casting

The recycling companies instruct remelters for melting the aluminium scrap and casting new extrusion billets.

### Participants

- Remelting companies



# The recycling loop

## Extruding and insulating aluminium profile sections and introducing them onto the market

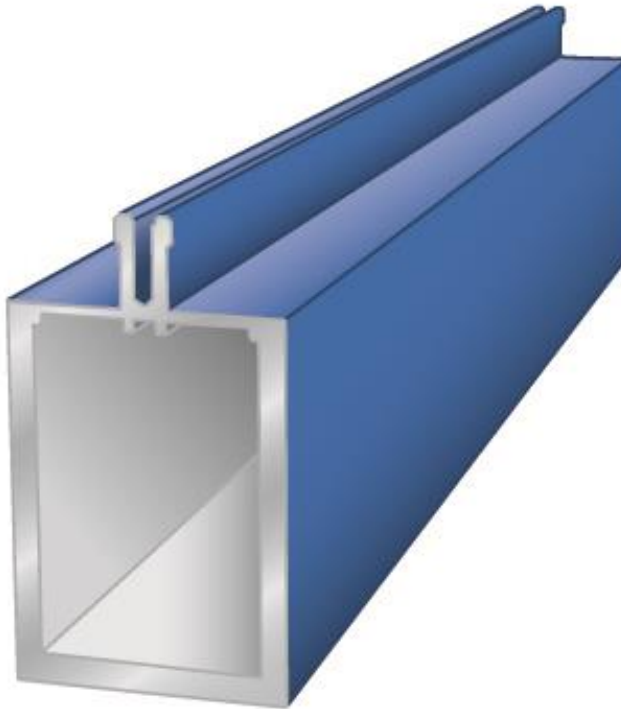
### Extrusion and distribution

The extrusion billets are processed further in extrusion plants in order to product high-quality profile sections.

The system suppliers supply their customers with profiles.

### Participants

- Extruders
- Suppliers of profile sections
- Metal construction companies



# The recycling loop

## Processing the profile sections



### Processing the profile sections

The metal construction companies process the profiles to new windows, doors and curtain walling.

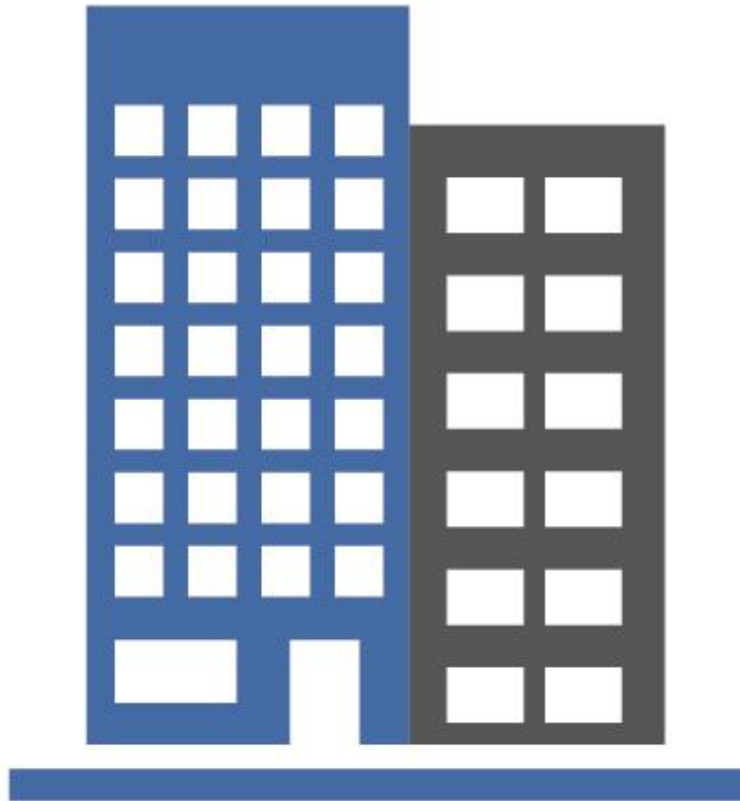
There is no difference in quality between primary and recycled aluminium.

### Participants

- Metal construction companies
- Suppliers of windows and doors

# The recycling loop

## Installation of aluminium windows, doors and curtain walling



### Back to the construction site

With the installation of windows, doors and curtain walling made from recycled aluminium the recycling loop is closed.

The recycling rate for aluminium products in the construction industry is today around 98 %.

### Participants

- Metal construction companies
- Suppliers of windows and doors
- Assemblers
- Distributor of components

## Partners in the association



### Many partners, one common goal

Sustainability and responsibility, ecology and economy. Initiated by the A|U|F material cycle for a product-specific recycling process is the result of a **joint effort of many partners**.

The objective of all those involved is: to promote the environmentally-friendly and resource-saving **recycling and reuse** of the material aluminium in a closed circuit.

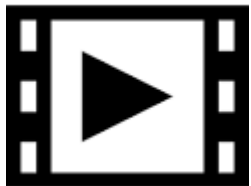
### The partners in this strong alliance

- Supplier of aluminium system profiles
- Construction companies for windows, doors and curtain walling
- Suppliers of windows and doors
- Assemblers
- Distributor of components
- Demolition companies
- Certified recycling and collection partners
- Re-melting companies
- Extrusion plants

A|U|F ensures that the collected aluminium recyclables from the A|U|F members is remaining in Germany or Europe. A converted aluminium window, -door or part of the curtain walling become a new aluminium profile again.

## Aluminium recycling in the window and curtain walling industry





\*recycling loop