



# Industrial Waste along the aluminium value chain

RemovAL policy stakeholders workshop

Brussels, 6 November 2019

# 1 / Who we are

**80+**  
members

approx. **600** plants  
in 30 European countries  
(EU 28, EFTA and Turkey)

**1 million +** Direct  
and indirect jobs  
across Europe's value  
chain

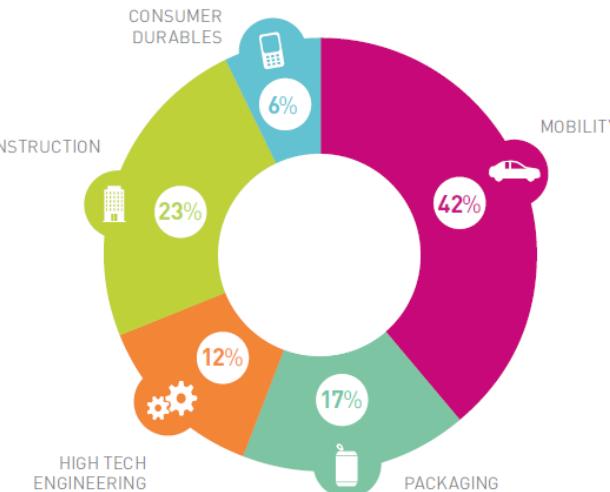
**€40**

Billion annual turnover  
[2018]

**90%**

Founded in  
**1981**  
European  
Aluminium  
represents the  
entire value chain  
of the aluminium  
industry in Europe

An innovative value chain serving EU key markets



of aluminium is recycled in  
construction and automotive  
in Europe

Europe produces

**7%**

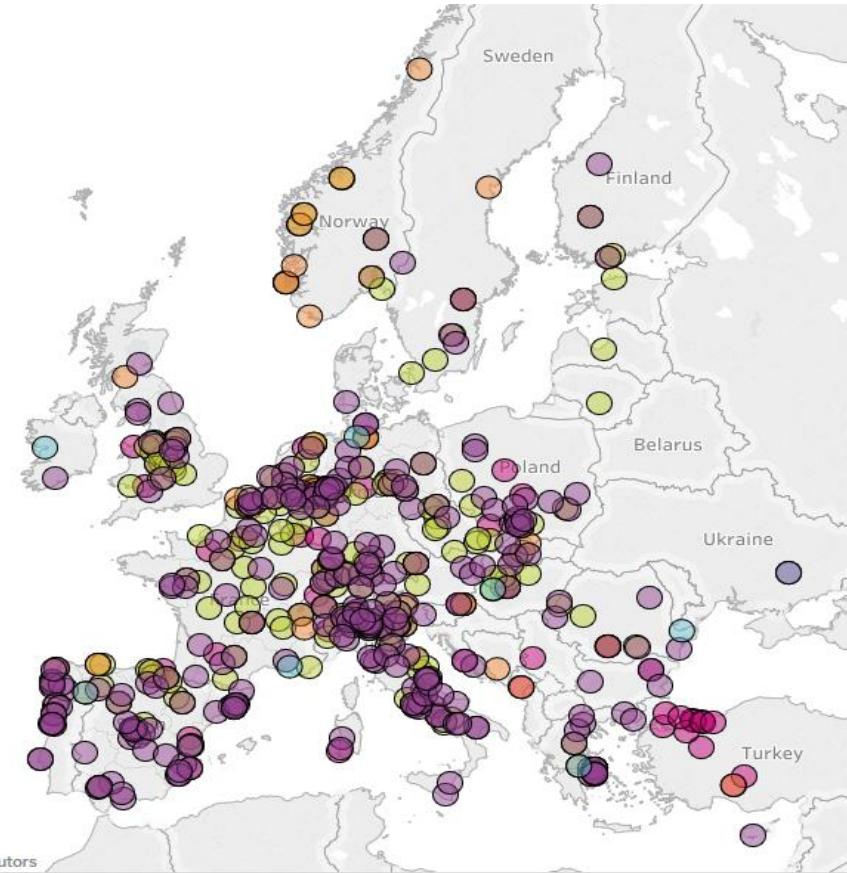
of worldwide **primary**  
aluminium.

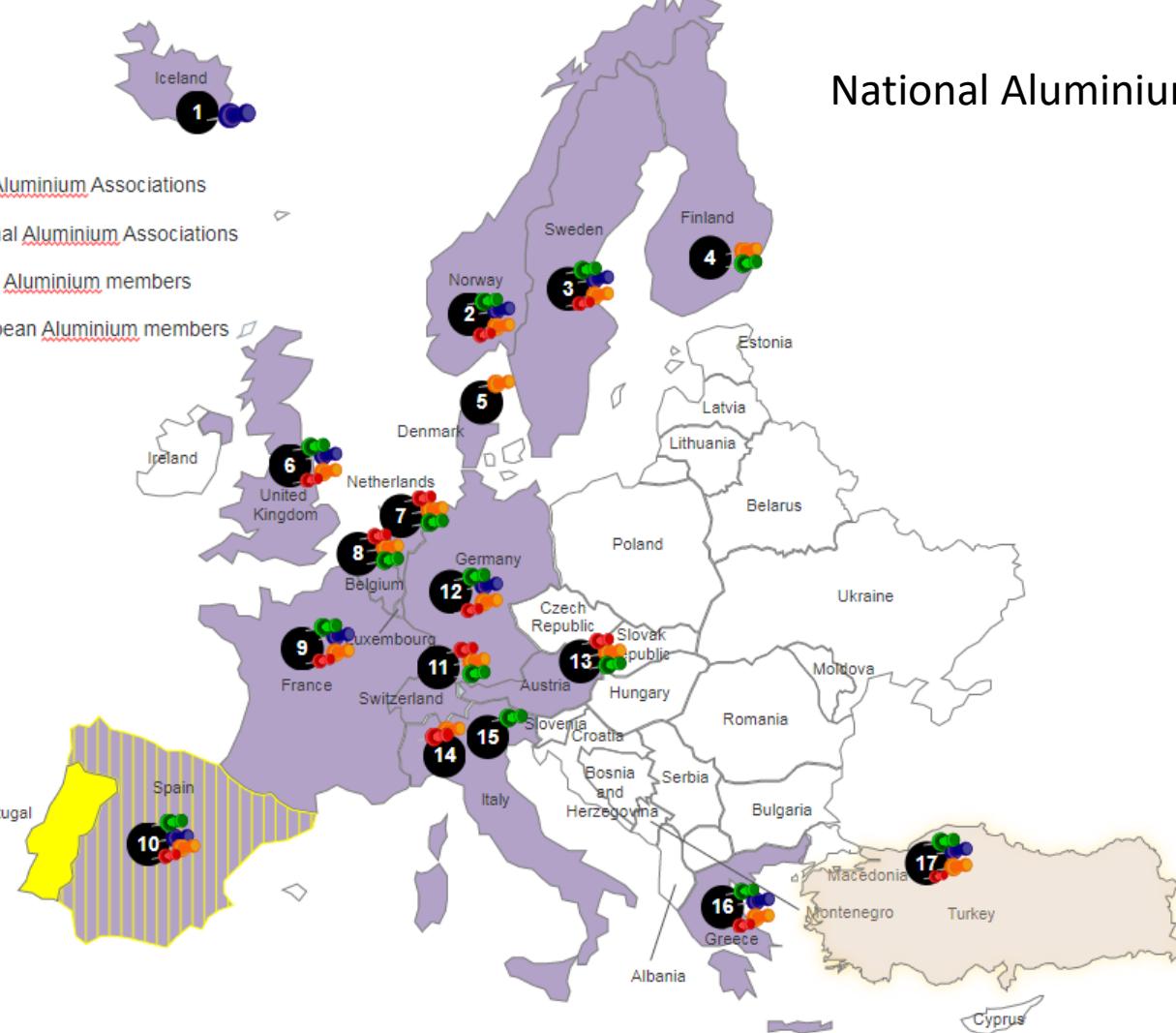
**More than half of** European  
production comes from  
recycled sources

# 1 / Overview aluminium industry in Europe

Aluminium industry in Europe: more than **600 plants** covering the entire aluminium **value chain**

- █ Alumina
- █ Extrusion
- █ Primary
- █ Recycling
- █ Rolling





# National Aluminium Associations in Europe

1	Samál (Iceland)
2	AMS (Norway)
3	Svenskt Aluminium (Sweden)
4	Finnish Aluminium Association
5	Aluminium Denmark
6	Alfed (U.K.)
7	VNMI (Netherlands)
8	Aluminium Center Belgium
9	AFA (France)
10	*AEA not a member (Spain)
	Aluminium – Verband Schweiz
11	Fachgruppe Halbzeug (Switzerland)
12	GDA (Germany)
	Austrian Non-Ferrous Metals Federation
13	Assomet – Centroal (Italy)
14	Assiral (Italy)
15	Aluminium Association of Greece
16	Talsad (Turkey)

# 1 / Our members\*



**ABB**



**ALCOMET**



**Aleris**

**ALFIELD**  
ALUMINUM FEDERATION

**ALINVEST**

**ALPOLIC™**

**ALTEK**  
CASTHOUSE SOLUTIONS

**alteo**

**alu.ch**  
Alu für Natur & Technik  
Metall & Metallverarbeitung

**Alucoil®**  
Grupo Alúbricos

**AssanAlüminyum**  
**AssirAl**  
ALUMINUM ITALIAN REFINERS ASSOCIATION

**aludium**  
premium aluminum

**alumetal**

**Aluminium Danmark**  
En del af DI

**alufoil**  
European Aluminium  
Foil Association

**Alumil**

**aluminio**

**ALUMINIUM  
ASSOCIATION OF GREECE**

**Aluminium  
Center Belgium**

**ALUSIGMA**

**AMAG -  
AUSTRIA METALL**

**ARCONIC**

**aseral**

**AssanAlüminyum**  
**AssirAl**  
ALUMINUM ITALIAN REFINERS ASSOCIATION

**ASSOMET**  
Associazione Nazionale  
Industria Metallo non Ferroso

**ASTAS**

**BAGR**  
Dansk Aluminiumselskab

**BEFESA**

**BOAL  
EXTRUSION**

**BRIDGNORTH**  
ALUMINUM LIMITED

**CENTROAL**  
Centro Italiano Alluminio

**Coil**  
ADDING VALUE TO ALUMINUM

**Constellium**

**CUHADAROGLU**  
METAL SANAYI VE PAZARLAMA A.S.

**DIK**

**ELVAL**  
KARTA & KUTTAJAKI OY/ELVAL INDUSTRIES OY

**EMAX**  
SUSTAINABLE ALUMINUM

**EP-AL-ME**  
ALUMINUM RECYCLING INDUSTRY-BILLETS

**ESTAL**  
★ ★ ★ ★

**ETEM**

**EURAL**  
GNUTTI S.p.A.

**GDA**  
GESAMIVERBAND DER  
ALUMINIUMINDUSTRIE e.V.

**G GRÄNGES**

**HAI**  
Hammerer Aluminium Industries

**HYDAL**  
ALUMINUM  
PROFILER

**Hydro**

**sapa:** **WICONA**

**ia idalsa**

**alu  
igora.ch**

**impexmetal** s.a.  
ALUMINIUM KONIN

**impal**  
Aluminium Industry

**Intals**

**KAWNEER**

**KUBAL**  
KUBIKENBORG  
ALUMINIUM AB

**KUUSAKOSKI**  
RECYCLING

**LIBERTY**  
British  
Aluminium

**MÄKELÄ ALU**

**M**  
METAL EXCHANGE  
CORPORATION

**METRA**

**M**  
MYTILINEOS

**NA** **NORDURÁL**  
Century ALUMINIUM

**Novelis**  
Patent Aluminum Profile Aluminis

**POLST**  
POLAND SMELTING TECHNOLOGIES

**PRODIGO**  
SOURCE OF POTENTIAL

**Profilglass®**  
PEOPLE, PASSION, ALUMINUM

**Profil  
Gruppen.**

**PURSO** ®

**RAFFMETAL**

**REAL ALLOY**

**R**  
REYNAERS  
ALUMINIUM

**RioTinto**

**Roba**  
a passion for metal

**RVA**  
Rivestimenti, Vetro, Rame, Acciaio Inox

**Sacal**  
SOCIETÀ ALUMINIO CASSIO

**samál**  
Compañía de Aluminio

**S.A.V. S.p.A.**  
Società Aluminio Veneto

**Scepter**  
Tatbatanya Kft.

**StockachAlu»**

**SCHÜCO**

**SLIM**  
ALUMINIUM

**ŠLOVALCÓ**

**STENA  
ALUMINIUM**

**STEP/G**

**Svenskt  
Aluminium**

**TALSAD**  
TURK ALUMINIUM PROCESS ASSOCIATION

**trímet**

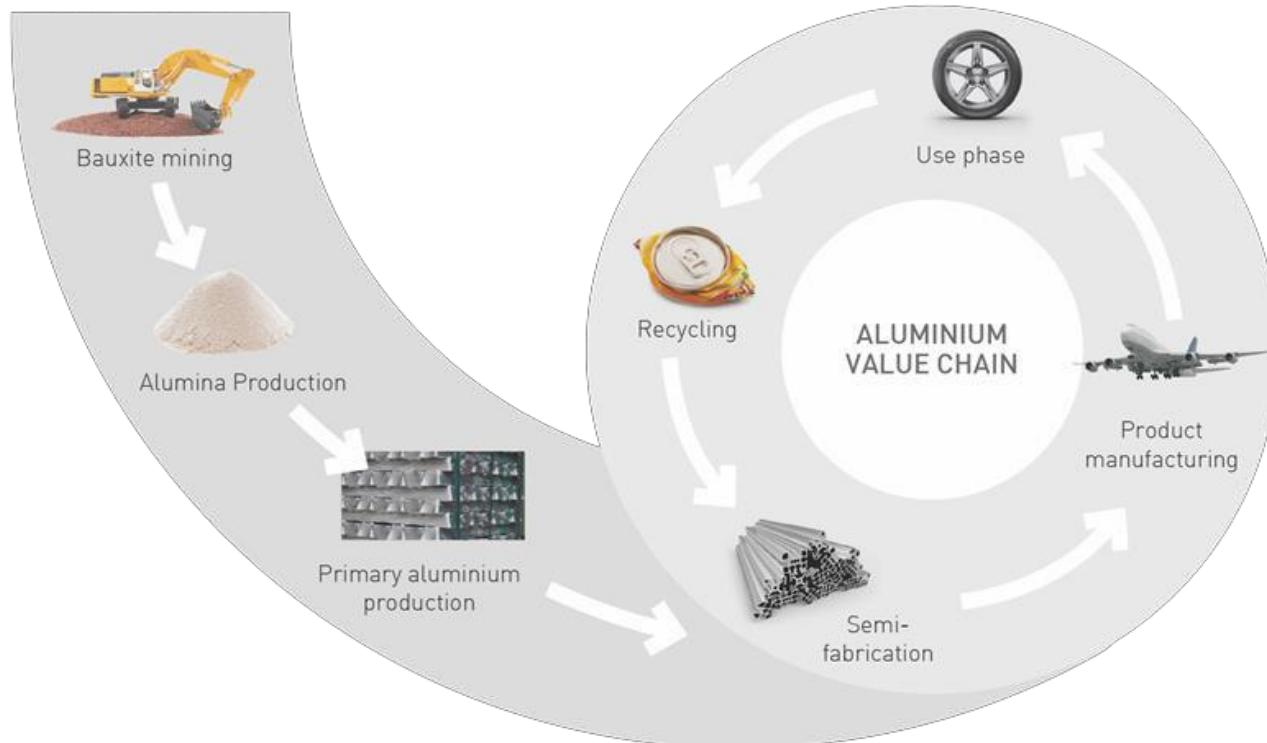
**vimetco  
alro**

**vimetco  
extrusion**

**VNM**

**WKO**  
FACHVERBAND NE-METALL

# The aluminium value chain: a circular economy



# / About industrial waste ...

How would you define industrial waste ?

## Glossary:Industrial waste

## Statistics Explained

**Industrial waste** is waste produced by industrial activity, for example in factories, mills and mines, and is non-recyclable (solids and liquids).

*True or false ?*

# / Other considerations about waste ...



## Waste

Article 3 of Directive 2008/98/EC, Waste Framework Directive  
Commission notice on technical guidance on the classification of waste (2018/C 124/01)  
EU List of waste (Decision 2014/955/EU)



## By - product

Article 5 of Directive 2008/98/EC, Waste Framework Directive  
Communication from the EC to the Council and EP on the Interpretative Communication on waste and by-products COM(2007) 59 final



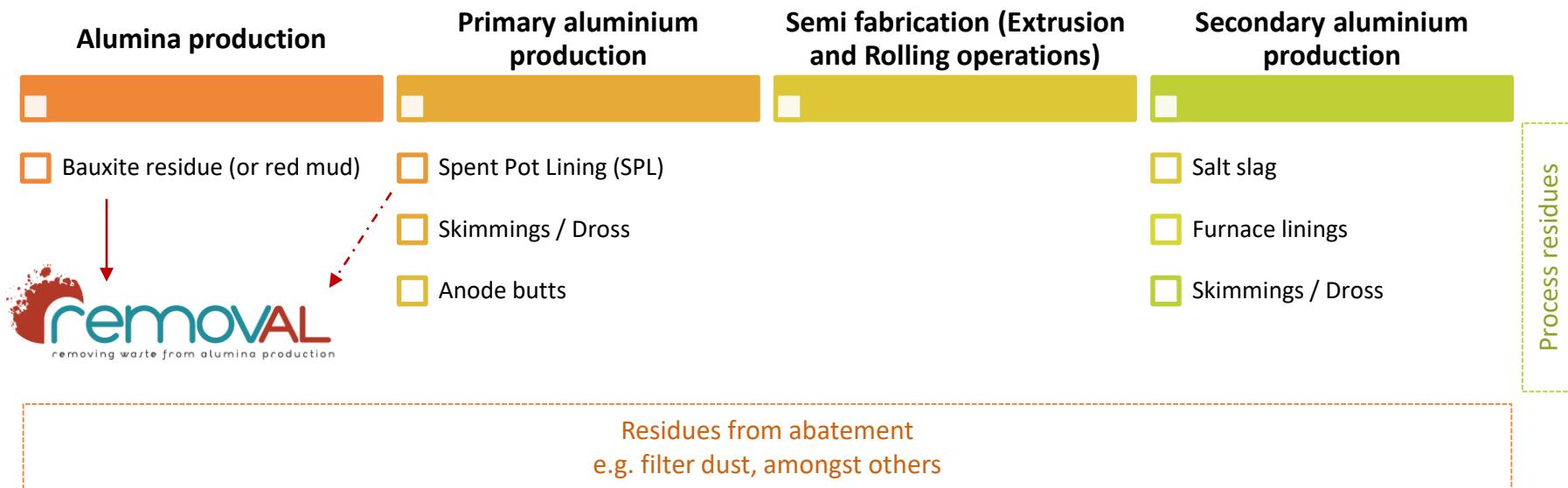
## End-of-waste criteria

Article 6 of Directive 2008/98/EC, Waste Framework Directive  
**Iron, steel and aluminium scrap** (see [Council Regulation \(EU\) No 333/2011](#))  
**Glass cullet** (see [Commission Regulation \(EU\) N° 1179/2012](#))  
**Copper scrap** (see [Commission Regulation \(EU\) N° 715/2013](#))

*Industry is always seeking safe use of waste and products, applying all appropriate controls needed to manage these streams within the best EHS conditions, in all cases.*

# Industrial waste in the aluminium supply chain

## Segments of the value chain



*Whenever a waste is generated a treatment is determined → process efficiency*

# Industrial waste in the aluminium supply chain

Segments of the value chain – focus on Primary and Secondary aluminium

## Primary aluminium production



Waste source	Use/treatment options
Aluminium	Recovery
Filter dust	Reuse in process
Bricks	From anode furnaces, reuse
Steel	Recovery
Carbon dust (anode plant)	Reuse or landfill, depending on the ash content

NFM BREF: Options to reduce waste in a primary aluminium smelter

## Secondary aluminium production



Residue	Treatment
Salt slag	Recovery via dissolution and crystallisation techniques. Production of reusable substances: Al metal granulate, mixed salt, non-metallic oxidic products.
Filter dust	Disposal with pretreatment or to underground site, partly reconditioned with salt slag or used in the steel industry.
Furnace lining	Potential for reconditioning with skimmings/dross, otherwise leaching and landfill
Skimmings/dross	Smelting in rotary furnace. Recovery, pellets used in rotary drum furnace, dross dust used in the recovery of salt slag.
Grease oil	Collection and separation.

NFM BREF: Typical residues from secondary aluminium production

*Industry always works on solutions to handle waste efficiently following the waste hierarchy*

# / Some challenges ...

## Composition

What are the properties of the waste?

Is pre-treatment needed ?

Can the waste be used as such ?

## Logistics

Where is the waste generated ?

What management options exist within a certain radius ?

## Regulatory framework

Waste classification – list of waste (Decision 2014/955/EU)

Waste Framework Directive (Directive 2008/98/EC)

Waste Shipment Regulation (Regulation EC 1013/2006)



# Challenges in detail: Regulatory framework



**Increased costs for waste management options:** increase in the cost of landfill and/or pre-treatment of waste for preferred waste management options



**Implementation of Waste Shipment Regulation by National Member States Authorities**



**Classification of substances** through Adaptation to Technical Progress to CLP - Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation)



Use/implementation of **End-of-Waste criteria** across different Member States

# / Regulatory challenges in practice ...

... what does this mean ?

The development of a complete **impact assessment** prior to substance classification

Awareness of the **links between industrial supply chains**: regulatory actions in one segment / process have cascade effects in the whole system

A view over **chemicals management from all angles**: it often goes further than the interface between chemicals-products and waste

## / About RemovAL: a precedent setting

- + Links between bauxite residue and other waste, for example, Spent Pot Lining (SPL)
- + Whenever obstacles to recycling are removed it is a reason to celebrate !
- + Industry is keen on finding solutions, but there has to be a regulatory push to support into making things happen



*All pre-treatment and preparation operations for waste to be transferred to the outlet in charge of its management involves a factor of costs integrated in the price per tonne → we need to be realistic with what is feasible / affordable*

## / ... and some opportunities



- + Precedent setting examples: RemovAL !  
Innovative processing of waste coupled with the development of new solutions to recycle is always a good example
- + New European Commission – New industrial strategy, Circular Economy 2 Action Plan ...
- + Stable generation: volumes are often continuous
- + Realising the value of waste: secondary resources economy
- + Material positioning and possibilities: creation of local markets and industrial synergy (already happening in some cases)

# Conclusions

- + Industrial waste is treated – it is a reality
- + Industry is always working on **developing / looking for new solutions to reduce the generation of waste or find management solutions** for the waste that is generated following the **best existing EHS standards**
- + *European Aluminium and its members want to help authorities to develop and implement the right framework to set circular economy in motion, and contribute to create business models not based in linear principles*



**"The best way to predict the future is to design it."**  
- R. Buckminster Fuller



# / Questions? Contact us!

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