Industrial Waste along the aluminium value chain

RemovAL policy stakeholders workshop

Brussels, 6 November 2019
### Who we are

<table>
<thead>
<tr>
<th>80+ members</th>
<th>approx. 600 plants in 30 European countries (EU 28, EFTA and Turkey)</th>
<th>1 million + Direct and indirect jobs across Europe’s value chain</th>
</tr>
</thead>
</table>

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

**An innovative value chain serving EU key markets**

- **CONSTRUCTION** 23%  
- **MOBILITY** 42%  
- **PACKAGING** 17%  
- **HIGH TECH ENGINEERING** 12%  
- **CONSUMER DURABLES** 6%

**€40 Billion annual turnover**  
[2018]

**90%** 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
Aluminium industry in Europe: more than 600 plants covering the entire aluminium value chain.

* Source: European Aluminium Statistics, April 2017
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. ASERAL (Spain) *AEA not a member (Spain)
11. Aluminium – Verband Schweiz Fachgruppe Halbzeug (Switzerland)
12. GDA (Germany)
13. Austrian Non-Ferrous Metals Federation
14. Assomet – Centrol (Italy)
15. Assiral (Italy)
16. Aluminium Association of Greece
17. Talsad (Turkey)
Our members*

*Status: October 2019
The aluminium value chain: a circular economy
How would you define industrial waste?

**Glossary: Industrial waste**

*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
Commission notice on technical guidance on the classification of waste (2018/C 124/01)
EU List of waste (Decision 2014/955/EU)

By-product

End-of-waste criteria
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

Alumina production

- Bauxite residue (or red mud)

Primary aluminium production

- Spent Pot Lining (SPL)
- Skimmings / Dross
- Anode butts

Semi fabrication (Extrusion and Rolling operations)

Secondary aluminium production

- Salt slag
- Furnace linings
- Skimmings / Dross

Residues from abatement

- e.g. filter dust, amongst others

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**

<table>
<thead>
<tr>
<th>Waste source</th>
<th>Use/treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>Recovery</td>
</tr>
<tr>
<td>Filter dust</td>
<td>Reuse in process</td>
</tr>
<tr>
<td>Bricks</td>
<td>From anode furnaces, reuse</td>
</tr>
<tr>
<td>Steel</td>
<td>Recovery</td>
</tr>
<tr>
<td>Carbon dust (anode plant)</td>
<td>Reuse or landfill, depending on the ash content</td>
</tr>
</tbody>
</table>

**Secondary aluminium production**

<table>
<thead>
<tr>
<th>Residue</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter dust</td>
<td>Disposal with pretreatment or to underground site, partly reconditioned with salt slag or used in the steel industry.</td>
</tr>
<tr>
<td>Furnace lining</td>
<td>Potential for reconditioning with skimmings/dross, otherwise leaching and landfill</td>
</tr>
<tr>
<td>Skimmings/dross</td>
<td>Smelting in rotary furnace. Recovery, pellets used in rotary drum furnace, dross dust used in the recovery of salt slag.</td>
</tr>
<tr>
<td>Grease oil</td>
<td>Collection and separation.</td>
</tr>
</tbody>
</table>

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

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 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