# European Commission Stakeholder Consultation: Interface between Chemicals, Products and Waste Policy

Response from the European non-ferrous metals industry

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# Executive Summary

## Our overall message to the European Commission

- **Eurometaux welcomes the European Commission's initiative to evaluate the interface between EU Chemicals, Waste and Products Policy** - Our sector is committed to achieving a "risk-controlled" European environment, where hazardous substances are used only when exposure to human health or the environment is controlled. We fully support the UN's international 2020 SAICM (Strategic Approach to International Chemicals Management) targets for *"minimisation of adverse effects during manufacturing"* (including recycling).

- **We call for a prioritisation of measures that promote safe recycling without additional regulatory burden-** Our overall recommendation is that the Commission should prioritise policy measures that facilitate the *safe* recycling of metals with hazardous properties.

  Metals are at the centre of the EU's Circular Economy ambition, due to their multiple recyclability and high economic value in strategic applications. European metals recyclers operate to high standards of environment, health and safety, and are well-equipped to treat substances of concern safely.

  However, we face global competitiveness challenges against low-quality recyclers in other areas of the world that have not invested into the same standards of environmental and human health protection. To achieve Circular Economy and safe Chemicals Management objectives, it's essential that the Commission takes care to keep Europe's high-quality metals recyclers globally competitive.

- **We recommend that the Commission avoids a one-size-fits-all approach and instead takes more targeted approaches –** The European Commission should focus on the specificities of each sector, rather than implementing general measures that might not be relevant to all. In our response to the stakeholder consultation, we have tried to identify areas where this can be accomplished without undermining key principles of the EU's Circular Economy and chemicals management framework.

## Summary of recommendations

In our response to the European Commission's consultation, we make the following main recommendations for improving the interface between chemicals, products and waste legislation.

### Issue 1 – Insufficient information about substances of concern in products and waste

- **Metals recyclers do not require policy support to gather information on the presence of substances of concern in waste -** Their business models already require them to collect comprehensive information on the composition of input materials, and output materials are produced according to strict quality standards.




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- **The European Commission should avoid a one-size-fits all approach -** To avoid unnecessary burden, extra information requirements should only be implemented in sectors where there is an identified lack of information.

- **Our main challenge is ensuring that metals products and waste are collected and made available to high-quality recyclers –** The European Commission can best ensure the safe recycling of metals (including those identified as substances of concern) by implementing measures to ensure they are treated by high-quality recyclers. Instead of extra information requirements, this requires an optimisation of the EU metals recycling value chain, and measures to ensure a global level playing field for high-quality metals recyclers (including recycling EU waste exports at equivalent conditions).

## Issue 2 – Presence of substances of concern in recycled materials

- **The EU's chemicals management tools should be improved to better complement Circular Economy objectives (i.e. CLP classification, REACH Authorisation and Restriction) –** We agree that substances of concern should not be recycled indefinitely, or when the overall cost to society outweighs benefits. Europe's metals recycling industry will be heavily burdened by the current hazard-driven framework for chemicals management, without environmental, health or economic benefit.

- **The Commission should (further) prioritise the development of methodologies to consider key factors driving metals toxicity in CLP classifications –** A mixture's toxicity cannot be defined by the presence of hazardous substances alone. The toxicity of metals usually changes when included in matrix materials like alloys, in particular due to their different bioavailability. This difference should be recognised in hazard classifications to avoid disrupting metals recycling value chains.

- **REACH Authorisation should be adjusted to consider the specificities of metals recyclers -** In its current form, REACH Authorisation has direct business impacts on metals recyclers. Recyclers have very little potential to substitute SVHC metals during recycling, and actually require certain SVHCs to recover other valuable metals. The Commission should evaluate how to adjust the REACH Authorisation tool to avoid undermining Circular Economy objectives.

- **We have a common interest to improve the implementation and control of REACH restrictions at EU borders –** Currently, REACH restrictions are not implemented/controlled consistently across all Member States, including at EU borders. Unlawful product imports could contaminate EU waste streams and disadvantage European metals recyclers.

- **Take a holistic approach to avoid inconsistencies and reach sustainability objectives -** We recommend that the Commission takes a more holistic approach to chemicals and waste policy. They should evaluate



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socioeconomic impacts on the full value chain at an early stage, as well as impacts on other policies. This approach can be implemented by ECHA and the Member States for example during the Risk Management Options analysis (RMOa) as well as when an Annex XIV recommendation is communicated to the Commission.

## Issue 3 – Uncertainties about how materials can cease to be waste

- **End-of-Waste criteria are not widely applied in the non-ferrous metals industry –**We are not in favour of introducing more EU End-of-Waste criteria for metals in the future, unless work is done on their implementation and relevance. In the meantime, the Commission should discourage non-harmonised national End-of-Waste criteria, which risk facilitating waste exports to low-quality recyclers.

- **Aluminium/Copper recyclers receive wrongly declared End-of-Waste compliant scrap** – This causes problems in processing (for example due to impurity levels) and can prevent metal output from meeting product specifications. In the limited cases where End-of-Waste criteria are used in our sector, improvements can be made by enforcing third-party verification of the material's compatibility with End-of-Waste criteria.

- **Instead, our major issue is the lack of harmonised criteria for by-product status -** Member States declare by-product status in different ways, creating uncertainty. The Commission can make a major improvement by establishing Union level harmonised conditions for substances or objects to be recognised as by-products.

## Issue 4 – Difficulties in the application of EU waste classification methodologies and impacts on the recycling of metals

- **Misclassification of waste metals is primarily due to insufficient Member State implementation and enforcement** – The existing EU framework for classifying waste is well-structured in principle. In particular, we recommend that bioavailability tests continue to be applicable when classifying waste. This encourages accurate classification, and would prevent extra administrative burdens from excessive notification requirements. It does not have consequences on the safety of metals recycling or their use in new products.

- **It is essential to better enforce EU rules at national level** – In particular, intra-EU shipments of metals waste are frequently delayed in transit countries due to inconsistent Member State interpretations of whether waste is hazardous or not. These delays are a direct barrier to the Circular Economy, by lowering the attractiveness of shipping waste to EU high-quality recyclers. The Commission should evaluate how to ensure harmonised national interpretations of EU waste classifications.



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# Metals recycling industry in context

*In this section, we provide background information explaining how substances of concern are treated in the metals recycling industry, and how this is different from other sectors. This background information underpins our responses to all four of the European Commission's consultation questions.*

Europe's non-ferrous metals industry is a Circular Economy leader, recycling valuable metals from cars, buildings, packaging, electronics waste and other applications. We are committed to achieve EU and international goals for safe chemicals management, and actively promote a "risk-controlled Europe". Metals recycling creates economic value for Europe, as well as saving up to 95% of the energy needed to manufacture new metals from primary sources. Despite those benefits, too many of Europe's metals in end-of-life of products still get landfilled, incinerated, or exported without guarantee of quality treatment.

## How is Europe's metals recycling industry structured?

- **Industrial symbiosis is embedded in our business model –** Metals recyclers are organised in a complex and highly-integrated network of different operators. As well as end-of-life products, we recycle residues and scrap from primary metals smelting and refining. Producers sell their residues to specialised companies to enable the extraction of additional valuable metals from a range of sources and concentrations. This substantially reduces the quantity of waste generated for final disposal as well as creating additional economic value.

- **Different structures for different waste streams –** Even within our sector there is a big difference in how different waste streams are structured. For example, there are over 220 aluminium recycling plants in Europe, many of which are small and medium-sized enterprises (SMEs) and family owned businesses. On the other hand, there are much fewer high-quality recyclers equipped to recover precious metals from electronics waste. These are large state-of-the-art installations relying on economies of scale, which are not present in each Member State.

**Key takeaway:** The metals recycling industry has embedded industrial symbiosis into its business model. This means that when EU Chemicals legislation impacts one section of the network, there are usually knock-on effects onto others.

## What differentiates Europe's metals recycling value chain vs other sectors?

- **We treat a variety of complex secondary raw materials -** Metals recyclers take in a wide variety of valuable input materials, including end-of-life products, scrap and industrial by-products. Some are relatively "clean" and already contain high-purity metals, but the more complex raw material streams have variable concentrations of several different metals, and may contain impurities or other substances (e.g. plastics or other organic fractions).



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For example, clean copper cable scrap is approximately 99% pure copper, but Waste Electrical and Electronic Equipment (WEEE) has a copper content which ranges between 4 to 20%. Increasingly complex primary ores and concentrates are leading to more complex by-products and intermediates. These contain more minor constituents in higher concentrations.

- **We place requirements on the quality of input materials –** In their contracts with suppliers, metals recyclers indicate which substances they cannot accept in their input streams (for example radioactive substances or substances impacting the efficiency of the metallurgical processes). This allows us to set limits on unwanted impurities. In the case of SVHCs with no benefit to society and/or with a low valorisation potential, we ensure those are concentrated in specific material streams before they are safely deposited.

- **We have a high knowledge on material composition –** Metals recyclers gather a high level of detail on the composition of complex input materials. This is an integral part of our business model. The treatment charges for each input are determined by the quantities of wanted and unwanted substances. Extensive sampling is necessary for accurate determination of material composition, and to make sure that recycling processes can be controlled and managed.

- **We comply with strict specifications for output materials –** Output metals must meet strict quality specifications before being placed on the market. In many cases these criteria are defined in market standards (i.e. London Metals Exchange). In all cases, metals are produced to meet customer specifications on strength, durability, impurities and substance composition.

**Key takeaway:** Metals recyclers are equipped to process a variety of complex input materials. We have a high level of knowledge on material composition throughout the recycling process. Our recycling output is delivered against strict quality specifications. Recycled metals need to meet the same quality/purity as primary metals, meaning that the same rules are to be applied for virgin and recycled materials when it comes to protection of human health and environment.

## How does EU regulation impact our global competitiveness?

In Europe, high-quality recyclers use state-of-the art technologies to recover the maximum quantity of metals while meeting stringent environmental, health and safety standards. This allows for the safe treatment and recovery of hazardous substances.

We must compete with low-quality recyclers in areas of the world without guarantee of comparable environmental legislation. For example:

- 15% of Europe's electronics waste is exported each year, mainly to Africa and Asia
- 10% of Europe's aluminium scrap is exported each year, mainly to Asia



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In the face of strong international competition, European recyclers cannot pass on additional costs resulting from national or European legislation to customers but must instead compensate for this with continuous increases in production and efficiency. However, this is increasingly reaching the limits of technical possibility. Any additional regulatory burden placed on high-quality European recyclers risks lowering their global competitiveness.
For that reason, we argue for a targeted approach from EU regulators.

**Key takeaway:** High-quality European metals recyclers are equipped to recover hazardous substances safely. Additional regulatory burdens will decrease their competitiveness with low-quality recyclers outside of Europe, who may not have invested into high standards of environmental protection and high recovery rate.



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# Issue 1: Insufficient information about substances of concern in products and waste

## What is the Commission asking?

The European Commission asks whether there should be further information requirements when articles become waste, to alert recyclers about the content of hazardous substances in materials streams.

The Commission's concern is that the absence of information may:

- impact the determination of the relevant composition of the material,
- have negative impacts on ensuring the protection of workers and the environment during recycling
- hinder checking of compliance with product legislations and the application of REACH exemptions like Article 2(7)

## Are the Commission's concerns applicable for the non-ferrous metals industry?

- **We already determine the relevant composition of our input materials -** As stated above, metals recyclers must gather a high level of information on the composition of complex input materials for their business model to work. Extensive sampling is necessary for accurate determination of material composition. This is used to calculate the treatment charges (to be paid) and the metal value in the material (to be returned to the supplier). Sampling also makes sure that recycling processes are well controlled and managed (including storage and handling). We will collect that information regardless of EU regulatory requirements. This allows us to run our operations efficiently.

  Our output materials must also meet strict quality specifications before being placed on the market (i.e. pure metals and aggregates). These are defined in market standards or in customer specifications, and include substance composition. Other complex products have only "intermediate" uses, which have no exposure to the general public (i.e. UVCBs – ores and concentrates, slimes, sludges etc.)

**Key takeaway:** Metals recyclers carry out comprehensive sampling to determine the relevant composition of input materials. This information ensures the protection of workers and environment during waste management operations and recycling. Extra EU requirements would add an additional burden without improvement.

- **EU information requirements would not impact on our protection of workers and the environment -** Primary metals producers and metals recyclers are subject to the same EU monitoring, occupational and environmental legislation *(Industrial Emissions Directive, Chemical Accidents (Seveso II) Directive, Chemical Agents Directive and country-specific legislations)*. Certified Management systems are also in place *(ISO9001 Health and Management System, OSHAS, ISO14001 environmental management system and/or EMAS*).



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In addition, the abatement technologies used to handle substances of concern are generic and process driven rather than substance-specific, and address liquids, dusts and fumes. Installations apply Best Available Techniques (as described in the NFM BREF) and associated emission levels. These technologies follow hierarchy of controls and include automated processes, ventilation, filter systems, waste water treatment, personal protective equipment (PPE) and additional hygiene measures.

**Key takeaway:** In our industry, protection of workers and the environment would not be improved by extra EU information requirements on specific substances. Our abatement technologies are generic rather than substance-specific. Protection should continue to be optimised via existing EU monitoring, occupational and environmental legislation.

- **Current EU information requirements do not hinder checking of compliance with EU legislation -** Metals recyclers have not filed applications for exemption from REACH like Article 2(7). As mentioned above, there is no difference between primary and secondary metal outputs, Thus, the joint submission / shared part of our REACH dossiers / CSRs submitted on behalf of all registrants of a substance cover both primary and secondary production. When recyclers (e.g. lead recyclers) relied on Art. (2(7), Safety Data Sheets and other information were in any case transferred down to the supply chain as for the registered dossiers.

**Key takeaway:** The metals industry does not have issues of compliance with EU chemicals and product legislation due to insufficient information about substances of concern. The shared parts of our REACH dossiers - submitted on behalf of all registrants of a substance - cover both primary and secondary production.

- **Our main challenge is ensuring that metals products and waste are collected and made available to high-quality recyclers –** For example, only 1/3 of European electronics waste is properly recycled, despite containing valuable metals (including those with hazardous properties). The rest is recycled under non-compliant conditions, exported without guarantee of quality treatment, scavenged or discarded (Source: CWIT, 2015). Systemic changes are required across the EU recycling value chain to make sure that metals of concern within European consumer products reach high-quality recyclers to be treated properly (whether inside or outside of Europe).

**Key takeaway:** The Commission should focus on making sure that metals-containing waste reaches high-quality recyclers, which comply with EU environmental, health & safety standards or equivalent. This is a prime focus of the Commission's Circular Economy waste legislation & Action Plan, where we continue to discuss a number of necessary policy actions.



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## What is our recommendation to the Commission?

**Metals recyclers do not require policy support to gather information on the presence of substances of concern in their input materials. We already gather a high level of knowledge on the relevant composition of our input materials, which is used to ensure the protection of workers and the environment. Extra EU requirements would add an unnecessary extra burden.**

**The Commission should therefore take a targeted approach and only introduce information requirements for sectors where there is an identified need. In our sector, EU policy action should rather be directed at making sure that metals-containing waste reaches high-quality recyclers, who are equipped to safely treat substances of concern**.

**Case Study – How metals recyclers collect substance information from suppliers**

As a non-ferrous metals recycler, Metallo is very much aware of the chemical content of the material (either under REACH or the waste legislation) that is bought and processed. Commercially, Metallo has to pay for the content of valuable metals that it contains. The seller as well as the buyer wants the content to be known as precisely as possible since the price of metals is considerably high (Cu: over 5.000 €/MT and Sn: over 15.000 €/MT), batches are also 'heavy' (average 50-100 tons) and thus a sampling error can be costly for one or the other. Therefore, with many deliveries, the seller appoints a "representative" that will follow the sampling process to make sure no errors are made and the metal content is as precise as possible.

Before booking a contract Metallo also needs to know which "unwanted" elements are present in the batch. These elements can be penalized or can even cause a material to be refused. Undesirable components can disturb the refining processes or unintentionally end up in the end product (e.g. Bi is an element that is difficult to separate from Cu). Also for HSE reasons (to comply with permit and other legislation, e.g. workplace monitoring, emissions, IED), knowing our material is crucial.

**Case Study – Sampling and assaying in precious metals refining**

Umicore (and other refining/recycling companies) work with a business model that is supply driven. The extended, continuously changing mix of complex feed materials such as e-scrap, catalysts, slimes and sludges... makes sampling and assaying (S&A) a key success factor for sustainable precious metals recycling and relates to all elements present in the sample without making a distinction between major or minor constituents

The composition of the incoming material (being wastes and/or products) will define the price of the incoming raw material. Our customers are entitled to and get maximal value for their materials! The S&A data is not only used to define the commercial agreements, it is also crucial to determine the optimal processing conditions. By means of



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metallurgical models, the optimal feed quality to ensure an efficient working of the smelter-process is calculated. The detailed knowledge of the composition at the start of the process is a prerequisite for the technical aspects of the process as well as for the EHS aspects of the process and the safeguarding of the workers' environment.

At our Umicore Precious Metals Recycling plant, the S&A department accounts for about 20% of all the workers. We continuously invest in innovation of our S&A processes in close collaboration with our suppliers and measure our success through their feedback. Most of our processes and technologies are in-house developed. We aim for maximal accuracy and optimized handling costs, through automation and information management.


**Case Study – Sampling in the copper industry**

Copper recyclers process a variety of secondary raw materials, including copper and copper-alloy scrap (brass, bronze etc.) as well as copper-rich slags, ashes, drosses, skimmings, dusts and slimes. Added to these are various copper-iron materials, shredder material, electronic scrap. These metals are supplied partly as complete pieces and partly in shredded form, whereas harmful constituents are removed as far as possible.

These materials contain copper as well as other metals in extractable quantities, including zinc, tin, lead, nickel and precious metals, whose contents can vary significantly for each type of material. Clean copper cable scrap may be



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approximately 99% pure copper, whereas Waste Electrical and Electronic Equipment (WEEE) may have a copper content of only 4 to 20%.

High-quality copper scrap grades (>80% copper or brasses) are processed at furnaces, melted and cast to obtain SEMIs (sheets, tubes wire) of copper and copper alloys. Low quality scrap (about 10% content of copper) and many other raw materials considered waste are processed at Copper Smelting and Refining facilities resulting in copper cathode, copper final slag and other by-products. In both cases, at the first stage of acceptance of secondary sources for processing, only a qualitative knowledge of the level of impurities is needed (that estimated, i.e. based on the source of material). Once the material is on-site, additional tests are performed to calculate the elemental composition of the input. This defines the processing strategy and the need for pre-processing the scraps (e.g. by blending or grinding further with other scrap/waste streams).

Companies have developed sophisticated and specialist approaches over the years to deal with difficult materials and legacy materials with a high level of contamination. Some of these approaches enable recovery of high value components of metal wastes even when they are present at only trace concentrations. It is necessary to obtain the correct balance of inputs for the processes operated to enable plant operation to their design efficiency, minimising energy and other input demands to the processes.

The capacity to process complex and low grade materials brings competitive advantage to the recyclers more than if it were reliant on pure scrap, though this is balanced to an extent by higher processing costs. Furthermore, the ability to recover additional metals also makes an important contribution and is an essential part of operating models in the Copper industry. For example, copper smelters in addition to high-purity cathode copper produce silver, gold, selenium, tellurium, lead, tin, other minor metals, sulphuric acid and iron silicate slags.

**Case Study – Sampling in the batteries industry**

In the battery industry, sampling focusses on battery chemistry rather than material composition. However, it remains the main source of information to ensure stable waste flows.

All waste batteries have to be collected in specialised collection and recycling flows, which are handled by professional recyclers under full control of the composition of the flows treated, in order to manage the transformation process as well as the business risk. The administrative information is normally provided when the waste batteries are shipped. For individual batteries type, a battery material data sheet or a safety data sheet is generally available on the producer website, where the main components of the batteries are identified. Waste batteries flows are generally stable and consist of a mix of various batteries types. The EU Battery Directive defines specific collection and recycling efficiency targets that ensure a high level of environmental control.



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**Case Study – Significant expertise and efforts are invested in capacity to recycle a variety of input materials in environmentally sound manner**

The Aurubis recycling plant in Lünen has state-of-the-art technologies to return highly complex materials to the economic cycle. High-quality products are produced from recycling raw materials of various qualities and compositions such as copper and copper alloy scrap, copper-bearing residues from foundries and semis fabricators, shredder materials, galvanic slimes, slags, ashes and filter dust, electric and electronic waste.

Secondary raw materials include complex end-of-life materials that come from electronic devices, vehicles and other items used daily. Complexity of input materials is increasing through the evolution of modern technologies and miniaturization. Recycling those complex and diverse streams is a significant challenge and continuous investments and adaptations to changing recycling materials are required. High environmental, safety and health requirements are implemented on a continuously ambitious level. The plant utilizes highly developed mechanical, physical and metallurgical separating and refining processes in different combinations as part of multi-metal recycling. In this way, a wide range of additional elements besides copper are recovered: zinc bearing oxide, iron silicate sand, a lead-tin alloy, nickel and copper sulphate, precious metals.

The modern processing facilities in Aurubis also enable the input of industrial residues and waste that would formerly have found their way to landfills. At the same time, no production-related waste arises in the recycling plant. Various procedures enable Aurubis to process and convert the wide range of recycling materials into products in a competitive and environmentally sound manner.

An ambitious process improvement and emission reduction program with a number of measures has been established during last years. Aurubis invested about 243 million Euro in the recycling technology in Lünen since 2000, of which 121 million Euro were related to environmental protection.



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# Issue 2: Presence of substances of concern in recycled materials (and in articles made thereof, including imported articles)

## What is the Commission asking?

The Commission asks whether there are impacts from the lack of a general framework to deal with the presence of substances of concern in recycled materials and articles made thereof. In particular, they highlight that there is no agreed methodology to determine costs vs benefits for society to use recycled materials with substances of concern vs disposal. Up to now some regulatory solutions have been found on an ad hoc basis.

The Commission also sees issues with regard to the following:

- Different requirements apply for EU produced and imported articles, possible generating competitive advantages and incoherence
- The term recycling is used for different purposes that do not all result in the same benefits in respect to Circular Economy and REACH objectives

## Are the Commission's concerns applicable for the non-ferrous metals industry?

As well as answering the Commission's specific concerns, we would like to provide wider context to the issue of presence of substances of concern in recycled materials.

As an industry, we accept the importance of not recycling substances of concern indefinitely and where the overall cost to society outweighs benefits. However, we consider that some of the EU's chemicals management tools - in their current format - represent a competitiveness threat for metals recyclers. These tools – including CLP classification, REACH Authorisation and Restriction – require further refinements to consider the specificities of our sector and others. We consider that this can be achieved without affecting the fundamental principles of REACH and CLP, and without jeopardising human health or the environment.

## Challenge 1: Why the EU's classification framework risks disrupting metals recycling

- **Wider impacts of classifications are not considered by the CLP -** The current Classification, Labelling and Packaging (CLP) system focuses on the intrinsic hazard properties for substances and mixtures. However, it does not consider the impacts and the downstream consequences of a proposed classification (or a proposed Specific Concentration Limit).

  For example, the Netherlands have recently submitted a harmonised classification proposal for classifying cobalt as CMR with a specific concentration limit (SCL) for carcinogenicity (0.01%). Cobalt is present as an impurity at these levels in several other metals and alloys. All related manufacturers and downstream users would need to



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re-examine potential occupational exposures throughout the cobalt lifecycle. Changes to working processes could render the recycling/reuse of cobalt impracticable and unprofitable.

For nickel and other primary materials, only a small portion of producers are able to remove cobalt to a level below the proposed SCL. A market premium could therefore arise in the EU for that material creating an additional economic hurdle. This could also result in additional environmental impacts, for example due to extra energy consumption, waste generation or water usage. Due to the stigmatisation, there is a risk that EU manufacturers could feel compelled to only use primary materials instead of recycled materials.

Impurity levels are also higher in metals scrap. For example, even when copper alloys are designated free of impurities (e.g. lead and cobalt), they still have remaining quantities that could reach up to 1% by weight when adding copper scrap directly to the melt without prior refining. Despite substantial efforts to optimise copper scrap in alloys production, it remains technically impossible to reduce impurity levels beyond current EU limits in this process. Such reductions are only possible in energy-intensive refining processes, and the obligation to take this route is associated with significantly higher CO2 emissions (in conflict with climate change goals).

**Key takeaway** - The EU CLP system should consider the wider impacts of individual classifications on other non-ferrous metals producers, users and recyclers, via effects on mixtures and downstream legislations. Recycling scrap is particularly impacted by classifications, as industries are unable to reduce impurities below proposed CLP limits without significant additional costs and increased energy use.

- **Recycling value chains will be affected –** When impurities are classified as hazardous under the CLP – in particular for CMR endpoints – the market is disturbed and EU producers are forced to use virgin over secondary sources to produce impurity-free alloys. This runs counter to Circular Economy objectives, by disincentivising the safe recycling of valuable metals and alloys.

**Key takeaway –** The Commission should be aware that prohibitive classifications have the potential to disrupt entire recycling value chains, running counter to Circular Economy objectives without benefit to the environment or human health.

- **Metals occur in complex mixtures/materials for which the assessment of toxicity should consider additional properties -** The toxicity of metals can be different when they are included in complex materials like alloys and are part of a chemical matrix. This matrix will influence the release of metal ions in biological fluids, which is the driver for the material's bioavailability - and hence toxicity. This release is not necessarily proportional to the metal content of the material: it can be lower, comparable or higher.




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Classifications of such materials based only on their hazardous constituents will not consider the effect of the matrix on bioavailability and may result in overly conservative or under classifications. The physical form of the material will also impact the toxicity of the metal but this is currently not well reflected by the EU CLP.

**Key takeaway:** The current CLP framework assumes that substances in a mixture retain their own intrinsic properties and that there is no interaction between the ingredients in mixtures. Discounting bioavailability can lead to inappropriate classifications. We recommend that the European Commission further develops robust methodologies to allow the consideration of key factors driving the toxicity of metals in their management.

## Challenge 1 - Classification – What is our recommendation to the Commission?

**The Commission should make it their priority to continue developing methodologies for considering not only the content by weight of hazardous substances in CLP classifications. This is essential to stop prohibitive classifications disrupting the Circular Economy for metals.**

**Work is already ongoing to develop robust methodologies to allow the consideration of bioavailability in CLP classifications. It should be continued.**

**We also recommend that the Commission extends the discussion of bioavailability to overrule – where relevant – the sole consideration of hazard when dealing with complex materials.**

- **Requirements in the Medical Devices Regulation could stop the use of stainless steel in some medical equipment like implants following the cobalt metal classification (and require requests for derogations). This would be cost intensive and reduce planning security for producers of medical devices.**

  **Final slags in our industry are also impacted by the current CLP classification framework, although they are used in a safe way and contribute to the Circular Economy; for example by replacing natural aggregates (see case study below).**

**Case study: Final slags are used in a safe way and contribute to circular economy by replacing natural aggregates in construction**

The ferrous and non-ferrous metals industry produces large quantities of final slags. Final Slags are co-produced out of the metals pyrometallurgical refining and recycling processes (e.g. smelting and refining of metal concentrates and metal scrap, recycling of batteries from electromobility and electronics, recycling of electronic scrap and (industrial) consumables, refining of complex by-products,). Final slags are often qualified as ‘artificial aggregrates’. Final slags primarily consist of e.g. iron silicate and/or calcium-aluminum silicates, in which metals contents have been reduced to the lowest levels that are economically and technically viable. These slags are relatively inert; they contain low levels



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of trace metals are firmly built in or bonded into the glass/crystal structures of the silicate and other mineral phases (matrix), which may be characterised by high bounding stability and reduced solubility.

The tonnages of final slags produced every year are very significant. It has been estimated that more than 10 million tons of final slags are produced at EU level. Uses of final slags are mainly e.g. in construction (road construction, embankments), mine backfill, concrete and asphalt applications and other fill applications, clinker production or mineral addition to blended cements, abrasive blasting, soil fortification, dyke fortification.

As final slags are, in general, products, they are regulated by REACH, which aims at demonstrating and securing safe use through risk management measures, if needed, during the whole lifecycle. The Circular Economy aims in principle for closing materials and energy loops to minimise the footprint and maximise the productivity of materials in the economy.

Using secondary materials is one crucial element of Circular Economy in order to ensure material efficiency and reduction of environmental burden. It is important in this context to assess and evaluate the impact of products on environment and human health throughout their whole life cycle, including the end-of-life stage. Life Cycle Assessment shows major environmental advantages of using final slags compared to “natural” stones e.g. reduction of CO2 emissions.

***Clear product value:*** Final slags are used in construction applications and comply with strict EN standards for construction products, making them very attractive to the building sector for high-end applications. Moreover, the European industry has invested substantially during the last 10-15 years to reduce the non-ferrous metals content in the slags to ensure stable and safe products.

***Clear societal and industrial value:*** The uses of slags contribute to a circular economy, by avoiding environmental burdens of landfilling, conservation of natural mineral resources (natural aggregates) and energy. In July 2016, the European Commission has issued its final report on “Regulatory barriers for the Circular Economy”. The report underlined that there is a market potential for slag (out of primary and secondary metal production) which can be used as a material in the construction sector [EC 2016b]. The use of final slags in industrial applications is considered as best available technique to prevent and reduce the quantities of waste sent for disposal from non-ferrous metals production [EC BAT conclusions, 2016]

***Safe use:*** Final slags are substances and as such registered under REACH. Exposure scenarios are developed where applicable that guarantee the conditions for safe use during manufacturing, service life and end-of-life phase. Final slags are currently considered as non-hazardous. Besides REACH, final slags have also to comply with national/regional requirements. The matrix effect should be considered under realistic conditions in respect to the hazard assessment of final slags and their uses. This can be achieved through appropriate bioaccessibility testing. Risk



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management measures when using slags (e.g. as blasting grid) are usually not different as those for primary materials like sand.

The use of slags therefore contributes to the objectives of the Circular Economy as:

- they substitute for primary materials and therefore reduce their use. Natural aggregates are becoming scarce. The successful application of secondary aggregates such as final slags as construction materials is therefore saving natural resources and environmental (e.g. CO2) emissions.
- they promote recycling of metals at least indirectly given slags are often an output product of metals recycling. Restraining this would reduce or even block the capacity for metals recycling via the pyrometallurgical route.
- The safe use of slags during whole life cycle is demonstrated through REACH

Alternatively rejecting the value of final slags to the Circular Economy objectives may create an inherent conflict as Substitution by primary materials would only promote the use of primary open loop materials

- Decrease the efficiency of the recycling of metals
- Increase the materials to landfill, turning a large tonnage of valuable product ( currently no burden for landfill) to a waste for landfill leading to significant environmental impacts and a loss for society
- Impact on global competitiveness of metals and recycling industry in the EU (i.e. cost for landfill has been estimated in the range between 15-50€/ton) and compromise the ability of EU's refiners/recyclers to contribute to a circular economy by closing the loop on waste
- Green Public Procurement need to have equal footing between primary and secondary aggregates

To conclude: While slags composition and behaviour must be well controlled and managed, they contribute significantly and positively to the Circular Economy, while REACH helps guaranteeing safe use

## Challenge 2 – Why REACH Authorisation is a burden for recyclers

- **REACH Authorisation does have business impacts on metals recyclers –** Last year we commissioned EMRC[1] to perform a first assessment of the business impacts of authorisation of SVHCs for metals recyclers in the EU. The analysis of six case studies concluded that:
    - **Recyclers have very little potential to substitute SVHC metals at the three phases of recover**y (input, process and output). SVHCs are present in many scrap materials, conferring important mechanical properties on alloys and products.

[1] Mike Holland, EMRC. July 2016: Studies to investigate the business impact of authorisation on recycling, main report (attached)



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- **Non-use of SVHCs would have significant impacts on metals recyclers due to the lack of alternatives**. The production of many valuable and critical metals is dependent on the production and use of carrier metals**,** several of which are substances of concern. This is highlighted in the 2013 UNEP report on "metal recycling: opportunities, limits and infrastructure": *"Base metals – Cu, Pb, Ni, Sn and Zn and their processing infrastructure all play a crucial part in present society acting as enablers in any recycling efforts, as they carry and release important and vital minor elements"*

  For example, lead is used as a carrier metal in precious metals refining, allowing for the recovery of precious metals. The feed material for precious metals refining is typically a mixture of waste materials with REACH registered UVCBs. If insufficient lead is present in the feed material, lead and/or lead compounds (e.g. lead monoxide) are intentionally added to the process to allow recycling of precious metals. All lead is transformed to lead metal during the smelting process. This process would need to be authorised if lead metal is subject to authorisation in the future.

  The EMRC assessment also presents a strong case that companies failing to gain authorisation would be at risk of plant closure, reducing the EU's capacity for metal recycling. The development of supply chains and plants over the last decades in the strong direction of industrial symbiosis means that additional constraints on one company will have consequences on others through the supply chain.

- **REACH Authorisation is perceived to be complex, which may dissuade investment within the EU** in the sector, with potential for significant disruption of industrial symbiosis.

**Key takeaway:** In its current form, REACH Authorisation has direct business impacts on metals recyclers. The European Commission can support the Circular Economy by evaluating how to address these impacts, in a way that is both protective for environment and human health without affecting recycling.

- **Enforcement of the Authorisation regime needs improvement –** The European Commission should continue working to improve enforcement of REACH Authorisation, to prevent that markets previously provided by EU producers are supplied by non-EU sources (due to a lack of inspections on users). This undermines the Authorisation system and creates an unfair competition with non-EU manufacturers.

**Key takeaway:** It is critical for the Commission to enforce the Applications for Authorisation for EU uses, in order to avoid competition between applicants and non-applicants.

- **There are negative consequences from authorisation requirements not applying to imported articles –** Non-European suppliers of an article can without any significant burden incorporate a substance under Authorisation into their article and place it on the EU market. As a consequence, imported articles which become



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waste after their lifetime will still contain substances under Authorisation and will come into the recycling stream. The legacy of Authorisation and recycling will be perpetuated. The Commission should evaluate the socio-economic impacts from this scenario.

**Key takeaway:** If Authorisation requirements continue to not apply to imported articles, we can foresee a worst-case scenario where the competitiveness of Europe's recycling sector is slowly decreased (due to the continued need for REACH Authorisation). This would result in lower investments and delocalisation, contradicting the targets of the Circular Economy.

## Challenge 2 - Authorisation – what is our recommendation to the European Commission?

**The European Commission should evaluate how to adjust the existing Authorisation tool to consider the specificities of metals recyclers. This is essential to avoid collateral damage on recycling and the Circular Economy.**

**For example, the REACH Authorisation framework should:**

- **Recognise the role of "carrier metals" in recycling**
- **Consider "pre-mixing conducted to optimise the feed of materials for the metallurgical processes" as an integral part of the first recycling step rather than as a use**
- **Focus on substitution where management of exposure is uncertain or risk is unacceptable, rather than on intrinsic hazards only**

**It is also important that the Commission keeps working to improve national enforcement of authorisation requirements, and pre-emptively addresses the negative consequences from authorisation requirements not applying to imported articles.**

**Case study on Authorisation: Lead oxide used as critical element in fire assay before recycling of precious metals**

Sampling and elemental analysis of (feed) materials is an essential task for the precious metals (PM) refining industry to understand and define precisely the content of the recycling feed.

The fire assay (laboratory use) is the most commonly used assay for this purpose. Lead monoxide is added to the test sample, and acts as PM collector, on the same principle as the recycling of precious metals. The lead monoxide is reduced to lead metal during the smelting step, but re-oxidised and volatilized to lead monoxide during the final cupellation (where a precious metals prill is isolated from the lead-precious metal fraction). Lead oxide is an essential element in the analytical method used to define the content of recycling feed and will have to be authorized as soon as



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it will be placed onto annex XIV with an important impact on recycling and understanding of the material flow. After the process, the lead monoxide is captured with industrial filters and further treated at dedicated facilities.

The above example shows that lead and lead compounds are essential as collector in PM refining and sample analysis. If the use of Pb as collector for PMs (either via its presence in the feed material or via intentional addition) is put under regulatory scrutiny, the PM refining industry (and by extent the wider recycling activities) is put under severe pressure in the EU.

**Case study on Authorisation: difficulties to substitute**

Substances of concern are present in many scrap materials and will be for many years to come. Companies in the sector are subject to legislation such as the RoHS Directive. Under RoHS, the lead content of materials used in electrical and electronic equipment is restricted to 0.1%. A number of exemptions are in place (e.g. 4% in copper alloys), reflecting the impossibility of short to medium-term substitution. Recyclers will therefore receive materials with higher concentrations of substances of concern for the foreseeable future. The End of Life Vehicles Directive contains similar exemptions for lead in specific applications. The research that has been undertaken in successfully developing applications with reduced content of SVHCs ( e.g. lead free alloys) has for example confirmed that lead is a unique alloying element that helps to deliver specific performance properties that are not achievable with substitute materials. The complexity of consumer products require an industrial network of metallurgical production infrastructure to maximize recovery of all elements in end-of-life products.

## Challenge 3 – Why REACH Restrictions should be better enforced

- **The Commission should work to ensure Restrictions are consistently implemented and controlled –** Currently, restrictions are not implemented and controlled consistently across all Member States, including at EU borders, with a risk to disrupt the level playing field between EU and non-EU competitors. Unlawful product imports could contaminate EU waste streams and disadvantage European metals recyclers.

**Key takeaway:** The Commission should evaluate how to improve the implementation and control of restrictions across Member States, to ensure a level playing field for EU companies. Customs officers need relevant, efficient and use-friendly tools to perform their controls.



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- **Restrictions should also be applied by use rather than by substance –** This would help to avoid multiple assessments for the same use, reducing administrative burden. Industry would be able to submit Annex XV proposals for restrictions, alleviating the need for authorities to gather data and make assessments.

**Key takeaway:** The European Commission can improve the efficiency and take-up of the restriction tool by restricting uses rather than individual substances

## Challenge 3 - Restrictions – what is our recommendation to the European Commission?

**The Commission can improve the effectiveness of REACH Restrictions by improving customs controls at EU borders, on both waste exports and product imports.**

**In particular, we recommend that customs controls should evaluate each product's quality and compliance with REACH. This would protect against unlawful product imports contaminating EU waste streams and disadvantaging European recyclers. We support DG TAXUD's evaluation and fitness check of the European Customs Inventory of Chemical Substances (ECICS), and its coherence with other existing databases (e.g. REACH/CLP).**

**In complement, the Commission can reduce burden on authorities by restricting uses rather than individual substances.**

## Overall - what are our recommendations to the European Commission?

**As an industry, we accept the importance of not recycling substances of concern indefinitely and where the overall cost to society outweighs benefits. We support the need to manage risks associated with the production and use of a substance, in particular where control of its exposure is uncertain. Metals recycling companies are already subject to a significant body of legislation and most have developed certified management systems to build in the protection of workers, public health and environment into day-to-day management.**

**However, Europe's metals recycling industry is at risk of being heavily burdened by the EU's current framework of Classification, Authorisation and Restriction.**

**The European Commission now has an opportunity to evaluate how their Chemicals framework should be adjusted to complement rather than contradict Circular Economy objectives.**

**We have identified several measures that would alleviate burden on metals recyclers, without undermining the key principles of CLP and REACH, and without jeopardising protection of human health or the environment**

- **Develop methodologies to consider more than only content of substances of concern in CLP classifications; especially bioavailability**

- **Adjust the REACH Authorisation tool to consider the specificities of metals recyclers**



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- **Address the negative consequences from Authorisation requirements not applying to imported articles**
- **Improve the implementation and control of REACH Restrictions across Member States, especially at EU borders**

**Overall, we recommend that the Commission takes a more holistic approach to chemicals and waste policy, evaluating socioeconomic impacts on recyclers at an early stage: for example during the Risk Management Options analysis (RMOa) carried out by ECHA and Member States as well as when an Annex XIV recommendation is communicated to the Commission.**

**Policies that aim to boost the use of by-products or recovered substances should focus on assessing the risk from using or processing substances of concern at their end-of-life, rather than setting requirements based only on the substances presence in the waste stream. In this context, strategies should aim to set management measures to secure safe conditions for workers and the environment.**

**Crucially, the Commission should target case-by-case situations in a flexible way, rather than working on a one-size-fits all solution for impurities in by-products and waste streams.**

**Case study on need for a holistic approach: Example of aluminium alloys**

The majority of the secondary production of aluminium alloys contains substances with a relevant hazard classification (e.g. lead) because those are contained in the raw material (post-consumer and industry scrap) as non-intentionally added impurities.

To ensure that the produced alloys and aluminium processed further down the chain have a lead content lower than the CLP specific concentration limit, in the absence of specific approaches such as e.g. bioelution, the recycling industry needs to a) either change the usage of different raw material or b) use more primary aluminium. The replacement of the material with primary metal has an estimated 'materials' cost (200-300 €/ton) and creates dependency on imports but has also an energy cost to be considered (the energy consumption of the primary metal needed for diluting the scrap is 20 times higher than for recycled aluminium).

These inconsistencies and/or collateral damage could be avoided by defining the most effective risk management and related information requirements across policies (e.g. during the RMOA phase which would also consider other policies).



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# Issue 3: Uncertainties about how materials can cease to be waste

## What is the Commission asking?

The European Commission asks whether problems arise from the lack of clarity between Member States about how materials can cease to be waste – as defined under Article 6 of the Waste Framework Directive.

In particular, they observe  a lack of clarity from Member States allowing recyclers to place on the market recovered substances & mixtures as “non-waste” without any administrative decision (national or EU) confirming non-waste status.

The Commission’s concern is that this lack of clarity may create difficulties in:

- Establishing that all conditions of Waste Framework Directive Article 6(1)) are met
- Applying and enforcing chemicals and product legislation, which requires to know whether a given material is waste or has ceased to be waste

## Are the Commission’s concerns applicable for the non-ferrous metals industry?

- **End-of-Waste criteria are not widely applied in the non-ferrous metals industry -** The EU has adopted End-of-Waste criteria for aluminium and copper scrap, as well as iron and steel. However, these End-of-Waste criteria have not been widely taken-up in the non-ferrous metals industry. One exception is Italy, primarily due to requirements in their pre-existing system (90% of companies using aluminium End-of-Waste criteria are in Italy).

**Key takeaway:** Take-up of EU End-of-Waste criteria in the non-ferrous metals industry is low.. We are not in favour of introducing more EU End-of-Waste criteria for metals in the future, unless further efforts are made to work on the harmonisation of their implementation.

- **Largely, metals recyclers do not experience regulatory uncertainties from End-of-Waste criteria –** Most metals recyclers are already covered by waste recycling permits. They are not concerned whether input materials are categorised as waste, end-of-waste or as a product under REACH. The final metallurgical recycling process guarantees that waste ceases to be waste, by producing output materials able to substitute primary materials.

  We do however see problems with non-harmonised national End-of-Waste criteria, which make it easier for metals scrap to be exported to low-quality recyclers outside of Europe.



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**Key takeaway:** We do not experience major difficulties from EU End-of-Waste criteria in applying chemicals/products legislation. However, the European Commission should continue to discourage divergent national End-of-Waste criteria, which can encourage metals scrap exports to low-quality recyclers outside of Europe.

- **Aluminium/Copper recyclers receive wrongly declared End-of-Waste compliant scrap –** Only 10% of aluminium scrap in the EU is end-of-waste compliant. In that context, aluminium recyclers complain of cases where they receive miscategorised End-of-Waste from traders (for example because of too high impurity levels with non-recyclable materials). This causes problems in processing (for example due to impurity levels) and can prevent metal output from meeting product specifications

**Key takeaways –** Aluminium recyclers do experience quality issues with miscategorised end-of-waste. These problems could be tackled by third-party verification of the material's compatibility with End-of-Waste criteria (on top of the existing third party assessment by a conformity assessment body requirements on quality management systems). The Commission should evaluate how to provide a stronger guarantee that criteria are fulfilled.

- **Instead, our major issue is the lack of harmonised criteria for by-products –** Metals recyclers are burdened by the lack of harmonised conditions for substances or objects to be recognised as by-products not waste. Member States declare by-product status in different ways, creating uncertainty.

  For example, certain metals slags fulfil the requirements of by-products (or even products). Therefore, our recyclers register them as substances under REACH, meaning they should be excluded from Waste legislation. This is not recognised by all authorities (i.e. Belgium), forcing recyclers to comply with both waste and product legislation requirements (see case study below). Divergent waste/by-product classifications are also a barrier to intra-EU trade.

  Transporting waste is much more burdensome than transporting by-products or products, due to extensive notification procedures. Shipping companies are also increasingly reluctant to transport hazardous wastes.

**Key takeaways –** The Commission can make a major improvement by establishing Union level harmonised conditions for substances or objects to be recognised as by-products. This will fulfil the overall ambition of encouraging the enhanced use of secondary raw materials.

## What is our recommendation to the Commission?

**In summary, the application of End-of-Waste status is not currently a primary concern of the non-ferrous metals industry. In the limited cases where End-of-Waste status is used, improvements can be made by enforcing third-**



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**party verification of the material's compatibility with End-of-Waste criteria. The Commission should also discourage non-harmonised national End-of-Waste criteria.**

**Our bigger concern is with the different national interpretations of when substances or objects should be recognised as by-products. The European Commission can greatly improve the interface between chemicals and waste legislation by establishing Union level harmonised conditions for by-products. This would prevent double regulation and facilitate a Circular Economy.**

**We also highlight that the Waste Framework Directive is currently being revised, including Article 5 (by-products) and Article 6 (end-of-waste status). We recommend that the Commission should analyse the situation again after new legal requirements are adopted and implemented by the Member States.**

**Case study: Non-ferrous slags in Belgium are double regulated as they must comply with the waste and products requirements**

Since June 2012, Belgium (Flanders region) has adopted the requirement of the EU Directive via the 'Materialendecreet' and its underlying detailed legislation, 'Vlarema' (Vlaams reglement betreffende het duurzaam beheer van materiaalkringlopen en afvalstoffen - Flemish regulation on the sustainable management of material and waste cycles).

In the Vlarema legislation it is also stated that a product status is possible for several waste materials for in advance described applicable uses in Flanders, only when approved by OVAM (Openbare Vlaamse Afvalstoffenmaatschappij - Flanders Competent Authorities) in a so called 'Grondstoffenverklaring' (Materials declaration).

However, when this 'product' status is granted by OVAM and applicable, a REACH (Regulation on safe use of chemicals EC/1907/2006) Registration is needed for the product.

Final slags originated from the copper industry are among these waste materials for which a material declaration ('Grondstoffenverklaring') is possible for some uses.

Metallo faces a situation that the final slags are fundamentally classified as waste, but for those two uses a product declaration as building material a 'Materials declaration' was granted by OVAM. And thus a REACH Registration was needed. Metallo registered the final slags under REACH. In the REACH dossier, safe use is however shown for a long list of other uses, which are not allowed in Flanders.

Thus, on the one hand there is the product status with many safe uses under REACH, while on the other hand, under the Vlarema legislation, only two applicable uses as product are granted. Although a product status was obtained, in essence the material remains a waste, under close monitoring by our waste authority.



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**Case study: ferro-alloys slags: conflict between product and waste**

Ferro-alloys are produced by smelting of ores in submerged electric arc furnaces. This production generates also slags (oxides content). The ratio of slag/ton of ferro-alloy produced depends upon the type of ferro-alloys (source: NFM BREF, internal data of Euroalliages). It can be estimated that the EEA production of final slags from the production of ferro-alloys is around 1.4 Million Tons (source: British Geological survey, internal data of Euroalliages).

Ferro-alloys slags have been registered under REACH. Those slags are not hazard classified. The main applications are in road construction (use in asphalt and concrete), in landfill cover and drainage, in embankment fills, as raw material for production of insulation material, in construction material for building - foundations, freeze insulations, surface drainage systems, …), as sandblasting. As an example, FeCr are subject to compliance with standardized specifications such as EN 13242:2002+A1:2007 - Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction. European Standards relevant for slag are: EN 197: Cement; EN 206: Concrete; EN 13139, 12620 etc.: Aggregates ; EN 13383: Armourstones; EN 12945: Fertiliser; EN 13285: Unbound mixtures; EN 14227: Slag bound mixtures; EN 15167: GGBS in Concrete.

Ferromolybdenum slag can be successfully used in the production of concrete blocks substituting for natural aggregates. All properties meet the required values in order to certify these blocks according to BENOR. Blocks made of ferromolybdenum slag do not cause any hazard to human health or to the environment. However, obtaining a certification label for a product when using waste as an aggregate is not straightforward. It is often difficult to meet the standards. One also has to overcome the prejudice that comes together with the connotation of “waste” in a waste-to-product approach. In Belgium/Flanders FeMo slags have to fulfill both waste (certificate to be issued by OVAM based on requirements of the law VLAREM) and product (Product norm for CE certificate + requirements for measurements; EN 12620; SB250 local standard bestek voor de wegenbouw; COPRO TRA 40) regulations.

In the UK, a similar situation is noticed. FeMo slag is considered to be “a waste” while it is stored on site and requires all applicable obligations associated with manufacture, storage and recycling of waste. The UK authorities currently do not distinguish between these two regimes - registration of a substance as required by REACH v. treatment of material as waste -and believe that either both regimes could simultaneously apply or, if not, then waste regime should apply over REACH.

The conflicting status between product and waste at national level jeopardizes valuable use projects (i.e. constructions road applications) which would enable considerable amount of slags to be diverted from landfilling or from long term storage waiting for an outcome. Important amounts of valuable ferro-alloys slags are force to be landfilled by some local authorities. A significant amount of financial resources is therefore diverted from more efficient actions like research and innovation, people training etc.



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Another case is noted in France where a company located in the North is specialized in recycling of dusts from electric arc furnaces (e.g. steel, special steel dusts). In order to load their treatment capacity, they are engaged in a development to treat manganese containing residues coming from the FeMn and SiMn production sites. The purpose is to treat these residues in order to produce a Mn rich slag, and get rid of all impurities which concentrates in the metal and in the secondary filter dust. The Mn rich slag can be then processed to produce FeMn, in lieu of Mn ore. The problem is that under current legislation in France, slag is considered as a waste and cannot be accepted by the plant, unless duly authorized to treat this kind of waste. Talking to authorities, the only proposal on their site would be to change the plant permit to allow them to treat residues (but including also the monitoring system specific to the recycling industry, which the customer is reluctant to accept).



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# Issue 4: Difficulties in the application of EU waste classification methodologies and impacts on the recyclability of materials

## What is the Commission asking?

The European Commission asks whether difficulties arise from the lack of consistency in terms of application and enforcement of whether waste is classified as hazardous or not.

Classification of waste as hazardous or non-hazardous is based on the European List of Waste (LoW) but it can also be evaluated according to Annex III of the WFD. However, after the change of Annex III some cases are still not clear and not yet completely aligned.

Practices applied by the waste operators disregard certain legal obligations arising from Article 12(b) (i.e. lack of biological availability) and Article 23(d) (derogation from labelling operation) of the CLP Regulation. Operators assume that if the substance of concern is contained in a matrix (e.g. plastic) it will lower its hazard and related risks.

The Commission asks specific questions of:

- Whether the problem is essentially an implementation and enforcement issue
- Whether an assessment is needed on the current waste framework's adequacy to assess the real hazards of complex materials
- Whether enforcement of the current legal provisions has an impact on the viability of certain recycling activities

## Are the Commission's concerns applicable for the non-ferrous metals industry?

*Overall, we emphasise that the Commission's expressed concerns about the safety of waste management operations and risks from re-introducing products to the market are unfounded for non-ferrous metals. As stated above, metals of concern are treated safely by EU high-quality metals recyclers, and do not pose risks to the public in new applications.*

- **Waste metals are primarily misclassified due to insufficient Member State implementation and enforcement –** We consider that the current EU Waste Framework is well-structured in principle. In 2014, the EU changed classification rules (Commission Regulation (EU) No 1357/2014 of 18 December 2014 replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives; List of Waste (Decision 2014/955)). Waste may now be assessed by using the concentrations of hazardous substances or by using a test, which considers bioavailability. Where a hazardous property of a waste has been assessed by such test, the results of the test shall prevail.



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**Key takeaway:** In 2014, the Commission made beneficial changes to classification rules of waste, including the consideration of bioavailability. This will allow for accurate classification of metals waste, but still requires stricter/harmonised implementation in Member States.

- **It is essential to consider bioavailability when classifying waste metals -**As stated in our answer to Issue 2, metals of concern that are encapsulated in complex materials with a matrix are usually less bioavailable. If well handled, they can be recycled while avoiding any risk to human health or the environment. For these substances or mixtures, strictly hazard-based legislative classification would lead to the non-recycling of products that have been in use for long periods and do not create residual risks for man and environment.

**Key takeaway:** The European Commission should continue to encourage the recognition of bioavailability test results in waste classification.

- **Intra-EU shipments would be heavily disrupted by classifying metals waste according to CLP hazard classification alone –** A 2013 study of Belgian metal recyclers has estimated that after full implementation of the CLP regulation, volumes of amber-listed waste would increase by more than 130%. Because notifications are needed for all shipments of amber-listed waste, there would be a huge extra administrative burden on companies and authorities (each notification typically takes several months to process). This harms the competitive position of EU high-quality recyclers on the worldwide market.

**Key takeaway:** Accurate classification of metals waste is essential to prevent significant extra burdens in transporting waste across EU borders. A crucial part of promoting Europe's Circular Economy is making it as easy as possible to transport metals waste to high-quality recyclers.

- **Intra-EU shipments of metals waste are also frequently delayed due to Member State classification inconsistencies –** Multi-metallic recyclers are not present in every Member State, because their business model requires economies of scale. As such, transboundary waste shipments across several Member States are the norm in our sector. Shipments are regularly disrupted by different Member State interpretations of whether waste is hazardous or non-hazardous. For example, shipments of agreed green-listed metals waste have been stopped and disputed in transit Member States. Although different batteries have different waste codes, some Member States treat all batteries as hazardous waste.




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**Key takeaway:** European metals recyclers are disadvantaged by different Member State interpretations of whether waste is hazardous or not. The European Commission should focus on promoting harmonised interpretations across Member States.

## What is our recommendation to the Commission?

**In our view, the problems raised by the Commission are primarily an issue of Member State implementation and enforcement. The existing EU framework for classifying EU waste is well-structured in principle. In particular, we support the continued consideration of bioavailability tests when classifying waste. This allows for accurate classification, and would help to prevent significant extra administrative burdens on high-quality metals recyclers.**

**However, it is essential to better enforce EU rules at national level. In particular, intra-EU shipments of metals waste are frequently delayed due to inconsistent Member State interpretations of whether waste is hazardous or not. These delays are a direct barrier to the Circular Economy, by lowering the attractiveness of shipping waste to EU high-quality recyclers.**

**For that reason, we recommend that the Commission focuses efforts on improving implementation and enforcement of EU waste classifications at Member States level. This will help to facilitate EU transboundary waste shipments.**

**Case study: Blind application of CLP could lead to an increase of more than 130% of amber listed waste**

Based on a survey, Agoria evaluated the potential impact of the application of CLP to the waste classification on the transboundary transport of metal waste material for recycling in Belgium. The starting point was the actual import of materials for recycling from six non-ferrous metals recycling companies in Belgium and an evaluation of these companies whether the waste stream could become hazardous after the application of the CLP. The findings are rather detrimental, as shown in the table below, the shift from green listed to amber listed waste would increase the volume of amber listed waste by more than 130%.

| | Before CLP application | | After CLP application | | %Shift estimation |
|---|---|---|---|---|---|
| Origin | Green | Amber | Green | Amber | |
| Europe | 290.087 | 113.054 | 23.901 | 379.240 | 66,0% |
| OECD & non-OECD | 110.370 | 136.060 | 36.009 | 210.420 | 30,2% |
| Total | 396.039 | 249.114 | 59.910 | 589.661 | 52,4% |

The type of wastes concerned are rather broad, such as:



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- Zinc oxide for recycling from the galvanizing industry. This waste material is sourced typical within a broad network of small medium sized companies with each low quantities of waste to be recycled. Hence the potential of not being able to source these materials for recycling increases,
- Complex metal bearing waste, such as sludge, slurries from other metallurgical operations containing silver, but also printed circuit boards for recycling will become potentially amber listed waste,
- Drosses from aluminium refining which contain typical small amounts of other metals (<1%) which can shift due to this presence to the amber waste list,
- Also pure metal scrap, such as aluminium, copper, zinc that contain in certain cases lead for specific propose will potentially become also amber listed waste.

The specific problem of the application of CLP is the way the characterization is done. Typically homogenization of the waste is performed through shredding and grinding in order to analyze the composition and the hazard profile. This is altering the physical form which is not representative for the actual hazard profile of the waste under the physical form (sometimes solid).

**Expected further negative impact on availability of waste materials for recycling in Europe**

An important impact is the fact that more than 50% of all wastes imported at this stage under the green list will have to comply in the future with the amber list procedure. The impact is multifold:

- An important increase of notifications for transboundary transport has to be expected. From Agoria's limited questionnaire it was identified that in a medium scenario this could increase by about 5.178 extra notifications for amber listed waste. This will entail a huge administrative burden on companies and authorities. Major question is also will the industry still be able to source certain streams linked to the important time delay expected with these notifications and will there be enough resources at the level of the authorities to respond in time? More important question is however whether this will lead in any way to a better control of real risks associated to these materials or only lead to a loss of sourcing capacity for quality recycling in Europe?
- Some impact on the transport containers: this is depending whether the material is already transported with an adequate transport container taking care of the needed protection level for the type of material. In certain cases we do expect that due to over-classification we will have an overshoot without any added value. This will of course entail higher costs again depending on how the material is already transported.
- Increasing notifications after treatment and increasing financial guarantees linked to the amber list procedure.
- Increasing negative image with the maritime transport sector, which is already refusing to take on board 'hazardous' waste for recycling even if there are no risks associated to the transport, due to an over-stigmatization. Most striking example already is the blocking of the transport of printed circuit boards out of Africa from the non-governmental organization Worldloop – Close the gap, which tried to get them to a quality recycling operation in Belgium.



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More important is that this will result in an important loss of commercial power to source wastes for quality recycling in Europe. The notification process is very disruptive at international level given the important administrative burden linked to it as well as the time needed to be able to transport the material. Mostly we see that it is not possible or very difficult to source amber listed waste from outside the EU given that these types of wastes, which are an important source for Europe and can be recycled without any problem, are exported to other countries which are not necessary using the hazardous waste list / transport regulation.

Counterparts are very often pushing to close the contract for supply as quick as possible given the volatility of metal prices, linked to the high financial risk. The administration time for arranging the transport of the waste through a notification takes typically two to even six months. This has as a potential direct effect that imports from the OECD (non-EU) of amber listed materials will be typical lost as sourcing materials given that there are alternatives outside the EU with no stringent import regulations with a high administrative time consuming procedure, given that the classification is also different.

Inside the EU we expect an important increase of notifications without necessary an added value towards the protection of the environment given that those streams are already well established on the one side but also the hazardous profile is overestimated due to the other physical characteristics of the waste.

Conclusion: the strict application of the CLP rules could lead to a loss of valuable metal waste for quality recycling in Europe and hence have a negative impact on the EU recycling industry favoring low quality recycling outside Europe.

**Case study: National differences in what is seen as safe recovery**

A Belgian company was interested in a material containing tin (Sn) that was coming as waste from Sn plate packaging producer located in Germany (Rheinland-Pfalz region). This waste could be accepted as amber listed (notification) and processed by Metallo (Belgium) to recover tin as pure metal and, besides other intermediates, also to produce slag that potentially can be used in road construction material.

In Belgium this operation is recognized as a useful recovery. However, German local authorities refused to give permission (approve the notification) for the export based on the fact that the final application of the (contaminated as they claim) slag ending up in road construction is not seen as safe recovery. According to them, such slags can only be landfilled. Metallo were unable to convince the German authorities with either their REACH Registration or their approval (product declaration) from the Flemish authorities to use the material in road construction. In conclusion, such a prohibitive position leads to more landfilling instead of recovery of the valuable, recyclable tin in the slag and safe use in road construction material.



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## ABOUT EUROMETAUX

Eurometaux is the decisive voice of non-ferrous metals producers and recyclers in Europe. With an annual turnover of €120bn, our members represent an essential industry for European society that businesses in almost every sector depend on. Together, we are leading Europe towards a more circular future through the endlessly recyclable potential of metals.

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