european aluminium association

Frequently Asked Questions
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"Sustainability of the European aluminium industry 2010"

Q.1 What is EAA's vision and mission in terms of sustainability?

The European Aluminium Association and its member companies are committed to pursuing the principles of Sustainable Development. In our vision, this means:

- Meeting the needs of modern society and creating value by offering aluminium products with unique properties, including recyclability;
- Reducing the environmental impact of our production processes and that of our products through their life cycle;
- Demonstrating our social responsibility towards employees, customers, suppliers, local communities and society as a whole;
- Inform customers about the material's properties and help them achieve life cycle sustainability objectives;
- Achieving continuous progress through the sharing of best practices and regular indicator-based reporting;

Q.2 What is the purpose of the Sustainable Development Indicators (SDIs) exercise?

Thanks to this comprehensive benchmarking system, the European aluminium industry is able to assess its performance, share it with the stakeholders and prepare the way forward. Our industry has a good case to make in terms of sustainable development, and EAA has developed the tool to support that claim

Q.3 How did you select your partners? How independent are they?

The partners which collaborated with EAA in developing the sustainability reporting, (i.e. the Centre on Sustainable Consumption and Production in Wüppertal, the University of Versailles and Pré consultants) were chosen among the most respected and renowned independent experts in the field.
Their main role was to support EAA in developing the correct methodology for identifying the indicators to report, involving also other independent stakeholders in the process. The results and findings presented in the different reports are sole responsibility of EAA.

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Q.4 Which methodology was adopted for data collection and as a basis of calculation?

Data have been collected at plant level, for EU27 + EFTA[1] countries, on the basis of a detailed questionnaire covering the entire value chain, from alumina to primary production, rolling, extrusions and then to recycling. The report's coverage of the industry for primary and rolling is highly satisfactory, and constitutes a solid and acceptable basis also for the other processes covered, considering the complexity of the questionnaire and the variety of the actors involved.
The data collected have then been scaled up to reflect the total production in Europe (defined in the report as EU27 + EFTA).

Q.5 What was EAA's approach towards stakeholders' dialogue?

Considering the complex and multi-disciplinary nature of the concept of sustainability, EAA encouraged the participation of a variety of external stakeholders (International organisations, trade associations, NGOs and industrial partners) in the preparatory phase, aiming at identifying the relevant indicators. Several stakeholder workshops were organised, to share the interim results of the exercise and benefit from contributions and different perspectives. These inputs were fully taken into account.

Q.6 How do you explain the decrease in the aluminium demand from 2008 to 2009?

Although the long-term trend on the demand for aluminium is positive, the results for 2008 and 2009 were highly affected by the global financial crisis. During this period, all markets were significantly hit, in particular the automotive industry. As the transport sector accounted in 2008 for 36% of the market share for aluminium products, this explains the decline in aluminium demand in the last two years covered in the report.

Q.7 How do aluminium applications and products help reduce carbon emissions?

In the transport sector aluminium helps to make significant weight savings in cars, lorries, boats and trains thereby reducing the fuel consumption and the GHG emissions.
In buildings, aluminium solutions can help to reduce fuel consumption for heating and ventilation, optimising the overall energy efficiency of the building.
When used in packaging, aluminium reduces transport costs through lighter packaging and also helps to reduce food waste due to its protective properties.

Q.8 GHG emissions are a key indicator concerning environmental sustainability. How is the industry tackling the issue?

One answer to this question lies in the use phase and the unique properties of our material (see previous Q). Further, the industry has significantly reduced GHG emissions from the production chain, particularly in the primary smelters, well ahead of the foreseen inclusion into the EU Emission Trading Scheme for CO2 (2013). Between 1997 and 2009 the indicator for this process registered a significant reduction of almost 50%. In addition the increased recycling rate also contributes to these achievements as the energy savings made possible by producing aluminium from recovered scrap are 95% compared to the primary production.

[1] European Free Trade Agreemen: Switzerland, Liechtenstein, Norway and Iceland

Q.9 What are the key drivers for emissions reduction?

Concerning the greenhouse gases, the aluminium industry has already significantly reduced its direct emissions since the 1990s. This is a result of the continuous improvement of the smelting technology which has taken place in the last 20 years, and continues to date. The benefits are also visible in other compartments, such as fluorides emissions, PAH emissions, etc.

The emissions from industrial plants, excluding the greenhouse gases, are regulated in EU by very ambitious and advanced legislation, based on the dynamic concept of Best Available Techniques. The aluminium industry fully supports this approach, and takes active part in the definition of the BAT together with the other concerned stakeholders.

Q.10 Why does your industry support a Life Cycle Analysis (LCA) approach to products?

The assessment of the entire life cycle of a product allows to take into account all the improvements of the environmental, e.g. by means of efficient use of resources and energy, reduction of emissions to air and water, reduction of waste, for both the production process, the use-phase and the end-of-life (EoL) stage.

LCA provides the best available tool for assessing these improvements in an integrated way, assess the environmental impacts of products all along their life cycle. LCA is also the best framework for avoiding the so-called shift of burdens. As an example, the food production chain has the most important impact within the food sector, while the development of advanced packaging solutions for some food products can lead to higher environmental impacts for packaging. The negative impact can be largely balanced by the benefits resulting from a longer preservation period and also by the reduction of food wastage.

Similarly, the benefits of moving to electric vehicles can only be properly evaluated if the whole life cycle of the vehicle itself is addressed, including the electricity production, the use phase model and the EoL stage.

Only an LCA framework allows an appropriate environmental assessment.

Q.11 Why is your industry favouring End of Life recycling vs. the recycled content concept as an indicator of recycling efficiency?

The “recycled content” assesses, for a given product, the aluminium fraction coming from recycled sources. Recycled aluminium is currently limited by the supply side, i.e. the availability of aluminium scrap from end of life products. Today, most of end of life aluminium products are already efficiently collected and recycled so that end of life recycling rate of more than 90% are already observed in the building or transport sectors. With the continued growth of the aluminium market and the fact that many aluminium products have a long lifespan, the current market demand cannot be satisfied with recycled aluminium in spite of these efficient recycling rates. In addition, requesting high recycled content within specific products may lead to lower efficient recycling routes and to higher logistic and transport impacts. Hence, the aluminium industry focuses on optimising aluminium product design for maximising their further recycling in order to maximise the scrap supply, i.e. the bottle neck of the aluminium recycling sector.

Q.12 How much energy is saved by aluminium recycling compared to primary production?

The energy required to produce one tonne of recycled ingots from clean scrap can be as little as 5% of the energy needed to produce one tonne of primary aluminium.

Q.13 If recycling saves more than 95% of energy when compared to the primary production, can it replace the primary production?

The growing markets for aluminium products are supplied by both primary and recycled metal sources. Increasing demand and the long lifetime of many products mean that, for the foreseeable future, the overall volume of primary metal produced from bauxite will continue to be greater than the volume of available recycled metal. Also, illegal scrap exports are a source of concern and the industry calls upon policy makers to ensure the full implementation of the rules against this. Last but not least, the geographical link between the primary and downstream sector should be maintained in Europe in order to foster R&D, innovation and maximise the value chain efficiency.

Q.14 In the use phase chapter (and mainly for building applications) you refer to qualitative indicators instead of quantitative ones. Can you explain?

In some cases, especially in multimaterial products or complex structures such as buildings, it is extremely difficult to isolate the sole contribution of aluminium to the global performance of the product. Hence, also considering that this is the first effort in this sense, and there is no established methodology for this type of reporting, quantitative information were supported by quality considerations to better explain the benefits brought by the use of aluminium to a certain application.

Q.15 Still referring to building applications, more and more focus is set by policy-makers on energy efficiency, eco-design, eco-labelling and Green Public Procurement. How is the aluminium industry positioning itself?

As a general rule, optimisation of the whole building should always have the priority on requirements at building product level. Requirements at building product level should be restricted to small-scale renovations, i.e. to the cases where a holistic optimisation does not usually happen. It is often quoted that more than 40% of windows in the EU are still single-glazing, and suggested that applying eco-design or labelling would facilitate the market uptake of more efficient building components. This is only partially true because, in many cases, it is not the information on the performance of building products that is missing, but rather the upfront investment costs that represents a barrier to their use. Appropriate national and European financial support is needed for the refurbishment of existing buildings and for the construction of energy efficient new buildings.

Q.16 Why is weight reduction one of the most efficient means to reduce CO2 emissions from vehicles?

It has been estimated that up to 80% of the CO_2 emissions over the complete life cycle of a vehicle are generated during its use phase. Considering that the weight reduction directly reduces the fuel consumption, hence the related CO_2 emissions, because the energy

required to move a vehicle is directly proportional to its mass, it is clear that the weight reduction is a very efficient way to reduce the total emissions from a vehicle considering its entire life cycle.
At the same time, the reduced vehicle mass enables significant safety improvements as well as better driving performance and higher comfort.

Q.17 Is it true that light cars are not as safe as heavier cars?

No, it is a wrong perception. The safety of a car does not depend on the weight. Using lighter materials such as Aluminium can actually improve safety.
The reason for this is that the energy absorbing capacity per unit weight is higher for aluminium than for steel. Another positive property of aluminium alloys used in crash management systems is that the component deforms heavily and controlled before crack formation starts. This also helps to absorb as much energy from the crash as possible. Furthermore, since aluminium solutions can use a higher material thickness without adding weight compared to steel, aluminium can be used in components with a high strength requirement and still maintain a weight reduction.

Q.18 Recycling rates for the automotive and building sectors are very high (95% and 92% respectively), while average aluminium packaging recycling rate stands at 55%. What can be made in order to improve the current collection schemes? What about further technological and innovative developments? Who are the actors involved?

The recycling of aluminium packaging is constantly increasing. Also, further growth is expected due to additional and new collection activities planned for the coming years.
The recycling rate for used aluminium beverage cans in EU 27 + EFTA and Turkey is also increasing and now stands at 63%. If we include extra collection activities in addition to the official recovery rate, it can be safely assumed that 70% of all cans are recycled Europe-wide. The aluminium industry has always been proactive on this topic by setting up and funding collections and education programmes. Further progress can be in particular achieved for smaller aluminium foil-based packaging items, and existing collection systems, often multi-material, can further optimise their performance. To this aim, investments are needed in improved sorting techniques, e.g. the latest generation of eddy current machines, and intensified communication towards households, explaining that items such as menu trays, tubes, caps and capsules can be easily separated at home. On top, the industry has high expectations from the improved recycling of aluminium from the bottom ashes of the waste incinerators.
The intrinsic high scrap value of non-ferrous metals should convince local authorities and waste management companies to focus also on highly valuable aluminium fraction in the total household waste tonnage.

**Q.19 How to combine competitiveness and environmental "performance"?
Beyond current activities, what do you see as future opportunities for fostering the industry's sustainability?**

The European aluminium industry has always been committed to best practices and high level of environmental standards and is willing to further develop sustainability strategies and investigate innovative solutions. A key parameter of further improvements is continuous R&D efforts, something which is intimately linked to the necessity of preserving the whole value

chain in Europe and consequently to adopt an adequate legislative framework at EU and national level to support the competitiveness of the European industry. This is crucial in the current global playing field as only a proactive industrial policy can foster Europe's ability to stay competitive, create jobs, keep environmental leadership and thrive in the 21st century.