

A Strategic Approach to the **Recyclability** of Home Appliances

APPLiA, representing the home appliance industry in Europe, advocates for improving recyclability where it is both feasible and environmentally beneficial. As an industry committed to the circular economy, we see the value in secondary raw materials and the recycling of our appliances. However, we urge a cautious, considered, and evidence-based approach to the potential introduction of mandatory recyclability targets. Such requirements necessitate careful, product-specific evaluation within established frameworks like the Ecodesign for Sustainable Products Regulation (ESPR), underpinned by thorough, independent impact assessments. It is crucial to recognise that circular design often entails a trade-off between multiple sustainability objectives, such as high energy efficiency and recyclability, and there is rarely a single, universally optimal sustainable design solution.

Key Challenges in the Recycling of Home Appliances Today

As policymakers consider the introduction of mandatory recyclability indexes and other recyclability-focused policies, APPLiA urges a cautious, well-considered, and robustly evidence-based approach. In this paragraph, we outline the challenges encountered today by manufacturers of home appliances.

1. State-of-the-art technologies and recycling approaches today

While significant advancements in recycling technologies and collection rates are evident, the prevailing approaches at recycling facilities are often driven primarily by market-driven cost-benefit analyses. This can sometimes overlook the potential for higher-quality material recovery and the long-term value of resources.

Currently, the economic realities of appliance recycling often dictate that end-of-life treatment primarily involves **shredding**. The intricate disassembly of appliances to extract all constituent materials is frequently cost-prohibitive for recyclers. Their processes are largely optimised to recover the most economically valuable materials. Consequently, if a material lacks significant market value, there is limited incentive for recyclers to invest in the specialised technologies required for its extraction.



2. Looking at current requirements when the market is still recycling appliances of the past

One of the main problems in assessing the recyclability of household appliances is that manufacturers cannot predict the potential of technological developments, both in the area of chemical and mechanical recycling, and how these will be assessed in regulatory terms. Against this backdrop, it is impossible to predict with certainty what might negatively affect recycling in the future for products placed on the market now, which may have a lifespan of 10–15 years or more.

Finally, before addressing substances impeding recycling, a clear definition should be developed by also outlining what distinguishes these substances from other substances already regulated by other regulations (REACH, RoHS, CLP, POPs). Therefore, issues related to substances genuinely hindering recycling should be addressed through a horizontal, cross-cutting assessment involving all relevant stakeholders, including the recycling industry, rather than through product-specific initiatives that risk inconsistent outcomes.

3. Disassembly and labelling are not the solution

The notion that disassembly instructions and labelling/marketing alone can serve as a panacea for enhancing recyclability is overly simplistic. They do not address the fundamental material choices and design complexities that significantly influence the actual recyclability and the quality of recovered materials, especially given the economic drivers in current recycling practices. We recommend adopting a market-driven approach and proposing regulatory approaches that are in line with the current market situation.

Given this operational landscape, policies centred on detailed disassembly instructions or extensive labelling of appliances/parts/components are likely to have limited practical impact. Recycling operators, driven by economic efficiencies, are positioned to treat WEEE in a high-volume shredding process. They are unlikely to engage in time-consuming **manual checks for QR codes or intricate labels.**

APPLiA's Recommendations for Effective and Pragmatic Recyclability Policies

To ensure that policies aimed at increasing recyclability are practical, genuinely contribute to a more circular economy, and continue to foster innovation within the home appliance sector, APPLiA proposes the following key considerations:



1. Promoting Material Composition over Disassembly and Labelling

Policy efforts should primarily focus on the inherent properties and composition of materials used in appliances, rather than solely on disassembly procedures or labelling. Understanding which materials are readily and economically recyclable within the current infrastructure, and under what conditions, is crucial for driving real improvements in material circularity. Nevertheless, it should certainly be recognised that certain additives are included to enhance the material performance and aesthetics of appliances.

Therefore, we recommend not pursuing the disassembly and labelling approach as proposed in the study.

2. Identifying Materials Positive and Negative for Recycling

A detailed analysis is needed to identify materials that consistently yield high-quality recyclates through existing shredding processes and those that pose challenges or lead to downcycling. This evidence-based approach can inform material selection and design choices that genuinely enhance end-of-life processing under current economic realities.

Therefore, APPLiA recommends identifying these materials as a basis for recyclability assessment procedures, as guidance for manufacturers assessing product recyclability, and as general guidance for product design.

3. Introduce Producer Responsibility on Recyclers for the Quality of their Products

The principle of Producer Responsibility should be expanded to include recyclers, holding them accountable for the quality and purity of the secondary raw materials they produce from the appliances they process. This would incentivise investments in advanced sorting and processing technologies relevant to current shredding practices, ultimately increasing the availability of high-quality recyclates suitable for use in new appliances.

To foster a robust circular economy, APPLiA proposes exploring the possibility of imposing recycling requirements on recyclers with the support of standardisation, based on evidence from such impact assessments and potentially considering geopolitical factors. This could drive the development of new business cases in the recycling sector, although it may lead to increased costs for producers. By initially implementing solutions at the recycler level, they would then be positioned to request specific information from producers on how to further optimise recycling processes. This phased approach aims to ensure effective implementation and drive genuine improvements in material circularity.



Comments to the Ecodesign study

APPLiA also provided written comments to the “Ecodesign preparatory study for product-specific measures on scarce, environmentally relevant and critical raw materials and on recycled content - Study Report Phase 2”. Please consult the **Excel file** submitted on that occasion.

Conclusion

APPLiA and its members are deeply committed to the overarching goals of the circular economy and to continuously improving the sustainability of home appliances. Enhancing the recyclability of our products is a vital component of this commitment. However, achieving true circularity requires a pragmatic, holistic, and unwavering focus on material quality, taking into account the economic drivers and technological realities of current recycling infrastructure. We need carefully planned policies that work well with existing rules, like the ESPR, WEEE, REACH and RoHS. These policies should be based on strong research and support good quality for recycled materials, consider global markets, and encourage new ideas. By working together, policymakers and the appliance industry can create effective ways to recycle more materials. This will also make sure our appliances work well, are safe for people to use, and that customers can trust them.

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