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This document is intended to clarify FEICA's position regarding EuRIC's reaction to the Inception Impact Assessment of designing mobile phones and tablets to be sustainable initiative.

### **Adhesives & Sealants and Recyclability Aspects on Electronics**

FEICA, the Association of the European Adhesive & Sealant Industry, is a multinational association representing the European adhesive and sealant industry. Today's membership stands at 15 National Association Members, 24 Direct Company Members and 19 Affiliate Company Members. The European market for adhesives and sealants is currently worth more than 17 billion euros. With the support of its national associations and several direct and affiliated members, FEICA coordinates, represents and advocates the common interests of our industry throughout Europe. In this regard, FEICA works with all relevant stakeholders to create a mutually beneficial economic and legislative environment.

In light of the transition to an increasingly circular economy, FEICA actively supports efforts to improve product efficiency and circularity to help create a more sustainable society. The use of adhesives and sealants in many sectors, including electronics, contributes to improved durability, recycling, CO<sub>2</sub> reduction, repairability, upgradability and material efficiency of final products. It is of paramount importance to FEICA and its members to raise awareness of the adhesive and sealant industry's contribution to sustainability, internally and externally, both in terms of activities to improve the sustainability of its own industry as well as of help for customers and end of supply chain industries (recyclers) to operate more sustainably.

FEICA members support the need for Ecodesign to encourage end-of-life re-use and recycling solutions for electronic products and components. The aims for reducing waste and ensuring full circularity of the economy go beyond what economic actors can achieve alone. FEICA has already been an active advocate of the Ecodesign legislation proposals for electronics and supports the principle that design for circularity is important.

The value proposition of adhesives and sealants is an integral part of many global value chains. Our technologies make the sustainability benefits of next generation goods possible. As FEICA wishes to engage in constructive dialogues with interested stakeholders, FEICA wishes to better explain to the recycling industries how adhesives and sealants perform at the end of life of electronics (e.g., mobile phones, laptops and tablets).

Adhesives are an outstanding and versatile fixing solution. The use of appropriate adhesive bonding solutions to facilitate repair and recycling should be properly planned and engineered during the design phase of a product. Adhesive solutions in electronics do not impede recycling by applying innovative solutions that offer debonding-on-command type adhesives, enabling the easy separation of bonded components for repair or recycling. Adhesive and sealant products can be provided which are able to debond on demand with the use of electromagnetic irradiation

(i.e., thermal treatment) that is focused on the bonding line and is non-destructive to the assembled parts. Other debonding solutions entail chemical or mechanical techniques.

The use of adhesives as a joining technology allows the extension of the life span of products and components, offering increased durability, with waterproof capabilities. Adhesives bear many advantages in the manufacturing processes, for example, energy and material efficiency. With regard to the climate goals of the EU Green Deal, the complete life cycle of a product should be taken into account. Modern thin and seamless device designs are achievable only by the use of structural adhesive solutions.

This holistic approach should be considered when the claim is made that adhesives should be used only in the absence of any other alternative for joining (point 3a & 3b in the EuRIC statement). The Ecodesign study 'Mobile phones, smartphones and tablets' Task 6 report (Chapter 5.1, page 75) from Fraunhofer underscores the versatility of adhesives being releasable and removable, if designed for. This versatility offers great benefits for the final product in respect to the circular economy aspects and factors. For additional information we would like to cite the study 'Circular economy and adhesive bonding technology', as published by [Fraunhofer](#).

EuRIC also comments, *'These recommendations will not only allow the removal of batteries and other dangerous components without the use of special tools - speeding up the dismantling process - , but will also increase the safety of the employees working in treatment facilities'*. In our view the professional repair by operators having skills, tools and knowledge is in general the recommended way to replace batteries since this guarantees the correct end-of-life handling of the parts intended to be replaced, with regard to the circular economy principles. It has to be also considered that the adhesives used for embedded batteries often provide not only the function of precise positioning of the batteries in the device but also additional functionalities like, e.g., sealing (water-tightness), thermal and electrical management (being isolators or conductors), safety (flame-retardance), design freedom, protection against drop, etc. As presented during the stakeholder web meeting on 18 December 2020 for the Ecodesign study 'Mobile phones, smartphones and tablets' from Fraunhofer, the waterproof aspect in terms of functionality scores up to 66% -the highest- when the question is asked, 'Which features are important to you when purchasing a smartphone next time?' (source: [Bitkom](#), 02/2020).

Further, the handling, manipulation and disposal of the removed battery pouches by inexperienced users, despite the facilitated process, presents an increased risk of thermal runaways. Those events can lead to serious injuries, as was proven when devices with inadequate batteries were offered to the public (e.g., Samsung Galaxy Note 7, [recalled in October 2016](#)). Therefore, it can be argued that making fragile battery packs inaccessible is a deliberate decision to ensure user safety. This also ensures the continuity of the professional workers market, that should be supported; skilled workers are trained to use common techniques for debonding.

Our industry will continue to co-operate by reaching out to relevant sectors or contributing to consultations of Ecodesign studies from the Commission, to optimise durability and end-of-life solutions through options such as recycling and repair potential. We would be happy to further engage with your experts, if needed, to support a societal and pragmatic shift to a more sustainable future or simply answer any questions you may have.

## References

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FEICA is registered in the **EU Transparency Register** with ID no. **51642763262-89**

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