

A.I.S.E. GUIDING PRINCIPLES ON 'SUSTAINABLE PLASTIC PACKAGING DESIGN'

May 2019

A focus on the criteria of design for recyclability of plastic packaging



1. Introduction

A.I.S.E. developed these principles to support all the companies manufacturing and/or placing on the market detergents, cleaners and maintenance products in Europe, to design sustainable products' plastic packaging. It builds on the learnings from the A.I.S.E. Charter for Sustainable Cleaning in the domain of packaging and on the most recent developments triggered by the objective to strive towards a Circular Economy contributing also to the global Sustainable Development Goals (SDGs). These guiding principles contribute directly to SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life below Water) and SDG 15 (Life on Land). This guidance document is tailored to the A.I.S.E. sector and aims at considering the latest existing codes of practices and standards. Nonetheless, *each company should consider these principles as a minimum starting point* and implement them, together with any other solution applicable to more specific products groups, in a way that is compatible with its manufacturing procedures and in a context of continuous improvement.



2. How to read this guidance document

This guidance aims at being a tool for the team in charge of product packaging development. Designers are encouraged to work closely together with colleagues dealing with the packaging engineering, marketing, legal verification, product safety and other stakeholders, to ensure that solutions placed on the market are sustainable in practice.

The purpose of this document is to set out few generic principles that are applicable to detergent and maintenance products plastic packaging that should be kept in mind when developing a new packaging or improving an existing one.

This document is not meant to be a technical manual for packaging engineers and does not aim at duplicating already existing detailed technical specifications and standards. The practical ways in which these principles can be implemented is not going to be described in this document. Firstly, to avoid duplications, and secondly because they will likely vary over time due to technological developments influencing – among other things – the materials available to create plastic packaging, its sortability and its recyclability.

The content of this document should be considered together with the additional information provided by A.I.S.E. on its webpage dedicated to packaging¹. This webpage will summarize all on-going activities related to packaging and feature any external source that could be of help in implementing the principles covered in this guidance.

¹ www.aise.eu/packaging

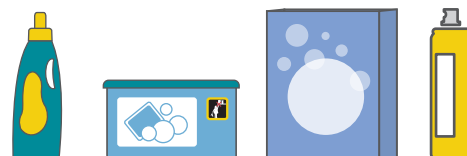
3. Packaging in the detergents and maintenance products industry

Packaging is essential to avoid product leakage, to ensure safe use, to enable correct dosage and to make sure that products are not damaged during transport. For products using just one pack type, this packaging is the primary packaging, i.e. the one designed to come into direct contact with the product (ISO 21067:2016). For products using more than one pack type, one item of packaging will be the primary packaging and all other items will be secondary or tertiary packaging.

Typical materials that are used in the sector for packaging are:

- paper-based, e.g. folding cartons for dish-washing tablets,
- rigid plastic, e.g. HDPE or PET for bottles,
- flexible plastic, e.g. for plastic pouches for laundry gel capsules,
- metals, e.g. for maintenance or air care aerosol cans.

It is not uncommon to find packaging composed of a mix of the above, depending what is the expected use of a product and the intended function of the pack.



4. A.I.S.E. strategy on sustainable packaging

A.I.S.E. 's network is committed to circular economy and sustainability, to serve society in a responsible way, aiming to reduce the footprint all along the life cycle of detergents and maintenance products.

In the context of packaging, ***A.I.S.E.'s vision is to maximize the use of recycled and recyclable packaging materials and packaging solutions.*** The vision aims at covering all types of packaging, both in terms of materials and of layers (i.e. primary, secondary, ...), to ensure that all processes strive towards a circular economy.

This vision is implemented through the development of targeted activities and the support and guidance to industry for their implementation in the following areas:

Closing the loop: efficient design and use of packaging material

This includes:

- the choice of the most suitable packaging material
- the reduction of packaging weight per product unit/job
- the reduction of dosage per job and
- Filling each pack to the most adequate level².

Moreover, this is supported by the implementation of basic principles for improved product packaging design to ensure that, once the highest reduction in the amount of packaging used is achieved, its recyclability is increased at the maximum level.

The guiding principles in this document are part of the tools that industry can use to achieve the above mentioned objectives.

Provision of relevant consumer guidance for sustainable consumption

It is essential to address the impact of the 'use phase' on the overall footprint of products. In the case of packaging, this mostly refer to i) reuse/recycle the empty packaging as intended by the manufacturer and ii) correctly sorting based on the infrastructure locally available.

As a minimum, organisations shall have an internal policy with quantitative and time-bound internal goals or targets on the use of recycled and recyclable packaging materials and packaging solutions.

² For more details on the existing specifications on 'filling levels' refer to the A.I.S.E. PREP projects (Product Resource Efficiency Project) www.aise.eu/preps

To provide a framework for companies active in the household cleaning and maintenance products sector, A.I.S.E. has developed a **voluntary industry initiative on plastic packaging** to respond to the call for action in the context of the EU Plastic Strategy. The initiative aims to increase the uptake of recycled content in plastic packaging over the next few years by setting ambitious targets to reach by 2025³:

- A minimum of 20% volume of recycled plastic material in the packaging of all household products in the A.I.S.E. portfolio;
- Ensuring that all plastic packaging for household products can be recyclable, reusable or compostable⁴.

It should be noted that all the actions triggered in the context of this strategy add up to the existing requirements coming from applicable legislation on safety of packaging, including (but not limited to) the Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) and its amendments and the Council Directive 75/324/EEC of 20 May 1975 on the approximation of the laws of the Member States relating to aerosol dispensers.

5. Applicability of the guiding principles

The specific principles listed in this guidance under chapter 7 have been designed for applicability to household products' plastic packaging, while the generic principles have a broader applicability covering also industrial applications, where relevant.

In the context of the A.I.S.E. overall strategy, these principles focus on criteria to improve plastic packaging recyclability (*please also refer to chapter 2 on 'How to read this guidance document'*).

As anticipated in chapter 3, packaging is essential to avoid product leakage, to ensure safe use, to enable correct dosage and to make sure that products are not damaged during transport. However, there are potential environmental impacts once the packaging is not properly disposed of, unless it is sorted, collected and recycled correctly. The guiding principles presented in this document aim at decreasing those environmental impacts by increasing the amount of plastic packaging that, once collected, can be recycled.

This guidance does not specifically address ways to reduce per se the amount of plastic packaging used for detergents applications. Moreover, it does not address environmental impacts generated by littering, which are legitimately raising societal concern, and for which dedicated consumer engagement campaigns and targeted activities are being developed at local and international level.

The vision aims at covering all types of packaging, both in terms of materials and of layers (i.e. primary, secondary, ...), to ensure that all processes strive towards a circular economy. The guiding principles, instead, focus on plastic packaging due to the specificity of the advice included in this guidance document.

6. Deployment

The guiding principles are likely to be deployed gradually, both in terms of qualitative and quantitative targets.

It has to be noted that the actual reduction of potential environmental impacts coming from the implementation of these principles largely depends on the infrastructures available at regional and local level in terms of collecting schemes and recycling technologies.

In case specific quantitative targets are set out by companies in relation to the deployment of the principles, different rates of success can be expected according to the infrastructure available to collect, sort and recycle different materials.

Another element to be considered in the potential for deployment of the principles in chapter 7 is that different types of products might need a different grade of packaging quality. In fact, depending on the characteristics of the product and of the type of intended application, the requirements for the plastic packaging can vary, e.g. in terms of resistance or UV block or others.

³ For more details see www.aise.eu/packaging

⁴ Refer to Annex I for details on limitations linked to the use of compostable plastic packaging

7. Guiding principles

To ensure that each packaging unit is designed to be as sustainable as possible and it contributes to the circularity of the packaging value chain as a whole, the following criteria should be followed during its design phase (these principles are not listed in order of importance):

GENERIC CRITERIA

- It should be manufactured using recycled material⁵ to the maximum extent possible⁶;
- It should be manufactured with the objective to be recyclable to the maximum extent possible;
- It should be considered that the improvement in its recyclability could have an impact on other phases of its life cycle;

SPECIFIC CRITERIA

It should be considered that the following criteria are applicable at the current state of the art in terms of market conditions and available recycling technologies, i.e. mechanical recycling being today the majorly available technology over chemical recycling.

- Natural and/or uncoloured plastics should be preferred over colored/opaque ones;
- It should be considered that the use of materials like bleeding inks, selected additives, left-overs from glues could disturb established recycling schemes;
- Mono-materials per each packaging component should be preferred;
- When different components made out of different plastics are combined, their consistency should be considered so that sorting and separation of caps, sleeves, triggers, is facilitated, e.g. floating materials to be used together with sinking ones;
- Labels should be easy to remove at the product end of life⁷, e.g. using labels with water-soluble adhesive or double perforated full body sleeves;
- The ease of emptying it should be taken into account, i.e. packaging should be designed in a way to ensure packs are emptied to their maximum;
- Pellet, powder and flake spills should be avoided at all costs⁸ along the whole packaging life-cycle;

Where **'Recycled material'** is defined as waste recycled after use, incl.

- material from post-consumer waste, collected via official collection schemes;
- material from outside existing collection streams, such as maritime litter, beach litter, etc.;
- 'post-industrial recycled' material, i.e. material from post-industrial sources; this does not include material from own processes which has been reused/recycled, such as regrind.

Where **'Recyclable packaging'** is defined according to the definition from the Ellen MacArthur Foundation New Plastics Economy Global Commitment⁹ - together with its clarification notes - as 'a packaging or packaging component whose successful post-consumer collection, sorting, and recycling is proven to work in practice and at scale'.

⁵ For details on the objectives set out in this regard at sector level via the A.I.S.E. Voluntary Industry Initiative refer to chapter 4 on 'A.I.S.E. strategy on sustainable packaging'

⁶ Refer to Annex II for details on the conditions and barriers at European level for successful deployment

⁷ The implementation of this principle must not prejudice the requirements of Art. 31 of CLP [(CE) Reg. 1272/2008] and its amendments

⁸ www.opcleansweep.eu

⁹ <https://newplasticseconomy.org/assets/doc/global-commitment-download.pdf>

8. Practical Implementation

Packaging Design

Once a mapping of the portfolio is carried out and potential improvements in the current processes and plastic packaging design are identified, companies shall work to continually improve the degree of implementation of the above listed principles, both in terms of qualitative and quantitative targets.

In case the company has already a scheme for the improvement of packaging development, the task could be simplified by integrating the aspects related to plastic packaging sustainable design into the existing criteria.

Monitoring and communication

To ensure that the vision is effectively implemented, organizations shall have time bound goals, e. g. on the use of a certain amount of recycled material content in their packaging.

In addition, organizations shall disclose information on their progress towards targets at least once per year.

The means to do so can be defined independently by each organization in order to facilitate the integration of practices related to the design of sustainable packaging into their existing management procedures. However, organizations shall make use of already existing tools, frameworks and standards to the extent possible.

Implications for A.I.S.E. Charter members

For companies that are members of the A.I.S.E. Charter for Sustainable Cleaning, the partial implementation of the principles of sustainable design of packaging is already ensured by complying with some of the existing Charter CSP/ASP criteria. In addition, those will report annually on the relevant Charter KPIs.

It should be noted that the requirements related to packaging in the ASP criteria will be adapted according to the best practices set by the A.I.S.E. voluntary initiative on plastic packaging in the context of the launch of the A.I.S.E. Charter 2020+.

9. References and external sources

The dedicated A.I.S.E. webpage¹⁰ includes an entire section to gather the relevant publications and sources available, both from A.I.S.E. and from stakeholders. This section includes a list of technical tools and approaches, existing ISO standards, NGO reports and industry data that are continuously updated to present the best state of the art.

¹⁰ www.aise.eu/packaging

Annex I: Applications for Compostable Packaging

The definition for 'compostable packaging' used in this A.I.S.E. initiative is the one from the Ellen MacArthur Foundation New Plastics Economy Global Commitment together with its clarification notes, i.e.:

A packaging or packaging component is compostable if it is in compliance with relevant international compostability standards and if its successful post-consumer collection, (sorting), and composting is proven to work in practice and at scale.

Notes

1. *ISO 18601 :2013: A packaging component is a part of packaging that can be separated by hand or by using simple physical means (e.g. a cap, a lid and (non in-mould) labels).*

2. *Including ISO 18606, ISO 14021, EN13432, ASTM D-6400 and AS4736.*

3. *ISO 14021's usage of term clarifies post-consumer material as material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.*

It should be noted that composting can take place in an industrial facility, following a controlled process managed by professionals, as well as in a collective or at home, where the process is subject to the householder's skills and other environmental conditions. The terms 'composting' and 'compostable' as referred to in this document refer to industrial composting.

At the time of preparation of this document, the main known applications for compostable plastic packaging material are related to use as food packaging rather than for the detergent sector.

The inclusion of this option as part of A.I.S.E. Voluntary Initiative on Plastic Packaging is, therefore, mainly aspirational for the time being. This is to ensure the maximum inclusiveness, both of businesses and products types, openness to future research and innovation and potential opportunities triggered in this regard by the recent update of the EU Bioeconomy strategy ¹¹, which aims at implementing a circular bioeconomy.

In case a company would wish to already make use of such option to achieve the targets part of this A.I.S.E. Initiative, it will be its responsibility to verify whether this application is allowed by national legislation and if a dedicated collection scheme exists in the country where the product is placed on the market. In addition, the company should also assess the risk that product-leftovers might have on industrial composting sites – especially for primary packaging - and to inform consumers accordingly on proper disposal.

A.I.S.E. continuously engages with experts in this field to get further insights on the relevance of maintaining this option as part of the commitment of the A.I.S.E. Initiative.

¹¹ https://ec.europa.eu/research/bioeconomy/pdf/ec_bioeconomy_strategy_2018.pdf#view=fit&pagemode=none

Annex II: Conditions and barriers at European level for successful deployment

Some conditions at market level are needed for the actors in the detergent sector implementing these principles to successfully deploy the targets they are committed to.

It has to be noted that most of the requirements listed in this paragraph are common to industry as a whole and not specific to the detergents sector.

Technical market requirements

In order to continuously improve the sector achievements, it is essential to have sufficient:

- Material availability, meaning that high quality recycled plastics material has to be available in sufficient quantities to all market players, with a reasonable price vs. virgin plastic material;
- Material quality, meaning that the consistency of quality is guaranteed by recycled plastics material producers to ensure performance up to the industry standards;
- Material sourcing, meaning that good quality recycled plastics material is available from credible sources of supply.

The need to refer to these requirements comes also from the fact that - at the current state of the art - recycling technologies mostly rely on mechanical recycling. Therefore, a sufficient quality of recycled plastics material on the market is guaranteed only when the average maximum level of recycled plastics material in packaging on the market is kept below a certain threshold.

A.I.S.E. is committed to work with plastics packaging value chain partners on finding solutions to improve the quality of recycled plastics material. A.I.S.E. notes that the implementation of the principles listed in this guidance will be highly dependent on the cost of recycled plastics material compared to the one of virgin plastics material. This will be influenced by the fact that the essential market requirements listed above will come into place.

Overall policy framework

In addition to the technical requirements listed above under the 'technical market requirements', some policy barriers potentially hindering the objective to boost the uptake of recycled plastics material have been identified in the infrastructure supporting the industry operations.

A.I.S.E. engages via its network to support stakeholders and authorities in overcoming those barriers through increased cooperation on the following:

- **Harmonisation**

The collection systems across member states (MSs) are better harmonised to ensure availability and quality of secondary raw materials and that there are no limits on cross-border shipments; the Extended Producer Responsibility (EPR) schemes and fees in the EU are better harmonised as well: incentive systems can push by providing a bonus for recycling friendly packaging and usage of recycled content. EPR fees and bonus should be based on material classifications linked to its recyclability and use of recycled material that has proven to be environmental beneficial, based on life-cycle assessment (LCA). The European Commission is encouraged to look into national systems that successfully work today (high collection rates at low cost, transparent, etc.) and recommend applying their basic principles;

- **Consumer engagement**

Consumers in Europe are further educated in order to collect and sort correctly; harmonised recycling labelling on packs (like the 'How to recycle label' in the US) might make sense for consumers and waste manufacturers in case harmonised collection becomes a reality. Collection systems must be straightforward and not too complex for consumers;

- **No conflicting legislation**

There are no conflicting current and future legislations ; for instance, the current Classification, Labelling and Packaging (CLP) Regulation requirements are more conservative than in the past. This results in over classification, as proven by the fact that many products previously classified as 'irritants' are now classified as 'corrosive' even if the product formulation has not changed. If this is the basis to consider a product as 'hazardous' according to the Waste Framework Directive (WFD), then this may necessitate separate collection.

- **Innovation friendliness**

New sorting and recycling technology are made available to treat innovative packaging solution, existing packaging solutions that are currently non or hard to recycle and to produce broadly usable recycled material.

A.I.S.E. is committed to work with policy makers and with infrastructure providers on finding solutions to deliver a more holistic and consistent framework for industry to operate. This will require efforts both at EU and national level, which A.I.S.E. is keen to support via its network of national associations.

