Allocation Principles

Allocation is the process of distributing environmental impacts among **related** or **independent co-products** that originate from a shared process. This includes impacts from cultivation, ingredient sourcing, manufacturing and processing, packaging, and transportation.

Related co-product allocation is required when a single process generates multiple intrinsically linked co-products from one parent product. These co-products cannot be produced or measured independently before they are physically separated, so emissions must be divided between them.
Examples:

- Grain cultivation producing kernels used for brewing or distillation and straw used for feed or bioenergy, both originating from the same parent crop.
- Wine production resulting in wine and grape pomace, where both arise from the same pressing process.
- Distillation where distillate and vinasse/stillage are created simultaneously.

Independent co-product allocation is required when multiple independent products share a process, facility, or activity, and activity data is generated jointly. The products are not intrinsically linked and could, in principle, be produced separately; they are only co-products due to how the production is organized.
Examples:

- Different crops grown on the same land/farm/field
- Different types of products produced in parallel in the same facility and sharing utilities such as energy or packaging lines.
- Multiple products transported together in the same truck.

Allocation hierarchy for independent co-products

When dealing with **independent co-products**, allocation should be applied according to the following hierarchy:

1. **Measure energy use and inputs directly at the production line level**, where each product is manufactured.
   If energy use and inputs can be measured per production line, allocation between products can be avoided altogether. This approach is often referred to as **process subdivision**.

2. **Calculation that reflects the specific energy and input demands of each product's production process**.
   Where direct measurement is not available, allocation should be based on modelled proxies that best approximate how much energy and inputs each product actually requires, as if the processes were measured separately.

3. **Apply physical allocation**, preferably **mass based**, when products have similar production processes and use similar inputs.
   If there are significant differences between products in terms of energy use or inputs, option 1 or 2 should be applied instead—often in combination with physical allocation.

4. **Economic allocation may be applied for related co-products** where the related co-products has an economic value that materially influences the allocation (e.g. more than 5%). In such cases, allocation shall take into account all upstream emissions up to the point where the related co-product is generated. If the main product has not yet reached its final level of refinement, its value should be assessed as a semi-finished product rather than as a final product.

Allocation methods

- **Mass-based allocation** – Impacts divided by product weight. Is suitable for co-products, i.e. comparable products such as beverages.
- **Energy-based allocation** – Based on energy content.
  Is probably not applicable, as this type of allocation is only used for the production of, and sale of different types of energy.
- **Economic allocation** – Based on market value.
  Should only be used for related co-products, where all related co-products have a positive economic value, but it differs significantly between them (barley vs. straw, wine vs. pomace sold for spirit production).

ISO standards classify allocation as **physical** (mass or energy) or **economic**, and the chosen method should reflect actual physical relationships or economic drivers.

Physical/mass-based allocation is the **preferred** allocation method according to ISO standards.