

Plastic Packaging in the Food and Drink Industry - Important Technical Facts to Consider

USAGE

Factors to bear in mind when considering usage of plastic packaging or alternatives:

❖ Overall supply chain

Packaging is often necessary for collation and containment, and contributes to shelf life and minimising food waste. Usage should be assessed at all stages, from raw material handling and production, through to distribution for retail. Consider primary (e.g. bottle, tub, tags, closures), secondary (e.g. tray shrink wrap) and tertiary or transit packaging (e.g. pallet stretch wrap).

❖ Coatings and laminates

Plastics are used as coatings (single/double sided) to provide water/grease resistance (PE), heat resistance (PP & PET for reheatable packs/hot fill), cold resistance (EVA for frozen foods) and for flavour retention (PVdC). They are also often important components of laminates with paper, foil and carton board as outer layer for strength (PET), mid layer as a barrier (EVOH) and as inner layer for heat sealability (LDPE), or for co-extruded films. Their usage impacts whether materials can be recycled.

❖ Recycle, reuse and recover

Some plastics components can be reused by businesses and some are returnable e.g. pallets, or via deposit schemes. Recovery and reprocessing logistics and costs should be factored in and national schemes investigated for domestic and export markets.

❖ Biodegradable

Bioplastics and biodegradable/compostable plastics are being commercialised. Prodegradant concentrates (PDCs) can be added to plastics to make conventional thermoplastics biodegradable (e.g. fast food containers). Natural polyesters are made from crops (e.g. sugar, wheat) instead of traditional petroleum based plastics, but environmental implications should be considered.

❖ Financials

Benefits can be achieved by avoiding and removing unnecessary, additional packaging. The cost of the actual packaging material and the impact of weight on shipping costs are likely to influence the choice of packaging, as well as environmental factors.

❖ Options

Alternatives to plastics include metal (tinplate, steel, aluminium), paper and paperboard, cellulose, glass (with colourants where required), ceramic and wood, however their ability to meet all requirements needs to be carefully assessed.

FUNCTIONALITY

Packaging has an important role to play in the safety, durability, marketing and distribution of food and drink, including the following:

➤ Protection

Packaging protects against hazards (mechanical, chemical, biological, climatic), hence plastic alternatives must provide equivalent, or improved, protection and shelf life maintenance (with/-out modified/controlled atmosphere or vacuum). They play a critical role in food safety.

➤ Labelling

Prepacked foods require: mandatory legal text (e.g. ingredients, allergens, nutrition, weight, storage); commercial pack copy (e.g. claims, usage, branding, barcodes, logos); business info. (e.g. traceability). Chosen packaging materials must enable this to be clear, indelible and legible.

➤ Food contact

EU legislation covers materials in food contact during production, processing, storage, preparation and serving, e.g. transport containers, machinery, packaging, kitchen and tableware, and also applies to recycled packaging. It includes authorised monomers, other starting materials and additives, and migration limits required to achieve the general requirement that materials should not release chemicals into the food or drink, at quantities harmful to health.

➤ Convenience

Packaging supports consumer usage e.g. dispensing, easy open, serving/portion, usage, cooking/reheating and groupage (promotional multipacks). Plastics are flexible, oven/microwavable, stretchable (PVC with plasticiser) and can be moulded into novel shapes, hence alternatives with similar benefits need to be selected.

Key to abbreviations

EVA - ethylene vinyl acetate

EVOH - ethylene vinyl alcohol copolymer

PE - polyethylene (LDPE: low density PE)

PET - polyethylene terephthalate

PP - polypropylene

PVdC - polyvinylidene chloride

Further information - useful external links:

a) Sustainability checklist <https://www.fdf.org.uk/publicgeneral/Packaging-checklist.pdf>

b) Industrial guidance on setting shelf life https://www.fdf.org.uk/corporate_pubs/shelf-life-guidance.pdf