SUSTAINABLE DESIGN

A small guide to materials for glass manufacturers, importers, wholesalers and fillers of glass packaging.

Svensk GlasÅtervinning

RECYCLING BEGINS ON THE DRAWING BOARD.

Sweden is one of the world's top countries in terms of glass recycling and the collection rate is very high. Despite this, there are a lot of improvement opportunities with respect to the raw material collected.

Before collected glass can be recycled into new glass containers or glass wool, seals and labels must be removed. In the process there are glass losses which is sent to landfills or for waste incineration along with contaminants. If the glass can be separated from the contaminants more easily after crushing these losses can be minimised.

This guide is for people who purchase glass packaging or glass packaging design services. It was created to help you to make better material choices, starting during the design process, for the sake of recycling and the environment.

ORGANIC MATERIALS

Adhesives and plastics are often necessary so that a glass container can be used and sold. Here are some easy tips to keep in mind, because your material and design choices can greatly facilitate recycling.

Glass losses can be minimised if a water-soluble adhesive is used to attach the labels. Collected glass is handled outside throughout the entire collection chain meaning that rain and moisture make this type of label easy to remove from the glass so that it can be separated.

Sleeves made of shrink plastic on bottlenecks are easily removed after crushing and can be separated.

Plastic caps which have been left on bottles come off easily after crushing and can be separated.

Labels which are pasted on with non-water soluble adhesive cause greater glass losses and are more likely to follow the end product to the glass factory.

Rings that remain on the bottleneck after the seal is broken and other heavier rings, e.g. drip rings made of plastic, are difficult to separate and are more likely to follow the end product to the glass factory.

Glass packaging which is completely enclosed in jute bags or encased in thick tough plastic is not recycled. The packaging is the reason for relatively large glass losses in recycling.

METAL

When using metal there are some things to consider in terms of materials and design to facilitate recycling.

Glass losses can be minimised if a water-soluble adhesive is used to attach the aluminium foil. Collected glass is handled outside throughout the entire collection chain meaning rain and moisture make this type of foil easy to remove from the glass so that it can be separated.

Protective bottleneck sleeves made of aluminium/tin alloys are pressed firmly into place and are easily removed from the glass after crushing. They can then be separated and sent for aluminium recycling.

Aluminium caps which have been left on bottles come off easily after crushing the glass and can be sent for aluminium recycling.

Magnetic metals, which are mainly lids and caps such as crown caps from beer bottles, which have been left on the bottles are easy to separate and can be sent for metal recycling.

Lead constitutes an environmental contamination at the landfill. Following bans, e.g. in the EU, protective sleeves containing lead are very rare nowadays, but are still found on older vintage wine bottles.

Rings that remain on the bottleneck after the seal is broken are difficult to separate and are more likely to follow the end product to the glass factory. From a recycling standpoint, it is best if the ring splits and stays attached to the cap when the seal is broken.

Bottles encased in metal can create recycling problems. The packaging can be recycled, but cause relatively large glass losses because small pieces of metal threads are separated.

PORCELAIN AND CERAMICS

Porcelain and ceramics are a glass recycler's worst nightmare. Most of them end up in the glass collection because private individuals dispose of the materials in the wrong place, but there is also unsuitable glass packaging in which porcelain is used.

If a brewer wants to market its product in bottles with a swing stopper, it should be possible to replace the porcelain stopper with milk white opal glass with a magnetic metal clip.

Beer bottles with swing stoppers made of porcelain, which are mostly German so-called "Bügelflaschen", result in an increased loss of glass, particularly because of the porcelain stopper's round shape. Associated metal clips on disposable bottles are often made of magnetic metals and are therefore easy to remove without losing large amounts of glass. To withstand caustic washes, metal clips from used recyclable bottles are usually made of stainless steel, which is harder to separate and provide significantly higher losses of glass in the process.

Glued-on medallions etc. should not be made of porcelain or ceramic material. Instead, it is preferable that fillers use medallions made of coloured glass or plastic to market their product.

GLASS ENAMEL, PRINTING INK ON LABELS, ETC.

Solid colours on bottles and glass containers can cause process losses, if the machine does not read the material as glass. In addition, colours and printing must, of course, be environmentally friendly.

All colours and printing on labels, sleeves, caps, protective sleeves, glass enamel etc. are presumed to be environmentally friendly for recycling. Fillers, importers and wholesalers should be responsible for ensuring that this is the case.

Bottles with glass enamel which has been applied or burnt on can be recycled, but shards of glass whose entire surface is covered with a thick opaque paint layer are removed. This leads to higher processing losses which are then sent to the landfill.

Previously, colours containing heavy metals used for decorating bottles with glass enamel were found on the market. Blue and black colours often contained high levels of lead; yellow and red colours also contained cadmium. Svensk Glasåtervinning is unaware if such environmentally hazardous paints are still used by foreign glass manufacturers. Fillers, importers and wholesalers should be responsible for ensuring that such packaging is not released on the Swedish market.

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