



# Product Bulletin

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## Packaging

The principal and fundamental functions of packaging are to:

- Enable efficient food distribution
- Maintain product hygiene
- Protect nutrients and flavour
- Reduce food spoilage and waste
- Increase food availability

Convey product information

Glass bottles for milk were introduced back at the beginning of the 20th century. As a package, glass has some disadvantages. It is heavy and fragile, and must be cleaned before re-use, which causes some problems for dairies. Since 1960, other packages have entered the milk market, mainly paperboard packages but also plastic bottles and plastic pouches.

A package should protect the product and preserve its food value and vitamins on the way to the consumer. Liquid foods tend to be perishable, so a clean, non-tainting package is absolutely essential. The package should also protect the product from mechanical shock, light and oxygen. Milk is a sensitive product; exposure to daylight or artificial light destroys some essential vitamins and has a deleterious effect on the taste. Other products, such as flavoured milk, contain flavouring matter or vitamins that are oxygen-sensitive. The package must therefore exclude oxygen.

A milk carton usually consists of paperboard and plastic (polyethylene). Paperboard comes from wood, which is a renewable resource. The pa

perboard gives stiffness to the packages as well as making them resistant to mechanical stress. The paperboard also serves to some extent as a light barrier.

A thin layer of food-grade polyethylene on either side of the paperboard makes the cartons leak proof. On the outside, the plastic also protects the cartons from condensation when chilled products are taken out of storage.

Because of its purity, this polyethylene produces minimal environmental impact when incinerated or deposited in landfills.

For products with a long non-refrigerated shelf life and very sensitive products, a thin layer of aluminium foil is sandwiched between layers of polyethylene plastic. This gives almost complete protection of the product against light and atmospheric oxygen.

All packages end up as waste. The growing volume of household waste could become an environmental problem in our society. Ways of tackling this problem can be summarised in principle under five headings :

• **Reduction.** Reducing the input of raw materials and choosing materials that are not environmentally harmful helps to conserve natural resources.

• **Recycling.** Packages can be collected after use and used again.

However, it should be remembered that even a refilled package ultimately ends up as waste.

• **Recovery of materials.** Packages can be collected and the materials used to manufacture new products, but it is important that the new products meet a real need.

• **Recovery of energy.** All packages incorporate energy, which can be extracted when the waste is incinerated. The potential yield depends on the type of packaging material.

• **Landfill.** Waste can be deposited as landfill and the area can ultimately

be landscaped for recreational or other purposes.

Paperboard packages have a very low weight, and their main component comes from a source that is renewable. Compared to most other packages, the amount of waste generated is small. A one-litre (0.26 gallons ) Tetra Brik pack weighs 27 g ( 0.95 oz) and generates only that amount of waste.

Paperboard packages are highly suitable for energy recovery. Wood and oil (the raw material for the plastic) are conventional sources of energy, and it can be said that we simply borrow these raw materials for packages before using them as fuel. The incineration of two tons of packaging material yields as much energy as one ton of oil.

Waste as landfill is the least efficient form of waste management. However, if Tetra Pak packages are deposited in this way, there are no toxic substances in them which could contaminate ground water.

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