

SOLIDS FILLING AND PACKAGING

Solid food is either in the form of a large piece (eg butter, whole fruit, fish etc) or particles that can 'flow' like liquid (eg small fruits and vegetables, diced or sliced foods, powders). In general, large pieces are best packed by hand whereas particulate foods can often be filled using similar fillers to those used for liquids.

There is a wide range of packaging materials available to suit the properties of different foods and the expected shelf life. However, the cost of these materials may be very high and thus uneconomic for a small-scale producer. In other cases the packaging may simply not be available. The choice of packaging may therefore be a compromise between what is required and what is available/affordable, the penalty being a reduction in shelf life of the food.

Different foods require different degrees of protection against:

- Mechanical forces (impact, vibration, compression or abrasion)
- Climatic influences that cause physical or chemical changes (light, moisture, air, temperature changes)
- Contamination (by micro-organisms, insects or soils)
- Pilferage, tampering or adulteration

All solid foods can be packaged to keep items together (in boxes, baskets etc) but these rarely offer protection to the food apart from resistance to crushing. In Table 1, selected types of food are grouped to show which factors should be protected against and suitable types of packaging materials.

technical brief

Protection needed against										
Food	Moisture loss	Moisture Uptake	Air	Light	Heat	Micro-organisms	Mechanical damage	Odour loss	Odour pickup	Types of packaging
Frozen foods										
Fish	*		*		*			*	*	plastic film, pots
Vegetables	*		*		*				*	plastic film, pots
Pastry	*		*		*				*	plastic film, pots
Chilled foods										
Fresh foods										
<i>Fruit</i>	*				*	*	*			plastic film, paper
<i>Vegetables</i>	*				*	*	*			plastic film, paper
<i>Meat</i>	*			*	*	*			*	plastic film, paper
Cooked or cured meats	*		*	*	*	*			*	plastic film, paper
Dairy products										
<i>Milk</i>	*		*	*	*	*			*	glass, plastic
<i>Butter</i>	*		*	*	*	*			*	paper, plastic film, foil
<i>Cheese</i>	*		*	*	*	*	*		*	pots, glass
Dried foods		*	*	*			*		*	glass, plastic bottles
Squashes	*		*	*						glass, plastic bottles
Baked foods										
Bread	*	*				*			*	plastic film
Pies	*	*	*	*	*	*	*	*	*	plastic film
Cakes	*		*			*		*	*	paper, plastic film
Biscuits		*	*	*			*		*	paper, plastic film
Sugar confectionery and preserves										
Chocolate		*	*	*	*				*	glass, foil, plastic film
Hard-boiled sweets		*								glass, foil, plastic film
Jams		*								glass, foil, plastic film
Carbonated beverages	*		*	*						glass, plastic bottles
Sterilised foods	*		*	*		*	*		*	glass, metal cans
Pasteurised foods	*		*	*	*	*			*	glass, metal cans

Table 1: Packaging requirements of selected foods