Packaging Materials

Food Manufacture

Packaging Materials

- Cans
- Glass Containers
- Rigid plastic containers
- Flexible plastic packaging
- Paper & board
- Aluminium foil & laminates
- Styrofoam

Cans

Cans

Aluminium Cans

Cans

Steel Cans

Cans

- Cans that have bulges or dents
    - Air may have entered so there is a risk of microbial contamination
    - Lacquer may be damaged & food may have reacted with the metal Canned food do not have a use-by date as they are required only on foods with a shelf life less than 2 years
- Canned food do not have a use-by date as they are only required on foods that have a shelf life of less than 2 years

Glass Containers

Glass Containers

- Uses:
  - Semi-liquid, liquid & solid foods
  - Examples:
- Preparation:
  - Air blowing, rinsing with warm water, washing in detergent, sterilising (aseptic)

Paper & Cardboard

Paper
& Cardboard

Paper
& Cardboard

Paper
& cardboard

Rigid Plastic Packaging

- Advantages:
  - Lightweight & strong
  - High resistance to breakage
  - Available in a wide variety of colours, shapes, sizes & textures
  - Can add to the sale appeal of the product
  - Cheap and easy to produce compared to other packaging materials

Rigid Plastic Packaging

Rigid Plastic Packaging

- Types of plastic used:
  - polyethylene terephalate (PET) - used clear as colouring has an impact on the strength. E.g. soft drink, water & oil
  - high density polyethylene (HDPE) - stronger when colour is added. Used for products with a shorter shelf life E.g. milk
  - Polypropylene (PP) - high melting point so is useful for hot fill products such as soups & fruits in syrup. Can be moulded easily E.g. yoghurt & ice cream
  - Polystyrene (PS) - Aerated texture allows package to protect the product from physical damage. Also provide thermal retention E.g. trays & cups

Rigid Plastic Packaging

Flexible Plastic Packaging

- Any plastic that is formed into a sheet or reel with a thickness os up to 0.375mm
- Plastic films & Bags:
  - Polyethylene (PET) E.g. cling wrap
  - High-density polyethylene (HDPE) E.g. Cereal bags
  - Low-density polyethylene (LDPE) E.g. Kraft singles wrappers
  - Polypropylene (PP) E.g. chip, biscuit, 2 minute noodle wrappers

Flexible Plastic Packaging

- Plastics are made by melting a pellet and forcing it out into the desired shape. This process is known as EXTRUSION

Extrusion

QuickTime™ and a
decompressor
are needed to see this picture.

Flexible Plastic Packaging

1 PETE	**Polyethylene Terephalate Ethylene** PETE goes into soft drink, juice, water, detergent, and cleaner bottles. Also used for cooking and peanut butter jars.	5 PP	**Polypropylene** PP goes into caps, disks, syrup bottles, yogurt tubs, straws, and film packaging.
2 HDPE	**High Density Polyethylene** High Density Polyethylene HDPE goes into milk and water jugs, bleach bottles, detergent bottles, shampoo bottles, plastic bags and grocery sacks, motor oil bottles, household cleaners, and butter tubs.	6 PS	**Polystyrene** PS goes into meat trays, egg cartons, plates, cutlery, carry-out containers, and clear trays.
3 PVC	**Polyvinyl Cloride** PVC goes into window cleaner, cooking oils, and detergent bottles. Also used for peanut butter jars and water jugs.	7 OTHER	**Other** Includes resins not mentioned above or combinations of plastics.
4 LDPE	**Low Density Polyethylene** LDPE goes into plastic bags and grocery sacks, dry cleaning bags, flexible film packaging, and some bottles.		

Flexible Plastic Packaging

- Laminations (composite plastics):
    - Combining 2 or more plastic materials from separate reels that are glued together with adhesive
    - Plastics are extruded and glued together at the same time
    - MAP packaged and vacuum packages can use 3-11 layers

Flexible Plastic Packaging

Flexible Plastic packaging

Aluminium Foils

Laminations

- Aluminium foil joined with other materials such as plastic and paper to create a stronger packaging material.
- Example:
    - Muesli bar wrapper (paper, foil & plastic)
- Tetra Packs:
    - Multi-layered laminations known as composite packages
    - Each layer provides a different purpose
- Metallising:
    - Plastic coated in a fine layer of metal. E.g. Twisties chip packets

Tetra Pak

QuickTime™ and a
decompressor
are needed to see this picture.

Others

- Combination Packages:
    - 2 or more separate packaging materials that function independently of one another
    - E.g. Breakfast Cereal
- Primary, Secondary & Tertiary Packaging:
    - Primary - Package in which the food is sold to the consumer
    - Secondary - Food sold with a secondary level of packaging. E.g. 6 pack of poppers
    - Tertiary - Used to secure multiple secondary packages to make bulk handling & transportation easier. E.g. shrink wrapped pallets