PACKAGING AND ASSOCIATED PROCESSES

This mobile revision pdf is based on detailed work found in the 'GRAPHICS' section.

Tap on the green link button below to go to the complete website section

Tap the blue button to view Packaging Processes covered by this Revision PDF

PACKAGING AND ASSOCIATED PROCESSES

IMPORTANT – DOWNLOAD THE 'PRINTING PROCESSES' APP

This covers many of the processes used in the manufacture of packaging.

FUNCTIONS OF PACKAGING

To protect a product from damage or contamination. Protection during Transport and Ease of Transport.

To keep the product together, to contain it (i.e. So that it does not spill).

To identify the product. Name and product clearly identified.

Stacking and Storage. Designed to stack efficiently and easily. No space wasted between each package.

Printed Information. Product name, ingredients, contents, price, bar code etc...

Tap the image for all functions of packaging.

Tap the red button to return to the Contents page

MATERIALS
PACKAGING

Materials for typical ‘card’ packaging:

Box - quality card - 1000 microns (1mm), 920gsm.

Clear window - Polypropylene, to enable viewing of the products.

Plastic insert - high impact polystyrene (HIPS), to hold the contents securely in position.

Tap the image for all packaging materials.

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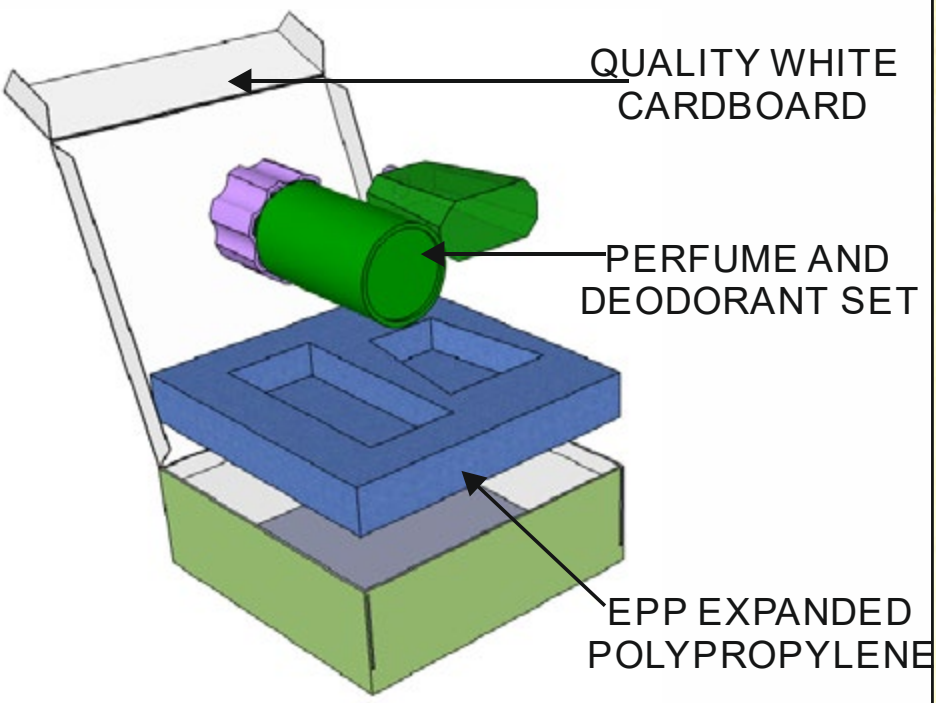
ALTERNATIVE MATERIALS PACKAGING

Expanded Polypropylene is a quality protective insert for packaging.



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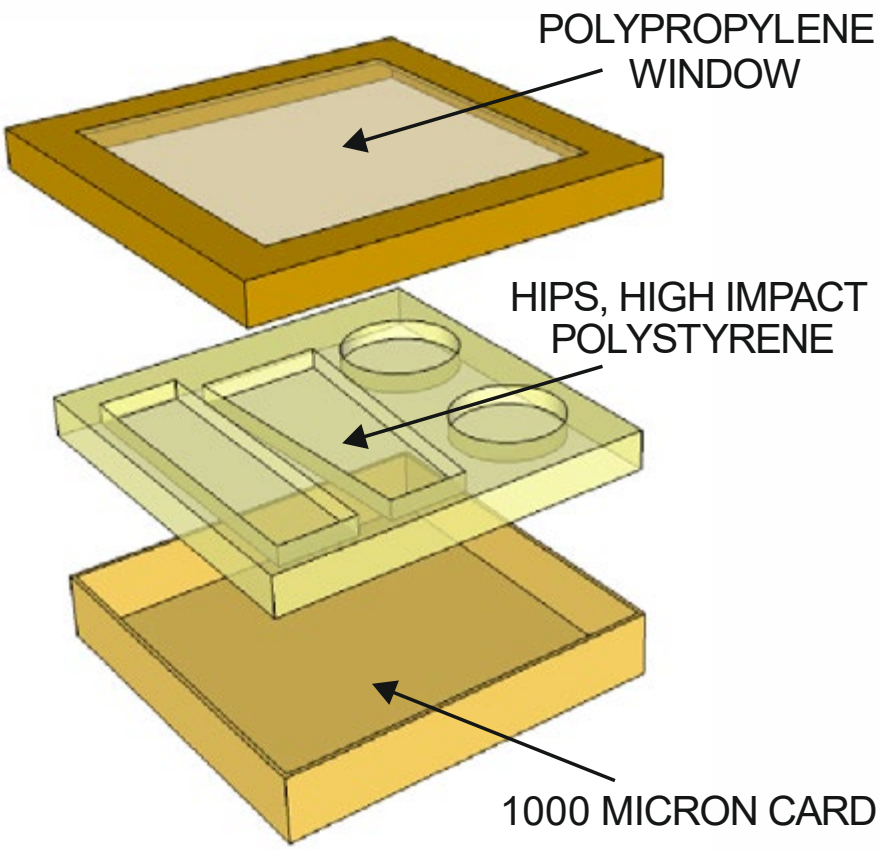
MORE PACKAGING MATERIALS



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PAPERBOARD

Paperboard, also called cardboard. Similar to paper but much thicker. Often used for packaging, book covers, cards, CD and DVD covers, because it can be cut and shaped easily.
Easy to recycle.
Takes ink and print easily, through processes such as lithography.
Paperboard is sustainable as the raw material is natural wood, which can be replanted.

Tap the image for all packaging materials.

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CORRUGATED BOARD

This type of board is often used for packaging large electrical items. These large boxes (often brown in colour) protect the contents from damage. Corrugated board is strong because it is composed of a top and bottom layer and in between there is a triangulated section. A triangular section is very strong compared to its weight.

Tap the image for all packaging materials.

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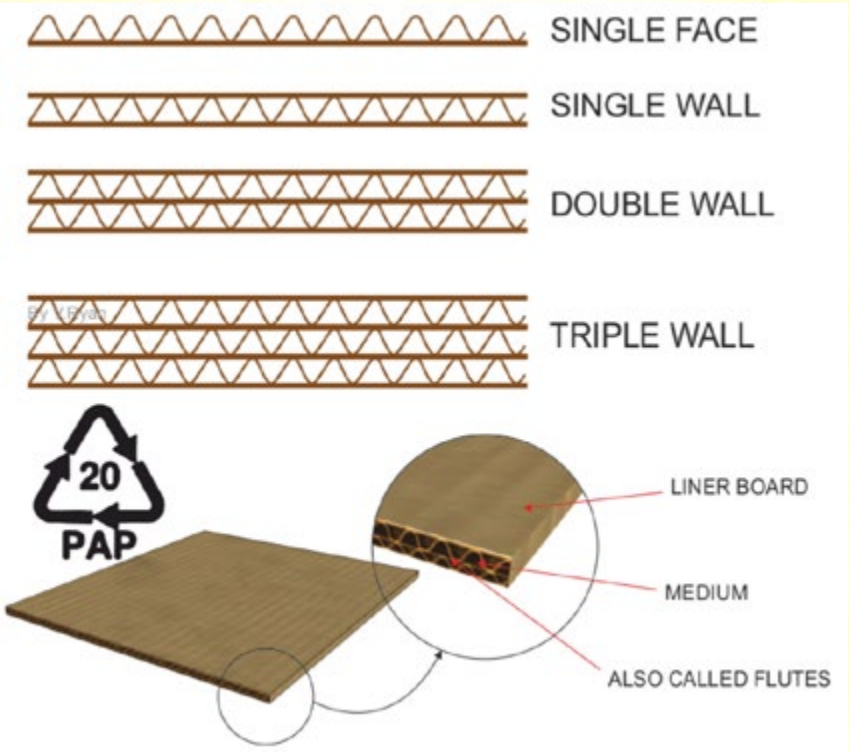
CORRUGATED CARD

The flat outer surface is called the liner board and the triangulated structure between the liner boards is called the medium (sometimes referred to as the flutes). Corrugated cardboard can be recycled.

Tap on the image for detailed information



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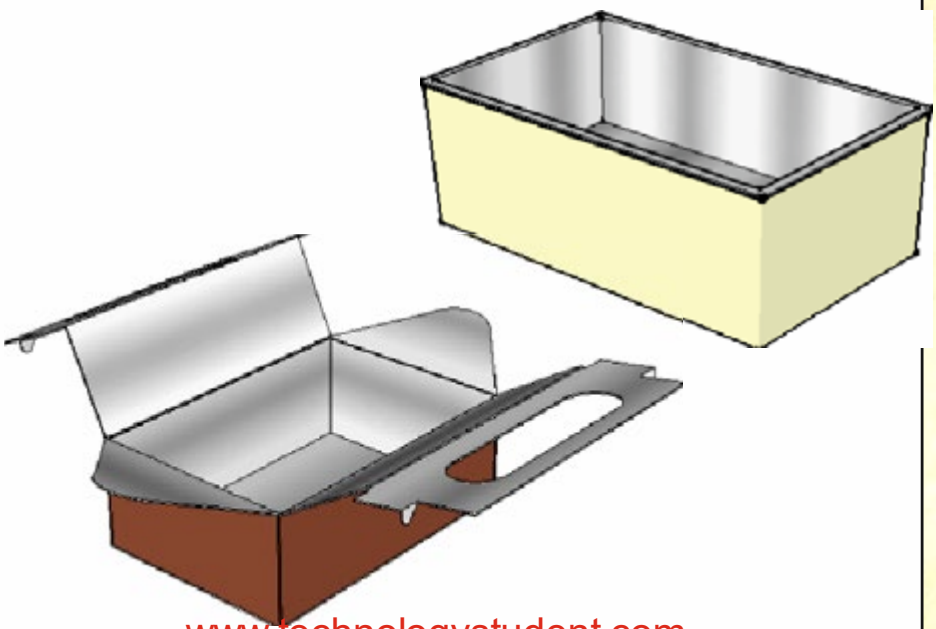
FOIL LINED BOARD

Good quality cardboard with a aluminium foil lining. This type of container is ideal for ready made meals or take away meals. The foil retains the heat and helps keep the food warm.



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DUPLEX BOARD

This is used for containers and can contain liquids as it may have a water-proof liner on the inside. It can have a wax feel. This type of card is used by the food industry and consequently recycled card is not used in its manufacture. Prints well, especially on a high gloss surface.

Tap the image for all packaging materials.

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LAMINATED CARD (DRINKS CARTONS)

Laminated cartons are used to store liquids such as milk and pure orange juice, for up to a year. This type of carton is composed of paper/card and layers of polythene, keeping the contents fresh and hygienic. The most famous laminated cartons are manufactured by Tetra Pak. Tetra Pak packaging materials, are made up of paperboard (73%), plastic (22%) and aluminium foil (5%).

Tap the image for all more information.

Tap the image for all packaging materials.

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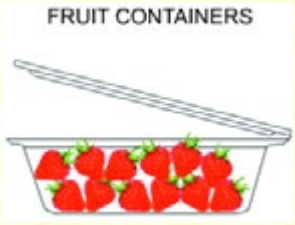
POLYETHYLENE TEREPHTHALATE, PET, PETE, (POLYESTER)

Used to manufacture the packaging of some food products, including packaging for fruit and drinks containers. It is lightweight, usually transparent, although it is also available in a range of colours. It is sometimes referred to a polyester, as it is a member of the polyester family of polymers. PET / PETE is a thermoplastic polymer and has good strength , ductility, stiffness and hardness. It can be processed through vacuum forming, injection moulding, compression moulding and blow moulding.

Tap the images for all more information.



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ENVIRONMENTALLY FRIENDLY POLYLACTIDE (PLA)

Polymers / plastics have a reputation of being environmentally unfriendly. They take years and in some cases centuries to decay. However, plastic bags made from Polylactide (PLA) take only five years to decompose. Containers such as drinking bottles and food containers manufactured from PLA, take slightly longer to decay, as they are manufactured from thinker material. **Polylactide** is referred to as a 'bioplastic' because of its environmentally friendly nature.

Tap on the image for detailed information

Tap the blue button for the next page on this modern material.

Tap the red button to return to the Contents page

LIFE CYCLE - POLYLACTIDE (PLA)

It is a sustainable, environmentally friendly polymer, due to it being derived from plants.

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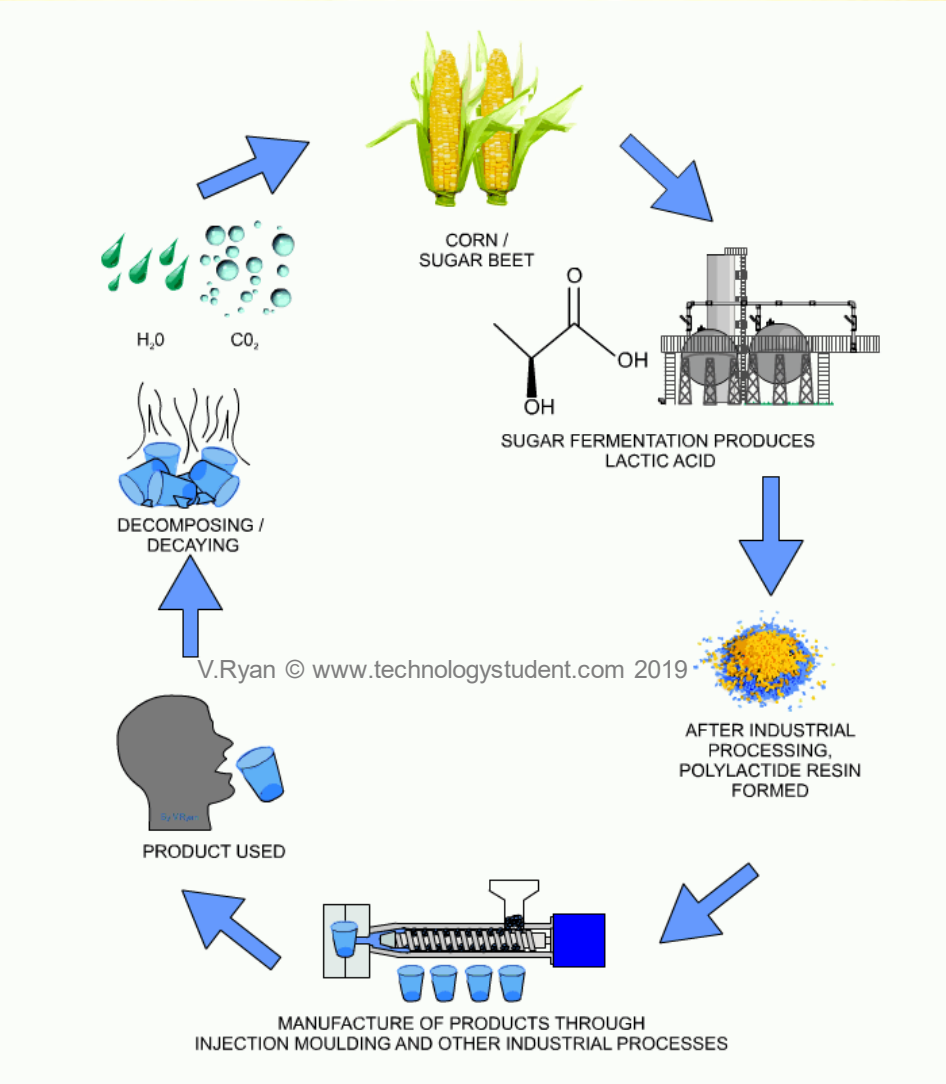

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Tap the red button to return to the Contents page

Tap on the image for detailed information about packaging materials

Tap the red button to return to the Contents page

INKS THAT CHANGE WITH TEMPERATURE

(THERMOCHROMIC INKS)

Colour changing inks were introduced during the 1970s with novelty items such a cups that change colour when hot liquids such a coffee or tea are poured in to them. They are sometimes applied to packaging

The cup below is empty and so the colour of the cartoons nose remains the same.

The cup below is full of hot tea and the colour of the cartoons nose has changed from grey to red

Tap on the images for detailed information

Tap the blue button for the next MATERIALS page.

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INK/PAINTS THAT PRODUCE AN AROMA WHEN SCRATCHED

(AROMA PIGMENTS)

These are inks / paints that produce an aroma when scratched. They are popular in 'scratch and sniff' products, such as perfume samples etched into magazines. The reader scratches the sample aroma pigment, releasing an aroma matching the selected perfume.

Tap on the image for detailed information

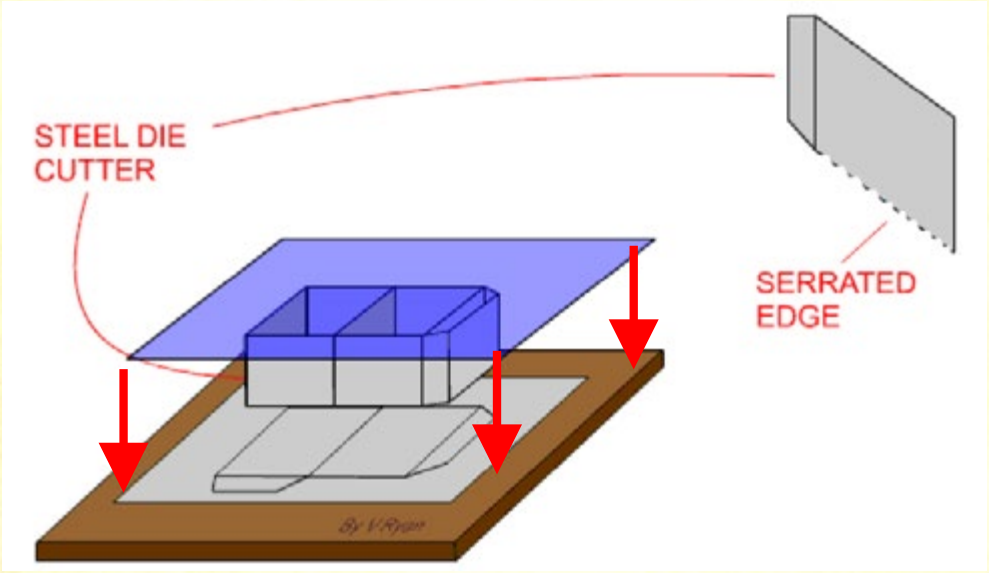
The greetings card (a Christmas Card), has been printed with aroma pigment. When the popup tree is scratched, it emits the scent of pine trees.

Tap the red button to return to the Contents page

MANUFACTURING NETS AND DEVELOPMENTS - DIE CUTTING

The die cutter (below), is pressed into the card by the force of the machine. The 'stamped out' net is then automatically placed on a folding table. Parts of the table move/fold, forming the basic package. People sometimes finish the more delicate folding operations. (This depends on the complexity of the package).

Tap the image for detailed information



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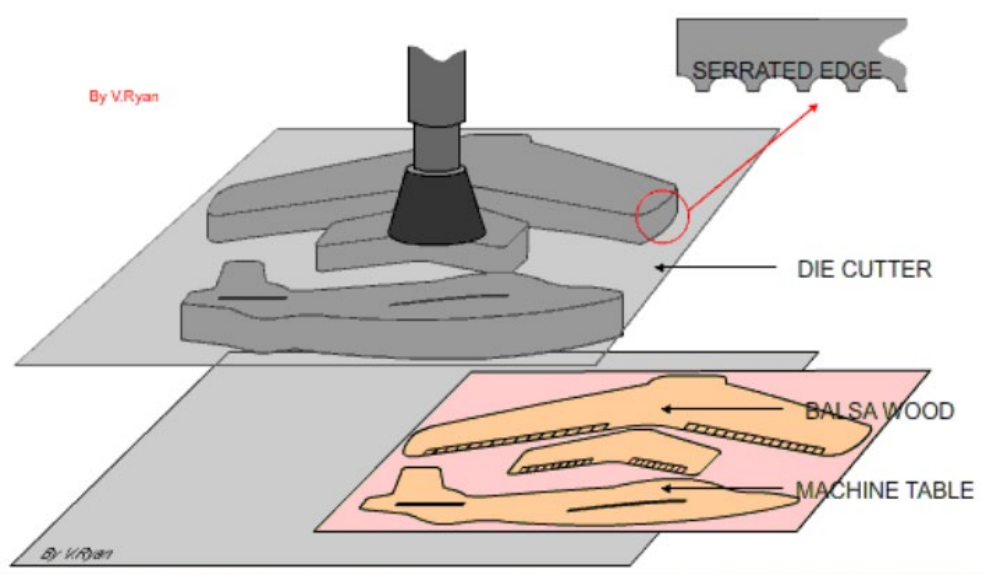
THE DIE CUTTER

DIE CUTTERS are normally used to manufacture card packaging. They can also be used to manufacture shapes / nets / developments from stronger materials. The example below - model gliders / aeroplanes (balsa wood / polystyrene) are usually manufactured using a steel die cutting machine. A sheet of thin balsa wood or polystyrene is placed on the machine table and the die cutter 'stamps' out the shape and the material is then removed.

Tap the image for detailed information



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COMMON SYMBOLS - PACKAGING

The 'Keep Britain Tidy' symbol is regularly seen on packages in the UK.

A reminder to the consumer, of the potential recycling properties of the package. It is aimed at encouraging the consumer to recycling packaging rather than throwing it into a general rubbish bin.

Fair Trade symbol - means that the contents of the package has been produced in the Third World - the producer (ie. the farmer) has received a fair and realistic price.

Tap the blue button for the next SYMBOLS page.

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COMMON SYMBOLS - PACKAGING

British and European safety standards. These symbols that are normally applied to non-food products such as electronic products or toys. However, they may still be applied to the packaging as a reference to the package itself being safe.

Materials used to make the packaging have been harvested from sustainable forests.

Suggests that the product inside the packaging could be easily damaged if dropped or handled without care and attention. The contents are fragile !

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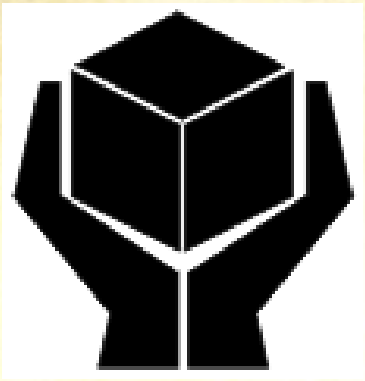
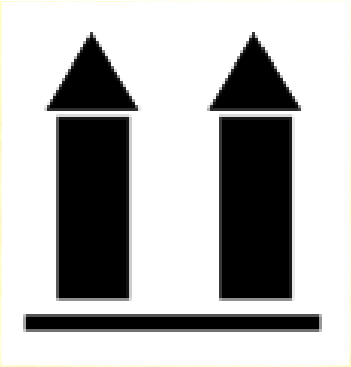
COMMON SYMBOLS - PACKAGING



The two hands holding or protecting the package is another reminder that the contents should be handled with care.

The Ecolable - Companies and businesses that use this symbol / label have shown consistently, that they sell products and services ,that conserve the environment.



The symbol seen opposite, tells those handling the package that it must be stored the right way up.

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Tap on both images for detailed information about packaging symbols

Tap the red button to return to the Contents page

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VACUUM FORMING - BLISTER PACKAGING

Vacuum forming is a manufacturing technique whereby thin plastic such as high density polystyrene is shaped by heat and force. Blister Packaging is manufactured in this way and the basic technique is seen below as an animation.

The packaging below - the back is made from card with a lacquered, gloss finish. The front is manufactured from vacuum formed transparent high density polystyrene. This type of packaging is called 'blister packaging'.

Tap the image for detailed information

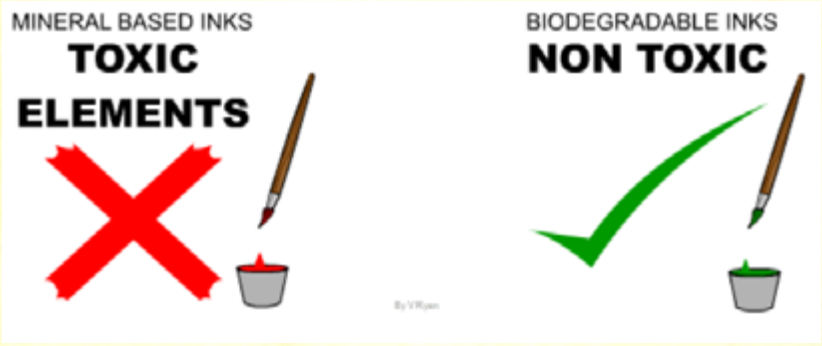
Tap the red button to return to the Contents page

BIODEGRADABLE INKS

Common inks for printing packaging, contain oil. The oil is usually mineral based and the pigments can contain heavy metals. This means that when card or paper rots and degrades in the soil the oil and pigments are left to pollute the environment.

Biodegradable inks are based on vegetable oils such as Soya oil, sunseed oil or rapeseed oil. Modern biodegradable pigments are based on yellow, red and blue primary colours and are based on water rather than oil. They include a biodegradable pigment called polyhy-droxyalkanoate (PHA).

Tap the images for detailed information AND advantages/disadvantages of these inks



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