

## Advantages of Corrugated Packaging

- Strength
- Versatility
- Lightweight
- Recyclability

## Packaging can:

- protect goods whilst in transit;
- be used for storage and distribution purposes;
- provide information about the product it contains.



## Boxing Above its Weight

Corrugated packaging is an integral part of society.

Corrugated material has been used as a packaging material since 1871, when an American, Albert L. Jones, first obtained a patent for the use of a corrugated paper for wrapping fragile items such as bottles. This was a primitive prototype and others developed this initial idea, leading to the first corrugated board in 1882, in a patent awarded to Robert H. Thompson.

The first corrugated boxes were produced in the early years of the twentieth century, and corrugated board rapidly became the world's favourite packaging material. Today, through large investment and technological advancements, much progress is evident, from improved production processes through to innovative printing techniques – all helping to make corrugated a popular choice.

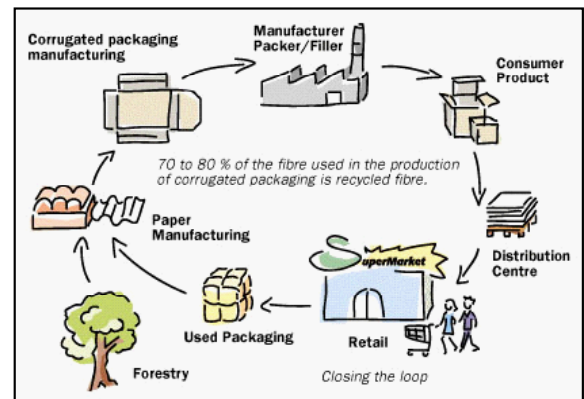
Corrugated boxes are made from a high percentage of recycled paper and board (recovered fibre). On average, UK manufactured corrugated boxes contain 76% recycled fibre which can be material from old corrugated boxes, cartons or newspapers. The re-use of such items means corrugated offers a number of environmental benefits.

## Number One at the Box Office

Packaging is vital in today's modern society, and the packaging industry is constantly evolving in order to meet the requirements of customers and legislation.

Corrugated packaging is one of the largest sectors within this important industry. In the UK alone, it accounts for almost 30% of all packaging used.

Packaging can be identified as "the container or wrapping in which a particular item is presented". Its main purpose is to **prevent damage** to the product through breakage, spoilage, or contamination – all of which leads to wastage.



The secondary purpose of packaging is to **provide information**. This can be to advertise and promote the product to consumers, or indicate dimensions and weight of the package. This information can also give consumers instructions on how to use the product or, in the case of foodstuffs, relate to the ingredients and nutritional value. It can alert consumers to potential dangers or misuse of the product it contains.

## A Case Study

A corrugator makes the corrugated board from a combination of liners and fluting. This is formed by a set of machines designed to bring together three, five or seven sheets of paper to form single, double or triple wall board packaging.

The structure of the final corrugated material is dependent on the way these layers of paper are put together. There are many types of corrugated board each with different flute sizes and profiles which offer many combinations designed to create packaging with different characteristics and

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performances.

The arch-like structure of the fluting is able to withstand considerable weight by giving rigidity. Any air circulating within the flutes acts as an insulator, providing good protection against temperature fluctuations.

**The five configurations of flute in most general use are:**

**'F' Flute**  
A very fine flute (also known as microflute), which is used for "corrugated cartons". It gives excellent crush resistance and rigidity.

**'E' Flute**  
A fine flute used for "corrugated cartons". It gives excellent crush resistance.

**'B' Flute**  
By far the most widely specified flute profile in Europe, thanks to its superb robustness (difficult to crush), good compression strength and compactness, which minimises storage space.

**'C' Flute**  
A larger flute than 'B', offering greater compression strength, but may be crushed more easily. It also takes up more storage space than 'B' flute.

**Double Wall**  
A combination of two flute sizes, usually 'B' and 'C', is specified when compression strength is more important than storage space and robustness.

There are different types of corrugated board. This shows just some of the types currently in use.

Corrugated board is created by gluing fluting and liner papers together.

*Single-faced corrugated board (corrugated rolls) consists of liner paper and fluting.*

*Single-wall corrugated board is made of an outer liner, the fluting and an inner liner.*

*Double-wall corrugated board is created by gluing two single-faced corrugated webs together and laminating them to a liner web.*

*Triple-wall corrugated board consists of three single-faced corrugated boards with different types of fluting and an outer liner.*

### Top of the Box

Corrugated packaging works because:

- **visually**, it can be plain or be printed on in all manner of styles, allowing for individual customer requirements to shine through;
- **efficiently**, it provides space-efficient packaging that is ideal for transportation, and it breaks down easily;
- **economically**, it saves the costs of product waste, for instance, when transporting fresh produce, time is the critical factor or the produce will deteriorate and be unusable.

Because manufacturers are continually striving to find ways of protecting their products adequately while using less packaging material, product development is a vital area for those involved with corrugated packaging production.

Recent technological enhancements have widened the variety of applications available to manufacturers, in order for them to meet the ever-increasing demands of today's global marketplace. This is not always easy, as there are other factors to consider such as environmental issues and legislation, which affect corrugated packaging producers.

Once used, corrugated packaging is easy to recycle. In the UK and Europe, the collection of used corrugated packaging is hugely successful - over 80% of all corrugated packaging is collected for recycling.

However, recovered fibres cannot be recycled indefinitely because fibre length and strength is lost each time it is recycled. This means a constant supply of virgin (new) fibres is essential to maintain the papermaking chain. Increasingly, these virgin fibres are derived from forest thinnings, small dimension timber and sawmills' waste.

### Case Closed

Corrugated packaging is a prime example of a manufacturer becoming even more successful by listening to its customers.

Its ability to perform the basic functions required from packaging, coupled with the environmental benefits of the material itself does much to enhance the popularity of its use.

The way it can adapt means the industry will remain innovative, and that corrugated will always be used as a solution to a multitude of packaging problems.

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