



### Introduction

Before the invention of paper, ancient civilisations transcribed their thoughts by engraving stone, wood and metal and stamping clay, as well as painting silk and parchment.

Paper originated in China in AD 105. Ts'ai Lun, the chief eunuch of the Emperor Ho-Ti, is credited with its invention.

Although paper was in general use in China nearly 2,000 years ago, it was not until the 8th century that the technology moved further west.

The phrase 'rags to riches' originated during the 18th century when the price of rags soared with the invention of the printing press and subsequently increased demand for paper.

Paper may not seem the 'sexiest' of products, but imagine where we would be today without it. Paper has been the medium by which information has been recorded and distributed for thousands of years, and as such has sliced through the barriers of time and space to be a catalyst for today's world.

Without paper, it is quite probable that the music created by Mozart would have been lost, Leonardo de Vinci wouldn't have been so prolific, and inventions such as the motor car may have been confined to the wheel stage.

Paper is an integral part of our lives which is often overlooked. Globally, more than 300 million tonnes of paper are produced each year on multi-million pound machines, at speeds often in excess of 60 mph. Yet, an A4 sheet often costs less than a penny.

One of the attractions of paper is its versatility. It can be permanent or impermanent, delicate or strong, cheap or expensive, and can decompose in water or be water-resistant. Paper can be: used as a communication medium; can protect a vast array of goods; be used in numerous household applications such as kitchen rolls and disinfectant wipes,

and in some parts of the world it is even used to hasten the healing of cuts, bruises and boils.

Most paper products are recyclable and woodpulp, the industry's primary raw material, is infinitely renewable.

### Environmental Credentials

#### A Renewable Resource

Paper fibres can only be recycled a handful of times before they become too short and weak to be of use, so a constant addition of virgin fibre is required to replenish the paper cycle.

The main sources of virgin fibres are trees which, if forests are well managed, are a renewable resource. Wood is turned into pulp by separating the fibres by chemical and/or mechanical means. During the papermaking process water is added to make pulp slurry, and additives such as clay and starch are used. The mixture is then uniformly fed onto the wire of a paper machine where it goes through a water removal process.



7.4 million tonnes of recovered paper and board were collected for recycling in 2019. 4.3 million tonnes of recovered paper was exported from the UK, mainly to Asia (75%) (Source: CPI data)

To assure the continued wellbeing of commercial forests, certification schemes are used. They set management criteria by which companies abide to develop and maintain a healthy forest. Certification also informs customers that the wood or paper they are using comes from an environmentally accredited source. It should be noted that just 12% of the timber harvested world-wide is used for papermaking (Source: FAO Statistics), and is often small dimension wood, sawmill waste and woodchips, as well as forest thinnings (immature trees extracted to enable those remaining to grow to healthy maturity).

## Did you know...?

A typical paper machine is around 115 metres long - that's the length of a football pitch!



### Recyclability

Two-thirds of UK mills use recovered fibre, and many use nothing else. This makes economic as well as environmental sense, since the 'urban forest' provides a plentiful supply of papermaking fibres. In 2019, 73% of the fibre used in the UK to manufacture paper, was recovered paper.

The UK's utilisation rate, which is the amount of recovered paper recycled, compared with the amount produced by UK papermakers is 81% (2019) - one of the highest rates in Europe.

### Energy Efficiency

The 'energy spend' is usually roughly equivalent to 10% of a company's turnover, so the conservation and efficient use of energy in the paper industry is a high priority. Energy conserving measures such as heat

exchanges, drying hoods and combined heat and power (CHP) are commonly used.

CHP gives overall thermal efficiencies in excess of 80%. This is nearly three times more efficient than the best power station in the electricity supply industry and the use of CHP has substantially reduced emissions.

### Air and Water Discharges

To meet the tightening European environmental standards for discharges into both water and air, improved technology in effluent treatment systems has been adopted throughout the industry. Mills are working to reduce their water consumption and, in the future, towards closed loop systems.

## Put Paper First

## Did you know...?

Mechanisation of papermaking was first introduced in Holland in 1680. This was followed in 1798 with a machine, invented by Louis Robert in France that ran at 9 metres per minute.



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