

THIS BROCHURE CONTAINS **3** RECYCLED BEVERAGE CARTONS*

Recycling of used beverage cartons in Europe

In Europe, used beverage cartons are collected from households and recycled into new products.



BEVERAGE CARTON RECYCLING AND RECOVERY IN WESTERN EUROPE HAS INCREASED BY OVER 200% IN THE LAST 10 YEARS

CONTENTS

Introduction.....	01
The Tetra Pak vision.....	03
Beverage cartons and packaging legislation.....	04
From Tetra Pak cartons to new paper products.....	06
Collection.....	08
Sorting.....	10
Recycling.....	12
Costs and benefits of beverage carton recycling....	14
Reduction of environmental impacts.....	16
Did you know?.....	18
Key learnings.....	20
Our commitment.....	21

* This brochure is printed on Norgraph Recy White (30500) paper containing a minimum of 80% recycled beverage cartons.

Introduction

Recycling of beverage cartons in Europe

In 2003, the beverage carton industry achieved 30% recycling and 58% total recovery¹ of all carton packaging in the previous European Union of 15 member states. During the same period, the enlarged European Union of 25 member states achieved 28% recycling and 53% total recovery. Beverage cartons can be recycled into new paper products such as office stationery, tissue paper, cardboard, corrugated board and paper bags.

¹Total recovery includes both recycling and energy recovery.

Sharing our recycling experience worldwide

At Tetra Pak we are committed to achieving a 25% recycling rate worldwide for our used carton packages by the end of 2008. While there is no legal demand for recycling in most countries outside Europe, we have set ourselves this target to make a positive contribution to the communities we serve.

Around the world, Tetra Pak works with stakeholders to develop local collection and recycling programmes. We employ over 100 professionals dedicated to environmental issues.

IN 2003, THE TOTAL RECYCLING RATE OF BEVERAGE CARTONS IN THE EUROPEAN MARKET (EU15) WAS

30%

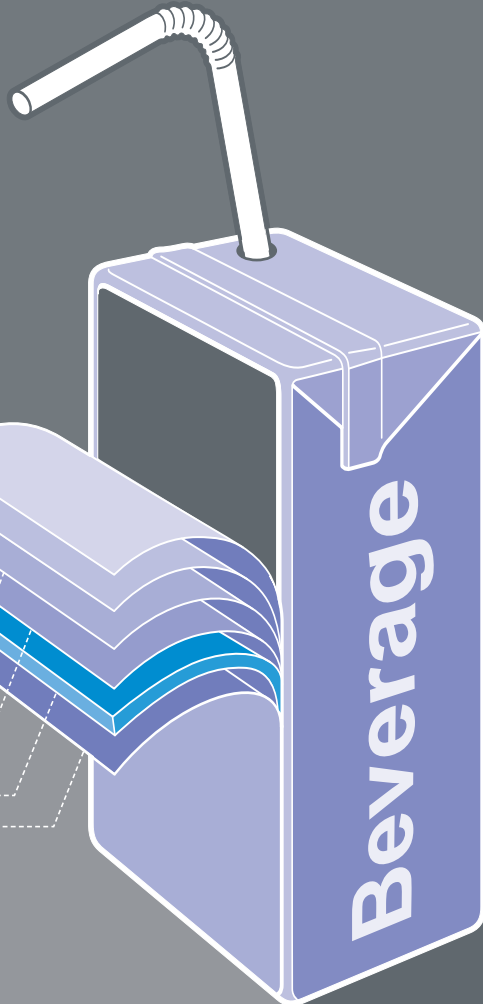
WHAT IS A TETRA PAK CARTON MADE OF?

- Internal polyethylene layer** seals in the liquid.....
- Polyethylene layer** needed for lamination process.....
- Aluminium foil** provides a barrier to oxygen, flavours and light.....
- Polyethylene adhesion layer** needed for lamination process.....
- Paperboard** gives stability and strength.....
- Polyethylene layer** protects food from external moisture.....

Tetra Pak cartons designed to distribute food products under refrigerated conditions may not contain aluminium.



PACKAGING'S PRIMARY ROLE IS TO PROTECT THE VALUABLE FOOD PRODUCT IT CONTAINS FROM BEING WASTED



The Tetra Pak vision

We commit to making food safe and available everywhere

Keeping foods fresh and accessible

Tetra Pak packages provide an efficient and environmentally sound way to distribute foods both at ambient temperatures and under refrigerated conditions. Our packaging is designed not only to protect food from damage caused by light, oxygen and micro-organisms but also to prevent food from being wasted during distribution.

Tetra Pak's aseptic carton packaging keeps a wide range of food fresh for months without refrigeration including:



- Milk
- Fruit juices
- Beverages
- Soya
- Wine
- Water
- Tomato products
- Soups
- Desserts
- Nutritionals (foods with functional additives such as calcium and vitamins)

Tetra Pak's aseptic carton packaging protects fresh food through 'aseptic' processing, which ensures the long-term protection of delicate nutrients and flavours. The aseptic process destroys harmful micro-organisms by exposing food to very high temperatures for just a few seconds and then, while still in a sterile environment, cools, fills and seals it in a pre-sterilised carton.

Designed with the environment in mind

Tetra Pak packages are not only recyclable and recycled, their very concept is designed with the environment in mind. Tetra Pak packaging is mainly made of paperboard, which is manufactured from a renewable resource – the forest. In Europe, all fibres in our cartons originate from forests where high standards of Forest Management practices are applied.

Our product development and innovation incorporate life-cycle assessment, design for the environment and, to ensure compliance with the essential requirements of the European Packaging Directive, use of the European Standardisation Organisation (CEN) prevention standard. A direct benefit of this approach is that our packages are made using the minimum amount of raw materials necessary to deliver the required protection and functionality.

Tetra Pak packages are produced in an environmentally sound manner

In all our converting plants we apply environmental management systems certified to the ISO 14001 international standard.

Third party reviewed life cycle assessments, spanning raw material production to recovery and recycling of used beverage cartons, have clearly indicated their low environmental impacts.

33 billion litres of food in Tetra Pak cartons were consumed in 2004

Consumer preference today is for convenient and functional packaging. We have expanded our product range in response to this trend and an increasing number of our packages are re-closable. We have achieved this greater functionality without compromising environmental performance.

Beverage cartons and packaging legislation

In Europe legislation sets the framework for recycling of used packaging

European legislation

The European Union (EU) has set an overall packaging waste recycling target of between 55% and 80% and a minimum recovery target of 60% to be achieved by all EU member states. In addition, each state is required to achieve material specific recycling targets of 60% for glass and paper packaging, 50% for metal and 22.5% for plastic packaging.

Most EU countries are required to achieve these targets by 2008. Greece, Ireland and Portugal have derogation until 2011, and the countries that joined the EU in May 2004 will also have several more years to comply.

Beverage cartons represent about 5% of all paper packaging in Europe and are included in the target for paper packaging recycling.

National legislation

Most EU member states have adopted material specific recycling targets following the material categories as defined in the EU packaging waste legislation. Austria, Germany and Hungary defined additional recycling targets for multi-material packaging, which include beverage cartons.



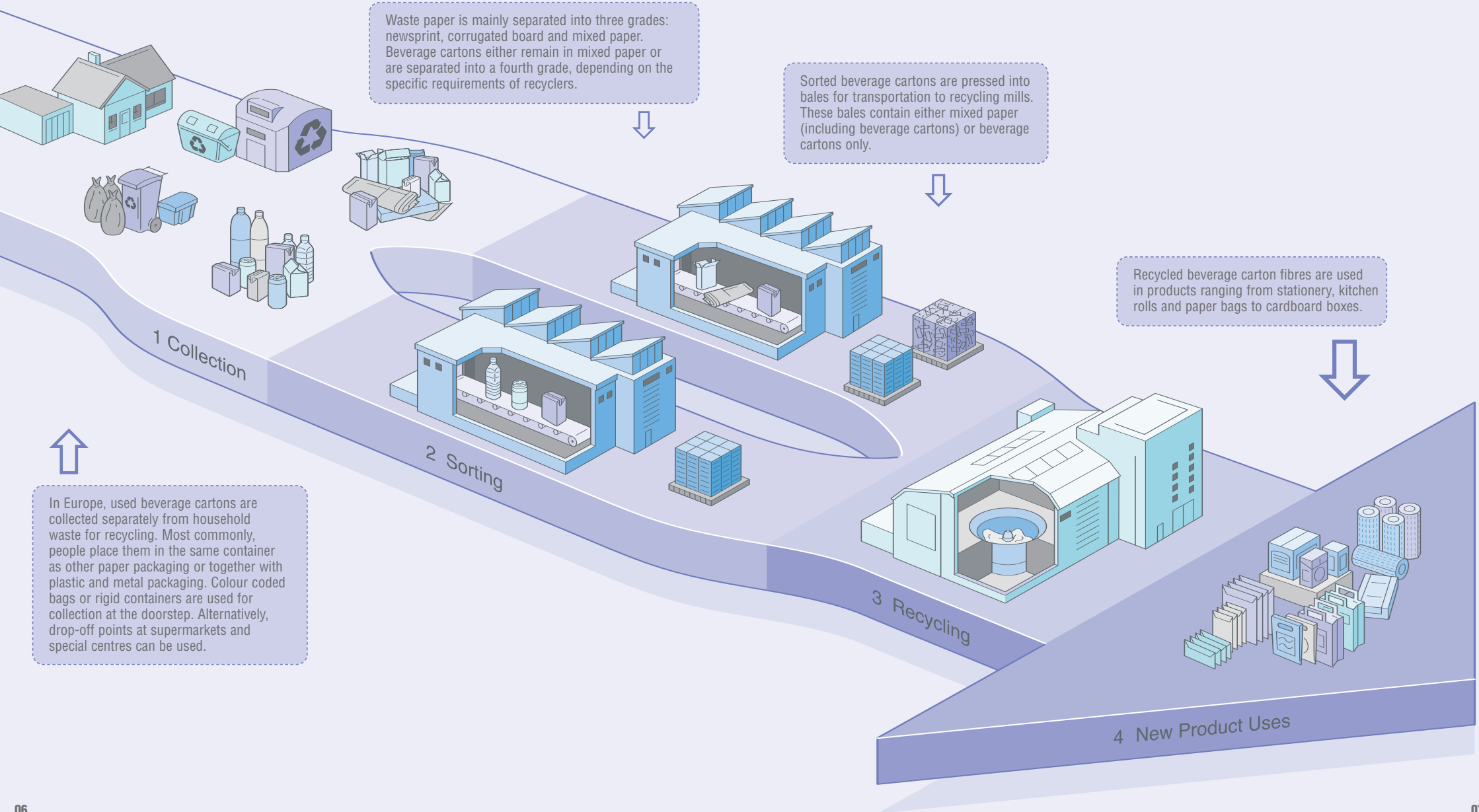
5%

of Europe's paper packaging consists of beverage cartons and this is included in the EU recycling target for paper packaging

DEADLINE FOR DIFFERENT COUNTRIES TO COMPLY WITH EUROPEAN PACKAGING WASTE LEGISLATION

TARGET DATE	COUNTRY
2008	Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Spain, Sweden, United Kingdom
2011	Greece, Ireland, Portugal
2012	Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Slovakia, Slovenia
2013	Malta
2014	Poland
2015	Latvia

FROM A USED TETRA PAK CARTON TO A NEW PAPER PRODUCT



In 2003, 11 billion used beverage cartons were collected for recycling from households in Europe. This was achieved by collecting used packaging independently of household waste.

Systems are developed for local conditions
In most European countries used packaging is left at the doorstep for collection in special containers or bags (kerbside collection). Alternatively, people take their used packaging to drop-off containers or collection points (bring system). Kerbside collection is mainly used in urban areas whereas bring systems are used in both urban and rural areas.

As a general practice, Tetra Pak packages are either collected in designated paper or waste paper packaging containers or in the same container as other lightweight packaging such as plastic bottles and cans. In Austria, citizens separate Tetra Pak cartons and either place them in a special cardboard box (Öko-Box) at their doorstep for collection or mail the Öko-Box directly to a nominated recycler.

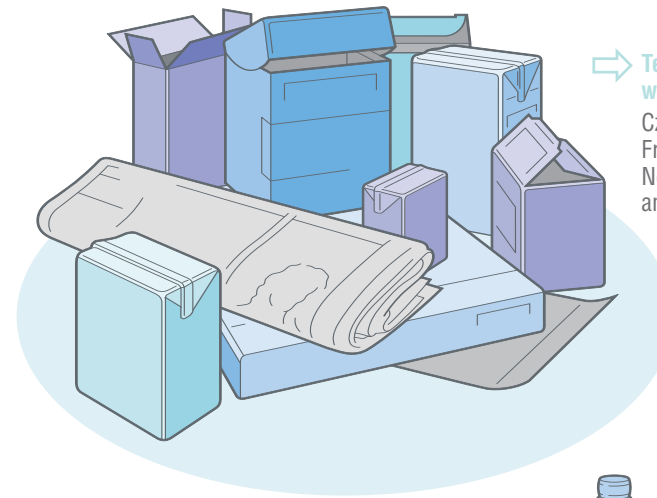
Every European country has developed its own system to collect packaging waste according to local conditions. Tetra Pak has adopted a leading role in setting up packaging waste collection systems in close co-operation with industry partners and other stakeholders.

280,000

tonnes of beverage cartons were collected in 2003 (EU 25)

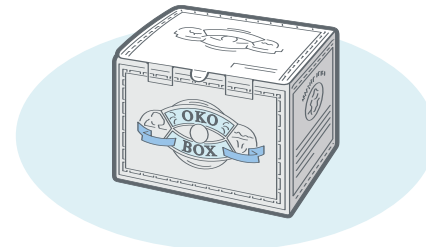
Linking nutrition to sound environmental practices

Many European countries have school drinks programmes where pupils are provided with milk or juice in beverage cartons. Where appropriate, Tetra Pak has complemented these programmes by initiating school waste packaging collection systems to help create environmental awareness and encourage good environmental behaviour among children. Tetra Pak activities have included the provision of logistical assistance, drop-off containers, communications and teaching materials.



⇒ Tetra Pak packages collected together with paper or other paper packaging:
Czech Republic, Estonia, Finland, France, Hungary, Italy, Latvia, Lithuania, Netherlands, Poland, Portugal, Slovakia and Sweden.

⇒ Tetra Pak packages collected together with plastic bottles and cans:
Belgium, Czech Republic, France, Germany, Hungary, Ireland, Luxembourg, Slovakia, Slovenia and Spain.



⇒ Tetra Pak packages collected separately:
Austria (using the Öko-Box).



Since beverage cartons are collected together with other packaging types from households, sorting is needed in many cases to separate different materials or paper grades for recycling.

The European List of Standard Grades of Recovered Paper and Board defines used beverage carton as a tradable waste paper grade (EN 643 5 03 00: Polyethylene coated used liquid packaging board, with or without aluminium, containing a minimum of 50% fibres).

The EN 643 Standard is published by the European Paper Industry and the European Standardisation Organisation (CEN). Therefore, they can be sent from one EU member state to another for recycling in paper mills according to the EU Waste Shipment Regulation.

Tetra Pak cartons collected with mixed paper or paper packaging

Beverage cartons represent less than 1% of all waste paper collected in Europe and less than 5% of all paper packaging put on the market in Europe.

Tetra Pak cartons collected from households in an appropriate paper container are either sent to a paper sorting centre or are baled and sent directly to a paper mill. This waste paper is typically separated into newsprint, corrugated board and mixed paper. Generally beverage cartons remain with the mixed paper grade for recycling if they represent less than 5% of the total.

In Sweden however, where used beverage cartons represent up to 35% of the paper packaging collected, they are recycled together with the other paper packaging without any sorting.

Separating Tetra Pak cartons from lightweight packaging

In countries where beverage cartons are collected in the same container as plastic bottles and cans, the different materials must be separated either manually or automatically before being sent to recycling plants.

470,000

BALES (WEIGHING 600 KG EACH) OF USED BEVERAGE CARTONS WERE SENT TO PAPER MILLS IN 2003 (EU 25)

⇒ **12%**
 increase in beverage carton recycling every year for the last decade

The technology for recycling beverage cartons is simple and widely available

Fibre recovery

Paper mills recycle Tetra Pak cartons, either separately or together with other paper grades, by separating paper fibres from polyethylene and aluminium using a water-based process known as repulping.

The virgin fibres used in Tetra Pak products are specially selected to give maximum strength and stiffness for the lowest possible weight. When recycled, these fibres provide a valuable raw material for new paper and board products.

Recovery of non-fibre components

Recovery and recycling of aluminium and polyethylene extracted during the repulping process varies from country to country. For example, in Finland one paper mill recovers the energy to generate steam that is used either for drying pulp or producing electricity. This mill also generates aluminium powder for re-smelting.

In Germany, repulping residues are used in cement kilns where polyethylene serves as a high-energy fuel. The aluminium is recovered as aluminium trioxide, which is an essential ingredient in cement.

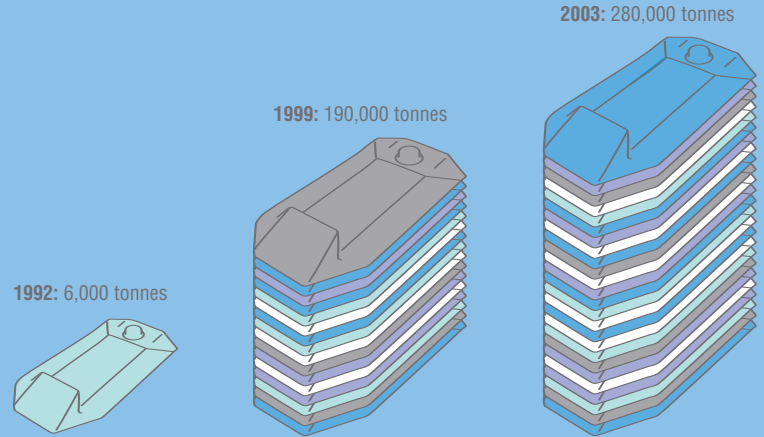
Suitability for energy recovery

Tetra Pak cartons have a high calorific value, generally in the range of 20-25 MJ/kg, and are therefore suitable for energy recovery.

The calorific value of the non-fibre polyethylene and aluminium components available after the fibre recycling process is typically around 30 MJ/kg.

Tests have shown that Tetra Pak cartons are comparable to bio-fuels such as wood chips and bark in terms of emissions.

INCREASE IN RECYCLED BEVERAGE CARTONS (METRIC TONNES)



20 BEVERAGE CARTON RECYCLING PLANTS IN EUROPE 2004



⇒ RURAL COLLECTION IS MORE EXPENSIVE THAN COLLECTION IN URBAN AREAS, DUE TO HIGHER LOGISTICS COSTS

costs

benefits

⇒ IN COUNTRIES WITH A HIGH BEVERAGE CARTON CONSUMPTION OR WELL ESTABLISHED COLLECTION SCHEMES, THERE IS A HIGH DEMAND AMONG RECYCLERS FOR USED BEVERAGE CARTONS

Collection and sorting are the key cost factors for beverage carton recycling

In most EU countries, local authorities are responsible for the collection of household waste and therefore also meet the basic costs for the collection of used packaging. The additional costs of collecting used packaging separately from household waste are normally recovered from recycling fees (e.g. 'Green Dot' fees) paid by consumers. In Austria, Belgium, Germany and Sweden packaging waste collection is fully financed by recycling fees.

Recycling fees vary widely from country to country. They are determined by the configuration of the collection systems, infrastructure, labour costs, transport distances and quantities of materials. Cost-effective beverage carton collection and sorting requires economy of scale.

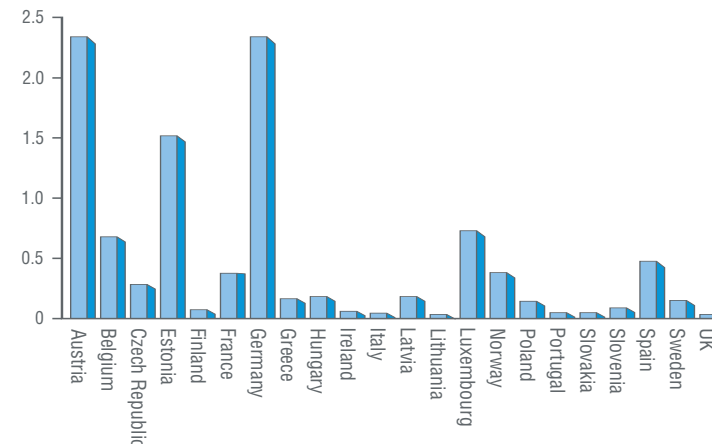
As a general rule, separate collection of beverage cartons tends to be the most costly solution. Beverage carton collection with other lightweight packaging is less expensive. Collection with paper is the most cost-effective alternative.

Low additional investment for recyclers

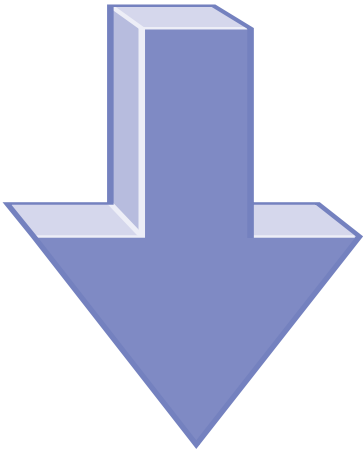
Recycling Tetra Pak cartons may not require any additional investment for paper recycling mills. The revenues generated by paper mills from recycling used Tetra Pak cartons depend on the quantities collected, types of end products and fluctuating waste paper prices.

Since revenues from recyclers for packaging material do not cover collection costs, additional financing via recycling fees is required in all European countries. Therefore, it is important that governments and industry jointly define achievable recycling rates at a reasonable cost to society.

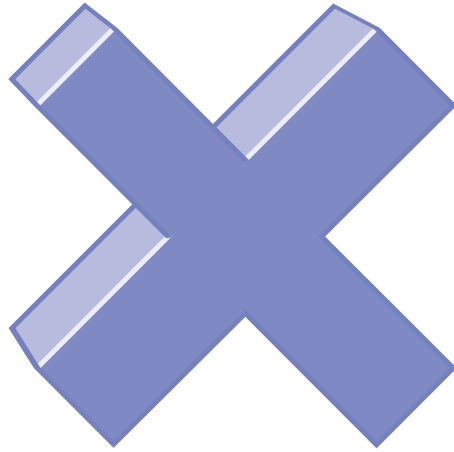
RECYCLING FEES FOR A 1 LITRE TETRA PAK PACKAGE IN DIFFERENT EUROPEAN COUNTRIES 2005 (€c)



Recycling 280,000 tonnes of beverage cartons

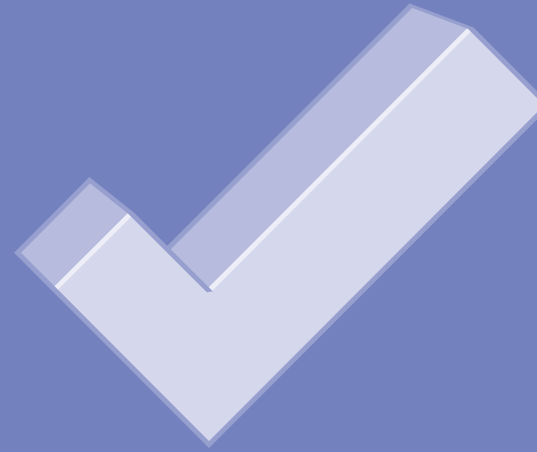


It reduces greenhouse gas emissions by 250,000 tonnes...



avoids waste of resources...

has positive environmental impacts...



produces new products such as kitchen rolls, paper bags, envelopes, corrugated board.



An LCA study commissioned by Germany's Umweltbundesamt in 2000 found that beverage cartons are "environmentally advantageous". They show environmental performance comparable to refillable glass bottles.

Did you know?



**BY RECYCLING 1 TONNE OF BEVERAGE CARTONS
YOU SAVE 900 KG OF GREENHOUSE GAS EMISSIONS
AND 2 TO 3 CUBIC METRES OF LANDFILL**

TETRA PAK CARTONS ARE
MADE UP OF ON AVERAGE:

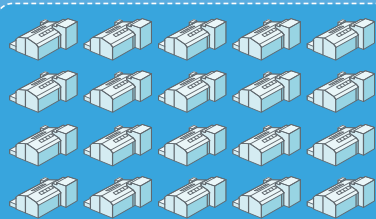


**RECOVERED PAPER
FIBRES CAN BE RECYCLED
5 TO 7 TIMES**

SINCE 1994, THE AMOUNT OF TETRA
PAK CARTONS RECYCLED INCREASED
BY MORE THAN 12% (AVERAGE)
EVERY YEAR IN EUROPE



**ASEPTIC TETRA PAK CARTONS
REQUIRE NO REFRIGERATION
AND THUS SAVE ENERGY**



**TETRA PAK CARTONS ARE RECYCLED
INTO NEW PAPER PRODUCTS IN 20
EUROPEAN PAPER MILLS**



**A FILLED CARTON'S RECTANGULAR
SHAPE TAKES UP MINIMUM SPACE
IN DISTRIBUTION**

**EVERY MINUTE ONE BALE OF USED
BEVERAGE CARTONS IS RECYCLED
IN EUROPE**



Key learnings

Analysis of recycling programmes shows that there are many criteria that can affect the level of overall costs and benefits. The following are the key findings:

Efficient recycling is dependent on local conditions

As conditions within the 25 EU member states vary widely, collection and recycling needs to be adapted to local circumstances. A balance of transparency of costs at each stage, fair cost allocation between different packaging materials and shared responsibility between industry and local authorities has proven to be the most successful approach to achieving recycling targets at the lowest possible cost.

Co-operation between industry, authorities and citizens is key to success

Efficient recycling of used beverage cartons is greatly dependent on people's commitment and behaviour. It also depends on the availability of collection points, clear communication and the ability to collect various materials at the same time.

Collection and sorting costs are incorporated into product prices

In most European countries, the costs for collection of used packaging from households are incorporated into product prices. Low costs due to efficient collection minimise price increases.

Recycling technology is available

The technology to recycle beverage cartons already exists and is widely used. However, in many countries, the challenge for beverage carton recycling is to encourage separate packaging waste collection from households in order to establish a steady material supply in sufficiently large quantities.

Recycling reduces environmental impacts

The recycling of used beverage cartons to substitute virgin fibre in paper production contributes to increased efficiency in the use of natural resources and a reduction of greenhouse gas emissions. Energy recovery may have similar environmental benefits in those countries where a high level of energy recovery replaces use of fossil fuels.

Our commitment

WE WILL

⇒ Use the minimum amount of materials necessary to ensure the integrity and functionality of our packages and thereby ensure appropriate protection for the products contained within them.

Ensure that our packages are suitable for recycling.

Facilitate and promote local collection and recycling activities for our used packages.

Support development of recycling technologies and capacity.

Communicate effectively with consumers.

Continue to establish beverage carton recycling outside Europe.

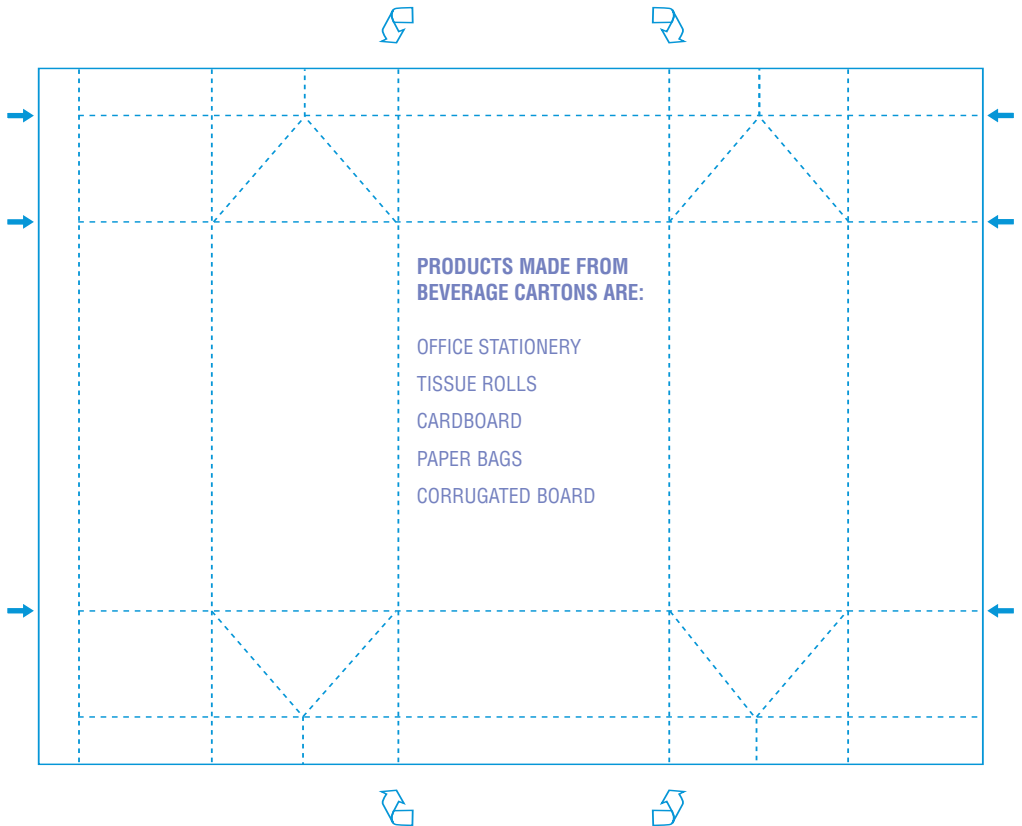
Support environmental education in schools.

WHAT THIS MEANS

⇒ Tetra Pak is committed to making food safe and available everywhere. We operate in more than 165 markets and employ approximately 20,100 people worldwide.

Furthermore, Tetra Pak is committed to running its business in an environmentally sound and sustainable manner. We set goals for continuous improvement in our development, sourcing, manufacturing and transportation activities.

Our belief is in responsible industry leadership and creating profitable growth in harmony with environmental sustainability and good corporate citizenship.



For additional copies and information, please contact:

info@tetrapak.com
www.tetrapak.com

Tetra Pak's commitment to the environment is reported annually.
See our environmental report and electronic updates at www.tetrapak.com

Designed and produced by salterbaxter
Printed in the United Kingdom by Beacon Press using their pureprint environmental print technology.

THIS BROCHURE HAS BEEN PRINTED ON NORGRAPH RECY WHITE (30500) CONTAINING A MINIMUM OF 80% OF RECYCLED BEVERAGE CARTONS.

ORDER CODE: 2167en/05