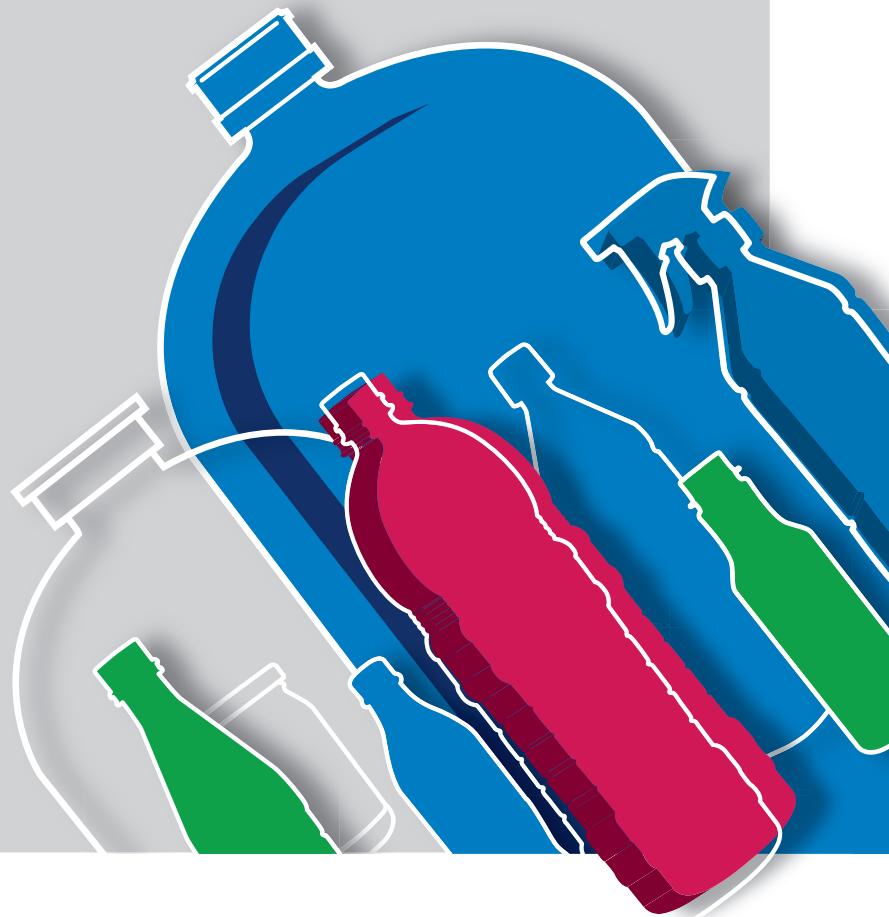


## Packaging to suit all tastes

A consumer response to PET packaging  
in beverage markets

A white paper prepared for Petainer  
by  
Smye Holland Associates



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## Packaging to suit all tastes

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## Executive summary

Only a few years ago it would have been almost unthinkable for most alcoholic beverages – including good quality wines – to be bottled in plastic and sold extensively on supermarket shelves across the world.

But consumer preferences for packaging are changing as they come to understand that quality, taste and personal enjoyment are not compromised by drinks bottled in quality plastics packaging, particularly in PET.

More consumers appreciate there are also compelling reasons to consider new packaging formats that have a positive impact on the environment and which offer a point-of-sale-and-beyond performance at least equal to the tried and tested container formats.

Plastics are the fastest-growing materials for packaging and PET is an environmentally-sustainable and cost-efficient material which meets the demanding supply-chain requirements of being lightweight, reusable, robust, flexible and recyclable without compromising the quality of the packaging contents.

These and other quantifiable benefits make PET an attractive eco-friendly option. It offers good barrier properties which are improved even further when used in conjunction with active packaging solutions such as oxygen scavengers to further protect and extend the shelf life of beverages.

Boosted by ever-advancing technologies, PET is increasingly the packaging material of choice for brand owners, bottlers, retailers and consumers in the beverage industry.

The industry has experienced phenomenal growth within the past ten years. Global production of PET bottles has more than doubled since 2000 and over 120 billion units are produced worldwide each year.

Alongside further developments in technology, consumer preferences – and their perceptions of packaging performance – will be pivotal in shaping how the industry progresses in the competitive alcoholic beverage markets. The most challenging sector is wine where PET can and will need to raise its game to establish a reputation for high quality alongside its more widely-acknowledged qualities.

This white paper looks at consumer responses to PET and their perception of its performance in the drinks packaging industry.

Drawing on market research, the paper looks at what consumers expect from drinks packaging, how PET stacks up against competing formats, and suggests steps that the industry should take to remove any confusion and concerns that may ultimately impact on consumer purchasing decisions.

# Introduction

## The future is PET... in ever-increasing quantities of bottles, jars, kegs and other containers.

According to The Future of European Food and Drink Packaging to 2015 report – from Pira International, the worldwide authority on packaging supply – plastic bottles and jars will experience stronger unit growth in the European larger packaging sector than any other packaging format.

PET is the most widely-used and fastest-growing polymer for plastic bottles and jars. It is steadily increasing market share by replacing other pack types, especially in expanding beverage markets.

Among its many benefits, PET has a lower environmental impact than glass. Together with ever-improving production efficiency and economic performance, it means that PET is increasingly the packaging favoured by brand owners, retailers and consumers.

The Pira research covered the major Western European markets, Scandinavia and Eastern European countries including the Czech Republic, Poland and Russia. It found that bottles made from plastic added almost 12 billion units to annual volumes between 2005 and 2010. This is expected to rise to 17 billion units by 2015, creating a compound annual growth rate (CAGR) in excess of 3 per cent.

Pira studied ten major markets – soft drinks, milk, medicinal, household chemical, toiletry and cosmetic, automobile and marine, juice and water, alcoholic beverages, food and industrial. They have all seen moderate-to-steady growth with plastic gradually replacing aluminium and glass as more manufacturers, bottlers and retailers seek opportunities to save costs while reducing their carbon footprint.

The characteristics and qualities of PET – transparent, virtually unbreakable, lightweight, highly impermeable, reusable and recyclable, combined with its low-cost production capability – are key advantages that contribute to the rise in worldwide popularity and sales of PET containers.

The uptake of PET packaging for more high-end, expensive products will be important to maintain the progress already made in targeted markets. Further technological advances will be significant to continue the increasing acceptance of PET and sales momentum.

Developments in barrier technology, hot-filling and aseptic cold-filling processes have already raised PET's position in developing beverage sectors including fruit juices, sports and energy drinks, milk, ready-to-drink teas and beer. Ongoing improvements in barrier properties and UV light protection will further extend the shelf life of PET-packaged products and help to allay any lingering concerns about product quality and durability.

# The history of PET

The PET packaging industry has experienced phenomenal growth in the past ten years during which time the manufactured output of PET bottles has more than doubled. The economic, environmental, product safety and functional benefits of PET have been pivotal in its emergence as the dominant and most popular plastics container resin.

Commercial use of plastic bottles began in the early 1970s. Research and development was carried out at several major plastic, glass and can manufacturing companies across Europe and America. Traditional packaging companies viewed the potential for PET containers to replace glass and cans both as a threat to existing business but also as a new commercial opportunity.

Once the PET bottle business was established, manufacturers joining the market quickly created a surfeit of capacity and prices dropped dramatically.

The PET industry (including resin production, container manufacturing, associated equipment and machinery) has flourished since the 1980s with a dramatic growth in demand for containers for beverages, food, personal care, household chemicals and other essential products.

Today, PET resin, machine and product manufacturing industries are a substantial factor in world commerce.

PET has continued to replace other packaging materials for many traditional and emerging beverages including carbonated and non-carbonated drinks, juices and water. It is now making significant inroads into beer and wine markets as well as a range of food and non-food markets – principally at the expense of traditional glass and metal containers.

As one of two dominant plastics used in retail and industrial container production, a growing acceptance of PET has already had a major impact in many product markets, including carbonated soft drinks (CSD) and other non-alcoholic beverages.

Being more impermeable to gases such as CO<sub>2</sub> than other low-cost plastics, PET is a popular container for carbonated drinks – particularly as carbonation tends to ‘attack’ other plastics – as well as for acidic drinks including fruit and vegetable juices.

Consumers’ increasing thirst for specialty beverages, sports drinks and bottled water products has seen the PET bottle share of these markets grow by over 15 per cent in recent years.

Improvements in polymer processing and other technological advances have enabled bottlers to make distinctively-shaped containers that create brand recognition. This supports the development of brand market share and the penetration of new markets.

## PET's key qualities

Fundamentally, the purpose and function of packaging is to protect the contents and ensure they remain fit for purpose.

PET is a proven packaging material which offers substantial environmental, cost, marketing and functionality benefits compared with competing packaging materials.

PET has a lower environmental impact than glass and is considered by many people as the environmental packaging of choice.

The environmental and financial benefits of using one-way disposable (recyclable) PET containers are increasingly self-evident. However, the environmental and economic performance of this format can be further improved by using refillable (multi-trip) PET bottle systems – which means consumers can immediately see the environmental logic and cost-saving benefits.

A study by the German research institute IFEU for Genossenschaft Deutscher Brunnen (GDB), a purchasing and servicing organisation with more than 160 member companies producing natural spring water, concluded: "The most ecologically favourable packaging system is the 1.0 litre reusable PET bottle. Of all the packaging systems studied, it clearly and consistently has the most advantageous environmental impact profile".

The IFEU and GDB decided that "reusables are more environmentally-friendly than disposables".

There is also a strong economic case for refillables which can make 15-25 'round trips' before they are recycled and potentially used in the manufacture of new refillable bottles.

A company using one-way bottles can spend up to five times as much each year on packaging as a company bottling the same quantity of beverage in refillable containers.

PET bottles, jars, kegs and other containers provide brand owners with high-quality packaging that is lightweight, cost-effective to produce, environmentally-sustainable and fully recyclable. Above all, it has established proven reliability in protecting and preserving its contents.

PET bottles have a number of advantages over their main packaging rival, glass.

The lightness of PET enables easier and more cost-efficient transport – especially when delivered to brand owners as preforms which are then blown into full-size containers on their own premises.

They cost less to produce – using less energy and creating fewer greenhouse gas emissions – are more convenient to use and have become more aesthetically appealing to consumers as a result of ongoing technological developments.

PET container manufacturers use colour, shape, leading-edge technology and bespoke labelling to create innovative packaging solutions for brands. Bottles can be tinted in a wide range of colours or produced in high clarity transparent formats which ensure the contents are clearly visible.

## Consumer perceptions

Unpublished market research conducted for container manufacturer Petainer by thought leadership experts SPA Future Thinking (formerly the Oxford Research Agency) provides a helpful insight into consumer attitudes towards the use of PET for beverage packaging. It is a snapshot of consumer perception about products in PET, glass and other packaging formats.

Through studies, focus groups and conversations with customers in Sweden and Germany, researchers found that PET packaging for beverages is readily accepted for carbonated drinks, energy drinks, fruit juice drinks and milk.

The research indicates how once-hardened attitudes are changing. Highlighting several reasons for hesitancy alongside the benefits of purchasing PET products, it emphasises the need for further information and persuasive argument to ensure consumers have all the details about PET so that they can make an informed, reasoned choice.

**PET:** Consumers associate plastic packaging more with bottles for beverages than for food products. Research shows that wine, beer and other beverages are protected by advanced barrier techniques in PET packaging which keep the contents in the best possible condition over lengthy periods, dispelling the widely-commented view that PET-packaged goods are more suitable for immediate consumption.

Extensive testing shows that barrier PET one-trip kegs, for example, are perfectly suitable to distribute carbonated draught beer which can be stored for at least nine months in PET without any negative impact on the contents.

Studies show that PET containers are 100 per cent reliable in protecting their contents and product quality.

The appeal of light weight PET bottles and containers is greater when customers buy refreshments such as water, soft drinks and alcohol to consume away from their home or working environment.

Consumers want products that meet their needs and expectations in terms of convenience, safety and light weight. PET-packaged drinks satisfy all these requirements.

PET bottles and containers are virtually impossible to break and this makes them particularly appealing and suitable for consumption outdoors. Even when they are crushed, after use, empty PET containers have no sharp edges.

Many people have yet to accept that alcohol, particularly wine, can be purchased widely in PET. There is a perception or myth that the taste and quality of wine, for example, are in some way affected by being bottled in PET.

More factual information, stronger marketing and educational messaging from the supply chain will undoubtedly play an important role in debunking these myths.

To be truly sustainable, packaging must provide value by being seen as safe, secure and economically effective. PET satisfies all these criteria. It is also an inert material that is resistant to chemical and biological degradation. These qualities are recognised by regulatory authorities worldwide which have approved its use as sustainable packaging for a wide variety of beverages – including beer, wine and other alcoholic products – as well as food and pharmaceuticals.

Research and extensive testing demonstrate that PET packaging meets customer and consumer expectations in having no impact on its contents. As well as offering substantial improvements in cost, weight and environmental impact, PET also provides a 100 per cent reassurance on taste and quality – from filling to the point-of-sale. In some cases, where oxygen barriers are used, it even provides an improved taste experience.

**Glass:** Although glass containers have the disadvantage of being breakable and sometimes heavy, supporters claim the 'feel' of the product creates a favourable impression in terms of quality. For many purists and wine aficionados, glass is synonymous with 'class'.

**Tin and cans:** Because they cannot be resealed, tins and cans have only a one-time purpose, as is demonstrated with carbonated drinks and tinned food products. It is common these days for users to decant the contents, once opened, into Tupperware or similar pots. Beer in cans is often said to leave an 'aftertaste of metal'.

**Tetra:** Like tins, Tetra cannot be reused once the contents have been consumed but the packaging is considered to be environmentally-friendly and easy to store. Wine in Tetra packs would not be welcome or seen as realistic by consumers.



# What matters most to consumers?

The following observations and comments are indicative of what today's consumers expect from drinks packaging. They are based on various research studies and customer feedback and includes findings from research undertaken by SPA Future Thinking.

Consumers are clear about the qualities they look for in drink containers and what they find acceptable and unacceptable. They want packaging that is:

- Easy to use and functional. How it feels is important.
- Easy to open and pour. Screw tops are preferable.
- Stable and strong. Packaging that is seen as fragile is a weakness.
- Easy to reseal and reclose. Airtight conditions are seen as being vital to protect the contents.
- Durable. Shelf-life durability is essential to ensure the contents retain their quality and taste.
- A convenient shape for easy storage. Consumers dislike awkwardly-shaped containers that take up too much space in fridges or cupboards.
- Lightweight and portable. The total weight of shopping often impacts on consumers' purchasing decisions and the amount they spend.
- Easy for consumers to access the contents. Consumers dislike packaging where 'the last bit' does not come out easily, if at all.
- Unbreakable. Packaging that is seen as safe to carry and use is a vital consideration for many consumers.
- Distinctive with shelf 'standout' appeal.
- Easy to recycle. This is an important factor in Scandinavian countries where consumers are keen on packaging that is easy to flatten before disposal.
- Small and compact whenever possible. Packaging that is significantly greater in size than the contents is not appreciated.

What consumers find most appealing about PET are the energy and cost savings from its low weight and the fact that it is almost unbreakable. The consensus of those involved in the survey and focus groups was that they would choose PET over glass to consume drinks outdoors and at events such as festivals, concerts and social gatherings where convenience and easy portability are important considerations.

# Consumer evaluation of beverage packaging

The following observations and comments reflect consumer attitudes and perceptions of beverage packaging.

PET packaging for beverages is accepted and often welcomed for carbonated soft drinks, energy drinks, fruit juice drinks and, to some extent, milk. However, a much stronger focus is now required on giving consumers the facts they will need to make informed decisions about purchasing alcohol – and to persuade them to change their packaging preference from glass to PET plastic.

The specific comments in this section are opinions given by consumers during focus group discussions held by SPA Future Thinking.

**Carbonated soft drinks:** It works well for those on the move (who are likely to buy 500 ml bottles) or those purchasing for families (who naturally buy the larger bottles).

**Energy drinks:** The consensus is that consumers can't imagine them being in anything else other than plastic. Soft drinks in plastic or glass are preferable to cans – which consumers in Sweden and Germany are inclined to distrust.

**Water:** Still water in plastic is appealing, especially the smaller bottles. Consumers like the fact that PET is light and unbreakable. They prefer a transparent bottle because it is more natural. Colour tinted bottles can be seen as “misleading”. Consumers told SPA Future Thinking:

“I prefer plastic because if something happens it doesn't break, and if it's empty it's light.”

“I don't like glass bottles, particularly when it has a metal cap, as it can easily tear off glass... which risks getting glass shards on lips.”

Consumers want water bottles that are sturdy and easy to hold. Flat bottom bottles made from thicker plastic are popular. They also want a good grip around the bottle.

However, those who prefer glass say it “looks more expensive than plastic... and is therefore perceived to be of a better quality”.

A developing view is that plastic bottles can match glass in appearance as well as performance providing the bottle shape is appropriate to its contents.

**Juice:** PET packaging is considered to be more stable and thicker than competing plastic containers. The fact that packaging cannot be squeezed out of shape is important. Other positive points included: “can reclose the pack”; “can easily store the pack”; “packaging feels firm” and “imagery makes the product appealing.”

**Milk:** Consumers debate whether milk should be in transparent or covered packs. Packs that are covered are considered to keep milk fresher longer, especially once opened. However glass is the preferred packaging because it signals freshness.

**Beer:** Beer in a glass bottle is still seen by many consumers as traditional and ‘the norm’. The main concern about beer in PET is based on an unproven and therefore unjustified school of thought that it impacts on taste or the quality of its contents.

As referred to on page 7, extensive research and testing shows that beer is protected by advanced barrier technologies which ensure the contents of PET containers remain in excellent condition for up to nine months.

Plastic is appealing for use in certain environments and for many social activities such as picnics, concerts, festivals and outdoor pursuits. Bottles which remain stable when nearly empty are also appreciated.

Consumers tend to be more receptive to beer in PET if the bottle looks and feels like glass and imitates the branded glass bottle.

Lingering doubts over the suitability of PET with beer underlines both the urgency and the importance of the industry communicating and explaining the indisputable facts about PET and reassuring users that it is as compatible with beer as many other beverages including wine and other alcoholic products.

**Wine:** Again, some consumers feel packaging other than glass can devalue the contents by impacting on the quality and taste and because of perceived limited shelf-life capabilities of alternative packaging.

The shape and designs for PET are widely appreciated and a commonly-held view is that the more a PET bottle resembles glass the better – so that consumers are almost unable to distinguish the difference. Being almost unbreakable is seen as a major benefit of PET.

However, consumer concerns about the suitability of combining PET packaging with quality wines included the following reservations:

- Wine is considered a luxury product which for many people is not an every day activity.
- Wine from plastic bottles would not be served in a restaurant.
- Strong assurances are needed about PET's ability to preserve taste and quality.

"You must have a choice. You must still have expensive brands in glass. If I have a special occasion, when I have guests I buy the expensive ones... when I just want to drink a wine, I buy a plastic bottle."

Nevertheless, as we have seen with the increasing shift from corks to screw tops, consumer attitudes are changing. See page 16: 'Wine: breaking down cultural barriers'.

High street stores have already taken significant steps by introducing a range of own-brand wines in PET.

Some restaurants too are going plastic, basing their decisions on the same, singularly most important factor they apply in choosing all their wine – taste. The logic applied is that even if PET-packaged wine may not be to everyone's liking, consumers in restaurants are generally unconcerned whether the wine served at their table is delivered in PET or glass providing their expectations about quality are satisfied.

**Spirits:** PET packaging is considered to be acceptable for low-cost, unknown brands or retailers' private label drinks but consumers believe that more up-market brands should remain in glass.

# A compelling case for PET beverage packaging

PET is flexible, lightweight, recyclable and reusable – all important qualities for retailers, distributors, brand owners and consumers. These and other essential benefits collectively present a compelling case for the use of this versatile, technically innovative material in beverage packaging.

PET bottles are a popular choice for packaging soft drinks because of the benefits they clearly provide to manufacturers, fillers, retailers and consumers. Today, more than 70 per cent of soft drinks – carbonated drinks, still and dilutable drinks, fruit juices and bottled water – are sold in PET containers.

The wide-ranging benefits of using PET for beverage packaging include:

- Lighter weight packaging is cost-effective to produce and drastically reduces transport and storage costs. With wine, for example, PET bottles are usually more than six times lighter than glass bottles – a 75cl glass bottle weighs about 400g whereas the PET equivalent is just 54g.
- Significantly lower transport costs give PET a major economic and ecological advantage in developing export markets (Japan, for example) where long distances and freight expense have previously precluded new business opportunities.
- Containers are robust, impact-resistant and virtually unbreakable which makes PET much safer to use than glass, largely eliminates the risk of packaging-related product recalls and makes it easier and more cost-effective to transport than competing products.

Glass is prone to breakage. HDPE is opaque and PVC less environmentally-friendly; neither offers the clarity and transparency available with PET packaging. The toughness of PET protects contents and ensures safety in-store and product integrity.

- Being safe and lightweight, PET containers are convenient for on-the-move consumption and considered preferable to use outdoors at picnics, beach parties and barbecues and for conferences, exhibitions and other events.
- The high barrier performance of PET seals the product flavour which provides a longer shelf life. PET is the only material other than glass that has sufficient barrier properties to successfully contain ambient juice and carbonated beverages. Its transparency and resealable qualities are also seen as important factors.
- There are major environmental advantages. PET is the most recycled domestic packaging polymer; in 2009 over 48 per cent of PET was collected for recycling in Europe. All PET plastic bottles can be recycled; more than 35 per cent of PET plastic bottles in the household waste stream are now collected for recycling – in 2001 it was just 3 per cent.
- PET can be recovered, recycled and reused again and again. The resource efficiency of PET is increasing as modern municipal plants recycle used PET bottles and jars into new containers.
- Refillable PET containers offer the greatest positive impact on carbon footprint and cost-efficiency. Bottles can be reused up to 25 times before being recycled. The environmental advantages are further enhanced by the use of recycled material.
- More and more containers are made from recycled PET. The industry's drive for greater sustainability is leading to ever-higher recycling levels. Greater demand for PET is continuing to drive down global carbon footprint.
- The industry continues to research and invest in further improvements in the recycling capabilities of its product. Bottle-to-bottle recycling is now commonplace. Bottles can be manufactured using up to 100 per cent recycled materials.
- PET is distinctive and pliable which allows it to be moulded into many different shapes. This flexibility enables brands to create identity and to promote specific beverage product lines.
- Flexibility enables manufacturers to exercise their creativity, offering opportunities to switch from one container shape and size to another. However, research by SPA Future Thinking shows that creativity needs to be exercised with caution as consumers need to be able to make an easy mental link between the packaging and the product.

Brewers, brand owners and suppliers in beer markets are showing increasing interest in developing the potential of bottling beer in PET for the following reasons:

- There are no breakages during high-speed filling.
- PET bottles are lightweight and recyclable which achieves savings along the supply chain.
- Bottles are available in a range of colours and sizes, giving new opportunities for marketers to create innovative, stand- out branding.
- Blowing bottles on site from preforms saves money.
- The screw-cap neck removes the need for a bottle opener which is more convenient for consumers.
- There can be health and safety benefits in bottling plants from the much reduced noise associated with filling PET bottles rather than glass bottles.

## Changing attitudes

Producers of wine and beer have faced the dilemma of perception over practicality of packaging for many years.

They know that glass bottles can present problems, with the risk of breakage and shattering never far from the minds of manufacturers, distributors, retailers or consumers.

The practical, cost-saving and environmental benefits for PET in being lightweight, virtually unbreakable, recyclable and reusable provide sufficient evidence to suggest the shift from traditional glass to new formats is set to gather further momentum.

However, there are still barriers to break down. Perceptions based on tradition, image, reputation and misgivings over quality will take time to penetrate and overcome.

There are, nevertheless, growing signs of real progress in this direction. As the capabilities and qualities of PET are further enhanced and its use in ever-widening drinks applications increases, resistance will give way to acceptance as consumers come to understand that changes are made for the right reasons.

Consumers will always exercise their right to purchase products based on preference, price, brand favouritism, perception and choice. But what would happen if there was no choice? What would their reaction be if, for a particular brand, there was no alternative to PET packaging?

Resistance to wine, beer and spirits in PET plastic is on the wane. And while we have yet to see it establish itself as the packaging format of choice in all alcoholic markets, there is little doubt that, faced with no alternative, most consumers would recognise and accept PET as a safe and strong option.

## Alcoholic beverages: the PET pioneers

Marketers will take heart from the shifting attitudes and positive leanings towards buying alcohol in PET containers. Global acceptance of wine in PET bottles will take time but there are encouraging signs from brand owners and retailers who have already made inroads in switching from glass packaging to plastic.

There is, understandably, a huge diversity between the universal acceptance and sales of soft drinks in PET compared with the figures for alcoholic beverages in the same packaging format.

It underlines the fact that while consumers recognise the benefits associated with PET for food and other packaging, there is still much to do to convince them that these apply equally to other products - including alcoholic beverages.

PET's share of the global alcoholic drinks packaging market is a little over 2 per cent. However, as cost and environmental performance assume even greater significance, and with design and technology advancements helping to close the perceived 'gaps' in quality and appearance with glass, PET is set to increase its share of this huge market over the next few years.

Although the plastic kegs share of the beverage market is still small, there are huge commercial and ecological opportunities for PET in particular to fulfil its potential as an environmentally-friendly, economical, fully recyclable alternative to steel kegs.

More brewers, for example, are recognising the benefits of using single-use, lightweight alternatives to metal containers – especially where they create low-cost opportunities to open new sales channels and export markets.

Compared with their metal equivalents, PET one-trip kegs provide lower total ownership costs, new and improved market opportunities and production on demand. This allows brewers to respond cost-effectively to peaks and troughs without tying up capital in a fleet of unwanted containers.

The use of PET containers removes the need for breweries to maintain a costly fleet of metal kegs. As well as releasing capital, this eliminates the expense of constantly replacing damaged, lost or stolen kegs.

By providing substantial improvements in cost, weight and environmental impact, PET kegs can offer brewers the potential for 100 per cent new and better business – as well as assurances on taste and quality from filling through to point-of-sale.

## Wine: breaking down cultural barriers

In respect of image, the wine industry is a perfect example of the challenge PET manufacturers and marketers face in trying to persuade and change consumer perceptions of sustainable product packaging.

Few industries are as steeped in tradition and cultural taboos as wine production. Wine drinkers are often suspicious about anything that might impact on the taste, texture and overall quality of their drink.

For centuries, wine has been an icon of refined living. Wine served from a corked bottle symbolises quality. The uncorking of a much-anticipated bottle of fine wine has long been a symbol of the wine-drinking customer experience. Or at least, it was.

Many winemakers – conscious of their obligations to the environment and to increase customer convenience – have pioneered alternatives to cork by introducing plastic or screw-top bottles and bag-in-a-box varieties.

Connoisseurs and other serious wine drinkers were unimpressed but, as is often the case, resistance wavered and weakened over time. These ‘innovations’ are now widely accepted.

As with the switch from corks to screw tops, rather than focusing on consumer perceptions of product inferiority, marketers must concentrate on the facts borne out by research to emphasise the positives about wine in PET packaging.

In addition to the clearly-identified benefits of PET – its strength, durability, flexibility, convenience, much lighter weight, reduced carbon emissions, lower energy use and transport costs among them – pro-PET exponents point out that it can actually contribute to the quality by reducing the risk of spoilage through tainted corks.

The market is showing encouraging signs of growth. Buoyed by reductions in manufacturing, energy and transport costs, some consumers already acknowledge PET as a serious competitor to glass in this sector. The trend is gathering momentum.

In the United States, airlines and stadiums have been selling single-serve plastic wine bottles for years because they are lightweight and completely safe.

Wine producers in the United States, Australia, New Zealand and even France have been switching from glass to plastic wine bottles – persuaded by the benefits of PET being fully recyclable, lighter, good for their carbon footprint and, crucially, because it makes no difference to the quality and taste of the wine itself.

Boisset Family Estates pioneered the introduction of PET-bottled wine to the US market. Fog Mountain was the first Californian wine to launch in a one-litre PET bottle and was introduced in JW Marriott hotels and fine wine retailers in June 2009.

According to America’s Forbes magazine, Boisset’s decision was a significant step in “debunking the notion that good wines come only in glass bottles sealed with corks”.

Jean-Charles Boisset, president of Boisset Family Estates, said at the time: “It is vital for all of us to consider the environmental impact of our wines, and our entire supply chain, and to find solutions to reduce our carbon footprint while delivering the highest quality, best value and most consumer benefits that we can”.

Boisset was recognised by The Wine Enthusiast magazine as 2008’s Innovator of the Year for dramatically reducing carbon footprint and offering consumers the convenience of a lightweight, shatterproof and fully recyclable container.

In an Australian first, winemaker Wolf Blass launched its pioneering Green Label wines in lightweight, recyclable PET bottles in response to the needs of environmentally-conscious consumers who also wanted reassurances about quality, taste and consistency from a trusted brand.

Green Label bottles produce 29 per cent less greenhouse gas emissions over the lifecycle of the product compared with a 740ml glass bottle – and when filled are 36 per cent lighter than their glass equivalents. Research by the company showed that over 96 per cent of consumers want brands to demonstrate how they contribute to climate change.



Announcing the move in 2009, Wolf Blass global brand director Oliver Horn said: "It's significantly easier to carry, the bottles are easier to pour and can be taken to places where glass (usually) can't because it doesn't shatter."

Green Label products employ a leading edge barrier technology which protects the flavour, aroma and colour of the wine. "There's no difference between the glass product and the PET bottle," said Horn.

Russia's first experiment with PET-packaged wine saw Ochakovo MPBK ZAO launch still white and rosé wine in 3 litre PET bottles. This was in 2009 and set a precedent for other manufacturers.

Sweden introduced wine in PET in 2008 and red, white and rosé wine are all available in 75cl PET bottles from the country's state-owned alcohol company, Systembolaget AB. Consumers are said to be pleased because the bottles are lightweight, convenient and can be resealed.

Lightweighting is welcomed and popular in Japanese alcoholic drinks packaging. Mercian's 150cl PET bottle has been launched for seven different wines, each just one tenth the weight of the former packaging.

In the UK, within the past two years major grocery retailers Marks & Spencer, Waitrose, Tesco and Sainsbury's have introduced private label wines in 25cl or 75cl PET bottles.

Marks & Spencer moved all its 25cl range of still wine from glass to plastic. The decision reflected the popularity of this product size for outdoor and on-the-move consumption.

Waitrose sells a Shiraz and Chenin Blanc in 75cl PET bottles and Sainsbury's introduced a range for 32 standard-sized bottles three years ago. Tesco uses 70cl PET bottles for some private label spirits.

In 2009, the UK imported more than 1.7 billion bottles of wine with over 600,000 tonnes of packaging. Retailers are under pressure from the government-funded Waste & Resources Action Programme (WRAP) to reduce the amount of packaging they use.

Commenting on Marks & Spencer moving wine into PET, the Wine and Spirit Trade Association said: "There is clearly an appetite for buying wine in different quantities and we know from our own research that consumers are open to new forms of packaging.

"Many parts of the industry are looking at ways of reducing their environmental impact. Given that most wine sold in the UK is imported, it also makes sound economic sense to look at lightweight glass or alternatives."

Research published in 2010 by Wine Intelligence revealed that the lightweight PET bottle is the most acceptable alternative to glass, with UK consumers showing preference for PET over bag-in-box packaging, Tetrapak and cans. Over 40 per cent of the survey respondents said they would be likely to buy wine in a PET bottle.

Labelling that provides clear information about the practical benefits of PET had a positive impact on consumers' purchasing intentions. Participants in the survey preferred lightweight PET for outdoor settings and said PET is more convenient to carry than heavier glass bottles.

Research by the Waste & Resources Action Programme (WRAP) reveals that the height rather than the weight of a wine bottle plays a significant part in consumers' attitudes, particularly to white wine.

The research suggests that lightweight wine bottles should match a similar height to a standard weight to minimise the impact on consumer preference.

Lighter weight wine bottles are appearing more frequently on supermarket shelves and companies are working with WRAP to ensure the integrity of the contents while also aiming to achieve the ultimate resource efficiency.

Based on studies carried out on different weights of wine bottles sold in UK supermarkets, approximately 150,000 tonnes of packaging could be saved if the sector moved to lighter packaging.

Brands are exploring all opportunities and alternatives to conventional wine bottles. As a lighter packaging option, there are clear benefits from using PET. For example, at 54g a PET bottle weighs about 440g less than the average glass wine bottle.

## PET beer: a forecast for global growth

Research indicates that the global popularity of PET is stronger than ever, particularly among brewers who are keeping a close eye on further technical improvements which make the packaging option more attractive.

Further innovations in barrier technology are adding weight to the case for PET packaging in beverage markets. For example, scavenging closures which are used to remove oxygen throughout the life of a product give PET-packaged beer a lower oxygen content on the shelf than when it was bottled. These technologies actually enhance the product and extend shelf life.

PET beer bottle consumption is expected to grow at a CAGR of 5.3 per cent to reach 7.7 billion bottles worldwide by 2015, according to Pira International research (The Future of Beer in PET Packaging; May 2011). The forecast is based on a study for brewers, brand owners, packaging converters and suppliers which provides quantitative market sizes segmented by barrier technology, bottle size, region and country.

PET beer bottle consumption reached 6 billion units in 2010, representing just 2 per cent of the 293 billion unit world beer packaging market volumes. There is clearly scope for considerable growth.

Central and Eastern Europe is the dominant market for PET-packaged beer. The Future of Beer in PET Packaging predicts further growth in these regions but at rates lower than the pre-recession period, 2007-8. In Russia and Ukraine higher taxes on beer will undoubtedly impact on sales.

China will lead the Asia-Pacific demand for beer in PET although market growth has been lower than expected. PET beer bottle consumption in Western Europe is predicted to grow, albeit at a relatively low rate. Sales growth is also expected in North, South and Central America, although from a low base.

“PET is showing increased demand from a number of different categories including juices and nectars, ready-to-drink teas, functional drinks, flavoured waters and beer,” the report states. “PET bottles are convenient, practical, lightweight and unbreakable.”

Some brand owners still show reticence about using PET packaging for beer, although the Pira report states there is “a huge amount of interest” in the potential for beer in this packaging format because of the perceived advantages.

New, improved technologies are helping to challenge some of the negative perceptions to create new opportunities for brewers, brand owners, packaging companies and suppliers.

Beer in PET bottles is already making substantial progress across European markets and, indeed, further afield. In China, consumers want higher product quality and more convenient packaging. Being light, transparent, shatterproof and easily moulded, PET is understandably becoming popular. Belgian brewer Brouwerij Martens has already introduced barrier PET beer to this expanding market.

Ukrainian beer in PET is now available in a new distribution channel: street kiosks. Draught beers from a number of regional producers are bottled directly in 50cl, 100cl and 200cl formats.

In Spain, leading beer producer Grupo Mahou San Miguel has introduced a 200cl bottle for a range of low and non-alcohol beer brands to increase consumer awareness of PET qualities and benefits. The products are sold as multipacks in discount stores and hypermarkets which builds customer perception of increased value in PET.

The safety of PET is a direct factor in rising sales in social environments where broken glass has often been a cause for concern during public disorder. In Italy, for example, bars and night clubs are moving away from glass products to avoid potential problems.

Brands are increasingly turning to PET knowing that, because it is shatterproof and almost unbreakable, it is a safe alternative. Now beers in PET are sold where there are bans on glass bottles. One brand, Bavaria, promoted the launch of its 33cl bottle by sponsoring a music festival in Rimini where glass bottles were banned.

## Conclusion

PET has made dramatic inroads into beverage packaging markets across the world over the past 30 years. In 2009, half of the global sales of soft drinks alone were in PET bottles.

In recent years PET bottles have shown the strongest growth in the drinks sector, replacing glass bottles, cartons and metal cans in many applications. This trend is set to continue with PET containers steadily replacing their glass equivalents for carbonated soft drinks, mineral water and milk.

With competitive business advantages including lower manufacturing, energy and transportation costs, plus environmental and other key benefits behind it, PET is well placed to increase market share in alcoholic beverage sectors – for beer, wine and selected product lines for spirits.

In terms of convincing discerning and often sceptical consumers, there is much still to do in demonstrating that PET is an acceptable alternative to glass for quality and performance in alcohol packaging, especially in the wine industry.

The industry would do well, therefore, to focus its energies on a programme of education and improved marketing to explain and drive home the fundamental strengths of PET together with the compelling reasons which increasingly make PET the packaging of choice for all beverage products.

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