Sparkling wine: the lightweight opportunities

Explore the opportunities for using lighter weight sparkling wine bottles, achieving resource efficiencies and environmental savings, and driving commercial benefits across the sector.

Some facts and figures

The UK’s consumption of sparkling wine has grown considerably over recent years, and now stands at more than 71 million litres each year, contributing about 81,000 tonnes of glass to the UK’s waste stream.

Using lighter weight bottles can significantly reduce this waste stream, as well as cut raw material usage and carbon emissions – thereby generating cost savings across the supply chain, and providing companies an opportunity to respond to the growing demand from consumers and retailers for sustainably produced wine. However, the premium nature of sparkling wine, and the significant internal pressure generated by its carbonated nature means lightweighting has traditionally not been undertaken widely within the sector. Sparkling wine bottles therefore have an average weight of almost 700g – much heavier than the average bottle weight for still wine, which stands at around 450g.

Nevertheless, research carried out for WRAP indicates that there are considerable opportunities for the sparkling wine sector to use lighter weight bottles, yet maintain brand equity and fit for purpose requirements. This has already been demonstrated by the Comité Interprofessionnel du Vin de Champagne (CIVC) to reduce their Champagne bottle weights.
Bulk wine importation: The advantages

The production of sparkling wine

Sparkling wine is produced using a variety of fermentation methods, which not only determine bottle specifications but also the range of handling and loading factors such as filling and stacking which are exerted on the bottle. The process used therefore has implications on the opportunities available for lightweighting or using lighter weight bottles.

- The traditional method is a two-stage process often used to produce premium sparkling wines such as Champagne and Cava. It involves primary fermentation in large tanks for up to a year, followed by secondary fermentation in bottles, which are stored in caves for periods varying from six months to eight years. Bottles must therefore be able to withstand stacking for an extended period of time and an internal pressure of around 6 Bar.
- The Charmat method also uses a two-stage fermentation process, but both stages take place in tanks over a shorter period of time. The method is used extensively for the production of Prosecco wines, as well as some German and Australian sparkling wines. The final internal pressure generated varies between 2 and 7 Bar, and the handling and loading impacts exerted on the bottles are significantly lower than wines produced using the traditional method, therefore creating particular opportunities for using lighter bottles.
- The transfer method involves both in-bottle and tank fermentation and is used to produce Asti Spumante in Italy and many German varieties. After primary fermentation in tanks, wine is bottled for secondary fermentation for up to six months before being transferred to pressurised tanks for filtration. Individual wines have a uniform pressure (typically around 5 Bar) due to mixing following fermentation. A variety of handling and loading impacts are exerted on the bottles (although to a lesser degree than the traditional method), which should be taken into account when identifying opportunities for using lighter weight bottles.
- The injection method is used for many entry-level sparkling wines, and involves artificial carbonation by forcing compressed CO2 into the wine, which is then stored in buffer tanks prior to bottling. The final pressure exerted by the product can vary significantly, with examples ranging between 2 and 5 Bar.

Bottle manufacture

The glass manufacturing process called ‘blow blow’ is most commonly used to produce sparkling wine bottles. This can result in an uneven distribution of glass, meaning many bottles have thicker walls to compensate for weak spots and are therefore heavier than necessary. Many sparkling wine bottles are also over-specifed in terms of their ability to withstand internal pressure. For example, the minimum pressure test values of some Champagne bottles exceed the recommended industry value by around 15 Bar.

Indeed, research suggests that, even when functional requirements and pressure considerations are taken into account, there are opportunities to switch to lighter weight bottles. For example sparkling wines produced using:

- the traditional method can safely be filled in bottles weighing 700g,
- the Charmat method can safely be filled in bottles weighing between 550g and 600g, and
- injection carbonation can be filled in bottles as light as 400g.

Increasing numbers of glass bottles are being produced using the ‘narrow neck press and blow’ (NNPB) technique, which results in a more even glass distribution and removes the need for thick walls and heavier weights. In many instances these lighter weight bottles are stronger than their heavier counterparts.

Bottle options

An additional barrier to using lighter weight bottles for sparkling wine is the local availability of appropriate bottles, as sparkling wine is often produced at local level and bottle supply is limited to local manufacturers.

Nevertheless, there are a number of bottle options which can be considered, with glass manufacturers across major wine producing countries supplying standard bottles at weights varying from 475g to 900g, and skittle and butterfly bottles ranging from 600g to 910g.

For more information on the options available from each manufacturer in each country, please download WRAP’s report on opportunities for using lighter weight sparkling wine bottles at www.wrap.org.uk/sparklingwinereport.
**Lightweighting and consumer perception**

Many sparkling wines are positioned as premium products, meaning the use of lighter weight bottles is often not considered because of concerns about the potential impact on consumer perceptions of value and quality. However, research undertaken for WRAP suggests that the use of lighter weight bottles has little or no effect on purchasing decisions, and that other issues, such as bottle shape and height, play a much greater role in decision making.

**In conclusion**

There is a clear opportunity to reduce the 81,000 tonnes of glass sparkling wine packaging which enters the UK waste stream annually – without compromising product quality or the premium brand identity of many sparkling wines.

Using the lighter weight bottle options already available in key wine producing countries could generate glass savings of at least 9,000 tonnes in the short term, and further opportunities will be presented by the continuing development and roll out of NNPB, together with improvements to glass distribution in 'blow blow' moulds.

At an international level, an estimated glass saving of 174,000 tonnes could be achieved in the sector by adopting currently available lighter bottles. This is significant, and will not only help towards building on the work the sector has already achieved, but assist in further reducing the environmental impact of the sparkling wine sector, and help deliver commercial benefits through material and transport savings across the supply chain.

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**Product focus: Champagne**

Around 300 million bottles of Champagne are produced every year, with the UK consuming the largest share (around 39 million bottles annually).

Champagne production is overseen by the Comité Interprofessional du Vin du Champagne (CIVC), which aims to protect the industry and provides guidance on all aspects of production, as well as approving bottles which may be used to fill Champagne.

The CIVC has worked with glass producer Saint Gobain and its members, including Moet & Chandon and Mumm, to develop a lighter weight bottle. The new 75cl bottle weighs 835g compared with the average 900g, representing a 7% reduction. The bottle is fit for purpose and strong enough to withstand the pressure of the Champagne inside. In addition, it costs the same as its predecessor. More than 95% of Champagne will be bottled using this new standard within the next year or two.
For more information

To find out more and access a range of tools to help your business benefit from lightweighting, bulk importation and use of recycled content, please visit [www.wrap.org.uk/wine](http://www.wrap.org.uk/wine).

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