



BREWUP

Shelf-Life and Best-Before Dates on Keg Beer

EBC Technical Opinion

SHELF-LIFE AND BEST-BEFORE DATES ON KEG BEER

While packaged beer is an intrinsically safe product, its flavour and clarity (flavour and colloidal stability) continue to evolve over time. Even though it has undergone a microbiological change in composition from a sweet and cloudy wort to the flavoursome, clear and sparkling refreshment, the impression of beer freshness does slowly decline over time. This is because of small residual amounts of oxygen in the beer, the effects of which are especially important when considering the delicate nature of pale lager beers.

Beers which have suffered from exposure to oxygen are called *oxidised* or *stale*. They can look hazy (unless they are non-filtered anyway, of course) and may have dank, non-refreshing aromas, such as hints of wet paper. Oxygen, by causing this cascade of unwanted oxidation reactions, can compromise beer freshness as follows:

- **Filling technology:** Most breweries take a lot of care to pre-evacuate the bottles or kegs and flush them with carbon dioxide which effectively replaces the air containing oxygen). Here, modern equipment is much more effective than old machinery in keeping oxygen out of packaged beer.
- **Storage conditions:** This is probably the biggest factor. The ambient temperature at which beer is stored very much affects the freshness. Beer stored at warmer temperatures will oxidise and go stale much more rapidly than beer stored cool, or even better, cold temperatures.
- **Stabilisation:** Most beers are treated prior to packaging to counteract their natural tendency to develop a haze with time. The beer stays fresh longer and especially their tendency to go cloudy is much reduced.
- **Filtration:** Residual yeast is an effective oxygen scavenger and so filtered beer is, in general, more susceptible to ageing.
- **Transport:** In this context it is worthwhile to note that transportation and duration of exportation has a marked effect on the shelf-life of beer. Export measures via sea, rail or road means can seriously jeopardise the flavour stability of beer.
- **Alcoholic strength:** Stronger, more alcoholic beers possess a denser sensory matrix and frequently have higher levels of anti-oxidants than weaker, low- or no-alcohol beers.

THE CONCEPT OF THE BEST-BEFORE DATE FOR BEER

All beers up to 10% alcohol by volume carry a best-before date on their label which reflects their shelf-life. Depending on the type of beer, this could be anywhere between 2 weeks and 18 months. There are even some specialty beers that display a best-before date of up to 20 years!

In the past, beer packaged in kegs used to typically have a recommended shelf-life much less than the equivalent bottled or canned beer, say between 2 and 4 weeks, as keg beer was often neither pasteurised, nor stabilised in any way.

With the advent of two advanced technologies, flash-pasteurisation and sterile micro-filtration, it became feasible to prolong the shelf-life (and its concomitant best-before date) for keg beer as well.

Still, to preserve the aspect of uncompromising product quality and to ensure that returnable (*ie.* stainless steel) kegs are sent back to the brewery for re-use, a best-before date of 3 to 4 months is usually the preferred indication for keg beer.

From the aforesaid it becomes clear that the best-before date is useful measure of shelf-life, providing an indication to the consumer about beer freshness. It is not absolute, however, there is no reason to regard this indicator as anything but a helpful guideline for the consumer. It also does not take into consideration effects such as transport and storage conditions which may have a far greater impact on the taste.

As our sector is currently suffering from a lack of on-trade opportunities and the almost total absence of consumption in bars and cafés, a widening of the best-before “bands” (especially in the case of returnable keg beer) are being contemplated *without* compromising the consumer demand for a high quality, tasty product.

RECOMMENDATIONS

From a technical perspective, the discussion by brewers, publicans and café managers should therefore revolve around flexibility regarding the best-before date. The following key indicators in the value chain that may be detrimental to the quality of returnable keg beer should be examined and, if applicable, must continue to be scrupulously adhered to:

- Kegs kept cold at anywhere between 2 and 10 °C post-brewery can safely be kept and served for at least 6 months with little or no discernible loss of freshness.
- Storing kegs at ambient temperature and chilling them only just before connecting them up to the dispense, as opposed to keeping them chilled all along the way, may result in reduced shelf-life due to the evolution of undesirable flavours. Storage specifications, as issued by the brewer or brewery, must always be adhered to.
- No beer should be stored at or higher than about 25 °C ambient temperature for any prolonged period. Especially in the summer, and in warehouses with a low ceiling, this value needs to be tightly controlled.
- All keg beer older than its best-before date should be tasted by the brewer, the publican or outlet manager to ascertain freshness, or the presence of staling off-flavours, once the keg is broached (connected to dispense). In fact, every keg – regardless of its date code – should be assessed visually and by tasting before being served to the consumer. This also applies to any beer whether filled in bottle, can or keg.
- A log sheet of beer originating from expired best-before bottles, can or kegs should be kept, and customer complaints / trade returns must be listed. Date and production codes are usually displayed on the plastic cap covering the keg fitting and these need to be recorded.

Lastly, honesty goes a long way. If customers are informed that “extraordinary times demand special measures” and that the best-before dates are to be handled more flexibly, they will be less likely to complain should there be a lack of perceived freshness. It goes without saying that a trade return or customer complaint should therefore always be addressed immediately by offering a replacement, as per standard practice.

If these guidelines are adhered to, it may be possible to extend the best-before date of keg beer.

TAKE-HOME MESSAGES

- As some beer brands seem to be more susceptible to oxidation and staling than others, the rule is always to store kegs as cold as possible and to taste the beer once the keg has been connected.
- A drastic change in taste and aroma is unlikely to occur within a few weeks, or even a few months, provided that beer is kept cold.
- Even beer which is way out of date cannot be harmful to human health. It can only prove a disappointment to the enjoyment of beer.
- A best-before date is exactly what it says, a date prior to which the beer is in optimal condition. It is not a “just-about-OK-date”.
- Low- or no-alcohol (LAB/NAB) beers are an exception to these recommendations as the lack of alcohol, and therefore diminished microbial protection, will result in less resilience against infections, oxidation and, ultimately, beer spoilage. Best-before dates, as indicated, should always be strictly adhered to.
- For beer at or higher than 10% ABV the inclusion of a best-before date is not mandatory; however, these kind of specialty beers are rarely encountered in keg.
- Despite significant advances in the technology of one-way kegs made from polyethylene terephthalate (PET) in terms of oxygen barrier layers preventing gas exchange between the inside and the outside in some of these containers, there is still a very slight ingress of oxygen into the product over time. Whilst these may be useful containers for the trade, it is not recommended to keep them longer than their best-before date, as indicated on the package.

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