

Creating the perfect beer is truly a craft. Both beer connoisseurs and casual drinkers alike often know exactly what they're looking for in a beer and, just as importantly, what they're *not* looking for. As such, breweries must take great care in creating beers that not only taste delicious but are appealing to the eye. One of the primary aesthetic concerns breweries face is haze, or turbidity, which interferes with the clarity of beers and can drastically affect consumer purchasing decisions as well as taste and quality perception.

Seeking Clarity

Haze is the scattering of light by fine particles that produces a clouding effect in transparent liquids. In beer, haze particles are typically the result of non-biological factors such as starches, lipids, proteins, polyphenols, and colloidal carbohydrates. At times, haze from these sources may only be apparent in cold conditions, a phenomenon known as "chill haze." In other cases, haze is caused by biological components such as microorganisms, which can indicate contamination and is a non-reversible feature of the beer. Although haze has no inherent meaning—it may be a benign aesthetic quality, a predictor of shelf life, or a major indicator of spoilage—its presence is typically undesirable for consumers regardless of whether or not it impacts taste. As Professor Chengdao Li says, "Beer drinkers are becoming more sophisticated, they want a beer looking good, very clear with good colour and no haze."¹ [Driven by this market demand, researchers have spent considerable time investigating how to eliminate haze through raw ingredient selection, beer formulation, and specific processing methods designed to eliminate cloudiness. Meanwhile, both the European Brewery Convention \(EBC\) and the American Society of Brewing Chemists \(ASBC\) have developed haze measurement standards to classify brews according to clarity.](#)²

Spectrophotometric Solutions for Haze Measurement

To meet consumer expectations and to fulfill EBC and ASBC classification requirements, quantification haze is an essential part of the beer brewing process and spectrophotometry offers an elegant measurement solution. While spectrophotometers have long been used in the [analysis of beer color](#), [these sophisticated instruments can also be employed to precisely analyze haze levels by comparing the amount of scattered light to the total light transmitted through the brew.](#) HunterLab's spherical instruments paired with our [EasyMatch QC software](#) provides a simple method of calculating haze ratios with unmatched precision. Spectrophotometers can give breweries an important tool to not only ensure quality of the final product, but to evaluate formulation and processing at the development stage by allowing you to correlate haze levels with specific variables as you seek to minimize cloudiness. Once a formula has been perfected, in-line spectrophotometric evaluation allows for continuous monitoring to ensure adherence to haze tolerances and gives operators the ability to quickly identify variation in haze that may indicate substandard raw materials or process failure.

Not So Clear

However, haze isn't always a negative. In fact, sometimes it's a trademark feature of a particular type of beer, such as German hefeweizen, which is brewed using a unique yeast strain that gives the beer its distinctive flavor and cloudiness. Witbier, a Belgian beer, is so well-known for its distinctive appearance that brewers have historically added flour to ensure a cloudy haze. As the popularity of craft beer has grown in the United States, consumers have come to grow more tolerant of haze in some types of beer where it is regarded as "a sign of an artisanal product that's seen a minimum of additives and filtration."³ [However, while clarity may not be paramount or even desirable in these beer varieties, haze measurement still plays an important role in ensuring lot-to-lot consistency. This is particularly critical when haze quality is an essential identifying feature of a particular type or brand of beer. The exacting nature of spectrophotometric measurement allows you to maintain the highest standard of quality control throughout your production process to guarantee excellence.](#)

Full article with photos available here:

<https://www.hunterlab.com/blog/color-food-industry/using-spectrophotometry-for-accurate-haze-measurement-to-improve-quality-perception-of-beer/>