

Tech Corner

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What can we say about beer color? Beer color is important, especially if you are attempting to replicate a particular beer style, which typically will have a prescribed range of color values.

J.W. Lovibond developed the Lovibond scale in 1883 to quantify color. His scale was implemented by comparing colored slides or glasses to a sample to visually see which slide agreed with the color of the sample. In the 1950s, the American Society of Brewing Chemists (ASBC) developed a more accurate method to measure color by using spectrophotometers. This method is still in use today and is referred to as the Standard Reference Method (SRM). For light colored beers, the SRM is close to the Lovibond scale. On the other side of the Atlantic, the European Brewing Convention (EBC) created their own method for measuring color, called the EBC color rating. Today, the two methods are similar and can be compared approximately through the equation

$$\text{EBC} = 1.97 * \text{SRM}$$

Note that the EBC is about twice the SRM value.

The scales go from low to high, with lower numbers assigned to light colors. For example, a Standard American Lager which has a straw to medium yellow color typically has an SRM value between 2 to 4. In contrast, a Vienna Lager is reddish amber to copper in color, which translates to an SRM between 10 and 16. A Dry Stout is deep brown to black with SRM of at least 25.

The malts and extracts used in brewing play an important role in beer color. In fact, crystal malt is usually sold by Lovibond rating, for example 40L crystal malt; however, it is difficult to predict the beer color based on just the color of the grain bill. Other factors like the brewing process contribute to color. As an example, Scottish ales typically receive their caramel flavor and color from kettle caramelization during boiling, not from caramel malt. Also, decoction mashes with their extended time and boiling of the wort usually produce darker beers. The wort and sparge pH also contribute to beer color. A higher pH increases the extraction of polyphenols which can increase color. Finally, aerating a hot mash or wort can increase color forming compounds. Hot side aeration can also lead to beer staling. So, you should avoid splashing or excessive stirring during mashing or boiling wort.

If you would like to read more about beer color here is a good resource:

Designing Great Beers, by Ray Daniels

