

## Measuring Beer Color by Mike Retzlaff

Some time back I wrote an article on **Calculating Beer Color** which is helpful in the recipe formulation end of brewing. Morey's formula works well as a good "guesstimate" in predicting a beer's final color. At the other end of brewing, the desire to accurately measure the color of finished beer is nothing new. This desire became ability when Joseph Lovibond invented the Tintometer and Lovibond scale ca. 1885. The scale is still in use but the Tintometer morphed into the device most big commercial brewers use to measure the exact SRM of their beers – a spectrophotometer. But that's the big boys - for the home brewer, it isn't necessary to measure the SRM but it's not really necessary to measure the OG of the wort or, for that matter, the FG of the fermented beer. Such metrics help us to maintain control over our brewing and that's enough reason to make and record these simple measurements.

In the early 1990's, the late George Fix devised a method of comparison measurement by using Michelob Classic Dark beer. He used it as a known standard of 17 SRM and would dilute it to determine the SRM of any particular sample of another beer. There are two problems with this method.

- a) Michelob Classic Dark is no longer being brewed.
- b) You couldn't measure the color of any beer darker than 17 SRM.

The Steven Deeds Blog ([woodlandsbrew.com](http://woodlandsbrew.com)) offers a solution for those of us who have the desire but can't afford even a cheap \$3,000 bench model spectrophotometer. He proposes using a dark liquid that almost everyone has in their home and diluting it until it matches the color of the beer. The amount of water needed to dilute the liquid can then be measured and from that the SRM value is determined – the same concept held by George Fix.

So what is this mystery liquid? Kikkoman soy sauce! Don't laugh as the color content is very close to that of beer, and only a very small amount is needed for the test. Both Kikkoman's low sodium and regular have the same apparent attenuation of light. Testing indicates that, at a dilution of 38:1, the liquid has an SRM of 8.

Two glass 250ml graduated cylinders make a convenient way to measure the amount of water added and to view the beer. 100ml cylinders will work for most of our needs. For measurements of 1 – 20 SRM, use ¼ tsp. of soy sauce; for 21 – 40 SRM, use 1 tsp. of soy sauce. Michelob Ultra-Light doesn't quite get down to 1 SRM while 40 SRM, for all intents and purposes, is black. Anything darker would require the high dollar apparatus to make an accurate measurement. You need to de-gas the beer sample and then stand the two cylinders side by side against a white background. Dilute the soy sauce until you get a comparable shade of color to the sample beer. If you are measuring a beer straight from the fermenter, degassing isn't necessary. This technique should work fine for any home brewer as it is easy and cheap to use. On top of that, when you're done measuring, you can drink the beer sample. If you're really adventurous, you can also drink the diluted soy sauce.

SRM Chart using soy sauce

SRM	1	2	3	4	5	6	7	8	9	10
ml	368	184	123	92	74	61	53	46	41	37

Use 1/4 tsp. or 1.23 ml

SRM	11	12	13	14	15	16	17	18	19	20
ml	33	31	28	26	25	23	22	20	19	18

SRM	21	22	23	24	25	26	27	28	29	30
ml	70	67	64	61	59	57	55	53	51	49

Use 1 tsp. or 4.93 ml

SRM	31	32	33	34	35	36	37	38	39	40
ml	47	46	45	43	42	41	40	39	38	37