

## Color Measurement in Refined vs. Crude Oils

Sir:

The paper on "Comparison of Visual and Automated Colorimeters—An International Collaborative Study" [*J. Am. Oil Chem. Soc.* 74, 731–738 (1997)] reports that a good correlation was obtained between the automated color reading and the manual Lovibond color reading.

However, careful study of the paper shows that all of the oils used were refined. As far as I can see, there were no crude oils included in the study. Measurement of color of crude oils is important, and I am sure that you will be aware that NIOP trading rule No. 12.60 specifies a color for *crude* Manila coconut oil.

The reason I make this point is that work carried out at the Leatherhead Food RA, in which various automated colorimeters were evaluated, has shown that, although good for refined oils, they frequently fail with crude oils. We believe that this may be due to the fact that crude oils often have green casts in their color. This may result in a dirty brown appearance when green, red, and yellow colors are all present in the same sample. We believe that the automated instruments are not good at measuring green colors. Refined oils seldom have green or blue tints, and for them the problem does not arise.

In one of the instruments that we examined, the optics were designed on the basis that oils never have green or blue

casts. On this premise, a blue light was shone through the oil and acted as a reference beam. If the signal from this blue beam was diminished, the instrument logic presumed that the cell windows were dirty, and it adjusted the red and yellow colors accordingly. This is perfectly acceptable when there is no blue color in the oil, but if there is a blue cast, not only does one fail to get a blue reading, but the red and yellow readings are correspondingly distorted.

I would appreciate it if you could bring this reservation to the attention of your methods committee, so that it can restrict the scope to refined oils of any method that may be developed on the basis of the reported ring test. I would be unhappy if the fats and oils trade worldwide took note of the published paper and presumed that the good outcome of the ring test enabled them to use the automated system for crude oils. This would, I feel, cause a considerable amount of trade misunderstanding and could be the cause of trade disputes.

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