

Addendum to EasyMatch QC User's Manual

Description

CMR 2913 modifies EasyMatch QC Versions 3.35 and higher to allow selection and display of citrus scale values when operating a ColorFlex 45/0. The software will not calculate citrus scales when other instruments are in use.

The citrus scales used for measurement of citrus samples are defined as follows:

$$\text{Citrus Red} = -469.800 + 542.475 \left(\frac{X}{Y} \right) - 54.707 \left(\frac{Z}{Y} \right) + \frac{75.447}{Y}$$

$$\text{Citrus Yellow} = 134.900 - 28.329 \left(\frac{X}{Y} \right) - 117.722 \left(\frac{Z}{Y} \right) - \frac{19.163}{Y}$$

$$\text{Citrus Number} = -40.600 + 86.597 \left(\frac{X}{Y} \right) - 22.073 \left(\frac{Z}{Y} \right) + \frac{18.309}{Y}$$

where X, Y, and Z are the CIE Tristimulus Values.

Note: All citrus indices are calculated with reference to the 2° standard observer and illuminant C.

Because there is a translucency difference between genuine citrus juice samples and the plastic OJ standard tubes, slightly different formulas are used for calculating the citrus values of standards. Those formulas are as follows:

$$\text{Citrus Red} = -471.000 + 542.475 \left(\frac{X}{Y} \right) - 54.707 \left(\frac{Z}{Y} \right) + \frac{75.447}{Y}$$

$$\text{Citrus Yellow} = 133.600 - 28.329 \left(\frac{X}{Y} \right) - 117.722 \left(\frac{Z}{Y} \right) - \frac{19.163}{Y}$$

$$\text{Citrus Number} = -41.000 + 86.597 \left(\frac{X}{Y} \right) - 22.073 \left(\frac{Z}{Y} \right) + \frac{18.309}{Y}$$

where X, Y, and Z are the CIE Tristimulus Values.

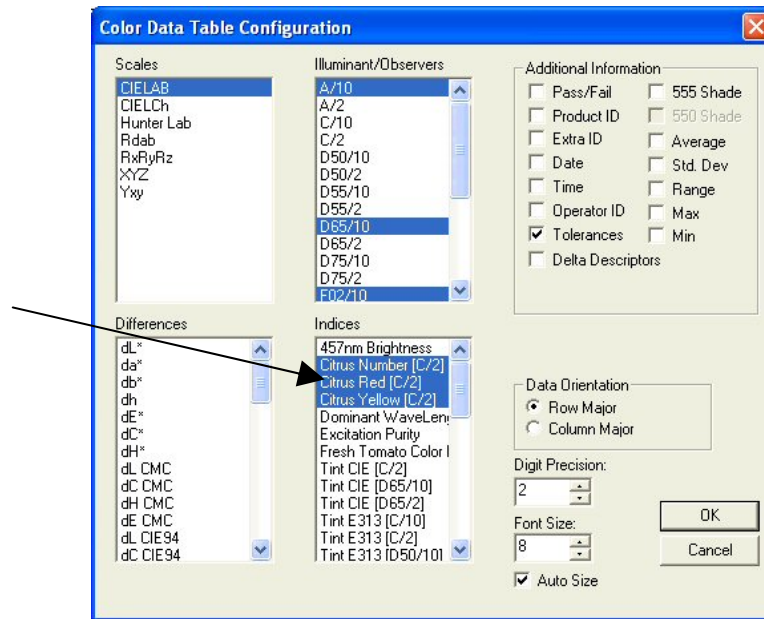
Installation

Install the software as described in the EasyMatch QC Installation Guide. Before opening the software, install the special hardware key provided. The hardware key activates the special features.

Operation

Operate the software as described in your User's Manual. When one or more citrus scales are to be used, complete the following steps:

1. Add the citrus scale(s) of interest to your Color Data Table as you would any other index.



2. Standardize the ColorFlex 45/0.
3. Install the OJ4 standard into the orange juice holder.
4. Measure the OJ4 standard as a standard. The ColorFlex 45/0 will make and average three readings for the standard and display the citrus scales as calculated using the second set of formulas given above.

	L*	a*	b*	Citrus Number [C/2]	Citrus Red [C/2]	Citrus Yellow [C/2]
Standard 1	68.00	21.00	38.00	49.59	135.10	44.33
+ Tolerances	0.00	0.00	0.00	0.00	0.00	0.00
- Tolerances	0.00	0.00	0.00	0.00	0.00	0.00

5. Hitch the standard just read to the assigned values for the OJ4 standard.
6. Install the first sample tube of juice into the orange juice holder and read it as a sample, associating with the hitched standard. The ColorFlex 45/0 will make and average three readings for the sample and display the citrus scales as calculated using the first set of formulas given above and adjusted using the hitch offset established for the OJ4 standard.

	L*	a*	b*	Citrus Number [C/2]	Citrus Red [C/2]	Citrus Yellow [C/2]
Standard 1	68.00	21.00	38.00	49.59	135.10	44.33
+ Tolerances	0.00	0.00	0.00	0.00	0.00	0.00
- Tolerances	0.00	0.00	0.00	0.00	0.00	0.00
Sample 1	67.18	20.56	32.92	47.95	130.37	36.58

C/2