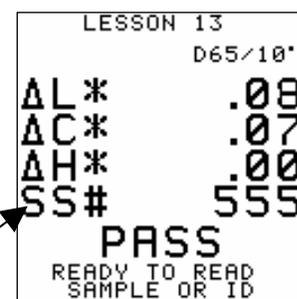# Applications Note

Shade Numbering, Shade Sorting, and Shade Tapering

Shade numbering, sorting, and tapering are used in many industries, but particularly the textile industry.

Shade Numbering

The shade numbering feature, such as that present in EasyMatch QC and EasyMatch OL software and the ColorFlex and MiniScan XE Plus firmware, performs calculations on the sample data and assigns each sample a shade number based on how close its color is to the standard. This data is presented only as the shade number (i.e., 555, 455). It appears in a field similar to the one shown to the right, obtained using the MiniScan XE Plus.

```
LESSON 13
             D65/10°
ΔL✳          .08
ΔC✳          .07
ΔH✳          .00
SS#          555
     PASS
  READY TO READ
  SAMPLE OR ID
```

Shade Sorting

The shade sorting feature calculates a shade number for each sample based on how close its color is to the standard, but ALSO has the ability to sort all samples into shade groups and provide data on which samples belong to each shade number. All the samples in a particular group may be used together in producing an end product with certainty that the parts will match. For example, shirt sleeves made from fabric placed in the "444" shade group may be slightly off-color in relation to the standard, but the sleeves can still be used in making a shirt provided the shirt body combined with it is also characterized as "444." Shade shorting performs one extra step and groups samples for you by shade numbers. Shade sorting is available in EasyMatch QC software by adding the 555 Shade field to your Color Data Table. Then, with all the samples you wish to sort displayed, click on the 555 Shade column (or row) header to sort the samples based on the shade numbers.

	555 Shade	L*	a*	b*	dE*
Sample89317971	555	25.81	-0.91	-9.46	0.20
Sample89317071	657	27.19	-1.05	-7.61	2.20
Sample893179101	655	26.80	-1.06	-9.70	0.83
Sample8931791012	555	25.65	-0.85	-9.56	0.38
sample893179112	555	26.05	-0.93	-9.65	0.19
Sample8931791122	555	25.55	-0.88	-9.24	0.52
Sample99317931	455	25.28	-0.89	-9.52	0.74
Sample993179312	95+	30.24	-1.32	-4.22	6.75
Sample893179111	555	25.95	-0.95	-9.22	0.26
Sample8931791112	555	26.00	-0.89	-9.37	0.11
Sample109317921	555	25.76	-0.89	-9.58	0.28
Sample1093179212	555	25.77	-0.88	-9.46	0.25
Sample99317941	555	25.72	-0.88	-9.47	0.29
Sample993179412	555	25.69	-1.00	-9.02	0.55
Sample118317991	655	26.69	-0.97	-9.71	0.72

▏◀ ◀ ▶ ▶▏ D65/10 / F02/10 / A/10

Unsorted Samples

	555 Shade	L*	a*	b*	dE*
Sample8931791012	555	25.65	-0.85	-9.56	0.38
Sample993179412	555	25.69	-1.00	-9.02	0.55
Sample99317941	555	25.72	-0.88	-9.47	0.29
Sample1093179212	555	25.77	-0.88	-9.46	0.25
Sample109317921	555	25.76	-0.89	-9.58	0.28
Sample8931791112	555	26.00	-0.89	-9.37	0.11
Sample893179111	555	25.95	-0.95	-9.22	0.26
sample893179112	555	26.05	-0.93	-9.65	0.19
Sample9530931212	555	25.80	-0.84	-9.97	0.55
Sample8931791122	555	25.55	-0.88	-9.24	0.52
Sample89317971	555	25.81	-0.91	-9.46	0.20
Sample893179101	655	26.80	-1.06	-9.70	0.83
Sample118317991	655	26.69	-0.97	-9.71	0.72
Sample89317071	657	27.19	-1.05	-7.61	2.20
Sample993179312	95+	30.24	-1.32	-4.22	6.75

D65/10 / F02/10 / A/10 /

Samples Sorted by Shade Number

Shade Tapering

The shade tapering feature, such as that available in EasyGroup software, is also known as color sequencing. The software performs calculations that arrange the samples from lightest to darkest or dullest to brightest and report them in this order so that each sample is as close as possible in shade to the samples next to it. The picture below from EasyGroup shows a group of tapered samples.
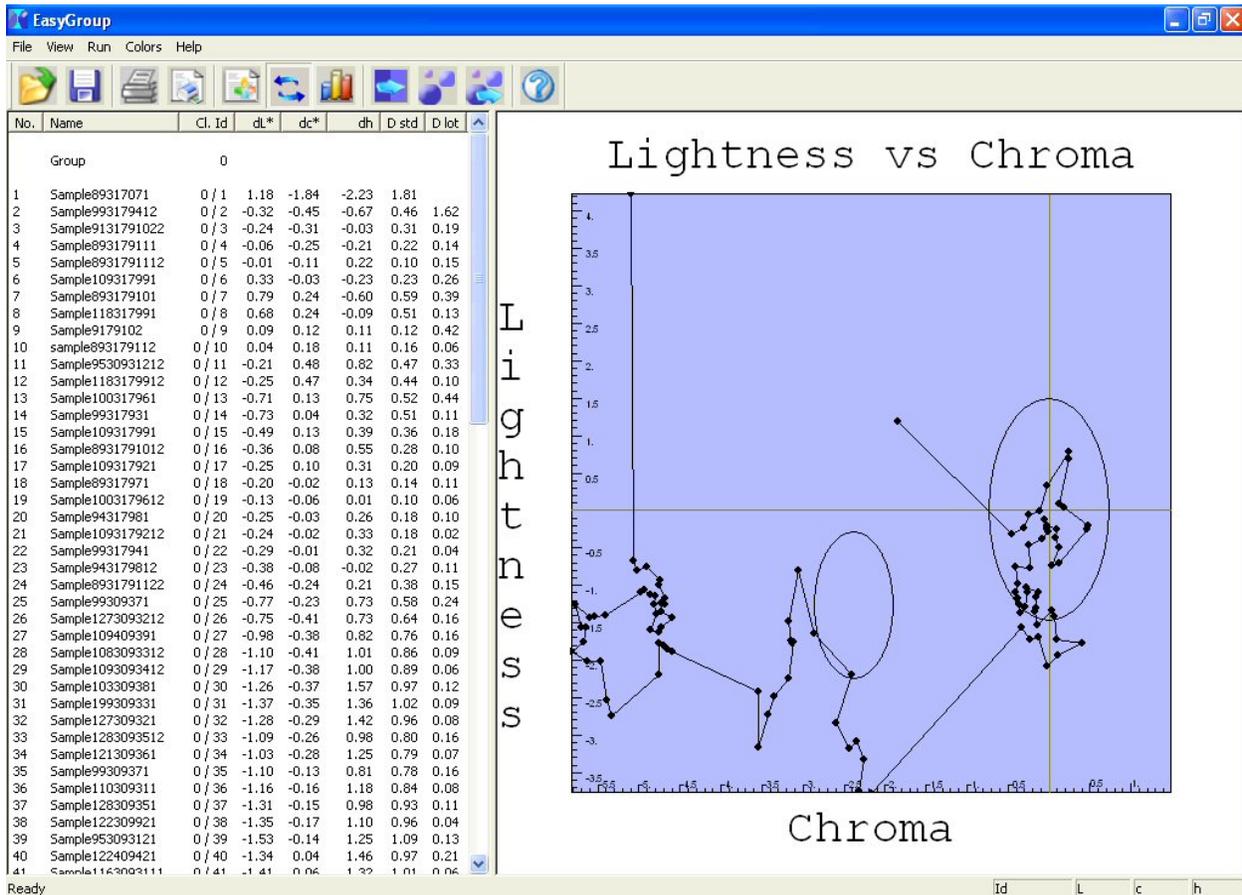
References

"555 Shade Numbering," HunterLab *Applications Note*, Volume 2, Number 4, April 1991.

Harold, Richard W., "Textiles: Appearance Analysis and Shade Sorting," *Textile Chemist and Colorist*, Volume 19, No. 12, December 1987.

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