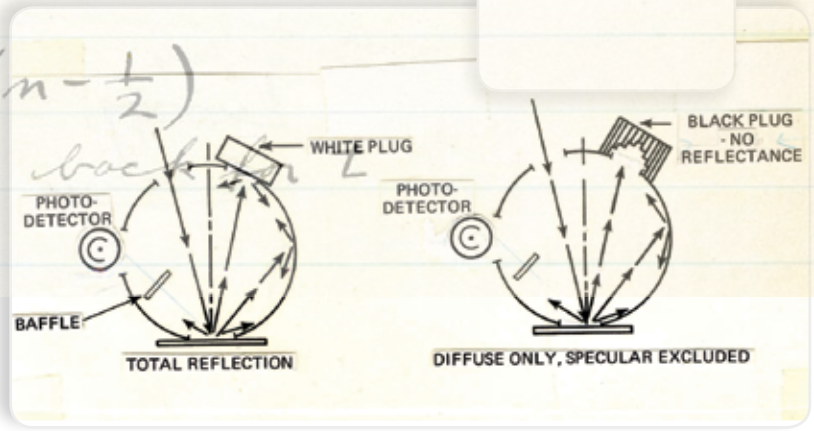
Measurement Method

MM 5077.00



Measuring Yarn, Thread, and Packages

with MiniScan® EZ

Measuring the color of textile yarn before it is sold or woven into fabric is very important for ensuring lot-to-lot color consistency. Yarn may be translucent and is directional when wound for measurement. Therefore, special presentation techniques are required to provide repeatable results. In general, several layers of sample should be presented to the instrument together. Also, several readings of the yarn should be averaged for the final result, preferably with rotation of the sample between measurements.

The world's true measure of color
HunterLab

A HunterLab MiniScan® EZ 45/0 LAV spectrophotometer can be used to measure the reflectance of yarn using one of the two methods outlined below. These methods are advocated by HunterLab for the measurement of yarn if a LabScan® XE with UV control is not available.

MiniScan® EZ

THE APPLICATION

Yarn has several non-uniform characteristics that require compensating preparation and presentation techniques in order to ensure a repeatable sample measurement.

Yarn may not be completely opaque and make look different when backed with differently colored samples. Using a sufficient sample thickness and a sample backing will minimize these effects.

Yarn is directional when wound for measurement, requiring the averaging of several readings with rotation.

Yarn is flexible, and care must be taken that it does not pillow into the measurement port. It should be backed by a hard surface to become effectively a solid medium.

Yarns (particularly white ones) may be slightly fluorescent, which means that they will be sensitive to the UV content of the light source. If this is the case, consideration should be given to using an instrument with a UV control option.

Recommended Color Scale
CIE L*a*b* or CIE L*C*h as a full color descriptor

Recommended Single-Number Indices
DEcmc for indication of total color difference, Shade number for dividing multiple samples into shade groups.

Recommended Illuminant/Observer
D65/10°. C/2° may also be used.

MEASUREMENT METHOD

Method #1:
Measuring Yarn Wound on a Skein Holder or Card.

1. Configure your software or the instrument firmware to read using the desired color scale, illuminant, and observer.

2. Standardize the instrument with the glass port in place, first using the black glass to set the bottom of scale. Make sure the black glass is in solid contact with the port.

3. Complete the standardization using the calibrated white standard.

4. Wind the yarn around the skein holder or a white card in multiple taut layers until it is effectively opaque and is as flat as possible.

5. Put the skein holder, with the side to be measured up, on a flat surface or mount it on the calibration tile holder, if you have one. Then, place the MiniScan® EZ's nose cone on the sample, ensuring that the sample is in solid contact with the port.

6. Take a single color reading of the yarn. Rotate the skein 90° and read the yarn at least once more. Average multiple measurements in groups of two with a 90° rotation between readings to minimize variation associated with the directionality of the sample. It is recommended that a minimum of four readings with rotation be averaged.

7. Record the average color values for the sample batch.

2.


3.


4.


5.


MEASUREMENT METHOD

Method #2:
Measuring Fiber Packages.

1. Configure your software or the instrument firmware to read using the desired color scale, illuminant, and observer.

2. Standardize the instrument with the glass port in place, first using the black glass to set the bottom of scale. Make sure the black glass is in solid contact with the port.

3. Complete the standardization using the calibrated white standard.

4. Select the proper fiber package adapter and install it at the measurement port as described in your User's Manual.

5. Position the fiber package port adapter over the cylindrical fiber or yarn package, taking care that the instrument will not move during readings. The picture to the right illustrates the measured portion of the bobbin as seen by the instrument.

6. Take a single color reading of the fiber package. Rotate the package 180° and read the yarn at least once more. Average the multiple color readings for a single color measurement representing the color of the lot. Averaging multiple readings with rotation between readings miminizes measurement variation associated with directionality

7. Record the average color values for the sample batch.

2.


3.

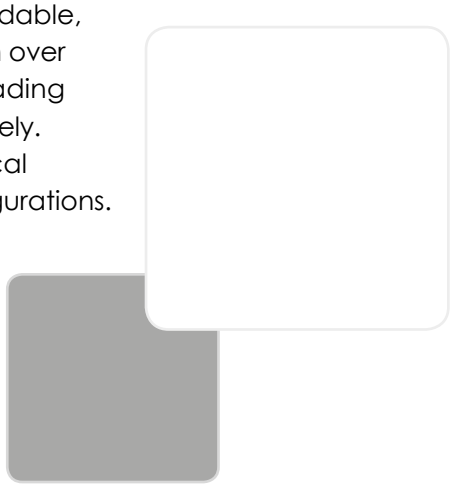

5.


5.


6.


ABOUT HUNTERLAB

HunterLab, the first name in color measurement, provides ruggedly dependable, consistently accurate, and cost effective color measurement solutions. With over 6 decades of experience in more than 65 countries, HunterLab applies leading edge technology to measure and communicate color simply and effectively. The company offers both diffuse/8° and a complete line of true 45°/0° optical geometry instruments in portable, bench-top and production in-line configurations. HunterLab, the world's true measure of color.



More Information about Measurement Methods at

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