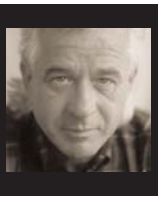
unit 2: Textile Properties


Name _____

Class _____ **Date** _____

Score _____

Instructions: You will view a series of videos to illustrate various textile properties and methods used to test for those properties. Complete this worksheet while viewing the "test" videos included in the five sections of Unit 2: Textile Properties. Each section will show both standardized and non-technical means for assessing fiber properties. Be as descriptive as possible in your response to the questions.

I. Tenacity

Standardized Tests

The tensile strength of a textile can be identified through the application of standardized testing procedures. The video in this section shows the procedures involved in conducting a standardized tensile strength test.

Tensile Strength

Describe what happens to the fabric as it is stretched.

_____

_____

Does the fabric appear to have reasonable tensile strength for general applications?

_____

Based on observations, what are some suitable uses for the fabric based on its tensile strength?

_____

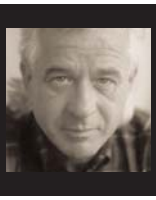
_____

Based on observations, what would not be appropriate uses for the fabric based on its tensile strength?

_____

_____






Non-Technical Tests

A general assessment of the tensile strength of a textile can also be identified through the application of non-technical testing procedures. The video in this section shows the procedures involved in conducting a basic, non-technical tensile strength test.

Tensile Strength

Describe what happened to the first fabric after being pulled and stretched.

Describe what happened to the second fabric after being pulled and stretched.

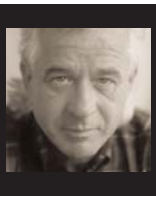
Describe what happened to the third fabric after being pulled and stretched.

Based on observations, which of the three fabrics has the greatest tensile strength?

Which fabric has the least tensile strength?

How does tensile strength influence the long term aesthetic qualities of a textile product?






How does tensile strength influence the durability of a textile product?

II. Colorfastness

Standardized Test

The colorfastness of a textile can be identified through the application of a variety of standardized testing procedures. The videos in this section show the procedures involved in conducting select standardized colorfastness tests.

Colorfastness to Crocking

Briefly describe the process used to test for crocking.

What is the colorfastness to crocking rating on the gray scale for staining when the test fabric was dry?

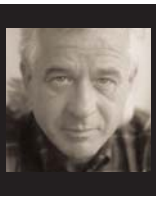
What is the colorfastness to crocking rating on the gray scale for staining when the test fabric was moist?

If the acceptable standard was a dry rating of 3.5 and a wet rating of 2.0 on the gray scale for staining, would the product meet the standards?

Colorfastness to Perspiration

Briefly describe the process used to test for colorfastness to perspiration.






What is the colorfastness to perspiration rating on the gray scale for staining for the cotton portion of the test strip?

_____

What is the colorfastness to perspiration rating on the gray scale for staining for the nylon portion of the test strip?

_____

If the acceptable standard was a rating of 3.5 on the gray scale for staining, would the product meet the standards?

_____

Colorfastness to Light

What is the rating of the first fabric sample on the gray scale for staining?

_____

What is the rating of the second fabric sample on the gray scale for staining?

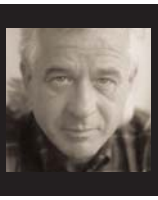
_____

If the acceptable standard was a rating of 3.5 on the gray scale for evaluating color change, does the first fabric sample meet acceptable standards for colorfastness to light?

_____

If the acceptable standard was a rating of 3.5 on the gray scale for evaluating color change, does the second fabric sample pass acceptable standards for colorfastness to light?

_____


Non-Technical Procedures

A general assessment of the various colorfastness qualities of a textile can be identified through the application of non-technical testing procedures. The video in this section shows the procedures involved in conducting a basic, non-technical test for colorfastness to crocking.

Crocking

Describe the results of the crocking tests on the first fabric sample.

Describe the results of the crocking tests on the second fabric sample.

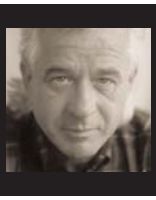
Describe the results of the crocking tests on the third fabric sample.

Which fabric was the most colorfast to crocking?

Was crocking more apparent with the dry or damp test fabrics?

Describe a potential problem with textiles that are not colorfast.






Knowing that a fiber might not be as colorfast as would be desirable, what measures could a manufacturer of apparel or furnishings take to reduce harmful effects?

III. Dimensional Stability

Standardized Test

The dimensional stability of a textile can be identified through the application of standardized testing procedures. The video in this section shows the procedures involved in conducting a standardized dimensional stability test.

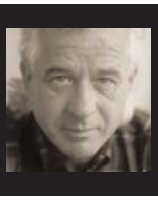
Dimensional Stability

Calculate the percentage of dimensional change for the lengthwise direction.

Calculate the percentage of dimensional change for the crosswise direction.

Which dimension shows the greatest dimensional stability?

If the acceptable standard was a three percent change or less, would the product meet the standards?


Non-Technical Procedures

A general assessment of the dimensional stability of a textile can also be identified through the application of non-technical testing procedures. The videos in this section show the procedures involved in conducting a basic, non-technical dimensional stability test.

Dimensional Stability, before laundering

The measured lengthwise dimension on the skirt before laundering was _____ inches.

The measured widthwise dimension on the skirt before laundering was _____ inches.

The measured lengthwise dimension on the shirt before laundering was _____ inches.

The measured widthwise dimension on the shirt before laundering was _____ inches.

Dimensional Stability, after laundering

The measured lengthwise dimension on the skirt after laundering was _____ inches.

The measured widthwise dimension on the skirt after laundering was _____ inches.

The measured lengthwise dimension on the shirt after laundering was _____ inches.

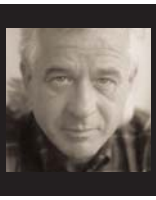
The measured widthwise dimension on the shirt after laundering was _____ inches.

Using the following equation:

$$\textit{Percentage change} = \frac{\textit{after laundering measurement - before laundering measurement}}{\textit{before laundering measurement}}$$

Calculate the percentage change in the lengthwise dimension of the skirt.






Calculate the percentage change in the widthwise dimension of the skirt.

Calculate the percentage change in the lengthwise dimension of the shirt.

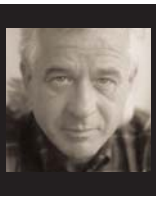
Calculate the percentage change in the widthwise dimension of the shirt.

If the standard for evaluating the fabric was a three percent change or less, does the skirt pass the standards?

If the standard for evaluating the fabric was a three percent change or less, does the shirt pass the standards?

How does dimensional stability influence the fit of a textile product?






Why might a textile product shrink more in one direction than another?

IV. Absorbency

Standardized Test

The absorbency or repellency of a textile can be identified through the application of standardized testing procedures. The videos in this section show the procedures involved in conducting standardized oil and water repellency tests.

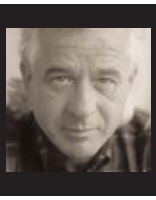
Absorbency

Describe what you observe as the drops of the first oil are placed on the fabric.

Describe your observations after the first level of oil was left on the fabric for 30 seconds.

Describe your observations after the second level of oil was left on the fabric for 30 seconds.






Describe your observations after the third level of oil was left on the fabric for 30 seconds.

Does the fabric fail the oil test? If so, at what level does the fabric fail?

Based on observations, how absorbent is the fabric?

If the acceptable standard is to pass level 4 testing, would the product meet the standards?

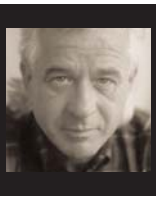
Spray Test

After the spray test, how does the sample fabric rate on the standard spray test rating chart?

What does this rating indicate about the water repellancy of the fabric?

Describe a suitable use for this fabric based on its water repellancy rating.






Non-Technical Procedures

A general assessment of the absorbency or repellency of a textile can be identified through the application of non-technical testing procedures. The videos in this section show the procedures involved in conducting non-technical tests for assessing absorbency and repellency.

Absorbency and Repellency—Oil / Water Test

Does the first fabric absorb or repel oil?

Does the first fabric absorb or repel water?

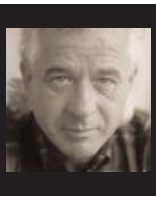
Does the second fabric absorb or repel oil?

Does the second fabric absorb or repel water?

Does the third fabric absorb or repel oil?

Does the third fabric absorb or repel water?

What conclusions can you draw from your observations?


Absorbency

Does the first fabric sample absorb and/or wick water?

Does the second fabric sample absorb and/or wick water?

Does the third fabric sample absorb and/or wick water?

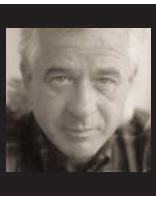
Which fabric appears to have absorbed the most water?

Which fabric appears to have absorbed the least amount of water?

Describe two examples of when water repellent properties would be desirable.

Describe two examples of when moisture absorbency properties would be desirable.

Describe two examples of when oil repellent properties would be desirable.


V. Resiliency

Standardized Test

The resiliency of a textile can be identified through the application of standardized testing procedures. The video in this section shows the procedures involved in measuring the wrinkle recovery rating as an indicator of the resilience of the textile.

Wrinkle Recovery

Does the shirt in the video appear to be very wrinkled?

What rating did the shirt measure on the smoothness appearance chart?

Does the fabric appear to have good wrinkle recovery? Discuss your response.

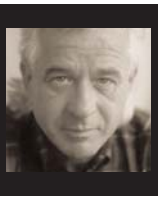
Would you consider the fabric to have good resiliency properties?

Non-Technical Procedures

A general assessment of the resilience of a textile can also be identified through the application of non-technical testing procedures. The videos in this section show the procedures involved in conducting non-technical tests to assess the wrinkle recovery and resilience properties of textiles.

Wrinkle Recovery

How does the first fabric react to being crumpled and wrinkled?


How does the second fabric react to being crumpled and wrinkled?

How does the third fabric react to being crumpled and wrinkled?

Which fabric appears to be the most wrinkle resistant?

Which fabric appears to be the least wrinkle resistant?

Wrinkle Resistance

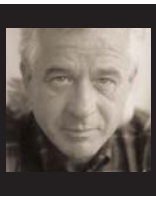
How pronounced was the crease in the first fabric immediately after the weight was removed?

How pronounced was the crease in the second fabric immediately after the weight was removed?

How pronounced was the crease in the third fabric immediately after the weight was removed?

Describe the creasing of the first fabric five minutes after the weight was removed.






Describe the creasing of the second fabric five minutes after the weight was removed.

Describe the creasing of the third fabric five minutes after the weight was removed.

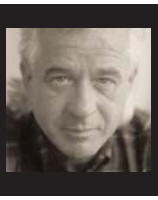
Which fabric appears to be the most resilient?

Which fabric appears to be the least resilient?

Are any particular fibers inherently more resilient than others? If so, which ones?

Describe two reasons why a designer might select a less resilient fabric over a more resilient fabric.

unit 2: Textile Properties


If a designer were developing a line of outdoor jogging apparel, what textile properties would be important? Why?

If a designer were looking for drapery fabric, what textile properties would be important? Why?