

Quality
Assurance
&
Laboratory
Equipment



Superior[®]
UNIFORM GROUP

Quality Statement

We are extremely proud of our state of the art Quality Control laboratory located at our Corporate Headquarters in Seminole, Florida. Our lab is equipped with over \$300,000 worth of testing equipment. Testing is conducted using Standard Industrial Test Methods such as AATCC and ASTM as specified by ASQ (American Society for Quality).

Every major source of Superior is required to be able to do much of the same testing we do here in Seminole. In fact, we have set up a lab in Central America that has much of the same equipment. We are often complimented by fabric suppliers and laundry companies on having one of the most sophisticated labs in the country. This department interfaces very closely with our engineering department to prepare all of the manufacturing, fabric, findings and audit procedures and specifications for each and every uniform we make.



Home Washer/Dryer

Used to duplicate normal home wash/
dry conditions cold/warm/hot.



Industrial Washer w/ High Speed Extraction

This 12lb. washer simulates industrial laundering conditions and has the capability of changing washing conditions by means of a programmable chip. Washing chemicals (liquid form) are pumped directly into the washer at pre-set time intervals to yield actual industrial laundering. Typical washing cycle will include the introduction of:

- Non-Ionic Detergent
- Alkaline Builder
- Bleach (See back page for wash formulas.)

Test No.	Temp.		Total Liquor Volume in mi.	% Detergent of Total Volume	% Available Chlorine of Total Volume	Steel Balls (number)	Time in Minutes
	F	C					
IA	105	40	200	0.5	None	10	45
IIA	120	49	150	0.2	None	50	45
IIIA	160	71	50	0.2	None	100	45
IVA	160	71	50	0.2	0.015	100	45



Laundrometer

The laundrometer simulates extensive washing or dry cleaning in a short amount of time:

- 1 cycle = 5 washings or 5 dry cleanings.

Each sample is put in a canister with metal balls, and handles 20 canisters at one time. We can simulate 25 industrial launderings in an 8 hour shift which accelerates results from weeks to days. (See formula chart back page.)



7 Datacolor[®] System - Photo Spectrophotometer

State of the art electronic system for measuring fabric color. It provides numerical data, can be globally transmitted and will yield exact color correct matched fabrics from that data.



Macbeth Lightbox

The Macbeth Lightbox is used to check colors of fabrics visually and compliments the Datacolor System. Fabrics can be checked under various light sources enabling users to determine whether two fabrics are metameric (a color match between two materials in which the colors are identical under some lighting conditions but not under others).



Crockmeter

Determines whether or not color may be transferred from the surface of dyed fabrics to another surface or fabric by rubbing. We test both dry crocking and wet crocking. Wet crocking simulates results that can happen due to perspiration, spills and inclement weather, in addition to crocking during laundering.



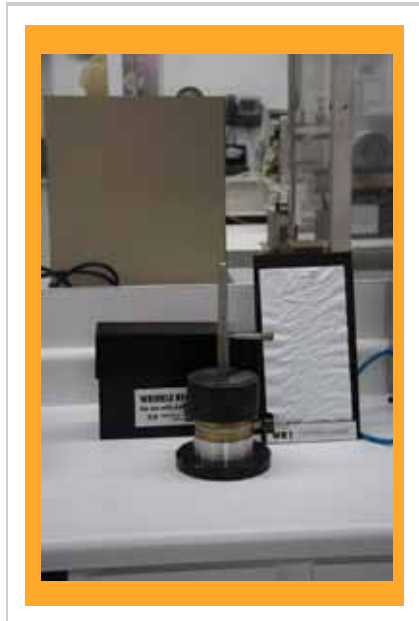
Pilling Tester

Determines the resistance of the fabric to formation of pills and other relaxed surface changes. This procedure is generally applicable to all types of woven and knitted fabrics.



Wrinkle Test

Test determines the amount of wrinkles retained after 24 hours when exposed to a given weight for 20 minutes.



Taber Abraser

The taber abraser measures a fabric's tendency to wear and deteriorate under various abrasion conditions.



Impact Penetration

Measures the resistance of fabric to the penetration of water by impact. Results depend on the water repellent properties.



Spray Test

Measures the resistance of fabric to wetting by water. Results obtained depend primarily on the resistance to wetting or water repellency of the fibers and yarns, not the construction of the fabric.

Microscope

Low power microscope permits the examination of fabric structures.



Perspiration Tester

Determines the colorfastness of textiles to the effects of perspiration.



Yield Scale w/ Fabric Die Cutter

Determines the weight of fabric in ounces per square yard. Larger pieces of fabric can be weighed on weight scale (below) for even more accurate results.



Weight Scale

Accurately measures weight of chemicals or fabrics used in various tests.



Elmendorf Tear Tester

Determines the average force required to rip or tear fabric starting from a single small cut in the fabric. This test is done on woven fabrics only.



Scott Tester

Tests the tensile strength of fabric, paper and skein yarns.



Autoclaving

Necessary so that we can accurately simulate actual laundering and sterilization procedures used in hospital laundries and thus insure that fabrics will process favorably after sterilization.



Snag Tester

Determines the ability of a woven or knit fabric to resist pulling or snagging of threads.



Mullen Hydrostatic Tester

Measures the hydrostatic pressure necessary to force water through a barrier fabric up to 300 lbs. per sq. inch.



Hydrostatic Tester

This apparatus measures a fabric's resistance to hydrostatic pressure and specifically its resistance to bloodborne particles. Synthetic blood of exact viscosity and surface tension as synthetic or human blood is used for this test.



Resistivity Tester

The surface resistivity of fabrics is especially important for all cleanroom fabrics where electrical charges that are not speedily dissipated may cause catastrophic failure of the fabric.



Shimpo Snap Tester

Measures the force required to open and close snaps. Factory machines must be properly adjusted to give adequate closure without harming the garment.



Air Permeability Tester

The air permeability tester is used to determine the porosity or breathability of a fabric. The tester evaluates the filtration efficiency of cleanroom fabrics. Calculations are in terms of $\text{cm}^3/\text{cm}^2/\text{sec}$. units.



Ph Meter

Determines the acidity or alkalinity of a solution.



De-Humidifier

Enables fabric testing to be done under low and controlled humidity.



Dessicator

Fabrics that are to be tested are put in this device to keep out moisture.



Heat Press

Adds heat transfers onto fabric.



Twist Test

Calculates the number of twists in a yarn.



Wash Formulas and Test Conditions							
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