Faculty of Engineering

Department of Textile Engineering

"Study On Test Requirements Of Buyer For Jacket Garments"

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A report submitted in partial fulfillment of the requirements for the degree of

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Faculty of Engineering

Department of Textile Engineering

Approval Sheet

This research entitled **"Study On Test Requirements Of Buyer For Jacket Garments"** prepared and submitted by **Sohad-Al-Fahad (ID: 161-23-209), Jannatul Fatema Mimi (ID: 161-23-221)** in partial fulfillment of the requirement for the degree of **BACHELOR OF SCIENCE IN TEXTILE ENGINEERING** has been examined and hereby recommended for approval and acceptance.

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Declaration

We validate that this report is absolutely our very own work, aside from where we have given completely recorded references to crafted by others and that the materials contained in this report have not recently been submitted for evaluation in any proper course of study. In the event that we do anything, which is going to rupture the main announcement, the inspector/manager has the privilege to drop my report anytime of time.

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Acknowledgement

Close to the beginning, we should thank the Almighty **ALLAH** for empowering us to complete this report.Then we should thank our **mother and father** for helping us in every time and every situation. By then we should acknowledge the open way to offer us because of our Ma'am **Sharmin Akter, Lecturer, Department of Textile, Daffodil International University** for giving us rules and proposition to complete this Project. His shrewd appeal helps rational course and tries have made it possible to execute the undertaking dependably.

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Finally, however not the least, I might want to recognize my folks for their endorsement, support and love and every one of our companions for their assistance and backing to finish the report.

Abstract

A thesis based on Test. Where test is important to know the condition of garments. And there have some standard like ISO, AATCC etc. In our paper there having different types of test. For different types of test have different types of method and process. The buyer has also standard which is also given. Mainly the lab works for buyer and better quality. Apparatus is also here for more information. Mainly To ensure consumer product safety, wear ability, garments quality, strength and others requirement of buyer, garments test is done as a buyer requirement. The test is conducted in full garments form not in fabrics form, safety is very much important for children garments. The garments test is done in buyer laboratory or in third-party laboratories or any nominated laboratories. The main objective of garments is to check consumer right and safety of a product, which is ensured by the test report. Garments test report is mandatory for every garments lot, without passing it shipment is not allowed. The cost of a test depends on the type of test you are asking. Garments testing criteria may little bit vary buyer to buyer but it is a mandatory requirement for all garments manufacturer. So as a garments maker you need to be careful about all garments test requirements of buyer otherwise you may lose your valuable customer. Another thing is, a good quality. When it comes for quality standards for the apparel goods, physical properties of the fabrics, trims, and accessories; presence of restricted chemicals in garments, goods must be tested from reputed testing labs. The test requirements vary according to the sourcing countries and product category. According to testing standards given by buyer approved testing labs. Mostly known and buyers approved testing labs are listed in the following.

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“STUDY ON TEST REQUIREMENTS OF BUYER FOR JACKET GARMENTS”

CHAPTER-1
INTRODUCTION

1. INTRODUCTION

1.1 Textile Test:

The main role of material testing and investigation is to evaluate material item execution and to utilize test results to make forecasts about item execution. Item execution must be considered related to end use; in this manner, tests are performed in view of a definitive end use. Instances of testing for end-use execution incorporate testing draperies for light speed or tire strings for quality. The key inquiry in testing for end-use execution is, Does the material address the issues of the application for which it will be utilized? One issue in this classification of testing is that regularly one doesn't know explicitly how a material texture will be utilized by purchasers, and as a result of the inconstancy of customer conduct, in any event, when the end use is known, the real execution desires may not be surely known. Be that as it may, association and makers set up execution details for different end uses, and utilize these particulars to survey the appropriateness of material textures or items for the planned use. Makers of clothing, home decorations items, and mechanical material items likewise use particulars in acknowledgment testing of their providers' items. For most of garments things stylish components give the underlying drive of fascination and might be the main elements which impact the choice to purchase. The special case is the necessity that the thing should fit. Be that as it may, even fit might be a component of design and style. Such stylish factors as handle, wrap, shading and style all collaborate in an intricate way and are roughly and quietly impacted by social components – a craving to be in design, a longing to exhibit a picture, for instance.

Obviously there are exemptions where execution is a superseding thought, as in defensive attire, regardless of whether just for a recreation interest. Notwithstanding, the remark by a client that they don't consider execution when buying is often right. That doesn't obviously imply that exhibition is immaterial to them. Untimely breakdown, regardless of whether of texture, crease or just a catch tumbling off, may deliver a client objection, and in spite of the fact that the client may not really restore the piece of clothing to the retailer, it might well bring about a relationship in their brain of lackluster showing, which may impact their choice on another buy.

Tasteful and execution factors are, obviously, inseparably connected with cost. The regularly rehashed explanation that 'you get what you pay for' is by and large connected with execution, however a client's idea of what the degree of execution ought to be will shift impressively. It is frequently affected by tasteful contemplations. In this manner the idea of good quality is definitely not a static issue working at one level for all clients; it is affected by style, execution and cost, and is explicit to an individual client.

Stylish and execution factors are, obviously, inseparably connected with cost. The frequently rehashed proclamation that 'you get what you pay for' is for the most part connected with execution, however a client's idea of what the degree of execution ought to be will shift impressively. It is regularly affected by stylish contemplations. In this manner the idea of good quality is certainly not a static issue working at one level for all clients; it is impacted by feel, execution and cost, and is explicit to an individual client. A case of this is a silk tie. To most clients this would speak to great quality, yet in execution terms silk is uniquely mediocre

compared to polyester. A polyester tie, be that as it may, would be considered of lower quality than a silk tie and, obviously, would be less expensive. In this circumstance tasteful attributes are overwhelming the conclusion communicated. This prompts various rules about the harmony between style, execution and costThe nature of an item or procedure is checked before it is placed into enormous scale use. The nature of the item, its exhibition, and its unwavering quality are the key variables while testing is performed. Testing can be characterized as the strategies or conventions received to confirm/decide the properties of an item. It very well may be partitioned principally into two kinds: ordinary procedure testing and quality affirmation testing. Routine testing streamlines the every day procedure.

Quality confirmation testing helps the procedure or item over the long haul to set up validity. Testing can likewise be characterized as the strategies embraced to decide an item's appropriateness and quality.

Material testing is a key in checking item quality, guaranteeing administrative consistence and surveying the exhibition of material materials. It is a crucial fundamental device during the handling of a material crude material into the item. It additionally helps the wholesalers and purchaser to decide the final result's quality. It can incorporate the examination of the property of a known or an obscure material. In this way, material testing alludes to the systems embraced to decide quality all through the material item chain (material filaments, yarns and materials and so on). It very well may be abridged as the utilization of building realities and science to decide the quality and properties of a material item. For the most part it includes the utilization of systems, devices, instruments and machines in the lab for the assessment of the properties of these various types of materials. A thing of apparel is a summation of materials, beginning with fiber, through yarn, texture and trimmings which go to make it up. The complexities of adjusting feel, execution and cost factors in this manner apply to the determination and utilization of these materials. Clients have impression of the stylish and execution estimations of all parts of dress things, in spite of the fact that obviously their judgment might be broken and liable to misjudged specialized factors just as imbued social propensities. The exemplary model is the conviction that fleece is 'warm'. The demonstration that fleece articles of clothing built and structured in a suitable manner do give an elevated level of protection doesn't imply that different strands utilized in various developments and with a more extensive assortment of uses may not give protection in an unquestionably more financially savvy way. By and by, the convention of a fleece jacket remains and speaks to a degree of social standing.

The fundamental target of testing and examination are look into and advancement, quality control, relative testing, investigating, item future, government guideline, determination of crude materials, item control, process control, process improvement, item testing and so forth,.

1.2 Objectives of material testing:

The fundamental target of material testing are:

- To check the quality and reasonableness of crude material
- To screen the creation (process control)
- To evaluate the nature of definite item
- To research the flawed materials
- To set gauges or benchmarks
- For R&D (innovative work) reason
- For new item improvement.

“STUDY ON TEST REQUIREMENTS OF BUYER FOR JACKET GARMENTS”

CHAPTER-2 LITERATURE REVIEW

LITERATURE REVIEW

2.1 Textile Testing:

At the point when we put on dress, we need it to feel great against our skin. Furthermore, we don't need it to contain destructive substances. Be that as it may, how to we guarantee materials are protected? Material organizations and purchaser offices lead numerous sorts of investigations to ensure our garments and the textures we use in our homes won't hurt us, will be agreeable and will remain beautiful for quite a while. These procedures are called material testing.

Material testing is the term for an entire arrangement of tests that look at the physical, mechanical and substance properties of materials. These tests are here and there done before a material goes into across the board use, or they're done on materials landing from different nations available to be purchased in US markets. Nations like the United States have set up guidelines for what ought to and ought not be in material items. Tests can show whether organizations making materials are in consistence or not.

They can guarantee that a given material is the thing that a maker or shipper says it is. Now and again, testing is done while materials are being fabricated, to recognize issues or blames in the apparatus making them, and to twofold watch that materials being utilized for a particular material are suitable.

2.2 Methods of Textile Testing:

There are many textile tests. Some of them are:

- Physical test.
- Mechanical tests.
-Chemical test.
- Specialized textile test.

2.2.1 Physical tests: This test is an example of material is analyzed intently for feel and appearance. Such tests are done on singular filaments or strands of material and on yarns, strings made of a few strands wound together. Materials are likewise exposed to light and different components to perceive how they respond. A portion of these tests are done in a climate meter, a machine that tests for enduring and light quickness of materials. It's fundamentally an encased box. Materials are put inside and exposed to conditions imitated from the indigenous habitat.

2.2.2 Mechanical test: Mechanical test are those in which materials are exposed to various weight and stressors, for the most part in particular testing machines. These incorporate tests to gauge breaking quality, the power expected to break a texture under strain. Such tests can guarantee textures are sufficiently able to keep up respectability in any event, when under extraordinary pressure. Different tests measure tearing quality, or the quality required to make a previously existing tear or tear more terrible. Also, scraped area tests decide how rapidly a material destroys when it's scoured against another surface. Such tests ensure that textures utilized in items like parachutes and vehicle safety belts won't break when required most to protect the client.

2.2.3 Chemical test: This test wherein a material is broke down through synthetic intends to figure out what it contains. These tests are regularly done in research centers, and they're imperative to decide if materials may have destructive substances in them like lead or other overwhelming metals, restricted compound colors or pesticides that might jeopardize the purchaser.

2.2.4 Specialized material testing: It is additionally done to test for combustibility, or how rapidly a given material consumes. Different techniques for execution testing are done on materials that must have unique characteristics, as be adequately impenetrable or give a layer of sifting on development ventures. To put it plainly, there are the same number of approaches to test materials as there are utilizes for material items in our reality.

2.3 International Standards for Textile and Fabric:

2.3.1 AATCC Standard Method:

The AATCC (American Association of Textile Chemists and Colorists) is universally perceived for its standard strategies for testing strands and textures to gauge and assess execution qualities like colorfastness, appearance, soil discharge, dimensional change, and water obstruction. These norms are distributed every year in the AATCC Technical Manual. AATCC has grown in excess of 200 material related principles, including test strategies, assessment methodology, and monographs. These gauges are distributed every year in the AATCC Technical Manual. All norms are created and refreshed by volunteer individuals, through research boards. All industry partners may take an interest in the gauges advancement process.

Test Name	Standards
Colorfastness to Acids and Alkalis	AATCC TM6
Colorfastness to Crocking	AATCC TM8
Colorfastness to Perspiration	AATCC TM15
Water repellency test	AATCC TM35
Colorfastness to water	AATCC TM107
Dimensional change after home laundering	AATCC- 150
Dry transfer in storage	AATCC TM 163

Table No 1: AATCC Test Name and Standards.

2.3.3 ISO Standards Method:

The International Organization for Standardization is a free, non-regulatory affiliation, the people from which are the measures relationship of the 164 section countries. It is the world's greatest architect of conscious overall standards and empowers world trade by giving

fundamental measures between nations. In excess of twenty thousand checks have been set covering everything from created things and advancement to sanitation, agribusiness and restorative administrations. Use of the standards helps in the development of things and organizations that are protected, trustworthy and of good quality. The rules help associations with extending benefit while constraining missteps and waste. By enabling things from different markets to be authentically pondered, they energize associations in entering new markets and help the improvement of overall trade on a sensible reason. The benchmarks furthermore serve to secure customers and the end-customers of things and organizations, ensuring that affirmed things conform to the base checks set generally done.

2.3.4 ASTM Standard Method:

A test procedure standard has a short and illuminating depiction of a system to choose a property or constituent of a material, an arrangement of materials or a thing. To achieve acceptable precision, the test methodology should join bits of knowledge concerning test contraption, test model, test technique and estimations of data procured from the test. A model would be the Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications. This standard systems tests to survey the security of electrical tape. If each electrical tape are surveyed using a comparative test, by then it is less difficult to make sense of which tape is generally suitable for a particular use.

2.3.5 EN Standard Method:

European Standards (ENs) are chronicles that have been affirmed by one of the three European Standardization Organizations (ESOs), CEN, CENELEC or ETSI; saw as capable in the district of deliberate particular systematization concerning the EU Regulation 1025/2012. Regardless of the way that they oversee different fields of development, CEN, CENELEC, and ETSI work together in different domains of standard interest, for instance, the mechanical assembly zone or information and correspondence advancements (ICTs). They furthermore share essential procedures on issues where there is basic comprehension. An EN (European Standard) "passes

on with it the promise to be completed at national level by being given the status of a national standard and by withdrawal of any conflicting national standard". As needs be, an European Standard (EN) normally transforms into a national standard in each of the 34 CEN-CENELEC part countries.

Models are deliberate which infers that there is no customized authentic responsibility to apply them. Nevertheless, laws and rules may imply standards and even make consistence with them mandatory.

• The EN 50082 standard for EMC obstruction necessities applies to electrical and electronic contraption proposed for use in the private, business and light-current condition, as depicted in Clause 5, for which no dedicated thing or thing family invulnerability standard exists.

• EN 45502 decides essentials that are generally material to ACTIVE IMPLANTABLE MEDICAL DEVICES.

• EN 50191 is connected to giving affirmation against electric daze. The standard areas unequivocally the erection and movement of electrical test foundations in the workplace.

• The EN 50082-2 standard for EMC immunity necessities applies to electrical and electronic gadget expected for use in the mechanical condition, as depicted in Clause 5, for which no dedicated thing or thing family opposition standard exists.

• EN 45502 decides necessities that are regularly material to dynamic implantable therapeutic devise.

“STUDY ON TEST REQUIREMENTS OF BUYER FOR JACKET GARMENTS”

CHAPTER-3 EXPERIMENTAL DETAILS

3.1 DIMENSIONAL STABILITY TO WASHING

(SHRINKAGE) TEST

FOR FABRICS AND GARMENTS

ISO 3759/ ISO 6330/ ISO 5077

EQUIPMENT:

1Template.

2.Marker pen (Textile marker pen).

3.Calibrate the tape measure.

4.Calibrated steel rules of the appropriate length graduated in cm &mm.

5.Washing machine.

6.Domestic tumble dryer.

7.Domestic steam iron.

8.Detergent.

Scope & Principle:

To determine the dimensional amendment of fabrics/ clothes once subjected to associate applicable combination of such that laundry and drying procedures.

Test Method:

ISO 3759/ ISO 6330/ ISO 5077

This check technique is meant for the determination of dimensional amendment in plain-woven & knit garments/ materials, when subjected to washing are measured using pair of bench marks applied to the fabric before washing.

Photo of Template and scale:

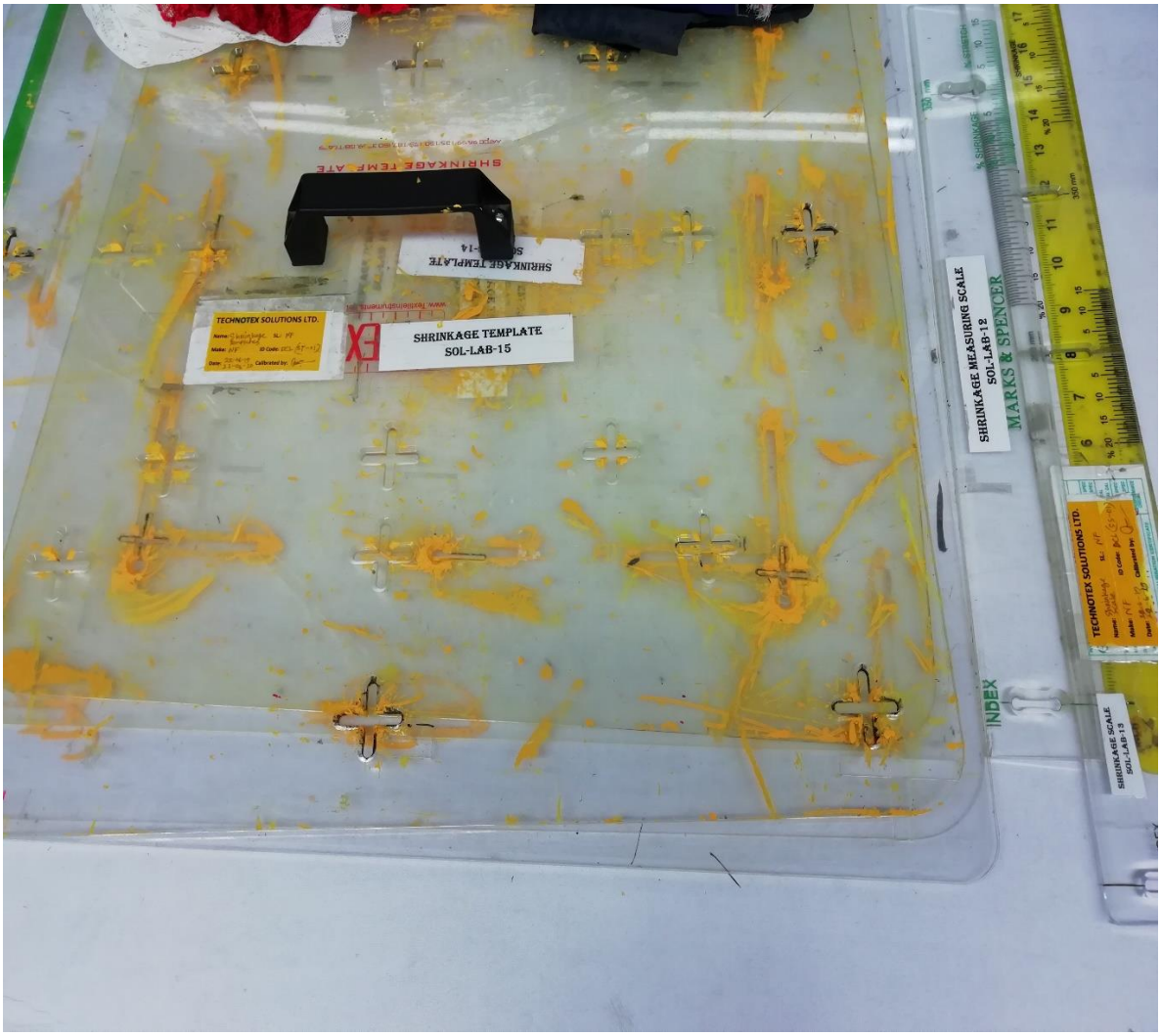


Figure 1: Shrinkage Template.

Specimen Preparation Fabrics:

1. Minimum size for a stability square is 50 x 50 cm. Testing on smaller pieces is not acceptable.
2. Lay the fabric relax for four hours on bench in an ambient conditions so that will be tension free.
3. Do not use fabric within 5cm of the selvedge.
4. Place the template on the fabric with the side of template parallel to length (warp) direction.

5. Mark about three width and length marks in pairs 35 cm apart, (see additional notes below for different fabrics types). Draw around the edge of template, do not round off the corners.
6. Draw arrow outside the measurement area, to denote the length (warp) direction prior to cutting from main piece.

Garment/ Product Wash Test:

The minimum size for a stability sq. is fifty x fifty cm. Testing on smaller pieces is not acceptable. Lay the material relax for four hours on a bench in close conditions in order that is sleek and tension free. Do not use the material inside 5cm of the selvedge .Place the template on the fabric with the side of template parallel to the length (warp) direction. Mark the three width and length marks in pairs 35 cm apart, (see additional notes below for different fabrics types). Draw around the edge of the template, do not round off the corners. Draw associate arrow outside the measure space, to denote the length (warp) direction before cutting from the most piece.

Dimensional stability to washing (Shrinkage)

Quality standards:

For woven(general)	Length: ±3% Width:±3%
For knit(general)	Length: ±5% Width:±5%

Table No 2: Quality Standards for the Dimensional Stability Test.

3.2 Dimensional Change of Fabrics after Home Laundering

AATCC Test Method 135

1.Purpose and Scope:

This check methodology is meant for the determination of dimensional changes of materials once subjected to home lavation procedures utilized by shoppers.Four laundry temperatures, 3 agitation cycles, 2 rinse temperatures and 4 drying procedures cowl the common home care choices obtainable to shoppers victimisation current lavation machines.

2.Principle:

The dimensional changes of cloth specimens subjected to home lavation care area unit measured victimisation pairs of benchmarks applied to the material before lavation.

3. Terminology:

Dimensional change- a generic term for changes in length or width of a fabric specimen subjected to specified conditions.

The modification is sometimes expressed as a proportion of the initial dimension of the specimen.Growth- a dimensional modification leading to a rise of length or dimension of a specimen.

Laundering- a process intended to remove soils and /or stains by treatment (washing) with an aqueous detergent solution and normally including rinsing, extraction and drying.

Shrinkage- a dimensional modification leading to a decrease within the length or dimension of a specimen.

4.Safety Precautions:

- Good laboratory practices should be followed. Wear safety glasses in all laboratory areas.
- The 1993 AATCC standard Reference Detergent may cause irritation.
- Care ought to be taken to forestall exposure to skin and eyes.
- Manufacturer's safety recommendations ought to be followed once in operation laboratory testing instrumentation.

5. Apparatus and Materials:

- Automatic Washing Machine.
- Automatic tumble dryer.
- Drying racks.
- 1993 AATCC Standard Reference Detergent.
- Ballast of 920x 920 mm hemmed pieces of bleached plain sheet.
- Indelible ink marking pen.
- Measuring devices.
- Tape template marked directly in percent dimensional change to 0.5%.
- Digital Imaging system.
- Scale with 5.0 kg capacity.

6. Sampling and Preparation:

- One representative specimen of each sample to be tested is required.
- materials that ar distorted in their unlaundered state thanks to faulty finishing could provide deceptive dimensional modification results once laundered by any procedure ought to be taken out.
- Avoid use of the sample space inside one-tenth of the sample dimension.

Measurement:

- After conditioning, lay each test specimen without tension on a flat smooth, horizontal surface. Measure and record the distance between each pair of benchmarks to the nearest millimeter, eighth or tenth of an inch. This is measurement B. If using a scale calibrated in percent dimensional change, measure each benchmark to nearest 0.5% or smallest increment on the scale and record the percent dimensional change directly.
- The wrinkles in most fabrics flatten sufficiently under pressure of a measuring instrument at the time of measurement not to cause measurement bias.

Calculation and Interpretation:

Calculation

1. If measurements were were made directly in percent dimensional change, average the measurements in each direction made on the specimens after the first, third , or other specified number of washing and drying cycles. Calculate length and beadth averages separately to nearest 0.1%.
2. If measurements were were made to the nearest millimeter or eight or tenth of an inch, calculate dimensional change after the first and third or other specified washing and drying cycle as follows:

Average% DC = 100(B-A)/A

Where:

DC= Average dimensional chenge

A= Average original dimension

B= Average dimension after laundering

Both the average original and average final dimensions are the original measurement results in a negative dimensional change which is shrinkage. A final measurement larger then the original measurement results in a positive dimensional change which is growth.

Iterpretation:

1. If the dimensional change after one washing, drying and if used, hand ironing cycle as calculated in 1 exceeds a specification previously agreed on, continue test procedures.
2. If the dimensional change after one washing, drying and if used, hand ironing cycle as calculated in 1 exceeds a specification previously agreed on, terminate the test.

Photo of home laundry and measurement scale:

Figure 2: Steam Iron & Measurement Scale.

Report:

Report for each sample tested.

(a) Dimensional change of length and width, separately , to the nearwst 0.1% with a minus sign (-) for shrinkage or a plus (+) sign for growth.

(b) Washing procedure (include type of washing , cycle and temperature) and drying procedure (include type of drying , cycle and temperature).

(c) Size of specimens and benchmarks.

(d) Size of load; i.e. 1.8 kg (4 lb) or 3.6 kg (8 lb).

(e) Number of complete washing and drying cycles.

(f) If fabrics were distorted or wrinkled in their original state.

(g) If fabrics were hand ironed.

(h) If fabric was restored and restoration technique

3.3 Color Fastness To Washing Test

Method ISO 105 C06

Introduction:

Color avoirdupois to laundry means that, A specimen of the textile, involved with one or 2 nominative adjacent materials, is automatically agitated underneath delineate conditions of your time and temperature in a soap solution, then rinsed and dried.The modification in color of the specimen and therefore the staining of the adjacent cloth square measure assessed with the gray scales.Shading quickness to washing implies, An example of the material, in contact with a couple of determined nearby textures, is precisely fomented under depicted states of time and temperature in a cleanser arrangement, at that point flushed and dried. The adjustment in shade of the example and the recoloring of the nearby texture are surveyed with the dark scales.

Equipment:

- Multifiber adjacent fabric,type DW(ISO 105-F10)
- Length of the box with light source D65
- Grey scale for measuring change in colour(ISO 105-A02)
- Gray scale for measuring stain (ISO 105-A03)
- Rotawash
- Stainless still wash
- Thermometer
- Balance of maximum permissible erroe;0.01 gm

Recipe:

- Sodium perborate…….1 gm/litre
- ECE phosphate…….4 gm/litre

Sample preparation:

- Sample fabric……10cm*4cm
- Multi fiber fabric……10cm*4cm

Test Specimen:

- One specimen for each color material.
- If the end product has component like bindings,laces etc in qualities other than the base fabric or parts in different color attach all component to sample.

Working procedure:

Collecting the sample from bulk and so acquisition for 04.30 to 06 hours

↓

Making a specimen of 04 cm*10 cm in size.

↓

Sewing the specimen with multi-fibre cloth of same size at one corner.

↓

Making the solution of 4gm/litre ECE detergent & 1 gm/litre sodium perborate, (If required SKFL use 0.15 gm/litre TAED).

↓

Putting the specimen with multi-fibre fabric into the solution in Rotawash m/c

Prog.: C2S Temp.: 60OC/ 40OC Time: thirty min Still ball: twenty five pcs

↓

Rinsing with hot water respectively.

↓

Squeezing with cold water of the sample is finished (Hand Wash).

↓

Then drying is finished at a temperature within the air not extraordinary 60OC

↓

The stitching is then broken out except on one of the shorter end.

↓

Measuring the staining and color change by grey scale & make a test report.

For ISO 105 C06 A2S:

1. Total solution (changeable) ……150 ml
2. Stainless Still Ball……..10 (for hitting)
3. Time……40 min
4. Temperature……40 degree celcious

Everything is same.

For ISO 105 C06 B2S:

1. Total solution (changeable) ……150 ml
2. Stainless Still Ball……..10 (for hitting)
3. Time…….40 min

Photos of Report:

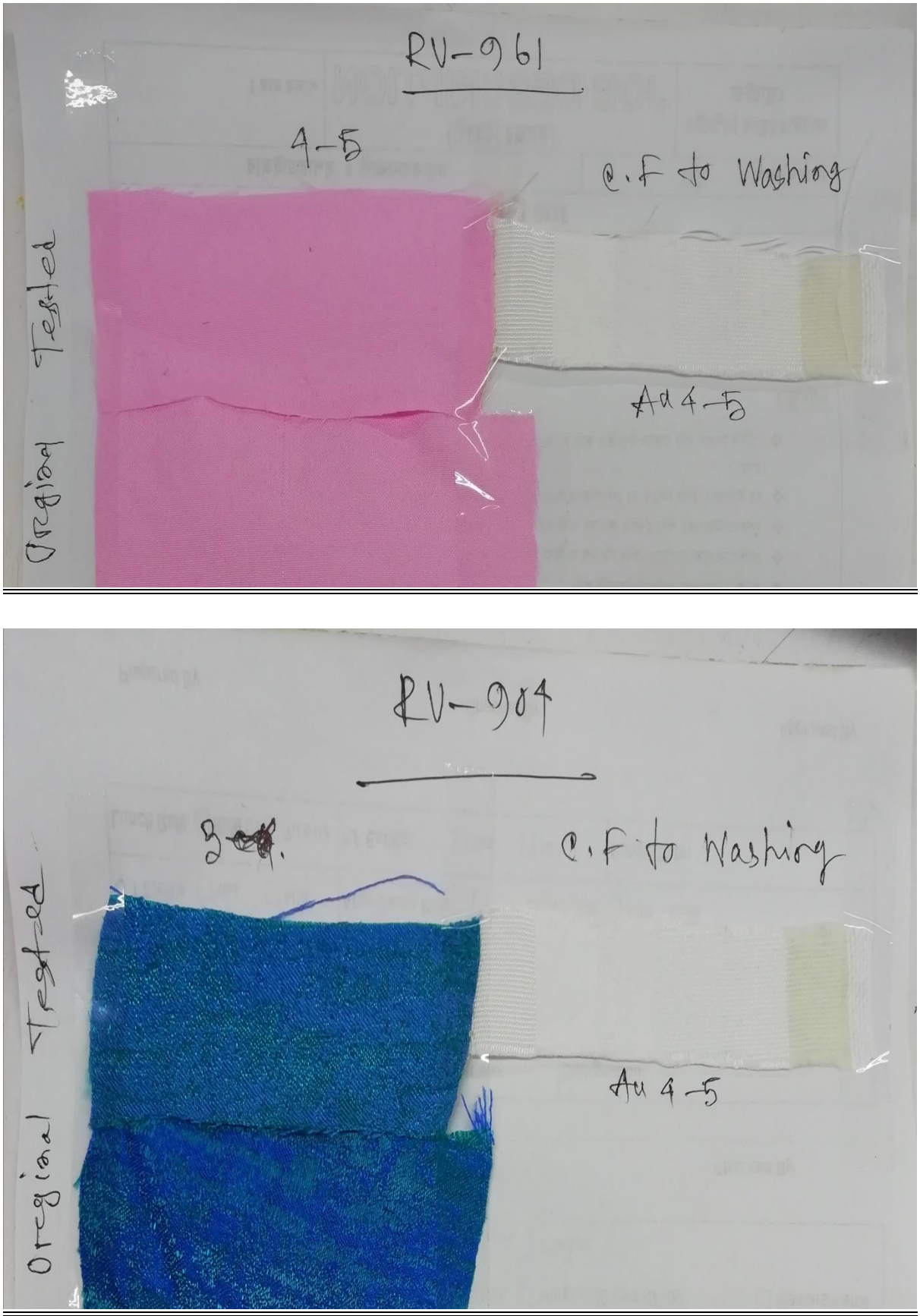


Figure No 3: Color Fastness to Washing

Quality standard and requirements:

Color staining	Generally 3 to 4 (ok)
Cross staining	Generally 4to 5 (ok)

Table no 3: Quality Standards for the Color Fastness to Washing Test.

- If we find staining result 3,2/3 then result will not okay.

Exceptions:

- If 100% polyester it's Accepted.
- If Polyester blend >30% polyester it's Accepted.

3.4 Color fastness To Rubbing Test

(Dry rubbing And Wet Rubbing)

ISO 105x12

Introduction:

ISO 105-X12:2016 specifies a way for determinant the resistance of the color of textiles of all types, together with textile floor coverings and alternative pile materials, to rubbing off and marking other materials. The method is applicable to textiles made up of all types of fibres within the style of yarn or material, together with textile floor coverings, whether or not colored or written. Two tests is also created, one with a dry rubbing artifact and one with a wet rubbing artifact. In ISO-105-X12 the wet pickup of the rubbing textile is 100% .While in AATCC-08 the wet Pickup of the rubbing textile is sixty fifth. We check rubbing by Dry and we tend tot strategies.

In wet rubbing we wet the rubbing cloth according to test method and give rating by comparing the Staining with the gray scale. Similarly for dry rubbing we tend to check the rubbing with dry rubbing textile and compare the staining With grey scale for ratings. Color Fastness to rubbing is a main test which is always needed for each colored material either it's written or bleached. If the color fastness to rubbing is sweet then its alternative properties like laundry fastness and sturdiness etc. improves mechanically as a result of the rubbing could be a methodology to envision the fixation of the color on the fabric.

Colorfastness:

- Clothing is imperviable if its colors and dyes don't bleed or run from the consumer goods.
- Colorfastness is often tested by clothing manufacturers.

- Color fastness could be a term utilized in the coloring of textile materials, that means resistance of the material's color to weakening or running.
- The term is typically utilized in the context of garments.
- The first noted use of the word imperviable was in 1916.

Bleeding:

The running of color form wet dyed material onto a material next to it or the running of colors together. Fabric bleeding occurs when damp fabrics lose their dyes; you'll likely notice that bleeding colors have stained the wash water. Although harm is most typically seen once laundry vividly colored materials, notably reds and purples, it will occur with alternative colors of materials also. The undesirable loss of dye when the textile is immersed in water or across into an adjacent area or when in contact with another substrate.

Equipments:

1. Crockmeter
2. Cotton rubbing cloth
3. Light box with light source
4. Grey scale for assessing staining
5. Distilled water
6. Pipette

Sample preparation:

- A 5x5cm sample is taken and stiched to a mono-fibre having 40s x 40s, 80 x 70 of cotton fiber.
- The GSM of mono-fibre used is 115-120gm.

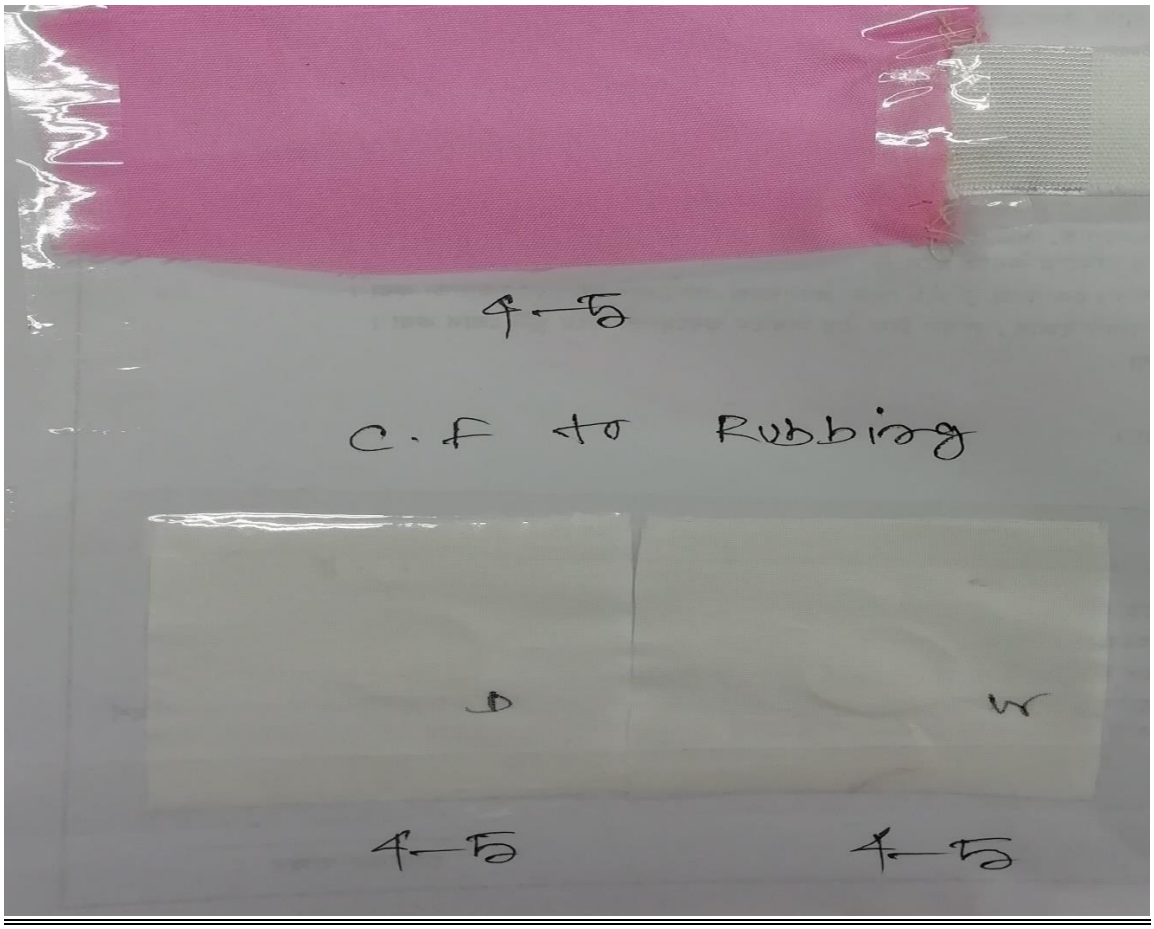
Procedure for dry method:

- For dry technique each ISO and AATCC technique ar same.
- The fabric is to the flat bed.
- Swatch is hooked up to the rubbing finger and inside ten seconds, 10 times stroke is given.

Procedure for wet method:

- In wet technique piece of cloth is swayback in H2O having zero hardness and TDS with pH=5.5-7.5.
- For ISO method pick up% should be 95-100% and for AATCC method pick up% should be 65%.

Photos of report:



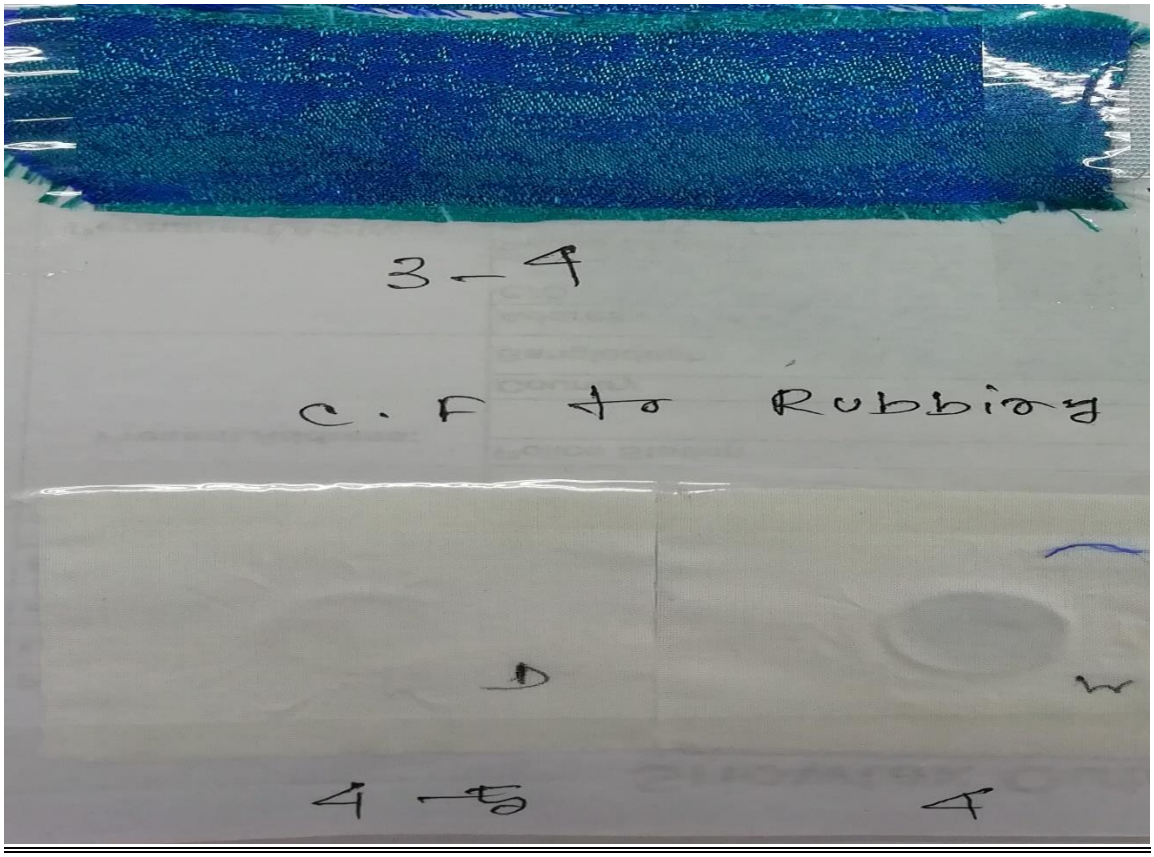


Figure No 4: Color Fastness to Rubbing.

Assessment of rubbing fastness:

- Ratings are assigned for the staining of the cotton cloths with the grey scale.
- In each warp-way and weft-way directions the fabric is tested for dry test and wet test.
- The scale having 9 parts.
- The variations in color between the chips of every combine ar given a rating.

Results:

- Keep rubbing cloth to light box (D 65 light) angle approx. 45 degree.
- The staining using the gray scale.Three unstained rubbing cloth should be placed.
- Very carely remove loose fibers on surface of rurubbing.
- The result shows in the gray scale rating.

Quality standard and requirements:

CF to dry rubbing	Textile Apparel	Generally 3-4
CF to dry Rubbing	Placement Print on front side of product	Generally 3

Table no 4: Quality Standards for the Color Fastness to Dry Rubbing Test.

CF to wet Rubbing	Textile Apparel	Generally 2-3
CF to wet Rubbing	Swimwear, Functional wear	Accepted 3

Table no 5: Quality Standards for the Color Fastness to Wet Rubbing Test.

3.5 Color Fastness to crocking

Testing Method AATCC 8-2007

Purpose and scope:

To decide the level of shading move from a test example to different surfaces by both wet and dry scouring. Client disappointment due to poor colorfastness is one of the primary driver of return of softline stock. As washing, cleaning, pressing, and so on., may influence the level of shading move from a material, the test might be done previously, after, or when any such treatment.

Principle:

Test example is affixed to crockmeter base and scoured with white test material under controlled conditions. This scouring movement reenacts the activity of the human finger and lower arm. Evaluation of shading move is finished utilizing AATCC Chromatic Transference Scale and a rating is allocated.

Contraption and materials:

- AATCC Crockmeter.
- Test Cloth, cut in 5 cm (2 in.) squares.
- AATCC Crockmeter Transference Scale.

Photo of crockmeter:

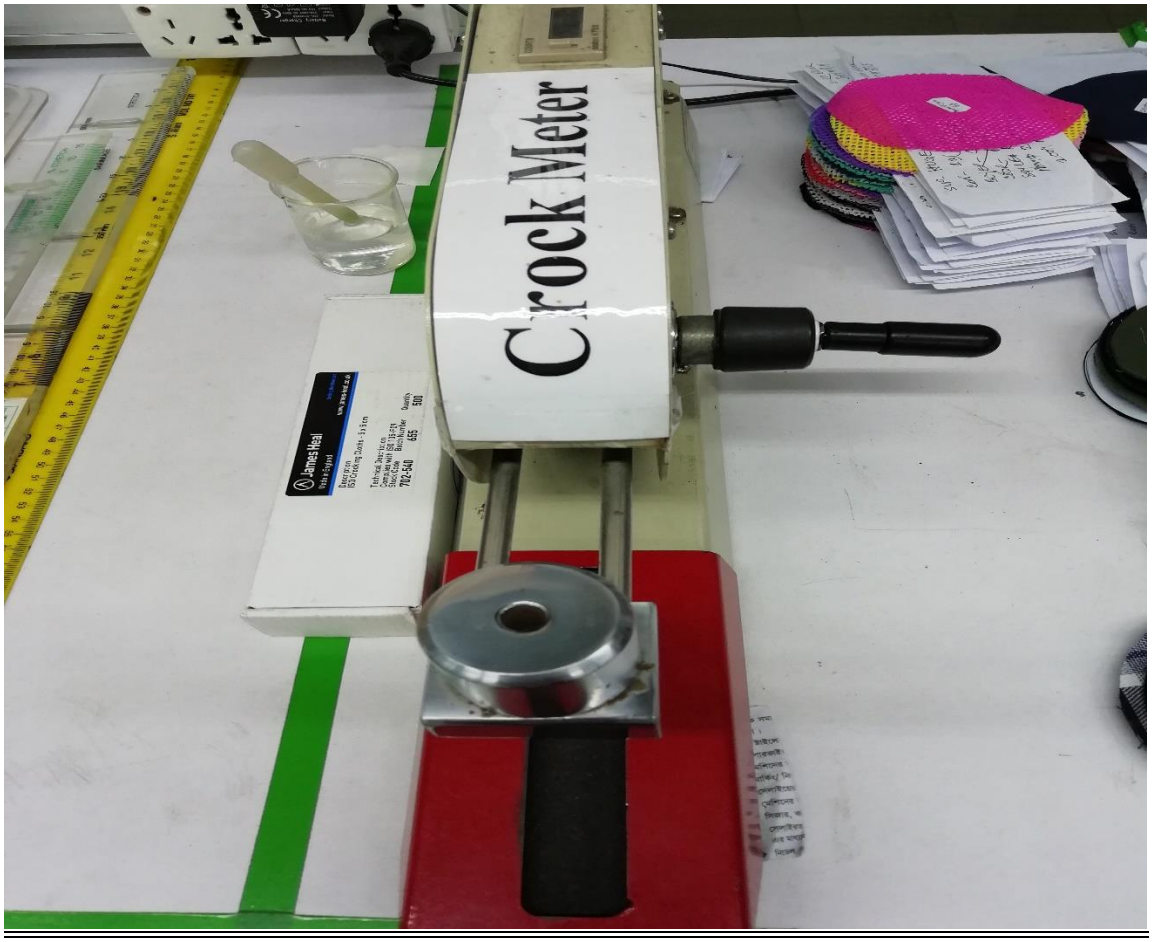


Figure No 5: Crock Meter.

Safety Precaution:

It is the clients duty to utilize sheltered and appropriate procedures in taking care of materials in this test technique. Makers MUST be counseled for explicit subtleties, for example, material wellbeing information sheets and different producers proposals. All OSHA norms and rules should likewise be counseled and pursued. Good research facility practices ought to be pursued. Wear security glasses in all research center regions.

Confirmation:

- Verification keeps an eye on the activity of the test and the device ought to be made routinely and the outcomes kept in a log. The accompanying perceptions and remedial

activities are critical to maintain a strategic distance from off base test outcomes where strange vessel pictures can result and impact the rating procedure.Use an in-house poor crocking texture as an adjustment example and direct three dry vessel tests.

- A poor round picture with uneven color get may show the crocking finger needs reemerging. A twofold, extended picture may show a free clasp.An extended and streaked container picture might be because of mounting the vessel square slantingly.Scuff imprints to the sides of the example show the circles to the wire cuts are situated downwards and are not sufficiently high to avert scouring the example surface.streak in the focal point of the vessel material picture and toward scouring may mean the highest point of the metal base is twisted and not level. This will require a prop supplement to settle the analyzer base.

- If example holders are utilized, place the holder over the example on the analyzer base. Move the crocking finger on the crocking arm to the most forward position and see whether it hits within edge of the holder. In the event that this happens, move the holder marginally forward for all tests. Without rectification, this issue will cause a dim region on one side of the crocking picture.

- Confirm the wet get procedures.Replace the grating paper on the analyzer base on the off chance that it is smooth to the touch in the crocking region contrasted with the contiguous region, or if slippage of the example is seen.

- In routine testing, watch if numerous streaks are on the crocking picture. Position example typically with the long measurement diagonal to the twist and filling. On the off chance that the heading of scouring falls along a twill line or surface example, and so on., at that point streaks may happen. In the event that they do happen, marginally change the plot for testing.

Test Specimens:

- Two examples are utilized, one each for the dry and the wet tests.Additional examples might be utilized to build the exactness of the normal.Cut examples at any rate 50 × 130 mm and position for testing ideally with the long measurement diagonal to twist and filling or ribs and courses.
- Larger or full width lab tests might be utilized without cutting individual examples, when different tests are required and when utilizing for generation testing Yarns. Sew a bit of texture at any rate 50 × 130 mm, or wind yarn firmly on an appropriate structure in any event 50 × 130 mm with the yarn running the long way; or generally extended.

Conditioning:

Prior to testing, precondition and condition the test examples and the container squares for dry vessel testing as coordinated in ASTM D 1776, Conditioning Textiles for Testing. Condition every example for in any event 4 h in an air of 21 – 1C and 65 – 2% RH by laying each test example or container square independently on a screen or punctured rack of molding rack.

Procedure:

Dry Crocking Test:

- Spot the example on base of crockmeter with its long measurement toward scouring.
- Mount a square of white test material over finish of finger on sliding arm and secure it with winding wire cut. Position the clasp with circles upwards. In the event that the circles point descending, they can haul against the example.
- Lower finger on example and rub by making 10 complete turns of the wrench - one turn for each second.
- Remove test fabric and assess as clarified.

Wet Crocking Test:

- Completely wet test fabric squares in refined water.
- Crush each test fabric square in turn between blotching papers under 454 grams (l lb.) for one second.
- Using the wet test material squares, pursue steps.

Report:

- State whether dry or wet crocking test.
- Report the evaluation.
- State whether Gray Scale for Staining or Chromatic Transference Scale was utilized for assessing recoloring.
- If any pretreatment or after treatment was given to any examples demonstrate technique for treatment.

3.6 Color fastness To Water

ISO-105-E01

Introduction:

Shading quickness to water is intended to gauge the protection from water of colored, printed, or generally hued material yarns and fabrics. The test technique by which this test is completed is AATCC 107-1991 or ISO 105 E01. This strategy is to survey the level of cross recoloring which may happen when articles of clothing are left in contact when moist. The test gauges the protection from water of any shaded materials.

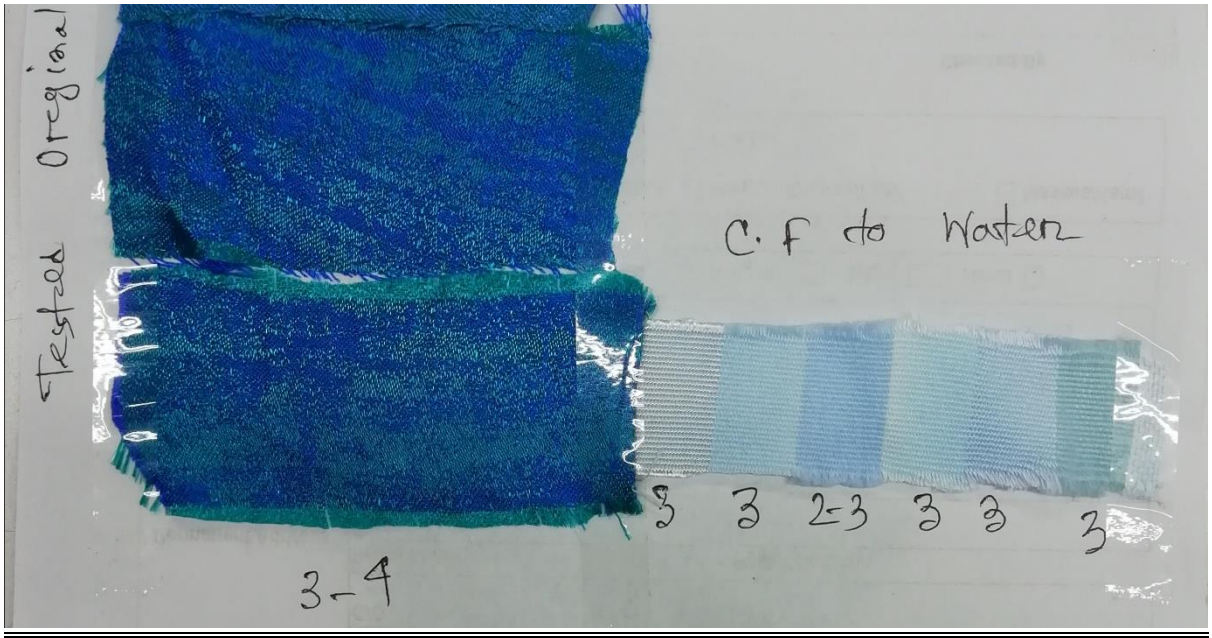
Mechanical assembly:

- Perspiration Tester
- Broiler
- Multi fiber texture
- Dark scale
- Shading coordinating bureau
- Glass plate or Acrylic tar plates
- Weight 12.5 kPa or 5kg weight
- Glass measuring glass
- Blending pole

Reagent:

Refined water or de-ionized water is utilized in this test technique since characteristic (faucet) water is variable in synthesis.

Photos:



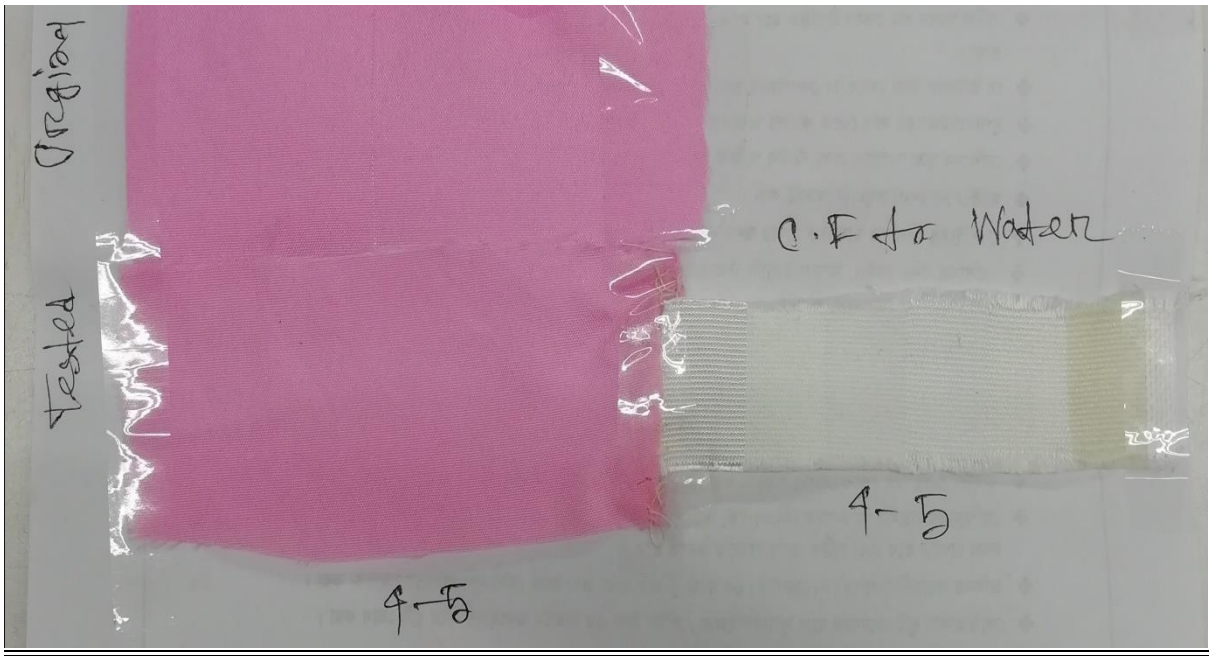


Figure No 6: Color Fastness to Water.

Test Preparation:

- Cut the example and multi-fiber at 10×4cm and sewn together. This is the composite test.

Working Procedure:

Wet in refined water at room temperature and it will suck water.

↓

Spot it in acrylic pitch plates and put the weight on to the plates.

↓

Keep it in broiler and keep the temperature at 37± 2°C for 4hrs.

↓

Open the example and dry it noticeable all around hot surpassing 60°C.

↓

Change in shading is evaluated with the assistance of Gray Scale.

Ruselts;

- Assess cross staining change in color and color staining in the test method.

Quality standard and requirements:

Color Fastness to Water	ISO-105-E01	Color staining: 3-4 Change in color:4 Cross staining:4-5

Table no 6: Quality Standards for Color Fastness to Water test.

3.7 Color fastness To Perspiration

ISO-105-E04

Equipment:

1. Tester for Perspiration.
2. Oven, Maintained at 37±2°c.
3. Multifiber fabric.
4. Grey scale.
5. Chamber for color matching.
6. Alkaline and Acidic solution
7. Glass plat.
8. Weight.

Purpose and Scope :

This method is used to Intende the resistance of the colour of textile of all kinds and in all forms to perspiration.

Preparation of Solution for Perspiration Test:

1. Solution freshly prepared, containing 0.5g 1-histidine mono-hydrochloride mono-hydrate, 5g sodium chloride, and 2.5g disodium hydrogen ortho phosphate per litre brought to PH 8.0 with 0.1N sodium hydroxide.
2. Solution freshly prepared, containing 0.5g 1-histidine mono-hydrochloride mono-hydrate, 5g sodium chloride, and 2.2g sodium dihydrogen ortho phosphate per litre brought to PH 5.5 with 0.1N sodium hydroxide.

3. Two undyed cloths for each specimen each 6×6cm of the same kind of fibre as the sample. Place the specimen between the two pieces of white cloth and sew along one side to form a composite sample.

Specimen preparation:

- A 10x4 cm sample size is taken. One for alkaline & one for acid. Then stitched with a 10x4 cm multifibre from all sides.
- Multifibre adjacent of six fibres. Those are acetate, cotton, nylon, polyester, acrylic and wool.

Solution Preparation:

Acid	Alkaline
M:L= 1:50	M:L= 1:50
pH= 5.5±0.2	pH= 8.0±0.2
0.5g/l L-Hysidinemonohydrochloride monohydrate ($C_6H_9O_2N_3.HCL.H_2O$)	0.5g/l L-Hysidinemonohydrochloride monohydrate ($C_6H_9O_2N_3.HCL.H_2O$)
5g/l of Sodium Chloride (NaCL)	5g/l of Sodium Chloride (NaCL)
2.2g/l of Sodium di Hydrogen orthophodphatedyhydrate ($NaH_2H_2PO_4.2H_2O$)	2.5g/l of Sodium di Hydrogen orthophodphatedyhydrate ($NaH_2H_2PO_4.2H_2O$)

Table no 7: Solution preparation for Acid & Alkaline.

Photos for perspiration:

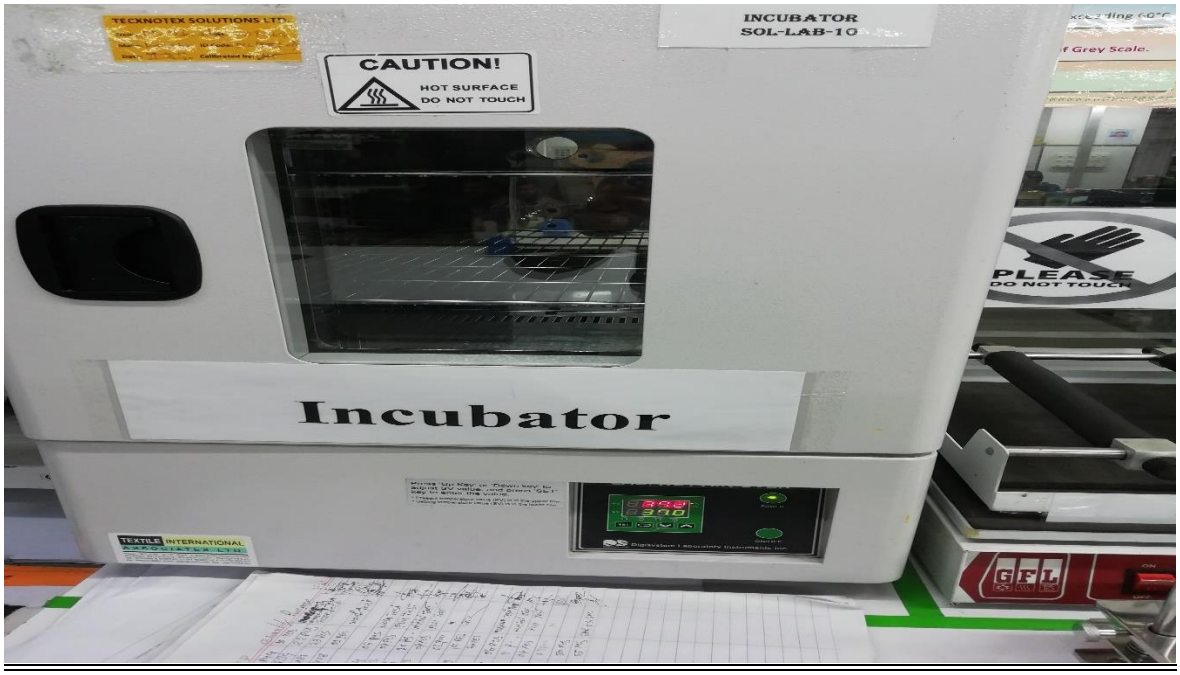


Figure No 7: Incubator.

Figure No 8: Funnels.

Working Procedure :

Thoroughly wet one of the composite sample solution of pH 8.0 at the liquor ratio of 20:1 and allow it to remain in this solution at room temperature for 30min.place the composite sample between two glasses plates measuring about 7.5×6.5cm under a force of about 4.5kg.

1. Treat the other sample in the same way with the solution at pH 5.5.
2. Place the samples in the oven for 4 hour at 37±2C˚ in posit in upright position.
3. Take out the sample from the oven. Then open out each sample and dry them apart in air at the temperature not exceeding 60C˚.
4. Assess the change in colour of the specimen and the staining of the white cloth with the grey scale.

3.8 COLOR FASTNESS TO SALIVA

Testing Method GB/T 18886

Purpose and Scope:

Determine the resistance of the color of textiles concerning impact of saliva according to GB/T 18886. This test usually done for baby or infant garments only. All baby's products (both solid and multicolored) such as labels, badges and drawstrings need to be tested. If the product is multi colored, make sure all colors are included in the sample to be tested.

Equipment:

- Perspirometer.
- 11 acrylic-resin/ glass plates.
- Oven, (37±2)ºC
- Light box with light source (D65).
- Grey scale for measuring change in color (ISO 105-A02).
- Grey scale for measuring staining (ISO 105-A03).
- Multifibre fabric, type DW (ISO 105-F10).
- Chemicals for the test solution.
- Distilled water
- Scale.

Solution Preparation:

Saliva solution prepared, containing per litre distilled water.

- 3.0g Lactic acid (CH3-CH(OH)-COOH).
- 0.2g Carbamide (H2N-CO-NH2).
- 4.5g Sodium Chloride (NaCl).

- 0.3g Potassium Chloride (KCl).
- 0.3g Sodium Sulphate (Na2SO4).
- 0.4g Ammonium Chloride (NH4Cl).

Gray Scale:

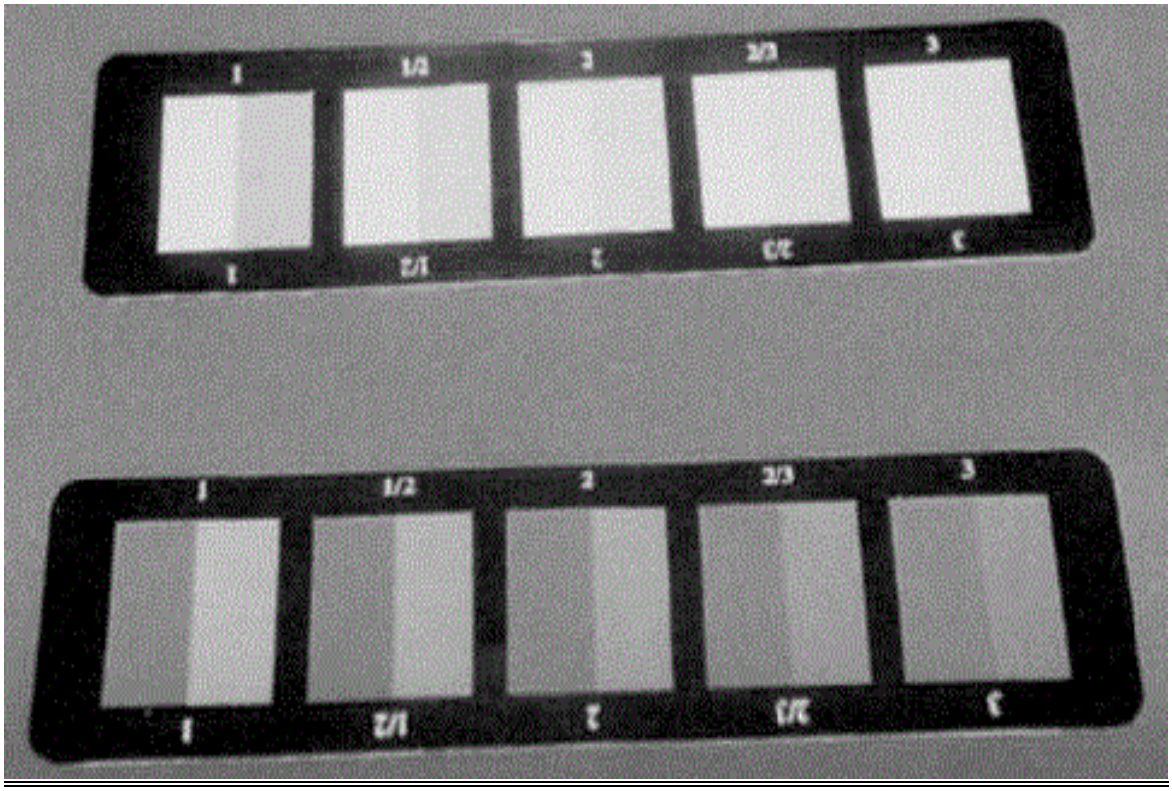


Figure No 9: Grey Scale.

Preparation of test sample:

1. Two samples for each color (4cm x 10cm).
2. All kind of details such as labels, badges and drawstrings also need to be tested. If the product is multicolored, make sure all colors will be tested. More test samples could be needed if the product is printed, striped or includes different colors.
3. If details are in contrast color these need to be tested. Both against multifibre adjacent fabric and the fabric of which the detail is attached. If not in contrast color, those are tested only against multifibre adjacent fabric

Working procedure:

1. Cut of the sample measuring 4cm x 10cm.
2. Attachment of a sample to multifibre adjacent fabric of the same size, by sewing along one of the shorter (4 cm) sides. The multifibre adjacent fabric should be next to the face of the side of the fabric.
3. Switch on the oven and preheat pre-heat perspirometer & acrylic plates for 30 min.
4. Place the specimens in a dish with 100 ml of the sweat solutions and thoroughly with the help of glass rod/acrylic plate to wet specimen and multifibre for 30 min.
5. Pour off the excess solutions from specimen by using wringer /glass.
6. Place each specimen between two glass or acrylic plates and place them in the perspirometer. Each perspirometer can hold maximum 10 samples. If less, all 11 plates still have to be placed in the perspirometer. Put a pressure of 12.5 kPa on the perspirometer using the load, lock it and then remove the load. 12.5 kpa pressures must be evenly distributed on the sample surface. Plates must be parallel to each other, inclination of plates due to thick and thin (uneven sample surface) surface must be avoided.

7. Place the perspirometer in the oven for 4 hours at (37±2) °C in upright position.

8. Take out the specimens from the oven and perspirometer. Open out each specimen and dry them in room temperature, not exceeding 60°C, with the specimen only being in contact at the point of the stitching.

Evaluation:

Measure the staining on both the adjacent fabric with the grey scales. If multifibre is used, Measure the fibre which is most stained. Also measure change in color and cross staining for all sample.

- **Fast to saliva = No color staining.**
- **Non fast to saliva = color staining.**

3.9 Twisting (spirality) test

ISO-16322-2

Introduction:

This piece of ISO 16322 indicates three methodology (corner to corner checking, reversed stamping & mock-article of clothing checking) to quantify the spirality or torque of woven and weaved textures subsequent to washing. The outcomes got from various methods may not be practically identical. This piece of ISO 16322 isn't expected to gauge the spirality of textures as produced, but instead the spirality in the wake of washing. Some texture developments, for example, denim, can have spirality purposefully presented during assembling. Textures made on round weaving machines can have innate nonverticality of ridge arrangement.

Terms and definitions:

For the reasons for this record, the accompanying terms and definitions apply.

- Fabric condition, wherein filling yarns or weaved courses are rakishly uprooted from a line opposite to the edge or side of a texture or piece of clothing.

Principle:

Test examples are cut, arranged, checked, and washed by determined methods. Spirality is estimated in millimeters, level of a checked separation, or point of nonverticality.

Apparatus:

- Automatic clothes washer, as portrayed in ISO 6330, the sort settled upon between parties.
- Automatic drying machine, as depicted in ISO 6330, and settled upon between parties.

- Calibrated ruler, in any event 500 mm long, with 1 mm graduated imprints.
- Conditioning rack.
- Sewing machine.
- Inverted T-square, in any event 500 mm long.
- Marking format, of measurements (380) mm, (530) mm or (680) mm.

Conditioning:

Condition the texture of clothing in the standard air for testing as per ISO 139, for at least 4 hour before cutting, sewing or estimating the texture examples.

Procedure:

Get ready three examples for stamping from fitting areas over a texture test. Cut three 380 mm single-layer texture examples lined up with the selvedge or rounded overlay line in chosen areas with various length and width yarns.

Diagonal checking system:

Smudge two sets of 250 mm bench mark sets parallel to the length, and two sets of 250 mm bench mark sets opposite to the width, to make a square.

Draw a line through every one of the four arrangements of adjecent bench marks to signify the square framed.

3.10 pH Test

ISO-3071-1980, & EN 1413:1998

Scope:

This International Standard indicates a technique for deciding the pH of the watery concentrate of materials. The technique is appropriate to materials in any structure.

Normative references:

The accompanying referenced records are key for the use of this archive. For dated references, just the version refered to applies. For undated references, the most recent release of the referenced record (counting any alterations) applies. Water for systematic lab use Specification and test strategies.

Terms and definitions:

For the motivations behind this record, the accompanying terms and definitions apply.

Principle:

The pH-estimation of a fluid concentrate of a material is estimated electrometrically at room temperature by implies of a glass terminal.

Reagents:

All reagents utilized will be of perceived diagnostic evaluation.

- Distilled or deionized water, of at any rate grade 3 as characterized in ISO 3696, having a pH between 5,0 furthermore, 7,5.

The pH will be checked the first run through the water is utilized. On the off chance that it isn't inside the predefined run, the water will be redistilled utilizing artificially safe crystal. Corrosive or natural issue can be expelled by refining water from an answer of 1 g/l potassium permanganate and 4 g/l sodium hydroxide. Alkalinity (for example the nearness of alkali) can be expelled by refining the water from an answer of weaken sulfuric corrosive. In the event that the refined water is not review 3, bubble 100 ml of refined water in a container at a moderate rate for (10 ± 1) min and permit the secured container to cool to room temperature.

- Potassium chloride arrangement, 0.1 mol/l arranged utilizing refined or deionized water .
- Buffer arrangements, which might be set up as determined in Annex A, having a pH like that being decided, for alignment of the pH-meter before estimation. Cradle arrangements having a pH around 4, 7 or 9 are prescribed.

ISO 3071:1980

Photos For pH Test:

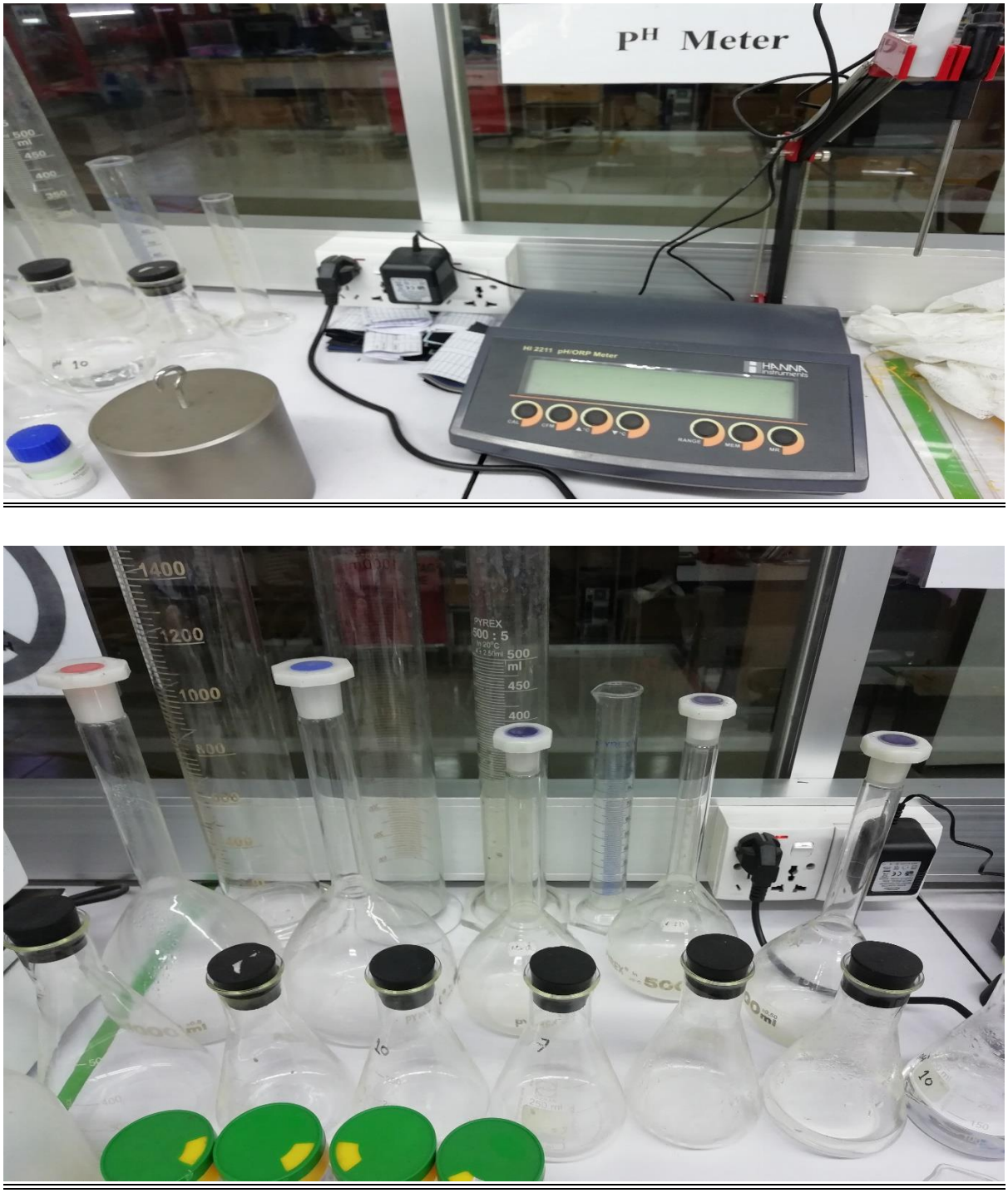


Figure No 10: pH meter & Funnels.

Figure No 11: Mechanical Shaker.

Apparatus:

- Distilled water.
- Buffer solution.

- Mechanical shaker, giving rotational or responding development adequate to get a prepared trade of fluid between the inside of the material and the arrangement utilized in setting up the concentrate. A back and forth development at a pace of 60 min or a rotational recurrence of 30 min has been discovered agreeable.
- Funnel.
- Measuring cylinder.
- Gloves.
- 3M potassium chloride.
- pH meter.
- Balance, exact to 0.01 g.
- volumetric jars with stopper.

Preparation of test tests:

- Take a lab test illustrative of the main part of the material and adequate to give all the test tests required. Cut the research center example into pieces having roughly 5 mm sides or of such a size as to permit the test tests to wet out quickly.
- To keep away from defilement, handle the material as meager as could be expected under the circumstances. Take from the research center example three test tests of (2.00 ± 0.05) g each.

Procedure:

- Preparation of the watery concentrate.
- Set up the concentrate in triplicate at room temperature.
- Spot each test and 100 ml of separating arrangement [either water or potassium chloride arrangement into a stoppered cup. Upset the flagon for a brief period by hand to guarantee that the material is appropriately wetted out, at that point shake it precisely for 2 hour ± 5 min.
- Record the temperature of the removing arrangement utilized.

Measurement of the pH of the fluid concentrate

Aline the pH-meter at the temperature of the concentrate to be estimated. Check the alignment of the pH-meter utilizing two support arrangements. Drench the anode a few times in a similar arrangement (water or KCl arrangement) used to set up the concentrate until the showed pH esteem balances out. Tap the principal extricate into a container, quickly drench the terminal to a profundity of at any rate 10 mm and mix delicately with a pole until the pH-esteem balances out (don't record the pH estimation of this arrangement).

Empty the second concentrate into another measuring utencil, quickly outpour the anode, without washing, in the measuring utencil to a profundity of at any rate 10 mm and permit to remain without mixing until the pH esteem balances out. Record this value.

Calculation:

On the off chance that the difference between the two pH-values, communicated to the closest 0.1 pH-units, is more noteworthy than 0.2, redoing the methodology with other test tests. At the point when two substantial estimations have been gotten, determine the mean value.

3.11 Nickel Test

EN 12471,EN 1811

Purpose:

A snappy screening technique dependent on the utilization of dimethylglyoxime, reasonable for the subjective assessment of nickel discharge. The outcome is demonstrative and gives rules when assessing articles to nickel discharge. Dimethylglyoxime responds with discharged nickel particles and gives a pink shading complex.

Equipment:

- Distilled water.
- Ethanol>95%.
- Dymethylglyoxime powder, logical evaluation.
- Ammonia arrangement.
- Funnel.
- Magnetic blending.
- Measuring chamber.
- Safety gloves.
- Cotton swabs
- Volumetric jar with plug.
- Balance.

Preparation of test Sample:

• Test all parts with skin contact independently.

• Test Metal parts without skin contact will not be tried.

• Test independently the piecing part on the test and the external part.

• For specs all parts with skin contact will be tried.

Rub straightforwardly on the example with the cotton swab inundated with the two arrangements on the metal part that have skin contact. Ensure the metal is perfect. Else it could be hard to pass judgment on the outcome.

Preparations Solutions:

•Dimethylglyoxime, 0.8% Gauge (8.0g±0.5)g of dimethylglyoxime into a 1000 ml cup with plug. Include ~900 ml ethanol (>95%) and place the jar on attractive blending until the dimethylglyoxime is fathomed. Include ethanol so the all out volume is actually 1000 ml.

• Ammonia arrangement, 10% (m/m) .Measure 420 ml of smelling salts arrangement (25%) and blend in with 500 ml refined water.

Mix and enable cooling to room temperature (if vital).

Include refined water so the absolute volume is actually 1000 ml.

The smelling salts and dimethylglyoxime arrangements are steady for a half year at a temperature underneath 25°C. After this time there is a hazard that the arrangements won't work effectively. In the event that conceivable it is ideal to keep the arrangements in a cooler.

Test Method:

1. Soak a cotton swab with two drops of every arrangement. It is significant that it is actually two drops of every arrangement and not pretty much. It doesn't make a difference which substance is included first, yet the two synthetic compounds will be blended on the cotton swab.

2. Rub very hard on the region to be tried for 30 seconds, not shorter and not longer. Utilize a clock that shows seconds. The presence of pink shading, from light pink to solid cerise shows nickel discharge. Different hues, green, dark, brown or blue demonstrates different metals or earth: in these cases the example is OK. Put two drops of every arrangement on a cotton swab. It doesn't make a difference which one you put on first, yet the two arrangements will combine on the swab. Rub very hard on the item for 30 seconds, not shorter or more.

Evaluation:

- On the off chance that the cotton swab doesn't turn pink it ought to be accounted for as "Posetive" (OK).
- In the event that the cotton swab turn pink it ought to be accounted for as " Negetive " (NOT OK).

Quality standard &requirements:

Nickel Test.	EN 12471, EN 1811	Pink color: Not OK (+) Doesn’t turn pink: OK (-)

Table no 8: Quality Standards for the Nickel Test.

3.12 Pull Force Test

EN 71-7

Depiction:

To decide the holding or breaking quality of prong-ring joined snap clasp onto pieces of clothing or toys, likewise as a Push Pull Tester applies for pressure and pliable testing of little samples(special connections are accessible).A lower texture clasp and power measure mounted on a stand, a hand wheel on the base of snap analyzer which permits fine control with helpful activity.

The snap segment is grasped by the Upper Snap Clamp and the piece of clothing is fixed to the lower Fabric Clamp. By turning the hand wheel, the administrator can apply a particular power and the holding power or the breaking quality can be recorded. The ability of Snap analyzer can be upgraded with clasps and embellishments for testing of different Snaps, Jean Buttons, Four Hole Buttons and Garments Accessories, for example, Zippers, Bows, Applique, Toggles, Hooks/Bars, and D-Rings, among others.Related testers(optional request)

The unit of a snap or other part might be classed as little parts; Whilst broken little parts may require sharp point and sharp edge testing. Accordingly, extra testing hardware might be prescribed, for example, Small Parts Cylinder, Sharp Point Tester, Sharp Edge Tester, Button Impact Tester, and so on.

Parameters:

1. Strain stand:TNG46A

2. Push and force meter:TNG46B Imada FB 30 kg

3. Concavity three-jaw button pinchers TNG46C

4. Convexity two-jaw button pinchers TNG46D

5. Long pinchers (6 inches) TNG46E

6. Push pole base texture apparatus

7. Three-jaw pinchers TNG46G

8. Plane tractable pinchers TNG46H

Photo of pull force testing m/c:

Figure No 12: Button Pull Force Test.

Report:

SNOWTEX OUTERWEAR LTD.

B-65/3, Lakuriapara, Dhulivita, Dhamrai, Dhaka-1350
Tel : +09611680680, Web : www.snowtex.org

Daily Pull Force Test Report

SOL-QA-SEW-PS-DPT-01	
Issue No. 01	Revision No. 03
Issue-09-09-19	Page 01 of 01
This is a control documents	

Buyer : TIMBARLAND
Style No. : A2IB4
Item Description : J.W.T
Type of Button/Item : SNAP-BUTTON
Date : 29.10.19

D-10

Failure Modes	
B	Button/Item Breakage
F	Fabric Breakage
T	Thread Breakage
N	No Detachment

Time	Button Mock-up Attachment	Achieved Strength	Failure Modes	Checked by	Varified by	Remarks
8:00-10:00 A.M						
10:00-12:00 P.M		1.5kg	N			Unlocking - 1.90 - 2.30 2.26kg
12:00-3:00 P.M						
3:00-5:00 P.M		1.5kg	N			2.10kg
5:00-7:00 P.M						

Figure No 13: Button pull Force Test Report.

Embellishments:

1. SANDOO Force Gauge FB-30K (300N, Resolution 2N, Accuracy +/ - 1%FS) - 1 Pc

2. Lower Fabric Clamp, Lever Armlocking - 1 Pc

3. Upper Stud Clamp - 1 Pc

4. Upper Snap Clamp - 1 Pc

5. Three Pronged Clamp - 1 Pc

6. Two dimensional Clamp with screw - 1 Pc

7. Lower Grasp Button Kit - 1 Pc

8. Long Nose Vise Grip - 1 Pc

9. Alignment: 15 lbs Calibration Weight-1 Pc

10. Security Goggles - 1 Pc

11. Elastic Ring - 5 Pcs

12. Alignment Certificate - 1 Pc

13. Activity Manual - 1 Pc

3.13 WATER REPELLENCY: SPRAY TEST

TESTING METHOD AATCC-35

Reason and Scope:

This test technique is worthy to any material texture, which could conceivably have been given a water-safe or water-repellent completion. It gauges the protection from the infiltration of water by effect, and along these lines can be utilized to foresee the likely downpour entrance obstruction of textures. It is particularly reasonable for estimating the infiltration opposition of piece of clothing textures. With the instrument, tests might be made at various powers of water effect to give a total in general image of the entrance opposition of a solitary texture or a blend of textures. The outcomes acquired with this test technique rely upon the water repellency of the filaments and yarns, and on the development of the texture.

Rule:

A test example is showered with water for 5 min under controlled conditions. The blotting surface is then decide the measure of water which has spilled through the example during the test.

Equipment:

1 AATCC Spray analyzer.

2 Graduated chamber 250 ml.

3 Distilled Water.

4 Stop watch.

Wellbeing Precautions:

These wellbeing safeguards are for data purposes as it were. The insurances are backup to the testing methodology and are not proposed to be all incorporate. It is the client's duty to utilize securely and legitimate procedures in taking care of materials in this test technique. Makers must be counseled for explicit subtleties, for example, material security information sheets and other producer's suggestions. All OSHA benchmarks and rules should likewise be counseled and pursued. Great research facility practices ought to be pursued. Security glasses wear in all research center zones.

Utilizations and Limitations:

The transportability and straightforwardness of the instrument and the brevity and effortlessness of the test system, make this test strategy particularly reasonable for screening wraps up. It isn't wanted, anyway for use in foreseeing the conceivable downpour entrance opposition of textures, since it doesn't quantify infiltration of water through the texture. For testing precipitation infiltration by AATCC technique 35.

Test Sample:

Three test 180.0-180mm (7.0 . 7.0 in) are required and ought to be molded at 65±2% RH and 21±1°c(70±2°F) for at least 4 hour before testing. Where conceivable each example ought to contain various gatherings of the long way and widthwise yarns.

Photo of water repellency tester:

Figure No 14: Hydrostatic Pressure Test Machine.

Water Repellency Test Method :

• Rain Test assesses texture execution when it is splashed with downpour water just as the weight because of the downpour's effect. This test is satisfactory to all sort of textures whether treated with a water repellent synthetic or not.

• The test is molded at a general moistness of 65% ± 2% and a temperature of 21°C ± 1°C for at any rate 4 hour.

• The example is set on a deliberate blotting surface and water is showered on it when it is set in the downpour analyzer for 5 min. In this test strategy, downpour effect can be differented by changing the tallness of the water from 60 to 240 cm.

• At the end, the blotting surface will be estimated again to evalute the amount of water that has spilled through the texture. The texture execution is evaluted by different parameters by deciding the greatest weight where no entrance is watched, the impact of an adjustment in pressure on texture infiltration.

• The least weight required for entrance of 5 g of water onto the tried example.

Technique:

• At First test example safely in the 15.2 cm (6 in.) metal band with the goal that it is without wrinkle. Spot circle on tried sub position so focal point of shower design corresponds with focal point of the loop. With ribbed textures, circle ought to be put on stand so ribs are corner to corner to stream of water running off texture example.

• Pour 250 ml of refined water at 27° ± 1°C (80° ± 2°F) into channel of analyzer. Permit to shower onto Test example. This will take roughly 25-30 seconds. After finish of showering period, Hoop is tapped insightfully against a strong article with texture confronting object. Pivot 180 degrees and Tap again on the point recently held. This will bring about evacuation of abundance water structure the Surface of the example being tried.

• Wet or spotted example is contrasted and Standard Spray Test Rating Chart and doled out a rating relating to the closest standard in the rating diagram.

The visual assessment evaluated :

A = Pass; clear balanced drop.

B = Borderline pass; adjusting drop with incomplete obscuring.

C = Fail; wicking obvious as well as complete wetting.

D = Fail; total wetting.

Report the rating number corresponding to standard spray test rating chart:

100	No sticking or wetting of upper surface.
90	Slight random sticking or wetting of upper surface.
80	wetting of upper surface at upper point.
70	Partial wetting of whole of upper surface.
50	Complete wetting of whole of upper surface.
0	Complete wetting of whole of upper & lower surfaces.

Table No 9: Rating chart.

“STUDY ON TEST REQUIREMENTS OF BUYER FOR JACKET GARMENTS”

CHAPTER-4
RESULT & DISCUSSION

Test Name	Standards	QS & Requirements
1.Dimensional Stability to Washing (Shrinkage) Test for Fabrics and Garments.	ISO – 3759/ 6330/ 5077	Shrinkage: For woven: Length:±3% Width:±3% For knit: Length:±5% Width:±5%
2.Dimensional Changes for Fabric after Home Laundering.	AATCC- 135	Dimensional change of length and width:±1%
3. Color Fastness to Washing (Staining)	ISO-105 C06	Color staining:3-4 Cross staining:4-5
4. Color Fastness to Rubbing (Dry & Wet).	ISO-105 x12	Generally 3-4 for textile apparel. Generally 3 for lilen, swimwear and peached fabric.
5. Color Fastness to Crocking.	AATCC 8-2007	Generally 3-4
6. Color Fastness to Water.	ISO-105-E01	Color staining: 3-4 Change in color:4 Cross staining:4-5
7. Color Fastness to Perspiration	ISO-105-E04	Children's product: Age:0-1.5 years Color staining: 3-4 Change in color:3-4 Cross staining:4-5 Audit's and children product: Age:1-14 years Color staining: 3 Change in color:3 Cross staining:4-5

8. Color Fastness to Saliva.	GB/T 18886	Children's product: Age:0-1.5 years Color staining: 4 Change in color:4 Cross staining:4-5
9.Twisting(spirality) test	ISO-16322-2	Twisting(spirality): Generally ≤5% Trousers ≤8%
10. pH Test.	ISO-3071-1980, & EN 1413:1998	Adult product: With skin contacts:4.5-8.5 pH Without skin contacts:4.5-9.0 pH
11. Nickel Test.	EN 12471, EN 1811	Pink color: Not OK (+) Doesn't turn pink: OK (-)
12. Pull Force Test	EN 71-7	Generally 90 N/9177 KGf
13.Dry Transfer in Storage.	AATCC-163	Color staining: 4 Change in color:4 Cross staining:4-5
14. Water Repellency Spray Test	AATCC-35	Depends on buyer
11. Nickel Test.	EN 12471, EN 1811	Pink color: Not OK (+) Doesn't turn pink: OK (-)
12. Pull Force Test	EN 71-7	Generally 90 N/9177 KGf
13.Dry Transfer in Storage.	AATCC-163	Color staining: 4 Change in color:4 Cross staining:4-5
14. Water Repellency Spray Test	AATCC-35	Depends on buyer

Table 10: Result & Discussion.

“STUDY ON TEST REQUIREMENTS OF BUYER FOR JACKET GARMENTS”

CHAPTER-5
CONCLUSION

CONCLUSION:

Testing when all is said in done, and material testing specifically, is influenced by the accompanying variables: Atmospheric conditions influence test results as material items are enormously affected by dampness and mugginess. The test strategy received will likewise cause variety in test results. The testing instrument is additionally an indispensable part and, if not appropriately aligned, can cause genuine variety. Human blunder is another wellspring of variety.

Material testing begins with material strands and goes entirely through to the last item. The fiber test incorporates the length, quality, lengthening, fineness, and development. The yarn test incorporates straight thickness, single yarn quality, yarn equality, and yarn bristliness. The texture test incorporates aeronautical thickness, weave type, and air penetrability.

So as to complete the testing of the material items, a well-furnished research center with a wide scope of testing gear is required. Well-prepared administrators are likewise an essential for the running of the lab. The expense of setting up and running the lab is useless and is added to the expense of the last item. These inefficient costs increment the expense of the last item and in this way make it a costly exchange. Hence, it is fundamental that testing isn't performed without amassing of some restitution to the finished result. Testing is done at various indicates in a creation cycle improve the nature of the item. Testing significantly bolsters the faculty associated with the material inventory network, from the material fiber to the final result. The testing of material items helps people engaged with the running of the generation line.

During testing, the error of the item, for instance, its quality, development, squander rate (for filaments), elevated thickness, and weave structure (for textures), is appropriately estimated. In this manner the determination of the correct crude material is a significant factor. Guidelines of control ought to be kept up to decrease squander, limit cost, etc. Broken machine parts or ill-advised support of the machines can be effectively recognized with the assistance of material testing. Improved, less exorbitant, and quicker conventions can be created by scientists with the guide of testing. The effectiveness and nature of the item can likewise be improved with the assistance of normal and intermittent testing.

Consumer loyalty and reliability can likewise be won by creating as indicated by client particular in great time. To put it plainly, testing is a basic rotate to the entire material item inventory network.

The cycle of testing begins with the appearance of crude material and proceeds up to conveyance of the last item. The generation of the necessary end quality is incomprehensible if the crude material is mistaken. The material item production network contains various procedures, which incorporate the crude material (common or man-made fiber), yarn fabricating, texture fabricating, material handling, and clothing and home outfitting producing. It likewise incorporates some modern items, similar to ropes, ropes, and transport lines. All the previously mentioned procedures are performed in isolated units or in a solitary unit if the foundation is a vertical generation unit.

So the crude material for a turning unit is fiber, for a weaving unit is yarn, for a material preparing unit is greige texture, etc. "Crude material" is a relative term that relies on the further procedure for which it is utilized. Its testing is a significant advance, as inappropriate crude material or second rate crude material won't yield the necessary nature of the finished result. The testing of crude material is likewise performed to confirm whether the approaching material accords with the exchange understanding. Its committal is consequently acknowledged or dismissed based on test results. The concurred particulars ought to be sensible with the goal that the approaching crude material properties can meet the necessary level effectively.

Generation checking includes the testing of creation line tests, which is named "quality control." Its motivation is to continue certain positive properties of the final result inside worthy resistance confines according to the understanding between the maker and the purchaser. An item that doesn't meet the effectively concurred detail or the necessary quality will be named a "come up short."

The best possible testing convention just as legitimate observing are likewise required. The examining systems being used ought to likewise be chosen appropriately, since an inappropriate determination could prompt major issues. Simultaneously, the factual apparatus utilized is likewise a significant factor. The assortment of information is a certain something, yet its appropriate assessment and elucidation, and the move made based on it, is a significant factor in quality control.

Material testing is imperative to recognize the specific reason for that flaw with the goal that it tends to be maintained a strategic distance from in future transfers. It will likewise redress the running procedure and empower it to run all the more easily so the last item agrees with the client's necessity. It likewise detaches the broken part or machine in order to determine any debate bet. The tried material materials ought to fulfill certain determinations. A portion of these necessities are certain and others are unequivocal. The last are those that show a material's presentation in administration or whether it will meet its particulars or not.

The certain necessity is that the test is repeatable, that is the material will give similar outcomes on the off chance that it is tried again after some time by another professional or at some other spot or the client's research center. At the end of the day the test can quantify the right estimation of the property being surveyed. There is no utilization in testing in the event that it isn't reproducible, as it will at that point mean nothing.

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