UNDERGRADUATE FINAL YEAR PROJECT REPORT

Faculty of Engineering

Department of Textile Engineering

STUDY ON DIFFERENT TYPES WASHING FAULT IN DENIM

Course Code: TE 4214
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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Textile Engineering

Advanced in Apparel Manufacturing Technology

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AUTHOR'S DECLARATION

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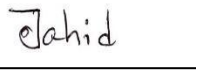

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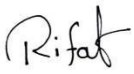

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LETTER OF APPROVAL

Date:

To

The Department Head

Department of Textile Engineering,

Daffodil Smart City, Ashulia, Savar, Dhaka

Subject: Approval of Project Report of B.Sc. in TE Program.

Dear Sir,

We hereby provide you with notice that the current project report, titled "STUDY ON DIFFERENT TYPES WASHING FAULT IN DENIM" The document has have written by the student who has ID 201-23-201, 201-23-877 are completed for final evaluation. To put together the whole report, a thorough investigation was carried out, and holes were found by carefully analyzing real-world data. All of the important parts were included in this process. Because the students were involved in the events that went along with their project, the report became an important source of information for the people who read it.

Kindly acknowledge and evaluate this project report for the final evaluation; your benevolence is highly valued.

Yours Sincerely,

শান সাবিক চৌধুরী

Shaan Sabik Chowdhury

Lecturer

Department of Textile Engineering,

Daffodil International University

ACKNOWLEDGEMENT

We would like to express our deepest gratitude to Almighty ALLAH for granting us the privilege to embark on this endeavor and for providing us with the strength and wisdom necessary to successfully complete our thesis and project report. This achievement would not have been possible without the generous support and assistance from many individuals.

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In addition, we express our sincere thanks to the diligent members of HA-MEEM Group, located in Pagar, Tongi, Gazipur. Their indispensable support was critical to the completion of our thesis. Their willingness to respond candidly to our inquiries and provide us with valuable data relevant to our research was immensely helpful. We deeply appreciate their cooperation and contributions.

Lastly, we would like to acknowledge the support of our families, friends, and colleagues who provided us with encouragement and motivation throughout this process. Their unwavering belief in us has been a source of strength and inspiration.

Thank you to everyone who has supported us in any way during the course of this thesis.

DEDICATION

First and foremost, we wish to express our he heartfelt gratitude to Allah, the Almighty, for giving us the opportunity to demonstrate our capabilities through this project.

Our final request is to dedicate this report to our parents. Their unwavering support and encouragement throughout our studies have been invaluable, and we hold them in the highest esteem. Their assistance has brought us immense joy, and we could not have completed this investigation without their help. For this, we are deeply grateful.

We also extend our sincere thanks to the individuals at Casual Garments Ltd. for their significant contributions to this report.

Additionally, we would like to invite Shaan Sabik Chowdhury, our academic supervisor from the Textile engineering Department at Daffodil International University, accept this report.His guidance and support were crucial in the completion of this work, and we are profoundly appreciative of his assistance.

ABSTRACT

Denim, a fabric deeply ingrained in the global textile industry, undergoes various washing techniques to achieve a wide range of aesthetic effects, from vintage fades to rugged distressed finishes. In Bangladesh's rapidly growing garment sector, a thorough understanding of denim washing effects is crucial for maintaining product excellence and staying competitive. This study aims to explore the intricate details of washing faults encountered in denim production, with a particular focus on the unique practices and challenges within Bangladesh's manufacturing landscape.

Through an extensive examination that includes industry practices, case studies, and empirical data analysis, this research seeks to systematically categorize and analyze the root causes and impacts of various washing faults, such as color bleeding, fabric shrinkage, seam distortion, and uneven abrasion. By unraveling these complexities, the study not only aims to optimize efficiency and sustainability in denim manufacturing processes in Bangladesh but also seeks to equip industry stakeholders with valuable knowledge and strategies to effectively address washing faults.

This comprehensive approach enhances product quality and reduces production waste, thereby promoting innovation and driving positive change in the global denim production industry.

Contents

LIST OF FIGURES

CHAPTER- 1
INTRODUCTION

1.1 Introduction

Worldwide, denim pants are purchased for about $60 billion. Denim is become a fundamental element of contemporary style. Denim comes in a wide variety of washes, styles, and finishes, so it can go with everything in your wardrobe. Getting there is tough.

I know it's confusing, but the original denim used to make overalls and pants for laborers in western America was very similar. Denim's current status as a fashion symbol is partly due to the major advances made in procedures like turning, weaving, and finishing. The construction of the high-quality denim pants depends on the washing process.
Whether it's because of time, human decision-making, desires, or fashion, everything is changing very quickly. In order to meet consumer demands, apparel manufacturers are improving their current practices and integrating new technology.

The clothes washer is another gadget that may be used right now. To evaluate the different denim textures, denim washing experiences, and the most important information. Since 1978, the practice of pre-laundering clothing has become increasingly common. Changing the fit and style of garments is known as garment alteration. Most people usually associate washing with denim and other items of clothing that are regarded as casual or informal. Since 1978, the practice of pre-laundering clothing has become increasingly common. Changing the fit and style of garments is known as garment alteration. Most people usually associate washing with denim and other items of clothing that are regarded as casual or informal.

1.2 Purpose of washing

- Evacuating is required to make the process of estimating materials easier and to reduce any possible problems with the garment. Get rid of the measuring tape to get rid of the denim clothes.
- With the intention of changing something's appearance to achieve a certain aesthetic objective. Denim apparel in today's trendy style allows you to express your unique personality.
- To achieve a range of finishes and effects on denim items following the washing process.
- To dress in a range of denim items and pull off a vintage-inspired look.
- Customers had to wash their trousers in the laundry machine before putting them on because of their length, rigidity, and sheer size until pre-cleaning technology was developed.
- Because this process virtually eliminates shrinking and ensures that the trousers stay in place, customers can relax knowing that their pants will fit exactly after the pre-washing.

1.3 Objectives of the report

This thesis main objective is to examine how different cleaning techniques affect various objects. Since we expect to run into this scenario soon, we are in the process of determining an employee's

responsibilities. Gaining additional knowledge about denim and the many methods used to wash textiles was an added objective of this article. This study also looks at all the changes that denim goes through when it is washed.

To determine the style and properties of denim fabric- •

To learn about different ways to clean goods.

- Acquire knowledge of the many dry cleaning techniques.
- Examining how various washing techniques affect the denim fabric technique.
- Look at the changes that occur on the sample after it has been rinsed.
- Then determine how these problems might be repaired.

1.4 Limitation of Report

There were several issues with the report.

1. Our team did not receive any cooperation from the operators.
2. The inquiry report was not provided to us.

CHAPTER- 2
LITERATURE REVIEW

2.1 Garments Wash

The apparel item in the fashion business symbolizes a new technological development. All things that need to be cleaned are generally cleaned through washing. Still, the fashion industry uses "garment wash" to mean more than just washing clothes. The "garment washing" technology technique is used to alter or enhance the appearance, texture, and fashion of clothing. Laundered items should be those with solid prints or single-hued dyes. Now, let me look at the many types and outcomes of washing techniques used in the clothing sector.

2.2 Flow chart of Denim Washing

The suggested process flow chart cleaning textiles is shown below-

The outfits that were received.

↓

Items sent to the drying process (if there is one)

↓

Hand scrapping

↓

Whickering

↓

Tagging

↓

Things that will go through the wet process Putting clothes into the washing machine

↓

Washing (Maintain wash reference)

↓

Taking out

↓

Drying

↓

Items that are dried if needed.

↓

P.P spray (If the process needed)

↓

Clothing sprayed with P.P. and sent to the wet process

↓

P.P. sprayed clothes before putting them in the washing machine.

↓

Washing (Completing rest of the wet process)

↓

Extracting

↓

Drying

↓

Items sent to the drying process (if additional drying is required)

↓

Curing

↓

Delivery

2.2 Historical backround of garments washing

The practice of washing gained widespread acceptance in several nations throughoutthe world throughout the last fifty years. However,., clothing was laundered in Hong Kong. Once the sewing process is complete, the items will be sent to Hong Kong for cleaning before being brought back to this location for finalization and pressing. This resulted in the expenditure of extra money on labor,
laundry, and transportation. Bangladesh carries out daily laundry operations even though there are local clothes washers available.

2.3 Objectives of Garments washing

- The purpose of washing clothing is to enhance its cleanliness and aesthetic appeal. After being laundered, the clothing takes on a fresh appearance and sense of style.
- The process of washing gives the clothing a worn-in or vintage appearance and a tinged or darkened effect that produces the ideal color combination.
- Among the new methods the washing system presented were labeling, hammering, wrecking, blasting , w h i s k e r i n g , lingering wrinkle, profound color, splash-color,
  P.P shower, hand pooing, P.P wiping, and more. It seems like this is the greatestensemble as well.
- Washing is mostly used to shrink textiles, leaving clothing soft and cozy with no excess fabric visible.
- These delicate clothes usually irritate or create discomfort when they come into contact.
- To entice customers and purchasers with an array of stylish laundry and marketing ideas.
- The washing procedure causes the clothing to shrink.
- The washing procedure successfully removes any contaminants, stains, or infections that might have been introduced into the clothes during its creation.
- There is no chance for further shrinkage of the cleaned apparel.

2.5 Effects of garments washing

- It speaks about the of an article of clothing to change color.
- Adjustment of the degree of comfort.
- Change in fashion.
- Take out all grease and oil.
- The eradication of bacteria and dirt.
- Changes in color

2.6 Advantages of garments washing

- Removing to delicate texture of the garments.
- Adding a softener to clothes in the last stages of washing improves their suppleness.
- All stains, oil stains, and dirt that accumulated in the garments throughout production are also eliminated.
- Clothes shrinks as a result of washing, giving them a more fitted appearance.
- Clean clothes are available for use right away when they are bought from stores or shops.
- Different washing techniques produce different impacts on the appearance.
- Partial yellowing of fabrics gives the outfit a fresh look.
- Different washing methods can provide an identical look.
- Relatively less cash is needed to establish a factory that washes clothing.

2.7 Types of garments washing

The methods used in the apparel for laundry fabric items can be broadly divided into two categories. The two techniques are the wet washing method and the dry washing method. The washing technique is determined by the buyer's requirements and the quality of the fabric. Standard washing often referred to as detergent wash, is the most often utilized and well-liked method of washing clothes the moist washing methods that are most preferred by both customers and producers. Consider use manual scraping and potassium per magnet spray as an option. For the dry cleaning process, the apparel sector commonly uses grinding and destruction.

2.7.1 Flow chart of Dry Process in Garments Washing

Garments recevied

↓

Whisker

↓

Hands Scrapping

↓

Tagging

↓

Destroy/ Grinding

↓

P.P Spray

↓

Crinkle

2.7.2 Flow Chart of Wet Process in Garments Washing

De-sizing

↓

Enzyme

↓

Rinse

↓

Bleaching

↓

Neutralize

↓

Extracting

↓

Drying

↓

P.P Spray

↓

P.P Neutral

↓

Softening/ Silicone

↓

Extracting

↓

Drying

2.4 Dry process

2.8.1 Whisker-

It's the first step in the drying process of laundry detergent. One eventually become used to the constant pattern of conflict. The clothing is then set to create a pattern of crying. To make whiskers, use a piece of sharp-edged, soaked emery paper rolling on a thin piece of wood or placing on plastic.

Fig 2.1- Whisker pattern

Hand Scrapping-

The process of manually exfoliating a denim item's surface to get rid of its color. Here, worn fabric is created with emery paper. The following emery paper quantities were used for hand scraping: 220, 320, 400, 600, 1000, and 1200

2.8.3 Tagging

There are two types tagging devices usedin the laundry industry: machine and hand. This equipment is used in the pocket area. Many destructive methods are used in the dry process stage to accomplish the desired vintage look, including grinding, abrasion, complete removal, flaking, and needle effect.

Fig 2.3- Tagging

2.8.4 PP Spray

Two synthetic mixes were made using this method. Every manganite and acetic acid are corroded by potassium in water. Both before and after the clothingare washed, this procedure should be possible. To get the desired outcome in this case, P.P. mustfirst be sprayed before being killed.

2.8.5

The unshaven clothing is then coated in gum that was applied using a shower tool; this causes the hairs' texture to collapse and give the garment structure. All of the gummed-over clothing is then put in the broiler to dry at a high temperature for half an hour.

Fig 2.5- 3D

2.5 Wet process/Chemical process

2.9.1 De size-

The first step in the wet procedure region when washing garments is called de-estimate. Here, to clean the clothingarticles of the estimate material, starch, and dirt. The de-estimating process uses a variety of ingredients, including detergent, soda, RM, EPQ, and other synthetics.

2.9.2 Enzyme-

In this section the compounding process is finished by using a neutral or acidic catalyst to achieve the desired color. Stone catalysts, light compounds, medium catalysts, or significant chemicals can all be used to process proteins. The chemical reaction uses 45 °C and different times. Denim clothing is worn Clothing composed of Twill and Deterpal EP-Q New 700 uses Bio-clean Catalyst.

2.9.3 Cleaning-

Here, the clothes undergo two or three rounds of the enzyme process before being cleaned with regular water.

2.9.4 Bleaching-

Here, the color of the clothing can be carefully removed, and the buyer-approved color finishes the process. With Japanese bleach or K.C.I coloring, blanching should be possible.

2.9.5 Neutralize-

In this situation, the bleaching agent needs to be neutralized using hydrogen peroxide or sodium metabisulphite. This time, the temperature was fifty degrees Celsius. After five to ten minutes, there were two rinses.

2.9.5Extracting-

When the aforementioned steps are completed, a hydro extractor is used to remove the clothingfrom the machine. For two to four minutes, this device runs in the hydro extractor at 700–900 RPM.

2.9.7 Drying-

Here, steam or gas dryers are used to dry clothes. Depending on the ideal shade, select the type of drier. It should be noted that rose-colored shades work best with gas dryers, and light blue shades work best with steam drying. After they are dried, all of the clothing should be delivered

P.P Neutralize-

Here, sodium metabisulfite is used to neutralize garments sprayed with P.P. There are wet processes that are like this.

2.9.8 Softening-

The goal of this technique is to make clothing appear softer. Silicone and cationic or non-ionic softeners can be used to soften.

2.9.9 Extracting-

In the end, 70% of the water is extracted using a hydro extractor once the clothes have been taken out of the washer.

2.9.10 Drying-

Steam or gas dryers are used to dry clothes. It should take 30 to 35 minutes for a gas dryer set to 80 to 85 degrees Celsius, and 10 to 15 minutes for a cold dryer.

2.6 Types of Chemical Use in Washing Plant

- Enzyme
- Detergent
- Acetic Acid
- Antistain
- Bleaching powder
- Sodium hyposulfite
- Caustic Soda
- Soda ash
- Sodium Bicarbonate
- Potassium permanganate
- Cationic / nonionic flax softener
- Micro emulsion silicon
- Salt (sodium chloride)

- Buffer
- Hydrogen peroxide
- Stabilizer
- Fixing agent
- Catanizer
- Optical Brightener
- Resin
- Sodium Metabisulphite
- DE sizing agent
- Pretreat Zip
- Leveling Agent
- Silicone

2.10 Function of chemical in denim washing

Enzyme

The product of the reaction with cellulose is hydrolyzing it. By attacking the anticipated filaments, it first hydrolyzes them. Its subsequent attack on the yarn section inside thetexturing causes the yarn partition to hydrolyze. This results in a hazy appearance as the yarn separation creates shade.

2.10.1 Detergent-

The composition is defined by a viscous liquid polyglycol ether structure that is both fluid and glycolic. Generally speaking, cleanser can be used either continuously or sometimes to preprocess a variety of fibers and their blends. to eliminate clothes sizes, polluting impacts, and pollution from mineral oil.

2.10.2 Acetic Acid-

After being cleaned in acidic acid, clothing loses its antacid qualities and keeps the right pH range in the shower.

2.10.3 Antichain-

Antichain is used by the clothing industry to stop white pockets from recoloring, improve the aesthetic appeal of textures, level and reach textures, and stop the white weft yarn in denim from recoloring. Moreover, it dissuades people from using the skills of wrinkle treatment specialists.

2.10.4 Sodium Hyposulfite-

Sodium hyposulfite is one method for reducing the bleaching effects of chlorine on garments.

2.10.5 Caustic Soda-

Strong cleaners like caustic were used to develop the bleach process, all without compromising the clothing's color. It works because clothing deterioration and aged effects happen quickly.

2.10.6 Soda Ash-

The main mechanism for color deterioration is created by carbon from carbonated drinks. The activity of the fade shower is progressively decreased with the use of cigarette cinders. It has cleansing properties and helps to minimize and soften the appearance of garments. Another application for it is shade correction in color showers.

2.10.7 Sodium Bicarbonate-

Using whitening powder that contains sodium bicarbonate, plants are immersed in a bleach solution that quickly turns them a pale denim color. As a result, productivity increases and prices fall.

2.10.8 Potassium Permanganate-

To remove color from textiles, potassium permanganate is used in combination with pumice stone and acid washing. Moreover, it is sprayed with a spray chamber and nozzle on clothing to remove color (whitish effect).

Sodium Chloride (Salt)-

It facilitates the fiber's dye's exhaustion.

2.10.9 Hydrogen Peroxide-

In the bleach wash method, hydrogen peroxide is a key component. Certain coloring components become discolored and have a fading effect when hydrogen peroxide degrades in an alkaline solution due to the production of perhydroxhylion. For cleaning, a surface treatment of hydrogen peroxide is administered. clothing made from ready-to-dye white or gray fabric in a bleaching bath. Besides, it counteracts the alkaline nature of the clothes.

2.10.10 Stabilizer-

The optimal temperature range for hydrogen peroxide to function is over 90°C; beyond that, it declines. Stabilizer is used in baths to ensure that hydrogen peroxide functions as planned and to prevent it from cracking.

2.10.11 Catalyzer-

The pigment exhaust technique processing relies heavily on catalysts. Color is imparted by pigment rather than dye. Application of cutinize to the fabric increases the affinity between pigment color and fabric. Clothes dyed with pigment and fabrics were popular in the past.

2.10.12 Optical Brightness-

In the washing facility, two types of optical brighteners are used: red and blue. The main application for optical brighteners is in clothing brightness.

2.10.13 Resin-

Etherified dimethylolglyoxalin monourea is derived from high-efficiency textile resin. Denim and other cellulosic textiles can be given semi-permanent creases using resin. Additionally, materials made of polyester and cotton are used. After washing, the pleasant handle of the cloth does not change.

2.20.21 Sodium Metabisulphite-

Sodium metabisulphite is used in the washing facility to neutralize the potassium permanganate present in the clothing.

Fig 2.6- Normal wash

2.10.14 Enzyme Wash

Compounds are components of biological mixtures that serve as observable process catalysts. The compounds are particularly noteworthy from a compositional perspective because of their great specificity, or more accurately, their ability to target a particular substrate.

First Step: De-sizing

1. The weight of the lot is 80 pes, and it is a 60 kg denim long sleeve jacket .
2. Add waterr in a ratio of 1:9 (1:540) to 9:540.
3. Machine Running.
4. 60°C or less in temperature.
5. Add a de-sizing agent at a concentration of 0.6 grams per liter, totaling 324 grams.
6. Add 0.8 grams of detergent per liter, which is equivalent to 432 grams.
7. Rinse twice with cool.

Step Two: Enzyme

1. Introduce water at a ratio of 1: 450 liters)
2. Add 0.6 grams of Acetic Acid per liter, totaling 270 grams.
3. Add 0.6 grams of anti-back staining agents per liter, totaling 270 grams.
4. Introduce acid enzyme at a concentration of 2.00 grams per liter, equivalent to 900 grams.
5. Duration varies depending on the level of shade, ranging from 40 to 60 minutes.
6. Raise the temperature to 90°C and execute the enzyme killing process for 1 minute.
7. Drop the liquor/ 2 Rinse

Third Step: Softening

1. Add water at a ratio of 1:8 water to 450 liters.
2. Add 0.6 grams of Acetic Acid per liter, resulting in a total of 270 grams.
3. The amount of cationic softener used is 450 grams per liter.
4. Subsequently, remove the clothing from the cart.

Fourth step : Hydro extractor Machine (700-900)

When clothes come out of the washing machine, they pass through a hydro extractor machine to get rid of extra water. **Fifth Step: Drying Machine**

1. Put 60 kg of clothes in the gas dryer.
2. adjusted between -76°C and 85°C.
3. Run for a duration of 35 to 40 minutes.

SIXTH STEP : DELIVERY

Once it has dry, the piece of clothing is submitted to the quality department for examination and replacement with a suitable one.

Fig 2.7- Enzyme wash

Acid Wash

When doing acid washing, pumice stones are used. Denser clothing, though, including sweaters, thick canvas or twill, and jeans, abruptly blurs when pumic stones are used. Pumice stones are used as a brush to create the garments' rough surface. More brushstrokes applied to an area will result in higher levels of discoloration or fading, whereas fewer brushstrokes applied to an area would result in lower levels. In particular, regions like the side crease, thigh, take, placket, and collar with many layers of texture will receive more vigorous rubbing. The unexpected effect of this is that the surface texture of the clothing will be less evident. Following the caustic wash process, the piece of clothing could get hidden.

Frist step : Pretreatment

8. Add 600 liters of water at a ratio of 1:10.
9. Start Machine.
10. Add a desizing agent at a concentration of 1 gram per liter, resulting in a total of 600 grams.
11. Add detergent at a concentration of 1 gram per liter, resulting in a total of 600 grams.
12. The temperature is 60°C.
13. The duration is 15 meters.
14. Dispense the alcoholic beverage.
15. Perform a 3-minute cold rinsing.

Second Step: Hot wash

1. Add 600 liters of water with a ratio of L:R 1:10
4. Pour the alcoholic beverage.

5. In this particular case, the removal of sticking particles from the surface of the garment is achieved through the use of warm water.
6. The items should be unloaded from the washing machine and placed on the trolley.
7. The pre-treated clothing should be loaded into the dryer machine.
8. After the garments have fully dried, take them off.
9. The pre-treated clothing is loaded into the dry washing machine at a rate of 30-40 kg per batch.
10. The per-treated stones, weighing approximately 50 kg, should be loaded into the washing machine 19. Commence the operation of the machine for each batch, with a duration of 7 to 10 milliseconds.
11. Cease the operation of the equipment.
12. Unload the treated garment separately. Fading will occur when pumic stones containing P.P. solution come into contact with the surface of a garment.
13. The clothing that has been treated with stone is then washed using an additional machine.

Third Step: Wash for Clean

1. The weight of the batch is 70 kg.
2. Add 560 liters of water with a ratio of L: R = 1:8.
3. Add detergent at a concentration of 1 gram per liter, totaling 560 grams.
4. Temperature ranges from 40°C to 50°C.
5. The duration is 10 meters.
6. Pour the alcoholic beverage.
7. In this particular case, the removal of fragmented stone particles and toxins from

Fourth Step: Whitening/Neutralization

1. Add water L: R = 1: 8 ..... 560 litres.
2. Machine running.
3. Add Metabisulphite @ 5 gm/litre ..... 2800 Gms.
4. Cold temperature.
5. The duration is 5 meters.
6. Pour the alcoholic beverage.

Fifth Step: Soft Wash

1. Add 490 liters of water at a ratio of 1:7.
2. Machine run
3. Introduce acetic acid at a concentration of 0.6 grams per liter, totaling 294 grams.
4. Add 1 gram of softener per liter, resulting in a total of 490 grams.
5. Next, proceed to unload the clothing.

Before

After

Fig Acid Wash

Fifth step : Soft Wash

1. Add 480 liters of Water at a ratio of 1:8.
2. Add 0.6 grams of acetic acid per liter, totaling 288 grams.
3. A cationic softener with a concentration of 1 gm/liter yields a total of 480 grams.
4. Duration: 5 minutes.
5. Please store the beverages.
6. Place the garments onto the cart.

Before

After

Fig: Bleach wash

2.19 Different types of washing fault

There are many mistakes in the laundry. Certain flaws in the products are apparent both beforeand after washing. Below is a list of some of these mistakes in summary form.
Differentiation in color

- A crevice point
- Following wash puncture
- Extremely dark and pale in hue
- Bleaching area
- P.P Spot
- part shad
- uneeven
- Internal pocket injury
- Increased grinding
- Tagging problem

CHAPTER- 3
EXPERIMENTAL DETAILS

3.1 Data collection-

This report was produced after a substantial amount of data from the Ha-Meem Washing Project was analyzed. This investigation found numerous clothing flaws. To solve the current problem, we implement the following measures.

HA-Meem Washing Project

Station road, Tongi, Dhaka

Date: 26/02.2019	Buyer: KONTOOR	Wash type: Enzyme	Q.I : 15087
Style: WMW-10014	Color : M Blue	Item: DENIM	Before / After wash

Type of defect	1	2	3	4	5	6	7	8	9	10	11	12	total
Shade Deep	20	30	10	30	20	Lunch	10	15	12	20	12		179
Shade Light	05	02	04	10	02		02	04	08	05	08		50
Shade Blue	10	15			10		05	02	01	07	15		65
Shade Dull			08	20			07	08	05	02	07		57
Spote										02			2
Reject							01						2

3.1.1 Description-

An hourly summary of the quality control for the HA-Meem washing process is given by this OBI. The buyer's name, the style name, the product, the operation description, the color, the number of checks, the quantity of acceptable checks, the number of defects, the percentage of defects, the shade, the tint, P.P., and the whisker are all included in this form. The original opening time of the facility was eight in the morning. The buyer, KONTOOR, has ordered the shade M. Blue. The lot is worth 1620 in total. After the last enzyme wash, 1233 pieces were evaluated, however 387 of them had different washing problems that rendered them unsuitable. There could be problems with the dry and wet procedures alike. This batch has specific defects such whisker faults and P.P. spots, while there are several potential problems throughout the dry process. Two PP spot flaws are

present out of 387 problems. Many defects are produced by the wet process; these include unevenness in 33 pieces.

Hourly Quality Report

washing projects

The total number of cheeks1450.

Total quantity : 1082

Total defects : 25.38

Total defects : 25.38%

HA-Meem Washing Project

Date : 2-3-2020			Buyer : Zara			Wash Type : Enzyme			QI : 23456			
Style : 2410030			Color : M. Blue			ItemL: DENIM			Before and after wash			
Types of Defect	1	2	3	4	5	6	7	8	9	10	11	12	total
Shade Deep	--	20	--	05	--	Lunch	30	15	10	3	15		98
Shade Light	--	05	--	02	--		10	04	05	20	02		48
Shade Blue	--	08	--	05	--		09	--	--	--	10		32
Shade Dull	--	10	--	10	--		19	50	05	35	--		129
P.P Deep	--	04	--	02	--		04	02	01	01	--		14
P.P Light	--	03	--	10	--			66	66	66	66	87	78
Spot					55				44	56	77	77	08
Reject	--	--	12	12	22	44	-0-	3	3	-7	0		==
Total		66		344			344	566	245	233	344		678

Output													
Total Good		143		165			122	179	129	141	203		1082
Reject Q.T.Y		05		01									06
Reject			66			666							766
Defect		45		5			45	54	5	45	65		345
Defect%		45.8		453				28.5	14.3	29.5	18.7		25.38

Table: Final Q C Report

3.3 Hourly final quality Inspection Report

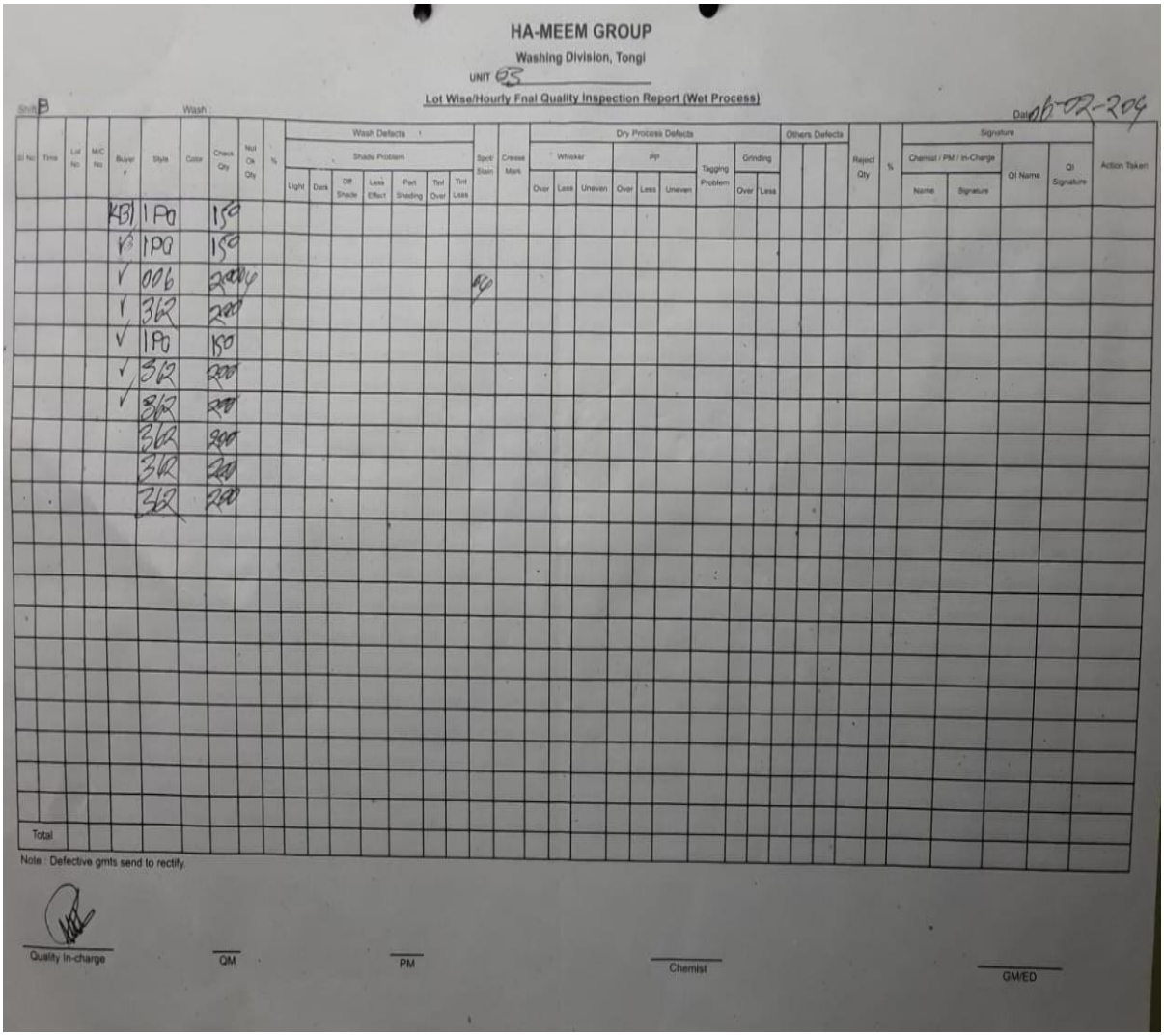


Fig: 3.21.- Hourly Final Quality Inspection Repor

CHAPTER- 04
RESULT DISCUSSION

4.1 Analysis of quality report from

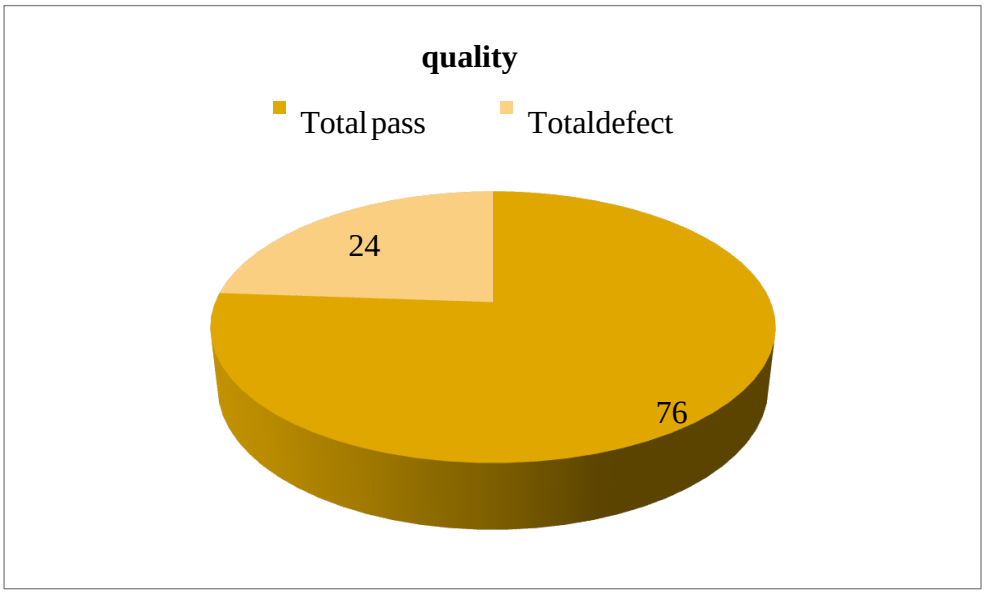


Fig : Pie chart quantity percentage

Description

The total number of quality components that have been evaluated is 1,620, as shown in the pie chart. After the enzyme wash, 1233 articles of clothing were found to be satisfactory, while 387 items were found to be unsatisfactory for a variety of reasons. The main topic of this investigation is HA-Meem washing. The percentage distribution is shown in a pie chart that is included with this report.

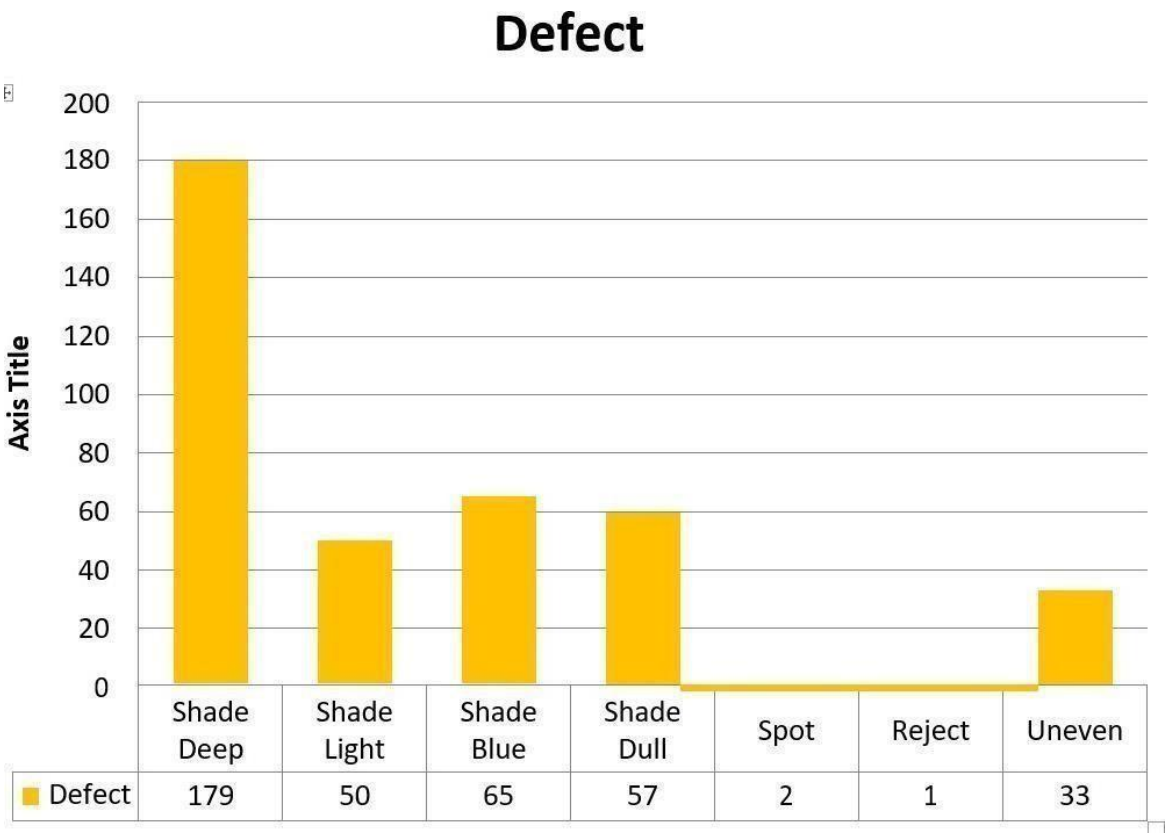
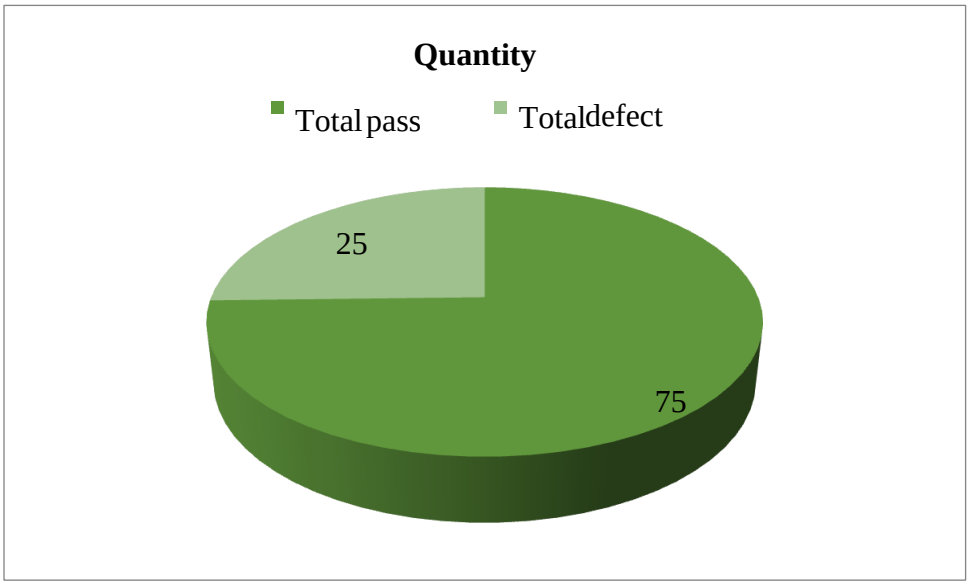


FIG 4.2: Chart of Quantity Percentage as a Pie

Description-

The parts displayed in this pie chart total 1620. Following the enzyme wash, 1233 pieces of clothing were in good condition and 387 articles were faulty. The Orix washing machine project report is included in this document, along with a pie chart that displays the percentages.



Description:

For quality control, a total of 1450 pieces are shown in the pie chart. Following the enzyme wash, we were left with 1082 exquisite pieces of apparel, 368 of which had flaws that rendered them unusable. This paper is a component of the project Orix Washing. We created a pie chart to display percentages in this report.

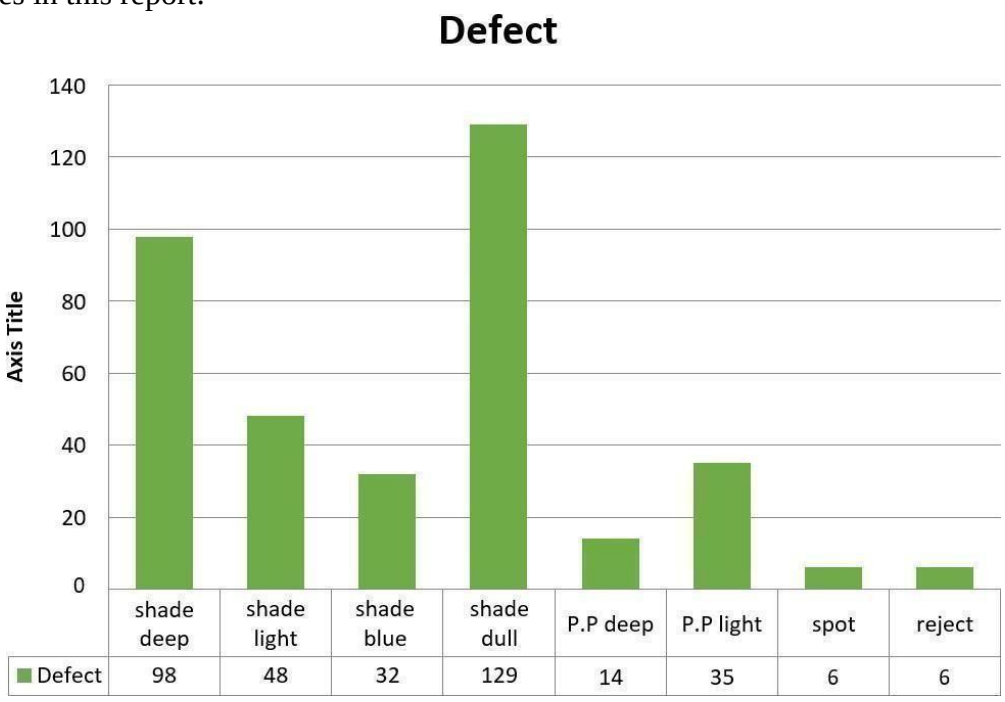
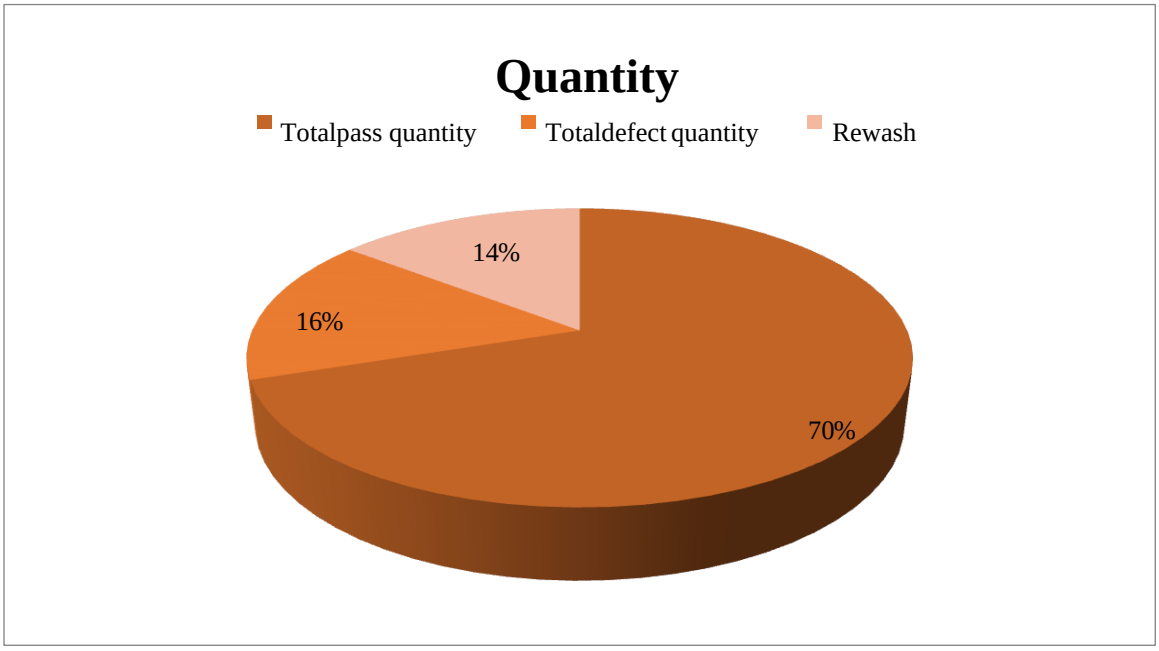


FIG 4.4- Bar chart of defect number

Description-

To demonstrate the frequency of errors, a figure is shown. There are 129 damaged parts in the shaded drab area, which is the area with the most problems. There are then 98 pieces in the shade deep region, 48 pieces in the shade light area, and 32 pieces in the shade blue area. Thirteen deep P.P. pieces, six identification pieces, six rejection pieces, and thirty-five light P.P. pieces are currently available.

4.2 Analysis of Quality Report from 3.3-



Description-

The piet contains a of 3 elements. Of the total cargo, 540 clothes are in outstanding condition after being bleach washed, and 123 pieces need to be corrected because of defects. Confidence Industries LTD served as the research's primary source. A pie chart with percentages was made specifically for this report.

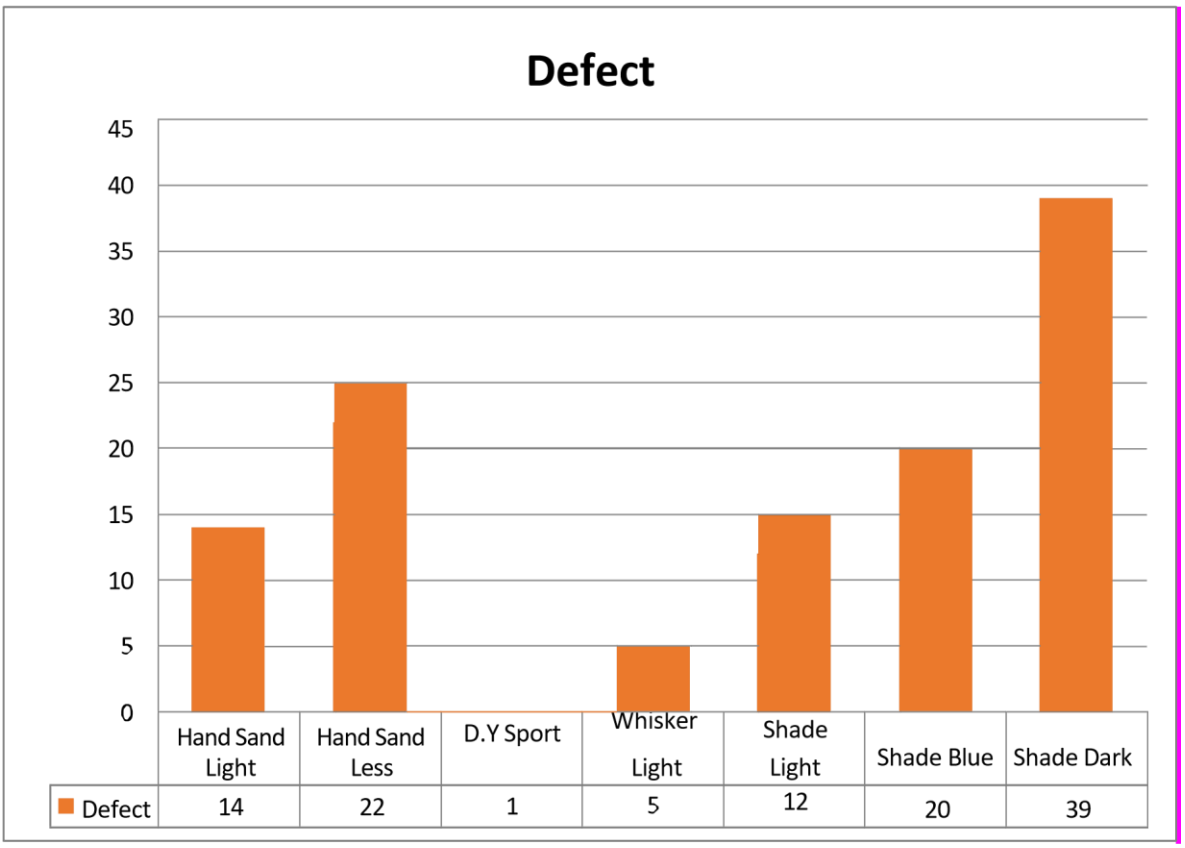


FIG 4.6 Bar chart of defect number.

Description-

The number of flaws is displayed while accounting for this chart. With 39 shattered pieces, the dark shade has the most, followed by the blue (20 pieces), light (12 pieces), spot (1 piece), light whisker (5 pieces), and hand sand light (14 pieces). The percentage of fractured components is highest in the dark tone overall. This shows the total number of flaws in the product.

4.3 Analysis of Quality Report from 3.4-

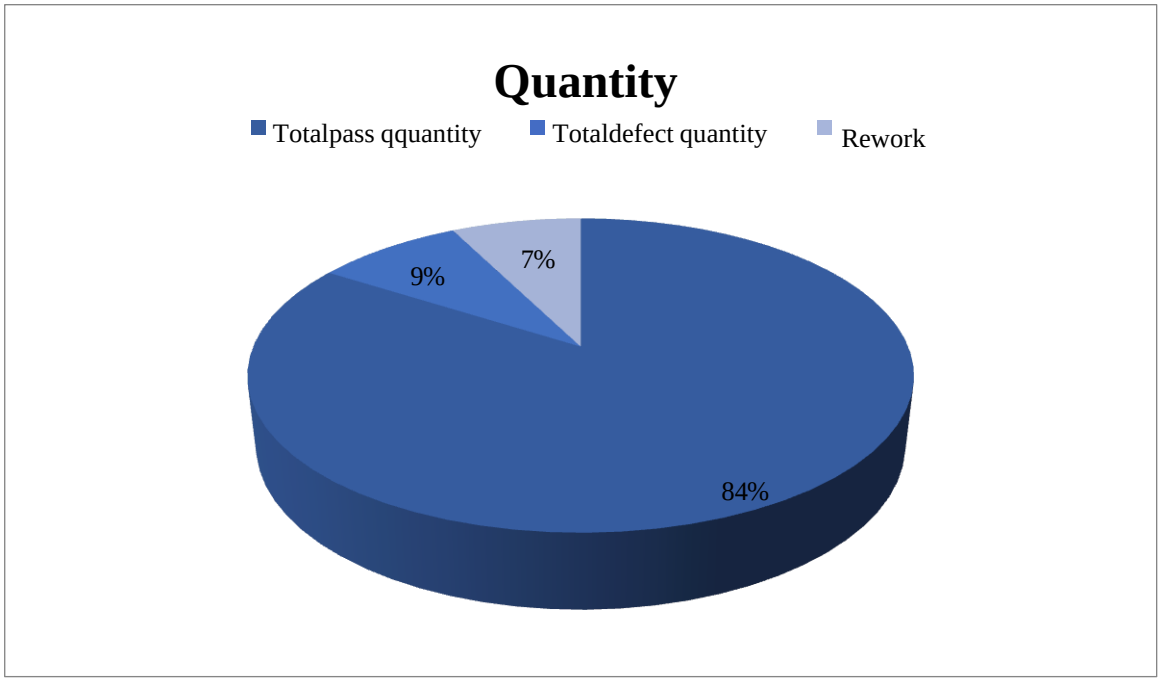


FIG 4.7: Pie chart of different types goods.

Description-

A total of 1476 products have undergone quality evaluations, as shown in the pie chart above. In total, we had 1,340 articles after the bleach wash. There are 136 errors and 120 portions that require revision. Confidence Industries LTD used a pie chart to display the percentages in their report.

4.3.1 Analysis of Defect Quantity from Chart 3.4-

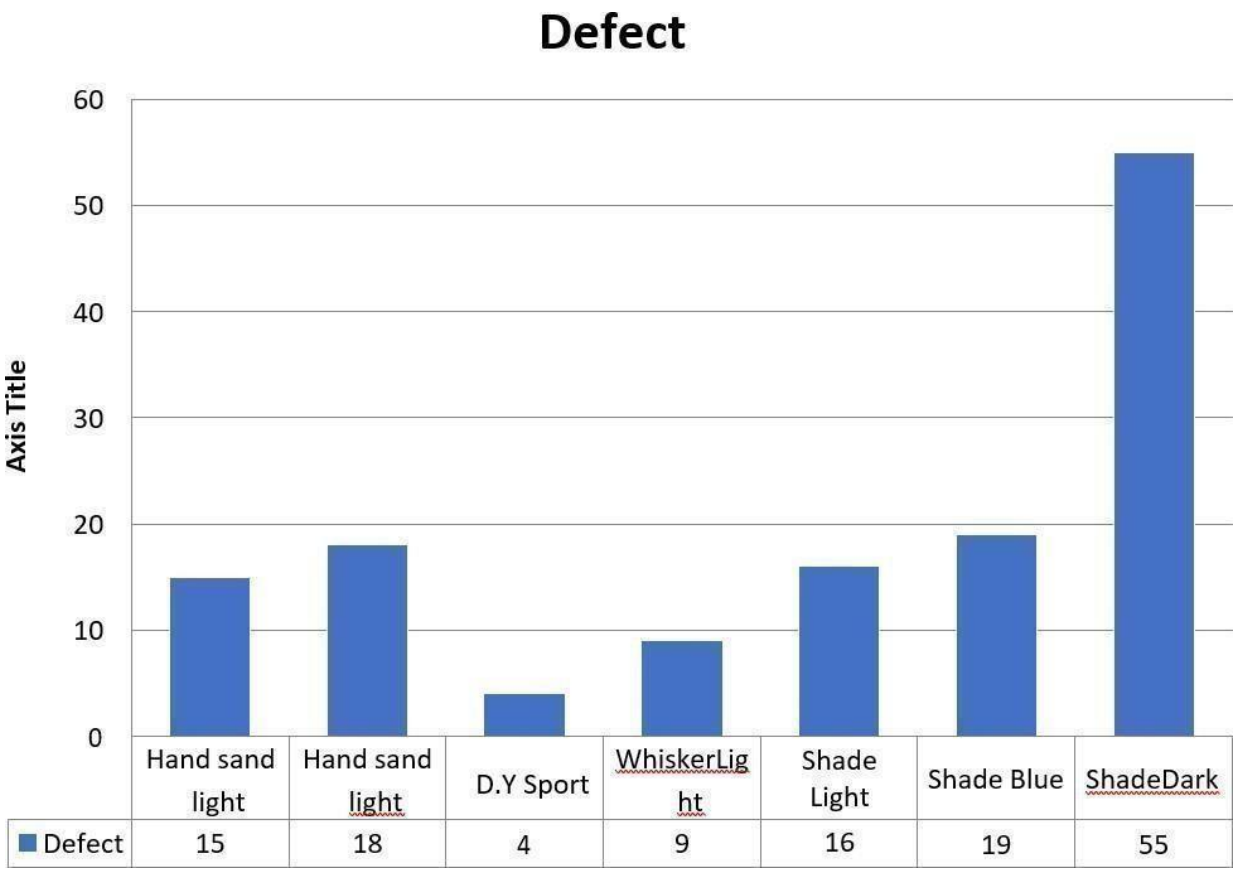


FIG 4.8 Bar chart of defect number.

Description-

Every flaw that has been discovered is shown in this figure. For your convenience, confidence industries LTD has uploaded and shared this chart. With 55 pieces, this demonstrates unequivocally that dark has the greatest flaws of all the hues. The following is how the product is arranged: four spots, nine whisker lights, eighteen hand sand lights, sixteen shade lights, and nineteen shade blue pieces. The identification of the defects is listed in chronological order below. According to the assessment, there seem to be a significant number of products that are defective generally.

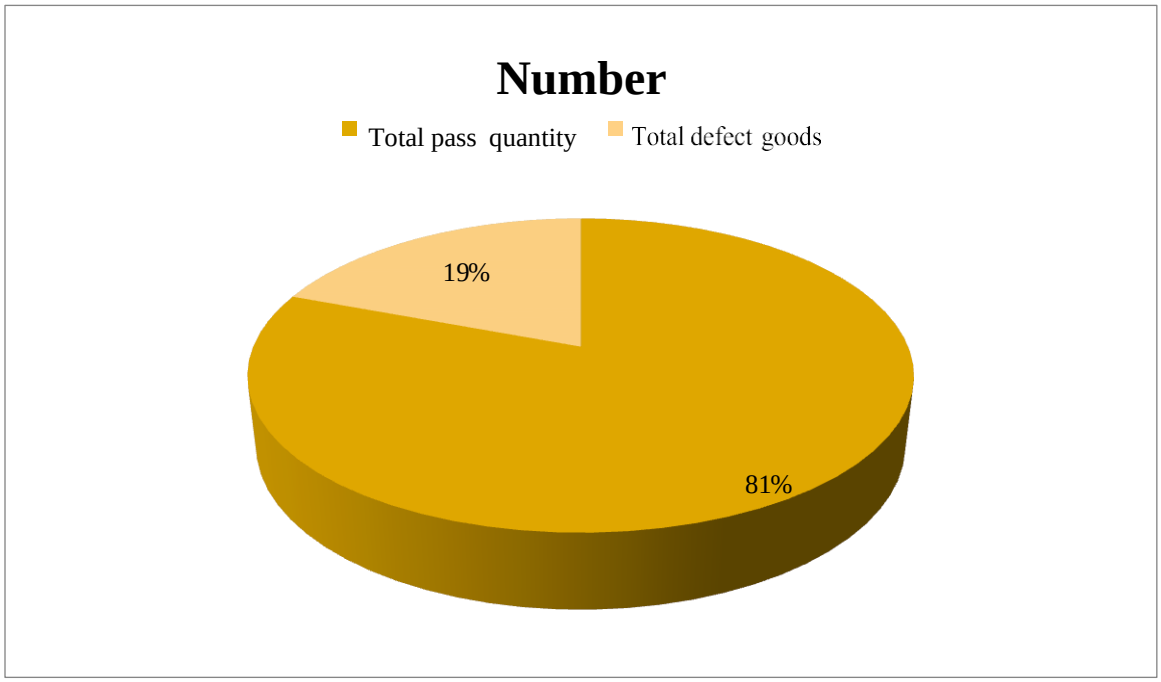


FIG 4.9- Pie chart of different type goods summary.

Description-

A total of 5,209 quality checks were performed, as can be seen in the pyramid graphic. A total of 4195 garments are generated after bleaching and enzyme washing, however 1004 of them are discovered to be faulty. The Orix Washing Project Report from Confidence Industries LTD is attached. A summary in the form of a pie chart with percentages is provided in this report.

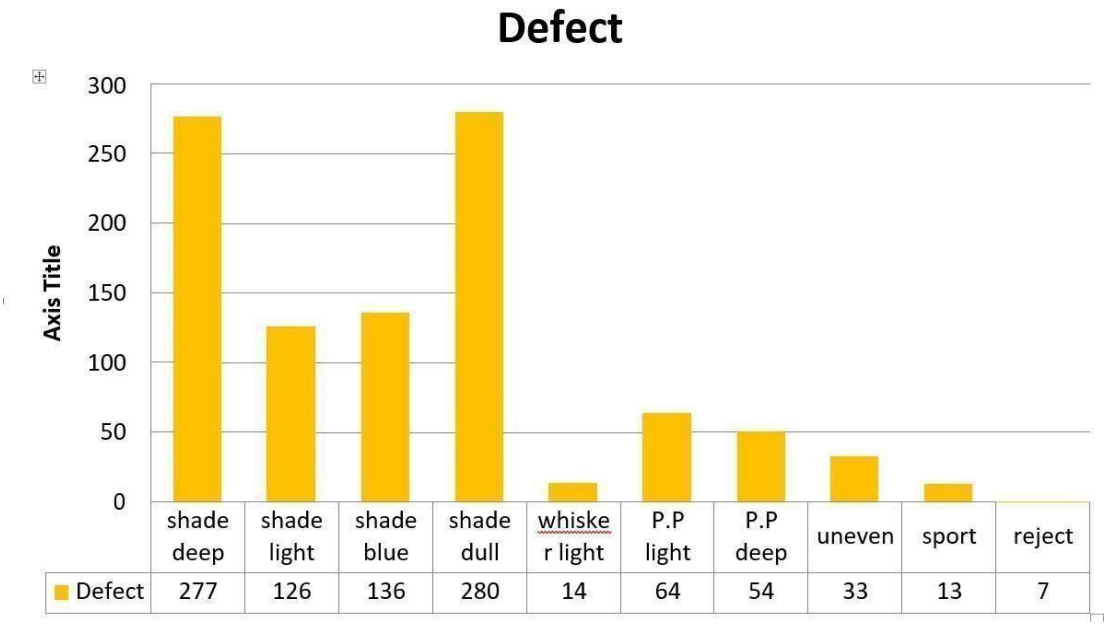


FIG 4.10- Summary of defect numbers in bar format

CHAPTER-5
CONCLUSION

Conclusion

During the course of this theoretical report, we made every attempt to fulfill our obligations. Throughout the study, we focused on the adjustments to parameters caused by washing denim texture. Cleaning surrenders produces a completely different emotional response. We learned a lot about tools, weather, and how things work by going through the wet wash, dry process, dryer, test checking, and compound store sections. On the other hand, we base our business on the most recent and superior market and offer. We will look at the problems with denim that were found during post-wash quality tests and how to fix them during this process. After doing a thorough analysis of the proposal, we have determined that the percentage of proposals that are abandoned is as follows: Spot (0.24%), Uneven (0.63%), Miss (0.13%), Deep are the various shades. Whisker represents 0.26%. Apart from that, we learned about the steps we might take to address these issues in any way. Our genuine aim is to accomplish this hypothesis well in advance. It was around this time that we realized how important work experience is becoming to having a good administration career. Denim's versatility is helping it become more and more popular. In order to meet the growing demand for denim, our material business is actively pursuing all of the new financial and natural procedures that have been established. There are significant benefits when it comes to cleaning clothing. The choice of washable apparel is becoming more and more popular due to its appeal, durability, and versatility. The cleaned apparel market should be studied and tested, and the most recent technological advancements should be implemented in the garment cleaning sector.

REFERANCE

- Ahmed, F., & Miah, M. R. (2015). Effects of Stone-Washing and Enzyme-Washing on the Physical and Mechanical Properties of Denim Clothing. Journal of Textile Science & Engineering, 5(3), 1-6.
- Asghari, F., Montazer, M., & Mahmoodi, N. M. (2013). Washing effects on the surface and structure of denim fabric. Journal of Engineered Fibers and Fabrics, 8(2), 34-41.
- Kadolph, S. J., & Langford, A. L. (2002). Textiles (9th ed.). Prentice Hall.
- Paul, R., & Saravanan, D. (2016). Study on Washing Defects of Garments. Journal of Textiles, 2016, 1-6.
- Roy, D., Nag, D., & Banik, S. (2013). A Study on Washing and Softening Process of Denim Jeans. Journal of Textiles, 2013, 1-10.
- Alagirusamy, R., & Muthu, S. S. (2009). Textiles and Fashion: Materials, Design and Technology. Woodhead Publishing.
- Anbumani, N., Kalaikumaran, D., & Amirthagadeswaran, K. S. (2013). Influence of garment washing process on denim fabric - A case study. Journal of Industrial Textiles, 42(1), 23-35.
- Sinclair, R. (1992). Consumer Textiles. Chapman & Hall.
- Muthu, S. S., & Gardetti, M. A. (2017). Handbook of Sustainable Luxury Textiles and Fashion: Volume 2. Springer.
- Das, A., & Banerjee, J. (2012). Garment Washing. In Handbook of Sustainable Apparel Production (pp. 207-229). Woodhead Publishing