



Faculty of Engineering

Department of Textile Engineering

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Submitted by:

Name: Md. Owasifur Rahaman

ID: 191-23-5491

Name : Md. Mahbubur Rahman

ID: 191-23-5502

Name: Raise Uddin

ID: 191-23-5535

Supervised by:

Murshida Khatun

Assistant Professor

A thesis submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science in Textile Engineering

Advance in Apparel Manufacturing Technology

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Letter of Approval

October 14, 2021

To

The Head

Department of Textile Engineering

102, Shukrabad, Mirpur Road, Dhaka 1207

Subject: Approval of Industrial Attachment Report of B.Sc in TE Program. Dear Sir,

I am just writing to let you know that this Industrial Attachment in “Denitex Washing Ltd.” has been prepared by the student bearing ID 191-23-5491 and 191-23-5535 & 191-23-5502 is completed for final evaluation. The whole report is prepared based on the proper investigation and information in Denitex Washing Ltd. The student were directly involved in their industrial attachment report activities.

Therefore it will highly be appreciated if you kindly accept this industrial attachment report and consider it for final evaluation.

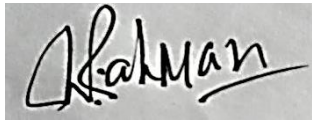
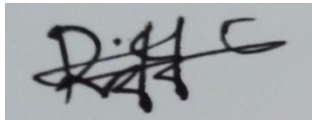
Yours Sincerely



.....
Mst. Murshida Khatun
Assistant Professor
Department of Textile Engineering
Daffodil International University

Declaration

We declare that the work which is being presented in this report entitled, “Study on Different Types of Wet Washing Process” is original work of our own, has not been presented for a degree of any other university and all the resources of collected information for this report have been duly acknowledged

Name	ID	Signature
Md. Owasifur Rahaman	191-23-5491	
Md. Mahbubur Rahman	191-23-5502	
Raise Uddin	191-23-5535	

Department of Textile Engineering

Faculty of Engineering

Daffodil International University

Abstract

The paper is on “Study on Different Types of Wet Washing on Denim Garments”. Here 100% cotton denim fabrics were selected to carry out the experiment. Different dry process like Destroy, Tagging, Whiskering, Resin, 3D Wrinkle, Hand Scrapping, Grinding, White-Paste, PP-Spray used. Different wet process like Bleach Wash, Enzyme Wash, Pigment Wash, Normal Wash or Rinse Wash, Stone Enzyme Wash, Silicon Wash, Caustic Wash, Stone Wash and Acid wash used. Garments washing is getting used as a completely unique process to switch the looks, to impart worn-out look and to enhance the comfort ability of the clothes. But different washing are getting to express different shade on denim garments. Finding out the various shade of denim for various process is the major part of that research.

Acknowledgement

At first our gratefulness goes to the Almighty “**ALLAH**” for giving us strength and ability to complete the project report at **Denitex Washing Ltd** successfully.

With sincerity, we extend our warm and deep appreciation and gratitude to our honorable supervisor, Mst. Murshida Khatun, Assistant Professor of the Textile Engineering Department of Daffodil International University for her guidance and support to come up with this research work. Being working with her, We have not only earned valuable knowledge but was also inspired by her innovativeness which helped to enrich our experience to a greater extent. Her ideas and way of working was truly remarkable. We believe that this research could not be finished if she did not help me continuously.

We are thankful to Md. Mominur Rahman for providing his best support to us, Assistant Professor & Head (In-Charge), Department of Textile Engineering, Daffodil International University and some of our friends of DIU for their kind help.

Finally, we would like to express a sense of gratitude to our beloved parents for their mental support and strength throughout completing project report.

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Chapter-1

Introduction

1.1 Definition of Washing

Washing is the technology which is used to modify the appearance, outlook, comfort ability and fashion of the garments is called garment washing". Washing are two types, Dry or Mechanical process and Wet process. The process which is applied at the wet condition of garments is called wet process. Washing is extremely important process of garment products. We cannot wear garments without wet washing. "The wet washing process of garments to create a better look or effects by normal wash or rinse wash, pigment wash, caustic wash, silicon wash, enzyme wash, stone wash, stone enzyme wash, bleach wash and acid wash" . Wet process is a chemical process which develops certain effect within the garments. We use different types of wet process to get the desired effect.

Chapter-2

Literature Review

2.1 Washing Garments

2.1.1 Washing Information

The denim garments have tons of demand within the market of normal garments also as within the fashion market. People of all ages, especially the youth have an excellent interest on the denim. Different washing methods are often applied for denim fabric finishing. Like enzyme wash, bleachwash, stone wash, acid wash, detergent wash, silicon washes etc. As a result new outlook and appearance is produced within the garments, which isn't possible in the other method. Moreover, because of washing, starch present within the garments is removed. As a result washed garments might be worn after purchasing directly from the shop. Some garments shrink after wash, hence washed garments might be purchased as per required size.

2.1.2 Factory Involved in Washing Sector

Almost 250 factories are involved with washing sector.

2.1.3 Country of Buyer

1. USA
2. Germany
3. UK
4. France
5. Japan
6. Spain
7. Italy
8. Sweden
9. Canada
10. Australia
11. Poland
12. Denmark
13. Netherland
14. Norway
15. Switzerland
16. Hong Kong

2.1.4 Buyer Type



Figure 2.1: Buyer Types

2.2 Washing Machine, Types and Chemical

2.2.1 Machine Used in Wet Process:

- a) Tonello Machine
- b) Balley Machine
- c) Hydro-Extractor machine
- d) Dryer Machine
- e) Ozone Machine

1) Tonello Machine:

This is the most popular washing machine in Bangladesh. All washing process is done by Tonello machine. It is not only washing machine. It is able to dye on denim garments which called tint of washing factory.



Figure: 2.2.1 Tonello m/c

2) Balley Machine:

It is also another machine of washing plant and it is also most popular washing machine which is used washing and dyeing purpose.



Figure: 2.2.1 Balley m/c

3) Hydro-Extractor Machine:

Hydro-extractor removes the excess water from the garments. 70-80% water is removed by Hydro-extractor.



Figure: 2.2.1 Hydro-Extractor m/c

4) Dryer Machine:

Dryer machine is used in washing plant for drying the garments.



Figure: 2.2.1 Dryer m/c

5) Ozone Machine:

It is very important machine in wet process which makes sustainable wash without any chemical and water. It gives eco friendly wash. It can make enzyme and bleach effect on the garments. Factory easily can bring this effect on the garments. It is done by buyer required. The technology would make the eco washing process within very short time on the worldwide.



Figure: 2.2.1 Ozone m/c

2.2.2 Washing Types:

1. Dry Process
2. Wet Process

Types of Dry Process:

1. Whisker
2. Hand Sand
3. Destroy
4. Grinding
5. PP Spray
6. Tagging
7. 3-D Crinkle
8. Laser Machine

Working Procedure in Dry Process:

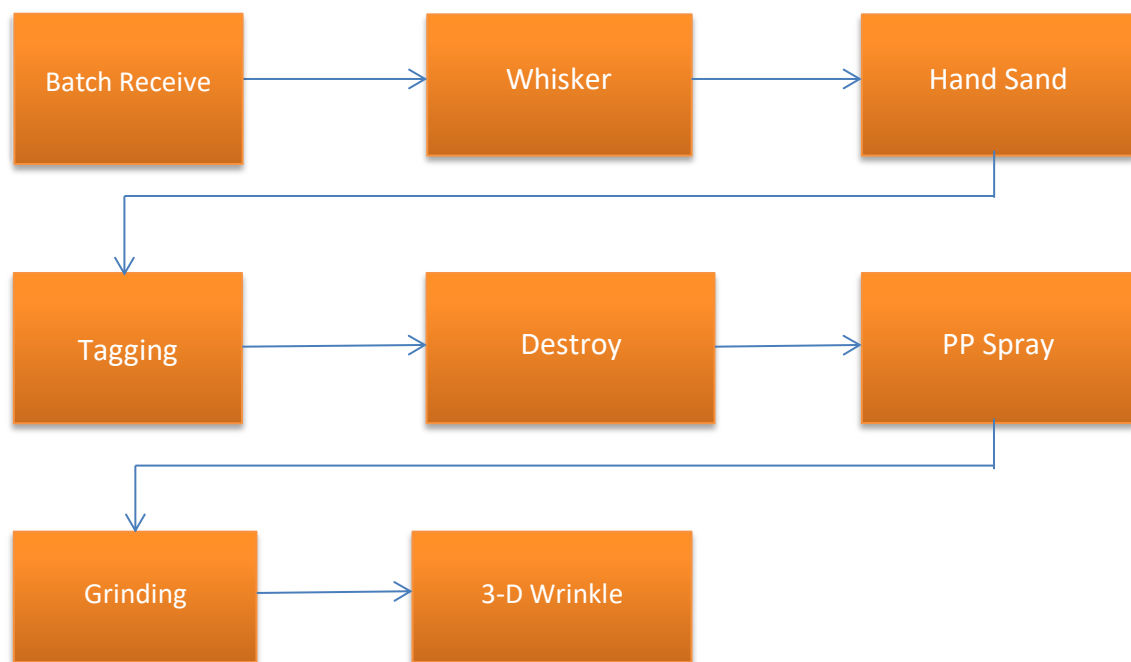


Table: 2.2.2 Working Process in Dry Section

Types of Wet Wash:

1. Normal or rinse wash
2. Caustic wash
3. Bleach wash
4. Enzyme wash
5. Stone wash
6. Acid wash
7. Silicon wash
8. Stone enzyme wash

Working Procedure in Wet Process:

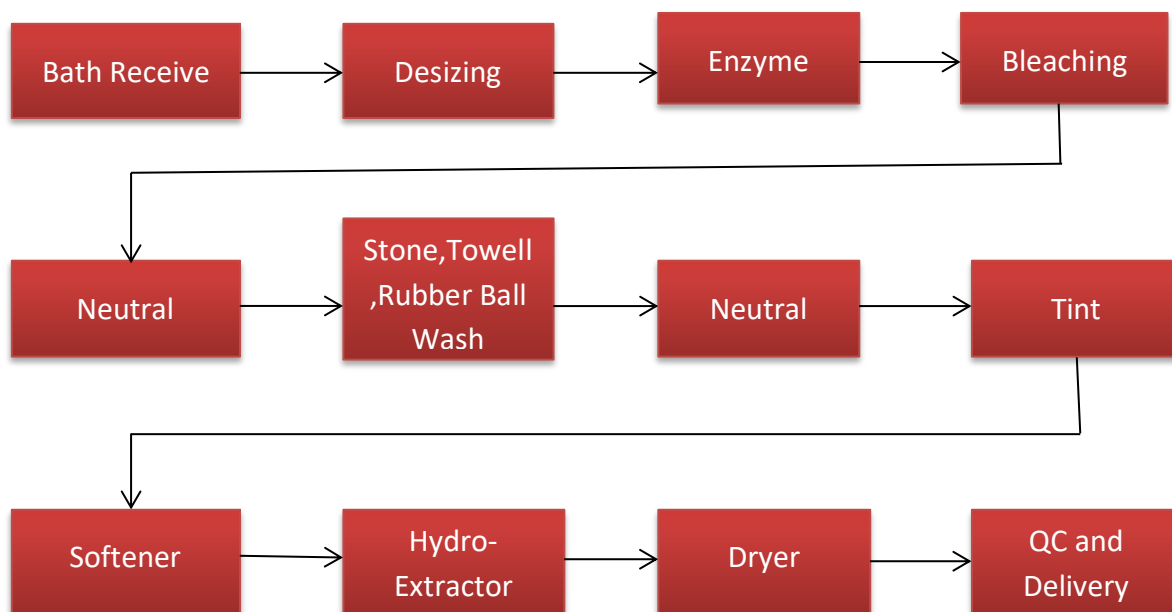


Table: 2.2.2 Working Process in Wet Section

2.2.3 Chemical Used in Washing Factory:

1. Enzyme: We used enzyme to get the abrasion and color cut down. It makes to effect on denim garments. It is color fading to get a different shade after washing process done. Generally two types of enzyme are used in washing section.

Acid Enzyme: The enzyme which is working at acetic medium condition means when the water at acidic condition (ph 5-5.5) and comparatively at low temperature (40-50)c is called acid enzyme. We have to control this enzyme by checking of washing bath by adding acid or basic. Also we have to select enzyme depend on the shade. These enzyme are available at liquid form.

Neutral Enzyme: The enzyme which is working at neutral condition means when the water at (ph 6.5-7) and comparatively at high temperature (55-60)c is called neutral enzyme. We have to control this enzyme by checking of washing bath by adding acid or basic. In washing bath also we have to select enzyme depend on the shade. These enzyme are available at powder form.

2. Soda Ash: Soda is kind of cleaning which used at desizing. It used mainly to remove size materials from garments like dust, Impurities and starch.

3. Anti Back Stain: Anti stain is used to prevent color which is faded from the garments.

4. Bleaching: Bleaching is that agent which is used for reduced color from garments. Bleaching powder is an oxidizing agent. It is used in washing plant for color out from the denim garments. We can achieve different shade of color on garment i.e. Dark, Medium, Light shade. We saw that generally two types of bleach are used in washing factory. KCI bleach and Japanis bleach.

5. Caustic soda: Caustic soda is used out color change the garment and has a good cleaning power. It is work as fading affect or old looking affect come rapidly on garments.

6. Potassium Permanganate: Potassium permanganate is used in Acid wash with Punic stone, rubber ball, towel and muri ball for color out from the garments. It is used also spray chamber by nozzle for color out (whitish affect) from the garments.

7. Sodium Meta bi sulphite: It is used in washing bathe to neutral the garments from bleach and potash.

8. Acetic Acid: Acetic Acid is used to neutralize the garments from alkaline condition and to control the pH value in wash bath.

9. Phosphoric Acid: Phosphoric acid is used in washing bath to increase the Potassium Permanganate.

10. Lacra Protector: Cat is used at desizing time of bulk production. It prevents the stitch into the garments. Otherwise stitch can be damaged.

11. Hydrogen Per Oxide: H₂O₂ is used at Desizing which cleans into the garments. Also it is used in washing bath to neutralize of bleaching.

12. Anti Crease Agent/Pan 200: Anti crease agent or Pan 200 is used to prevent from crease mark on the garments. It is very important to use at washing time.

13. Silicon: Silicon is one kind of softener which makes the fabric surface oily.

14. Softener: It is used at last time in washing bath which gives better hand feeling on the garments.

15. Sodium Hypo Chloride: It is used for neutralize in washing bath from chlorine bleach wash.

16. Brightener/SD: It improves the brightness on the garments.

2.2.4 Other Materials Used with Chemicals for Different Washing

- a) Pumice Stone
- b) Rubber Ball
- c) Towel
- d) Muri Ball

1. Pumice Stone:

Stone used in acid wash with potash.



Figure: 2.2.4 Pumice Stone

2. Rubber Ball:

It is used in random wash with potash.



Figure: 2.2.4 Rubber Ball

3. Towel:

It is used at acid wash period in washing machine.



Figure: 2.2.4 Towel

4. Muri Ball:

It also used in random wash with potash.



Figure: 2.2.4 Muri Ball

2.2.5 Shade

After wash we can be classified the garments in different shade. Based on shade we can divide them three types.

- a) Dark Shade
- b) Medium Shade
- c) Light Shade

1. Dark Shade: The shade which contains more than 1.5% color is called dark shade. This shade may be rinse wash or dark shade enzyme wash. Maximum indigo stayed with fabric.

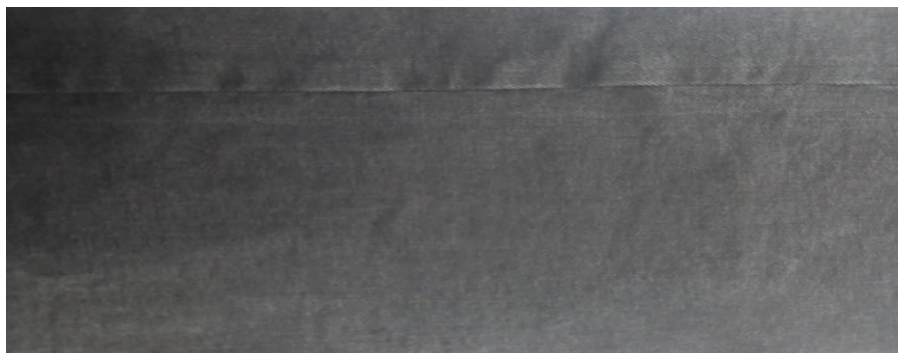


Figure: 2.2.5 Dark Shade

2. Medium Shade: The shade which contain about 0.5-1.5% shade is called medium shade. This shade may be medium enzyme wash or dark bleaching or wash with heavy enzyme stone wash.



Figure: 2.2.5 Medium Shade

3. Light Shade: The shade which contain about 0.5% color is called light shade. For achieving this shade we have to use bleach. This bleaching can be used after enzyme or before enzyme.



Figure: 2.2.5 Light Shade

Chapter-3

Experimental Details

3.1 Rinse Wash

3.1.1 Recipe of Rinse Wash:

Denitex Washing Ltd																																			
Address : Karnapara, Savar, Dhaka																																			
Sample Recipe																																			
<table border="1"> <tr><td>Buyer</td><td>CUBUS</td></tr> <tr><td>Style</td><td>M.REGULAR</td></tr> <tr><td>Wash</td><td></td></tr> <tr><td>Item</td><td>DENIM LONG PANT</td></tr> <tr><td>Fabric</td><td></td></tr> <tr><td>Customer</td><td>ARMANA FASHION LTD</td></tr> </table>					Buyer	CUBUS	Style	M.REGULAR	Wash		Item	DENIM LONG PANT	Fabric		Customer	ARMANA FASHION LTD	<table border="1"> <tr><td colspan="2">SAMPLE TYPE : P.P TEST SAMPLE</td></tr> <tr><td>M/C Type</td><td>BELLY</td></tr> <tr><td>Lot Qty(PCS)</td><td>01 pcs</td></tr> <tr><td>Weight(kg)</td><td></td></tr> <tr><td>DATE</td><td>05.09.2020</td></tr> <tr><td>SL</td><td></td></tr> <tr><td>Tech:</td><td>MR. FIROZ</td></tr> </table>					SAMPLE TYPE : P.P TEST SAMPLE		M/C Type	BELLY	Lot Qty(PCS)	01 pcs	Weight(kg)		DATE	05.09.2020	SL		Tech:	MR. FIROZ
Buyer	CUBUS																																		
Style	M.REGULAR																																		
Wash																																			
Item	DENIM LONG PANT																																		
Fabric																																			
Customer	ARMANA FASHION LTD																																		
SAMPLE TYPE : P.P TEST SAMPLE																																			
M/C Type	BELLY																																		
Lot Qty(PCS)	01 pcs																																		
Weight(kg)																																			
DATE	05.09.2020																																		
SL																																			
Tech:	MR. FIROZ																																		
PROCESS SEQUENCE-1					NO DRY PROCESS																														
PROCESS SEQUENCE-2					DESIZE + SOFTENING																														
Steps	Process	Water (L)	Temp (°C)	PH	Time (Min)	Chemicals	Doges(G M)	LR	Remarks																										
	DESIZE	80	45		7 min OUT	BIODE	50 ml																												
						TSK	200 ml																												
Rinse×2																																			
	SOFTENING	80	RT		2 min	BASE OT CONE	300 ml																												
Checked																																			

Figure: 3.1 Recipe of Rinse Wash

3.1.2 Sample Collection:

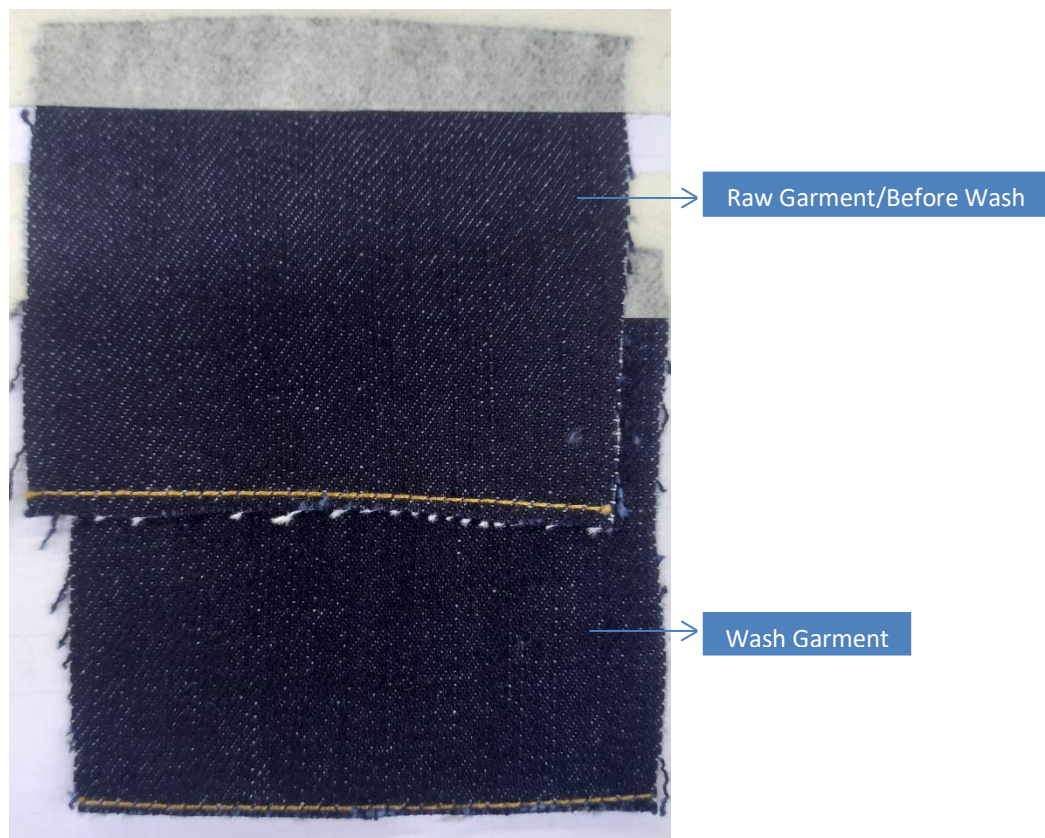


Figure: 3.1 Raw Garment & Rinse Wash Garment

3.1.3 Description:

The wash which is done by only water and slightly detergent and anti backstainer is called rinse wash. This shade is specially dark and not much difference from its raw denim.

First Step: Desizing

Buyer: CUBUS

Item: DENIM LONG PANT

Quantity: 01 PCS

Add water..... 80 Liter

Machine..... Running

Temperature..... 45°C

Add BIODE..... 50 ml

Add TSK..... 200 ml

Time..... 7 minutes

Drop the liquor.

Rinse 2 times.

Second Step: Softner

Add water..... 80 liter

Add Base OT Cone softner..... 300 ml

Time..... 2 minutes

Drop the liquor.

Problem:

- Pocket some time Staining.
- Tone change if wash time increase.

Solution:

- Have to use anti back stain at optimum range.
- Washing time should be optimized.

3.2 Enzyme Stone Wash

3.2.1 Recipe of Stone Enzyme Wash:

Denitex Washing Ltd									
Address : Karnapara, Savar, Dhaka									
Sample Recipe									
Buyer					SAMPLE TYPE : GTS SAMPLE				
BRFS MEANS					M/C Type				
661975					BELLY				
Style					Lot Qty(PCS)				
WASH-1					5 PCS				
Wash					Weight(kg)				
DENIM L. PANT					KG				
Item					DATE				
PM-00716					02-01-2021				
Fabric					SL				
Customer					Tech:				
ARMANA FASHION LTD					MR.NAYEM				
PROCESS SEQUENCE									
DESIZE+ENZYME+PP SPRAY+NEUTRAL+TINT									
Steps	Process	Water (L)	Temp (°C)	PH	Time (Min)	Chemicals	Doses(G M)	LR	Remarks
	DESIZE	70	45		05 MIN OUT	NAOH	100		
						TSK	100		
						H2O2	150		
ACID RINSE									
	ENZYME	70	45		60 MIN OUT	COMBI	200		
						STONE	5 KG		
						TSK	100		
Rinse×2									
PP SPRAY									
	NEUTRAL	70	RT		5 MIN OUT	MAX	100		
Rinse×2									
	TINT	70	50		3 MIN CK	BROWN GTL	100 ml		
Edit By									
Executive									
Manager									

Figure: 3.2 Recipe of Stone Enzyme

3.2.2 Sample Collection:



Figure: 3.2 Raw Garment & Enzyme Stone Wash Garment

3.2.3 Description:

This type of wash we used enzyme and stone together for washing. At this wash we have to follow some precaution to avoid the damage of edge. Heavy abrasion comes in this wash. This wash is specially for denim. This shade will come at medium level.

First Step: Desizing

Buyer: BRFS MEANS

Item: DENIM L. PANT

Quantity: 05 PCS

Add water..... 70 Liter
Machine..... Running
Temperature..... 45°C
Add Soda Ash..... 100 gm
Add Hydrogen Per Oxide.....100 gm
Add TSK..... 150 gm
Time..... 5 minutes
Drop the liquor.

Rinse 2 times.

Second Step: Enzyme

Add Stone..... 5 KG
Add water..... 70 liter
Add Enzyme..... 200 gm
Add TSK..... 100 gm
Temperature..... 45°C

Drop the liquor.

Rinse 2 times

Third Step: Neutral

Add water..... 70 liter
Add MAX..... 100 gm
Times..... 5 minutes

Rinse 2 times.

Problems:

- Some times hem and steam damage.
- Some times metal can be found after using stone.

Solution:

- Time should be properly maintained.
- Enzyme percentage should be maintained properly.
- Stone should be in right size.

3.3 Enzyme Bleach Wash

3.3.1 Recipe of Enzyme Bleach Wash:

Denitex Washing Ltd									
Address : Karnapara, Savar, Dhaka									
Sample Recipe									
Buyer					BIGW				
Style					OG-B1081				
Wash					MID WASH				
Item					D LONG PANT				
Fabric									
Customer					DENITEX LTD				
PROCESS SEQUENCE					ENZYME+BLEACH+NEUTRAL+ALL OVER PP+NEUTRAL+SOFTNER				
					SAMPLE TYPE :DVL SAMPLE				
					M/C Type		BELLY		
					Lot Qty(PCS)		3 PCS		
					Weight(kg)		KG		
					DATE		05-03-2021		
					SL				
					Tech:		MR.NAYEM		
Steps	Process	Water (L)	Temp (°C)	PH	Time (Min)	Chemicals	Doges(G M)	LR	Remarks
	ENZYME	70	45		50 MIN OUT	COMBI	200		
						STONE			
						TSK	100		
Rinse×2									
	BLEACH	80	35		3 MIN CK	KCI	100		Up to shade
Rinse×2									
	NEUTRAL	80	RT		5 MIN OUT	META	100		
Rinse×2									
ALL OVER PP SPRAY									
	NEUTRAL	80	RT		5 MIN OUT	META	100		
Rinse×2									
	SOFTNER	70	RT		3 MIN OUT	BASE OT CONE	200		
Edit By			Executive			Manager			

Figure: 3.3 Enzyme Bleach Wash

3.3.2 Sample Collection:



Figure: 3.3 Raw&Enzyme&Bleach Garment

3.3.3 Description:

In this wash we used enzyme first then we used bleaching process. Actually this shade is light. In this wash color will be faded more. Here is used to bleach for reducing the indigo color or other color.

First Step: Enzyme

Buyer: BIGW

Item: D LONG PANT

Quantity: 03 PCS

Add water..... 70 Liter

Add Stone..... 10 KG

Machine..... Running

Add Enzyme..... 200 gm

Add Anti Bach Stain..... 100 gm

Temperature..... 45°C

Time..... 50 minutes(Out)

Drop the liquor.

Rinse 2 times.

Second Step: Bleach

Add water..... 80 Liter
Machine..... running
Add KCL Bleach..... 100 gm (Depend upto shade)
Temperature..... 35°C
Time..... 3 minutes (Depend upto shade)
Drop the liquor.
Rinse 2 times.

Third Step: Neutral

Add water..... 80 Liter.
Machine..... running
Add META..... 100 gm
Drop the liquor.
Rinse 2 times.

Fourth Step: PP Spray

All over PP Spray

Fifth Step: Neutral

Add water..... 80 Liter.
Machine..... running
Add META..... 100 gm
Drop the liquor.
Rinse 2 times.

Sixth Step: Softner

Add water..... 70 Liter
Add Base OT Cone..... 200 gm
Unload the garments from balley washing m/c.

Problem:

- Garments can be lighter than shade.
- Abrasion can be more or less.
- Hem and seam line can be damaged.

Solution:

- Enzyme time should be maintained properly.
- Bleach percentage maintain properly.
- Temperature should be taken properly.
- Timing should be maintain properly

3.4 Random Wash/Acid Wash

3.4.1 Recipe of Random/Acid Wash:

Denitex Washing Ltd
Address : Karnapara, Savar, Dhaka

Sample Recipe

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Buyer</td><td>GAP</td></tr> <tr><td>Style</td><td></td></tr> <tr><td>Wash</td><td>TROY</td></tr> <tr><td>Item</td><td>DENIM LONG PANT</td></tr> <tr><td>Fabric</td><td></td></tr> <tr><td>Customer</td><td>ARMANA FASHION LTD</td></tr> </table>	Buyer	GAP	Style		Wash	TROY	Item	DENIM LONG PANT	Fabric		Customer	ARMANA FASHION LTD	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2">SAMPLE TYPE : FIT TEST SAMPLE</td></tr> <tr><td>M/C Type</td><td>BELLY</td></tr> <tr><td>Lot Qty(PCs)</td><td>03 pcs</td></tr> <tr><td>Weight(kg)</td><td></td></tr> <tr><td>DATE</td><td>03.12.2020</td></tr> <tr><td>SL</td><td></td></tr> <tr><td>Tech:</td><td>MR. FIROZ</td></tr> </table>	SAMPLE TYPE : FIT TEST SAMPLE		M/C Type	BELLY	Lot Qty(PCs)	03 pcs	Weight(kg)		DATE	03.12.2020	SL		Tech:	MR. FIROZ
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PROCESS SEQUENCE-1																											
PROCESS SEQUENCE-2	DESIZE + ENZYME + BLEACH + NEUTRAL + DRY RANDOM + NEUTRAL + OZONE + P.P SPRAY + NEUTRAL + TINT + SOFTENING																										

Steps	Process	Water (L)	Temp (°C)	PH	Time (Min)	Chemicals	Doses(G M)	LR	Remarks
	DESIZE	80	50		10 min	H2O2	200 ml		
						TSK	100 ml		
						CAT	200 ml		
						Rinse×2			
	ENZYME	80	40		50 min CK	NOVOSTONE COMBI	100 gm		
						TSK	100 ml		
						STONE	25 kg		
						Rinse×2			
	BLEACH	80	50		2 min CK	JAPAN	100 ml		UP TO SHADE
						Rinse×2			
	NEUTRAL	80	RT		5 min	META	100 gm		
						Rinse×2			
	DRY RANDOM				10 min	POTASH	2 gpl		
						BALL	200 pcs		
	NEUTRAL	80	RT		5 min	META	100 gm		
						Rinse×2			
						OZONE 1% 1 min			
						P.P SPARY			
	NEUTRAL	80	RT		5 min	META	100 gm		
						Rinse×2			
	TINT	70	RT		2 min CK	YELLOW SF 2RL	200 mg		
						ORANGE 2GL	50 mg		
						BASE OT CONE	200 ml		
	SOFTENING	70	RT		2 min				

Figure: 3.4 Random/Acid Wash

3.4.2 Sample Collection:



Figure: 3.4 Raw & Random/Acid Wash

3.4.3 Description:

Rubber ball wash is nothing but a garments and soft wash. In this wash process garments will come more softs and at time seam abrasion will come. When we need more hand feel of garments that time we will use this process. Rubber will be added in the same bath with garments.

First Step: Desizing

Buyer: GAP

Item: DENIM LONG PANT

Quantity: 03 PCS

Add water..... 80 Liter

Machine..... Running

Add Cat..... 200 ml

Add Anti Bach Stain..... 100 ml

Add H₂O₂..... 200 ml

Temperature..... 50°C

Time..... 10 minutes(Out)

Drop the liquor.

Rinse 2 times.

Second Step: Enzyme

Add Stone..... 25 KG
Add water..... 80 liter
Add Enzyme..... 100 gm
Add TSK..... 100 ml
Temperature..... 40°C
Time..... 50 minutes (Check then Out the garments)
Drop the liquor.
Rise 2 times.

Third Step: Bleach

Add water..... 80 liter
Add Japanis Bleach..... 100 ml
Temperature..... 40°C
Time..... 2 minutes (Check then out the garments)

Fourth Step: Neutral

Add water..... 80 Liter.
Machine..... running
Add META..... 100 gm
Time..... 5 minutes
Drop the liquor.
Rinse 2 times.

Fifth Step: Dry Random

First the rubber ball has to dry by hydro-extractor machine. Then the rubber ball goes to balley m/c.
Add Rubber Ball..... 200 PCS
Add patah..... 2gpl
Time..... 10 minutes

Sixth Step: Neutral

Add water..... 80 Liter
Add META..... 100 gm
Time..... 5 minutes
Rinse 2 times.

Seventh Step: Ozone Machine

Run..... 1 minute

Eighth Step: PP Spray

According to buyer's requirement.

Nineth Step: Neutral

Add water..... 80 Liter

Machine..... running

Add META..... 100 gm

Problem:

- Garments can be damaged due to rubber ball effect.
- Garments can be more softs.
- Color can be bleeding.

Solution:

- Ball Selection should be proper way.
- Should be maintain proper time.

3.5 Random/Acid Wash

3.5.1 Recipe of Random/Acid Wash:

Denitex Washing Ltd									
Address : Karnapara, Savar, Dhaka									
Sample Recipe									
Buyer		NEXT		SAMPLE TYPE : DVL SAMPLE					
Style				M/C Type		BELLY			
Wash				Lot Qty(PCS)		03 pcs			
Item				Weight(kg)					
Fabric				DATE		15.03.2021			
Customer		NSL BD		SL					
Tech:				MR.NAYEM					
PROCESS SEQUENCE-1									
PROCESS SEQUENCE-2				DESIZE + ENZYME + RANDOM + NEUTRAL + P.P SPRAY + NEUTRAL + TINT + SOFTENING					
Steps	Process	Water (L)	Temp (°C)	PH	Time (Min)	Chemicals	Dogee(G M)	LR	Remarks
	DESIZE	80	50		10 min	TSK	100 ml		
Rinse=2									
	ENZYME	70	RT		45 min	NOVOSTONE COMBI	100 gm		
						TSK	100 ml		
Rinse=2									
	RANDOM		RT		5 min CK	POTASH	8 gpl		
						PHOSPHORIC ACID	1 gpl		
						BALL	200 pcs		
	NEUTRAL	80	RT		5 min	META	100 gm		
Rinse=2									
P.P SPRAY									
	NEUTRAL	80	RT		5 min	META	100 gm		
Rinse=2									
	TINT	70	RT		2 min CK	BROWN GTL	50 mg		
	SOFTENING	70	RT		2 min	BASE OT CONE	200 ml		
Checked									

Figure: 3.5 Recipe of Random/Acid Wash

3.5.2 Sample Collection:



Figure: 3.5 Raw/Unwash & Random Wash Garments

3.5.3 Description:

First Step: Desizing

Buyer: NEXT

Quantity: 03 PCS

Add water..... 80 Liter

Machine..... Running

Add Anti Bach Stain..... 100 ml

Temperature..... 50°C

Time..... 10 minutes(Out)

Drop the liquor.

Rinse 2 times.

Second Step: Enzyme

Add water..... 70 liter

Add Enzyme..... 100 gm

Add TSK..... 100 ml

Temperature..... 50°C
Time..... 45 minutes (Check then Out the garments)
Drop the liquor.
Rise 2 times.

Third Step: Random Wash

Add Rubber Ball..... 200 PCS
Add patah..... 8 gpl
Add Phosphoric Acid..... 1 gpl (increase the potash power of washing bath)
Time..... 5 minutes
Drop the liquor.

Fourth Step: Neutral

Add water..... 80 liter
Add META..... 100 gm
Time..... 5 minutes
Drop the liquor.
Rinse 2 times.

Fifth Step: PP Spray

According to buyers requirement.

Sixth Step: Neutral

Add water..... 80 liter
Add META..... 100 gm
Time..... 5 minutes
Drop the liquor.
Rinse 2 times.

Seventh Step: Tint

Add water..... 70 liter
Add Temperature..... 50°C
Add Brown GTL..... 50 ml
Time..... 2 minutes (Check then out)
Drop the liquor.

Eighth Step: Softening

Add water..... 70 liter
Add Temperature..... 50°C
Add Base OT Cone.....200 ml

Problem:

- Garments can be damaged due to rubber ball effect.
- Garments can be more softs.
- Color can be bleeding.

Solution:

- Ball Selection should be proper way.
- Should be maintain proper time.

3.6 Acid Wash

3.6.1 Recipe of Acid Wash:

[illegible]

Figure: 3.6 Recipe of Acid Wash

3.6.2 Sample Collection:



Figure: 3.6 Raw/Unwash & Acid Wash

3.6.3 Description:

Stone wash is done by potash and stone. First time we have to dip the stone in potash solution then slight dry the stone and wash in a washing machine. After all we will get a uneven look on garments.

First Step: Desizing

Buyer: NEXT

Quantity: 03 PCS

Add water..... 80 Liter

Machine..... Running

Add soda..... 100 gm

Add Anti Bach Stain..... 150 gm

Temperature..... 50°C

Time..... 10 minutes(Out)

Drop the liquor.

Rinse 2 times.

Second Step: Enzyme

Add water..... 70 liter
Add Enzyme..... 100 gm
Add TSK..... 100 ml
Temperature..... 45°C
Time..... 25 minutes (Check then out the garments)
Drop the liquor.
Rise 2 times.

Third Step: Acid Wash

Add Stone..... 5 KG
Add patah..... 3 gpl
Time..... 5 minutes (Check then out the garments)
Drop the liquor.

Fourth Step: Neutral

Add water..... 70 liter
Add META..... 100 gm
Time..... 5 minutes
Drop the liquor.
Rinse 2 times.

Fifth Step: Softening

Add water..... 70 liter
Add Temperature..... 45°C
Add Base OT Cone.....100 ml
Time..... 2 minutes

Problem:

- Main problem of acid wash is no garment is match with each other.
- Garments can be uneven.
- PP sport may come.
- Marble effect comes more or less due to stone selection.
- Garments can be damaged due to high strength.

Solution:

- Timing should be maintained properly.
- PP should be mix with water properly.
- Stone selection should be according to garments effect.
- Stone should be dry properly as per required.

Chapter-4

Discussion of Result

4.1 Rinse Wash

4.1.1 Discussion of the Sample:

The sample is made of **Denitex Washing Limited** according to buyer requirement. There is no many process of dry and wet. Just buyer wants to base wash of the garments. Only one sample was produced to seeing the buyer. The base wash of the garments is made soft and good hand feels on the garments.

4.1.2 Result:

Finally buyer approves this product then the big production will start in bulk production. We did not see any problem of washing process.

4.2 Stone Enzyme Wash

4.2.1 Discussion of the Sample:

The sample is made of **Denitex Washing Limited** according to buyer requirement fabric. Just PP spray used to dry process on the garments before final wash. This requirement achieved by stone enzyme which was buyer as per target. This wash makes enzyme effect on the garments. Five garments make for seeing to buyer.

4.2.2 Result:

The executive easily achieved this target which was required to buyer and finally buyer said that okay. The production was started in bulk production.

4.3 Enzyme Bleach Wash

4.3.1 Discussion of the Sample:

The sample is made of **Denitex Washing Limited** according to buyer requirements fabric which was attached with sample garment then sample received R&D department. Executive and operator apply different process to come exact shade which was buyer requirement. Only all over PP spray came to the dry process. After completing this wash give enzyme and white effect on the garments. There were three garments made for seeing to buyer.

4.3.2 Result:

The executive faced some problem at working period in sample section. The shade was not matched easily according to buyer requirement. Firstly the garment was very lighted than buyer's requirement. Then again made the garments according to buyers requirement fabric. Finally the executive achieved this target which was buyer required. Buyer said that okay. The production was started in bulk production after getting confirm from the buyer.

4.4 Random/Acid Wash

4.4.1 Discussion of the Sample:

The sample received R&N department from merchandiser. But buyer did not give any fabric sample with the garments. So **Denitex Washing Limited** was test different types of fabric in washing machine of sample section. It's called blanked test in sample section. Different types of fabric were attached by sewing. Some process applied on the blanked which are required as per target. Different types of shade give on the blanked then check the full blanked fabric which shade match with the buyer's requirement garments. They chose fabric according to buyer's requirement.

4.4.2 Result:

The sample manager faced some problem in fabric choosing period. It is very critical decision of selecting fabric. After that's **Denitex Washing Limited** made some garments for seeing to buyer. Finally buyer accepted the garments. Then the production was started in bulk production after getting confirm from buyer. After all we did not see other problem.

4.5 Acid Wash

4.5.1 Discussion of the sample:

The next buyer sent some garments. After seeing the garments, sample manager said that it's acid wash. But buyer did not attach fabric sample with readymade garments. So **Denitex Washing Limited** checked different types of fabric in washing machine which is called blanked test. Different types of fabric attached in a sample by sewing for getting exact shade match with buyer's shade. Different types of method applied on this blanked which recommended the buyer. They found to exact shade of different types of fabric according to buyer's requirement.

4.5.2 Result:

The blanked fabric is critical to find the exact shade after washing. Buyer will not accept other shade garments. Actual fabric will have to find for getting the final confirmation. Denitex Washing Limited 3 sample made for buyer. They saw the sample garment which was recommended. After seeing the garments they said okay. You can start bulk production. Otherwise, we did not see other problem of this sample.

Chapter-5

Conclusion

From this endeavor we have achieved our understanding about how to different types of wash is done in different washing method on denim garments. Different washing process gives various type of shade on denim garments. Under this investigation it is clear that after washing garments are gathered some properties like appearance, softness, comfort and strength because unwashed garments are almost stiff and rough. Fashions are changed very quickly after washing process is done. But dry and wet process is completed the garments give a unbelievable shade on denim garments. Always washing process of denim garments is a miraculous part. All washing process have to do very carefully at washing period. So proper quality control is needed. We have achieved huge knowledge about different types of washing. We have enjoyed more to learn period.

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