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RESEARCH ARTICLE

The different effect of some textile construction factors on bags fabrics properties.

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Abstract

The textile bags fabrics play an important role in an individual life. The quality product is determined according to availability of actual properties to fit usage requirements. This fabrics type has to have properties fit usage purposes, which make it able to bear stresses. Because the lake studies which interested in developing and producing this locally made textile fabrics type, in addition to the importance of textile construction factors and their available effect on the required properties.

So this research interested to study the different effect of some textile construction factors on bags fabrics properties under:

- The stability of warp and weft cover factor.
- The textile construction variables (warp ripe 2\2– hopsack 2\20– twill 2\2– twill 1\3– 4-end stain)
- The weft material variable (nylon - polyester – propylene).

And the effect study on some produced fabrics properties in this research (breaking strength toward warp, resistance breaking strength towards weft, resistance fabric tearing strength towards warp, fabric tearing towards weft, abrasion resistance, square meter weight and thickness), It's cleared by analysis there is strong extrusive relation between the textile structures and fabrics properties , also there is strong extrusive relation between weft material and the research produced fabrics properties.

- Keywords:

Construction Factors - Tensile Strength - Elongation - Breaking Strength – Synthetic fibers – Fabric Tearing Strengh - Abrasion Resistance .

- Search problem:

It's cleared by reading of the previous studies and researches that there were not many of them which cared of producing and developing of the textile bags fabrics nationally.

- Research aims:

The Affection study of some textile construction factors on bags fabrics properties

- Research Methodology:

The research follows the experimental methodology.

- Research importance:
  - To open new field of textiles industry in Arab Republic of Egypt.
  - To give competitiveness ability through developing this kind of textiles.

Introduction:-

The textile construction of any product is the main responsible factor which determines product properties, also determines the final product manner towards exposing of (tensile strength – pressure strength – etc….) during the

usage and according to the usage circumstances. The textile bags fabrics play an important role in individual life. The mechanical and natural properties of this fabrics type is affected because of exposing to friction tensile, pressure and tear.

Also the used fabrics types and species varies in bags producing ,in addition to the variables of the textile construction fabrics is the main essence which can control the mechanical and natural of produced fabrics . So this research aims to focus on different effect of some textile construction factors on functional performance of bags fabrics properties to obtain especial product by scientific method using can achieve the functional performance efficiently for this kind of fabrics.

Types of bags fabrics:-

The textile bags fabrics:-

To obtain on the required tensile and cohesive strength for these bags fabrics, a high set of weft and warp is used to produce this fabrics type from cotton, linen and jute fibers[1] . The cotton and linen yarns is weaker than the industrial material of heavy density in durability, so the only method to ensure the required fabrics durability is to use a high set of weft and warp to increase bag weight and price, and that does not match with the required specifications of bags fabrics.

Covered bags fabrics:-

It's commonly made of industrial yarns; also one of its two sides is supported by suitable plastic tight material, industrial rubber or paraffin wax to increase its efficiency and durability during the using. Also these fabrics are weaved by simple textile constructions like (solid construction, solid simple repetition derivatives and twilled construction). The covered bags fabrics was increased gradually which was made of industrial fibers like (polyester, nylon). In some other cases , propylene is used instead of the produced textile fabrics from natural fibers[1].

The Importance of bags fabrics:-

The bags manufacturing, the material and the used textiles were improved extremely, also the final preparation and handling ways were developed[2] , The bags are used in many various fields so their types are varied like school , travel , engineering set bags and ladies .

The properties of bags fabrics:-

These fabrics type, which have exposed to stresses during the usage , has to fit the use purposes so those fabrics have generally to be propertied of:

-Tensile strength
- Suitable elongation
- High tearing resistance
- Light weight

The general properties of the used fibers in this study:-

Polyester fibers:-

The textile polyester fibers are cylindrical soft of regular diameter and smooth in addition to the long tiny polyester fibers are shiny and straight while the short ones (long limited) are curly[3] [4].

Polyester is propertied of high tenacity; the tearing strength of normal polyester is between 4:5.5 g/denier, the tearing strength of high tenacity polyester is between 6.3:9.5 g\denier, the spinning polyester hair is 2.5 : 5.5 g\denier and its specific density is 1.22 : 1.38 g\cm3[5] , and polyester has high flexibility factor which gives the produced items speed recovery to his normal shape after exposing to specific stress (these fibers less elongation than polyamide fibers at exposing to low stress)[6] , so that the polyester produced items is not got wrinkle easily ,also these items has stability of their dimensions at wet, dry, low and high temperature [7] , in addition to the polyester has high ability to resist the abrasion effect.

The polyester and the nylon fibers have the same appearance and the same general properties in addition to the tiny fibers of them are strong, flexible, solid and able to be formed by heating. Although polyester is better than nylon at fusion degree rising, one of the polyester defects is oils attracting and spots forming which called "Oleophilic". So we should take our precaution of Oleophilic which may be difficult to remove it by normal washing. In this case, it is better to use stain remover like (Prewash spray) before doing the washing process[8] .

Nylon fibers:-
It is classified the third of textile material in spreading and using after cotton and polyester fibers. The nylon fibers are similar to the polyester ones in appearance and general properties, also the nylon tiny fibers are strong, flexible, and solid and can be shaped by heating[8]. .

The specific nylon tenacity is 1.15 g/cm3; also the nylon has high durability, therefore the durability of the regular tenacity fibers of nylon are between 3:6 g/denier and elongation 25-30%, while high tenacity fibers are between 6:9 g/denier and elongation 20-25%[5] .

The tiny and yarn nylon are propertied of solid which give them high resistance against abrasion ; also the nylon has coarse surface and affects on the other different surfaces, fabrics and threads. In addition to the nylon have high resistance of usage factors, so the usage effect is not shown quickly, and give brilliant and attractive appearance and easy to be cleaned [8].

Polypropylene:-
The polypropylene fibers have a middle rank between nylon and polyester fibers, and are better than all synthetic fibers in wrinkles resistance. Also the long life of cotton is increased 10 times by adding 30 % polypropylene, in addition to the ploypropliene specific density is .9 g /cm3[5] , the Breaking Elongation hovers around 17 : 20%. , the tenacity hover around 5: 8 g/denier in the standard atmosphere and during wetting is not effected that make the propropliene one of the premium and especial fibers [6]

The polypropylene has high flexibility, so 91% of its tiny fibers immediately get back to their pattern if it is exposed to 2% of stress in 30s , also these fibers return to the original shape well after finishing the effective factor. It is good to say that when the tensile strength of tiny fibers is increased, getting back to the original shape is decreased. Moreover the polypropylene fibers have high Abrasion Resistance[10] , so the produced cloth is not fractionated. High humidity, decay and insect resistance, finally it is easy to be cleaned[8].

The functional properties of the bags fabrics in this study:-

Tensile Strength:-
The researchers in textile filed agree that the Tensile strength is one of the most important mechanic properties because it has effective role in determining the fabrics availability range to bear the stresses, therefore the tensile strength is important properties so cloth or fabrics have to include it whatever the different fabrics usages. Tensile Strength is one of the properties which is considered as evidence of the fabrics ability to bear[11][12] , and is one of the factors which affect on the fabrics durability like:

- Tensile strength of yarn which is influenced by the fabrics material and spinning technique.
- Type of the used textile construction.
- Cover factor [11] [13].

Tensile Strength is determined at Breaking Strength by amount of power which stresses on centimeter of cloth, or some other cases by exposing the sample test to rupture through (exposing a specific piece of cloth to ascending weight or power gradually till rupture point) [14].

The experiments have proved recently that tensile strength direct proportionality with interlaced number of textile construction and inverse proportionality with float long of textile constriction , so the solid textile construction give high tensile strength because it contains on the maximum rate of the crossings textile per one space unit while tensile strength decrease of the open textile constructions like twill and stain because of the lack number of the crossings textile in repetition and at the yarns density stabile per one measurement unit [15] [16] [17].

The experiments results agree with Schiefer[18] and Taylor[17] opinion which stipulated on the tensile strength decrease by float long increasing, in addition to the stability number of textile repetition yarns and the other executive standards because of the increasing of merging fabrics and cohesion of its molecules during decreasing of long float.

Taylor[17] pointed that the probability weakness of Tensile strength of the crowded solid textile to the minimum by the textiles sets of the short float, Also Essam[9] decided that density increasing of textiles sets increase the Tensile Strength fabrics but at specific point of sets increasing, the Tensile strength stand and is not increased.

Breaking Elongation:-

Elongation is quite important at the final fabrics usage; because of the low elongation fabrics which is consumed gradually result of stress exposing, it cannot keep its pattern for a long time. The high elongation fabrics has high ability to resist stresses result of the repeated usage so it can keep its pattern for a long time and lasts to big periods so that it has high resistance of abrasion, shocks and repeated folding in addition to the repeated stresses do not consume the settled elongation of tiny fibers which keep its ability to absorb the power during stresses and usage exposing period. The fabrics elongation depend on the used yarns properties like material type, twist numbers, twist direction, yarn numbering, rugs and crimp ratio of woven yarns in addition to the construction textile[20] Booth[21] recognizes the fabric elongation as the increasing of cloth long at exposing to breaking strength. Also fabrics Elongation phases is classified on the basis of tensile bearing to three phases as follows:-

- Tiny fabrics abrasion phase at yarns crimps to be got rid of it.
- Removing crimps phase
- Elongation yarns and tiny fabrics

The other factors which affect on the fabrics elongation:

Yarn elongation – textile construction – denting density (yarns numbers x longs measurement unit) - crimp ratio - spinning technique[13]. Fabrics Elongation varies on the basis of the different of the used textile construction in their production so the fabrics. The solid textile construction is good at its elongation increasing because of the high crimp of wefts and warps ratio of these woven fabrics in spite of the other textile construction like twills and stains which has low elongation degree at tensile because its little yarns crimp and crossing warps above wefts or the opposite, in addition to the little crossings of textile between weft and warp yarns[12].

Tearing Strength:-

It is permanently, any type of fabrics with its various kinds, performances and usage natural, have to has enough amount of tearing resistance so actually, the produced cloth of fabrics and strong yarns has tearing resistance more the produced cloth of fabrics and weak yarns, also the material and yarns forming way to support this effect.

The textile construction is considered one of affected factors on tearing strength; the experiments have proved that the yarn mobility of the textile constructions has impressive impact to increase or decrease the tearing strength. If compact structure is more interlaced, yarn mobility is decreased and tearing resistance is decreased, also if compact structure is less interlaced, yarn mobility is increased and tearing resistance is increased[14].

Both Teixiera and Platt Hamburger[22]. have agreed on the most effective factors on tearing fabrics' resistance as follows:

- The used fiber type (Continuous – Filament yarn or staple -Fiber).
- The number of both Warps and Wefts for one measurement unit.
- The used textile construction.

There is no doubt that other external factors affect on the cloth ability of tearing resistance like natural and period usage which has been affected on the cloth consumption and properties changing also it affected on print processes type and preparing which complete after its production.

Abrasion Resistance:-

The Abrasion Resistance one of the determiners are evidences of the fabrics ability to bear so the increasing of fabrics Abrasion Resistance means the increasing of consumption of it[23] , Also we can classify Abrasion types of cloth:-

- Abrasion between fabrics and others.
- Abrasion between fabrics and other external frictional surfaces which is the most important abrasion type for fabrics.
- Abrasion between fibers, dust, and sand in the textile itself.

According to the natural and direction diverse of Abrasion has a direct effect on fabric frictional degree. kaswell [24] and Morton[25] pointed that they yarns which appear and spread on the fabric surfaces, is exposed to the affect abrasion so it is corroded when its float is lying directly above the abrasion direction, also and resisting these yarns of abrasion reaches to the maximum when a big ratio of its directions are parallel to the abrasion direction but Backer [26] pointed out that it is very difficult to reach the maximum of Resistance abrasion because of the union of

tensile stresses and folding in addition to the abrasion during wearing these cloth. Also the fabrics abrasion resistance is affected by the next factors[9] :-

- The density of warps and wefts per one measurement unit
- The ratio of the textile yarns float.
- The yarns diameters
- The textile construction
- The yarns twist ratio
- The abrasion direction

Geogory[27] Foster[28] and Harpy[29] are agree to the increasing density of denting increases of fabrics Abrasion Resistance and they follow that the fabrics impact structure was increased by the textile density increasing and the ability decreasing to grab or remove the separated fibers by the abrasion effect.

By the increasing of textile density, the abrasion textile resistance is increased as result of rising of touch space and declining of Abrasion stresses amount[29]. Also the study by Mohamed Omer[12] has Proved the directly relation between fabric cover factor rising and Abrasion fabrics' resistance in case of the used textile construction (Ribs 1/1, Ribs 2/2, Twill 2/2, Twill 1/3).

Harpy[29] proved the abrasion fabrics' resistance is increased by declining of the float long according to the used textile construction type, and the ribs fabrics is Abrasion resistant more twill and stains textile; While twills textiles is Abrasion resistant more stains textile, because the fixing of the fabrics executive specifications so the increasing of the float long, reduce fabric impact cover value which work on ability rising of body protrusions which is circled touch on the fabrics surface under (the used stresses effect to reach deeply in the fabric internal construction which help to attract and remove the outstanding floats on the fabrics surface). In addition to the declining of float long increases the number of impact between wefts and warps yarns per fabric distanced unit so the abrasion fabric resistance is Rosen.

The Experimental work and laboratory tests:-

The research samples were implemented by two variables using (wefts material and textile construction) and fixing of (warp cover factor and weft cover factor), so the used warp was of one count and one density of all research samples. In addition to reach the fixture of wefts cover factor in spite of the different count and material wefts; there were three different tenacities of used wefts to obtain on fixture cover factors of the whole samples. The next bellow, the fixtures and variable research & the used specification, in implementing the samples research, are shown as follows:-

Research Constants:-

- The weft yarn count and type: polyester of 300 denier.
- Warp cover factor =14.4 (warp no. 24yarns per centimeter).
- Weft cover factor = 14.7

[7.2] Research variables:

- The used textile constructions: 2/2 Warp Ribs, 2/2 Hopsack, 2/2 Twill, 1/3 Twill, 4- End Stain that are shown in figure (1), (2), (3), (4), (5).
- The material weft: three types of material: polyester, propylene, nylon.

Table (1) shows the used specification to produce the research samples:-

Experiment No.	Textile Construction	Type and Count Of warp	Loom Warp denting	Weft no. per loom CM	Type and Count Of Weft	Weft cover factor	Warp cover factor
1	1/3 twill	Polyester 300 (denier)	24	17	Nylon 600 (count : denier)	14.7	14.4
2	2/2 twill						
3	4- end stain						
4	2/2 hopsack						
5	2/2 warp ribs						
6	1/3 twill			24.5	Polyester 300 (count : denier)	14.7	
7	2/2 twill						
8	4- end stain						
9	2/2 hopsack						
10	2/2 warp ribs						
11	1/3 twill			20	Propylene 450 (count : denier)	14.7	
12	2/2 twill						
13	4- end stain						
14	2/2 hopsack						
15	2/2 warp ribs						

Table (2) shows the used machine specification (loom) and Duby device to implement the experiment:-

Loom & Preparation	Loom: Italian – type: Vamatex – manufacture year 1995.
Machine speed	350 – 400 picks / min
Duby device type	Famstly - force 20 hooks, the actual power in12 hooks
Shafts No.	The total shafts: 20 shafts, the actually used 6 shafts (4 + 2 cm Selvedges)
Coils	Directly Proportional on the row
Denting and weaving need	12 heddle per cm - 2 threads per heddle

Table (3) shows the warps and wefts specifications to produce the research sample:-

Warp width of the weaving need	207 cm + 2 cm (Selvedges)
Warp type & its count	polyester (Continuous – Filament Yarn) 100 Denier
warp denting per cm	24 yarn / cm
Wefts count	Counts (300) , (450) , (600) count denier (according to the research variable table (1))
wefts density	(24.5) wefts / cm , (20) wefts / cm , (17) wefts / cm (according to the research variable table (1))
Wefts material	Polyester, polypropylene , nylon : (continuous filament yarn)

The used textile construction





Figure (1) Figure (2) Figure (3) Figure (4) Figure (5)

Figure (1) shows 2/2 warp ribs textile construction
Figure (2) shows 2/2 hopsack textile construction
Figure (3) shows 2/2 twill textile construction
Figure (4) shows 1/3 twill textile construction
Figure (5) shows 4- stain textile construction

Laboratory Tests-

The all yarns and fabrics tests were implemented in the national institute of measurement and calibration in Giza, Egypt under the standard atmosphere (Temperature degree: 20 Degree, Humidity Ratio: 65%), in addition to the tested fabrics were not exposed to preparation processes.

The Yarns Tests:-

Before the implementing and weaving of the research samples, the tests had been done to measure Yarns Tensile Strength and Elongation the cording the next specification:

EN ISO (13934 – 1; 1999 MAX FORCE & ELONGATION – STRIP METHOD)

Table (4) shows the used warps and wefts to produce the research samples according to the tests results:-

Yarn Type	Yarn Material	Yarn Count	Tensile Strength (Newton)	Elongation %
Warp	Polyester	300 denier	10.98	58.2
Weft	Nylon	600 denier	17.08	37.49
Weft	Polypropylene	450 denier	14.07	112.3
Weft	Polyester	300 denier	10.01	52.3

The Fabrics Tests:-

The measurement of The Warp and Weft Breaking Strength:-
The test was implemented according to the American standard specification which relevant of this test.
EN ISO (13934 – 1; 1999 MAX FORCE & ELONGATION – STRIP METHOD)
By Device has affixed ratio of Moving Jaw Speed.

The measurement of The Warp and Weft Breaking Elongation ratio:-
The Breaking Elongation was measured by the same aforesaid device, the same samples and the same used circumstances in the previous Breaking Strength measurement test.

The measurement of The Abrasion Resistance of the produced fabrics:-
The test was implemented according to the American standard specification which relevant of this test.
A.S.T.M , D 1175 – 71 STANDARDS

The measurement Test of The Fabric Tearing Strength:-
The test was implemented according to the ISO standard specification which relevant of this test.
(BS EN ISO 13937: PTS. 2 4 TEAR PROPERTIES OF FABRICS)

The measurement of The Fabric Thickness:-
The test was implemented according to the American standard specification.
A.S. T.M D 1777 STANDARD TEST METHOD FOR THICKNESS OF TEXTILE MATERIAL

The measurement of The Samples Weight:-
The test was implemented according to the American standard specification, by using Sensitive Device: 0.001 to measure the Square Meter Fabrics of the produced samples.
A.S. T.M D3776 / D3776 M – 09a STANDARD TEST METHOD FOR MASS PER UNIT AREA (WEIGHT) OF FABRIC

Results and Discussion-

The research idea depends on fixing of fabrics cover factor through (fixing of weft and warp cover factor) , and two variables ; the first one is wefts martial (nylon , polyester , polypropylene) and the second one is the textile construction (1/3 twill , 2/2 twill , 4 - end stain, 2/2 hopsack , 2/2 warp ribs). The same count and density were used for warp of the whole research samples to fix warp cover factor. Although using of three different counts (300 , 450 and 600 denier) , weft cover factor were fixed by using different densities of wefts per cm (24 wefts / cm count : 300 denier) , (20 wefts / cm count: 450 denier) , (17 wefts /cm count : 600 denier). After the laboratory tests had been executed to the produced samples , the results were scheduled and analyzed statistically. So the next bellow the effect of the research variables on the produced fabrics properties**.**

The effect of the research variables on Warp Breaking Strength (Newton):-

Table (5) shows the test results of Warp Breaking Strength to produce the research samples :-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	1157	1264	1314
Twill 2/2	1244	1269	1278
4- End Satin	1211	1164	1170
Hopsack 2/2	1093	1188	1165
Warp Ribs 2/2	1169	1114	1160

The test results of Warp Breaking Strength and which are shown in table (5) refers that the action interfering both of the textile construction and wefts material. So Warp Breaking Strength Achieves its maximum rates by using nylon material wefts (count : 600 denier – density: 17 wefts per cm) and 1/3 twill textile construction, also Warp Breaking Strength Achieves its minimum rates by using polypropylene material wefts (count: 450 denier – density: 20 wefts per cm) and 2/2 hopsack textile construction.

The next bellow are shown by studying of each variable alone:-

The effect of textile construction as independent variable on the Warp Breaking Strength with fixing the other variables:-

It is cleared , the different construction affect on Warp Breaking Strength (WBS) Rates. So WBS rates is increased by using 2/2 twill textile construction more than by using the other textiles constructions like (1/3 twill, 4-end stain , 2/2 hopsack , 2/2 warp ribs).

The 1/3 twill textile construction comes at the second rank after the 2/2 twill textile construction. The rising of WBS of (2/2 twill and 1/3 twill) rates as result of interlaced spreading method of twill construction, comparing with the other textile construction in the study topic. Although the equality of the float long, the warp interlacements number of 2/2 twill with both of 2/2 hopsack and 2/2warp ribs but 2/2 twill achieves the maximum of Warp Breaking Strength ratio. Also the 2/2 twill warp ribs construction achieves the minimum of Warp Breaking Strength according the researcher opinion that the crowded denting of yarns because of using Weft Cover Factor (Actual): 14.7 and Warp Cover factor (Actual): 14.4 which prove Taylor[17] opinion that the crowded weakness probability of the textile Tensile strength to the maximum more than the short floats. Also Essam[19] asserted the aforesaid that the textile density increasing on denting emphasis the fabric Tensile Strength till specific limit then the tensile strength will not be enforced by yarn denting increasing.

Table (6) shows relation factor (0.91) which refer to the direct proportionality between the texile construction and Warp Breaking Strength of the research samples, also the textile constructions are responsible for the contribution factor which refer to (83%) of changes .

The effect of Wefts Material as independent variable on the Warp Breaking Strength with fixing the other variables:-

It is cleared; also Nylon material has an effect on Warp Breaking Strength, So WBS rates of the produced samples are increased by using wefts of nylon materials more than by using wefts of polyester and propylene because the effect of nylon yarns properties on the warp yarns through the interlaced textile between them. So Nylon yarns achieved Tensile Strength (17.08 Newton) and warp yarns achieved tensile strength (10.98 Newton). Also there is rapprochement of Warp Tensile Strength readings of the produced fabrics by using the said wefts material , also the

readings of tensile strength is changing between rising and declining that is shown in table (5). The next figure (6) shows the relation between weft material type and Warp Breaking Strength of the research produced samples.

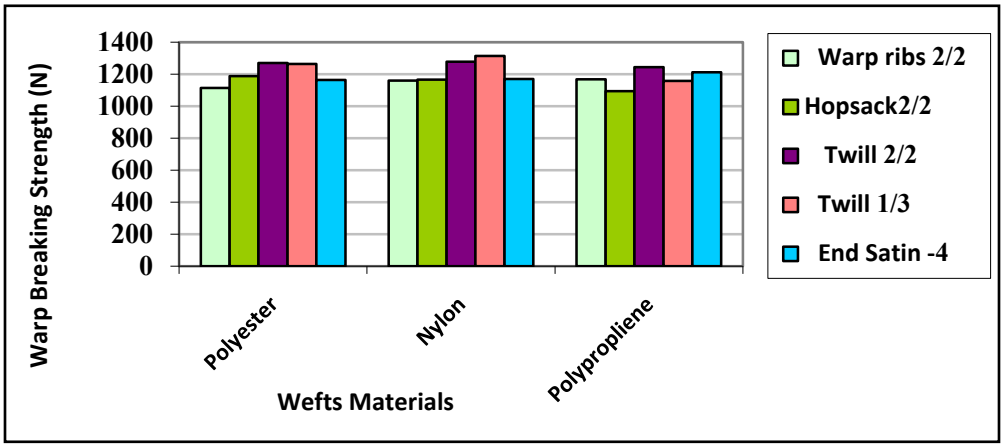

Figure (6) shows the relation between weft material type and Warp Breaking Strength of the research produced sample.

Table (6) shows the relations between the research variables and Warp Breaking Strength of the produced fabrics, in addition to the contribution factor and the relation factor:-

Research variable	Steep line formula	Relation factor	Contribution factor %
The textile construction	X = 321.91 + 0.62 Y	0.91	83
Wefts material	X = 322.60 + 0.75 Y	0.85	72

From table (6)The Relation factor (0.85) refer to strong directly proportionality between wefts material and weft tensile strength of the research samples, also the contribution factor refer that (72%) of variables is a result of wefts material.

The effect of the research variables on Weft Breaking Strength (Newton):-

The next table (7) shows the test result of Weft Breaking strength of the research produced sample:-

Wefts Materials / Textile Structure	Polypropylene	Polyester	Nylon
Twill 1/3	1317	1257	1327
Twill 2/2	1224	1258	1442
4- End Satin	1185	1213	1525
Hopsack 2/2	1178	1213	1365
Warp Ribs 2/2	1129	1146	1420

The test result of weft breaking strength in table (7) refer to the effect of WBS of the samples as a result of the interfering of the textile construction and material wefts , so the WBS reached to the maximum by using nylon material wefts (count: 600 denier and wefts density : 17 weft per cm) , and 4-end stain textile. Also the the WBS reached to the minimum by using polyester material wefts (count: 300 denier and wefts density : 24.5 weft per cm), and 2/2 Warp Ribs textile.

The next bellow are shown by studying of each variable alone:-
The effect of textile construction as independent variable on the Warp Breaking Strength with fixing the other variables:-
It is cleared, the different construction affect on Warp Breaking Strength (WBS) Rates. So WBS rates is increased by using 2/2 twill textile construction more than by using the other textiles constructions like (1/3 twill , 4-end stain, 2/2 hopsack , 2/2 warp ribs).
The 1/3 twill textile construction comes at the second rank after the 2/2 twill textile construction. The rising of WBS of 2/2 twill rates as result of interlaced spreading method of twill construction, comparing with the other textile construction in the study topic. Although the equality of the float long, the weft interlacements number of 2/2 twill with 2/2 hopsack but 2/2 twill achieves the maximum of weft Breaking Strength ratio.
Also the 2/2 twill warp ribs construction achieves the minimum of Warp Breaking Strength against Hamed abd al raoof [15] and Green Wood[16] opinion that Tensile strength direct proportionality with interlaced number of textile construction and inverse proportionality with float long of textile constriction; the rising cover factor comes from using actual weft cover factor (14.7), and actual warp cover factor (14.4), so the yarns under the tensile effect could not get rid of crimp that opinion was asserted by Essam[19] that the rising of textile denting density emphasis the fabrics tensile strength till specific point there is no emphasizing of fabrics tensile strength by denting increasing.
Table (8) show the relation factor (0.86) which refer to very strong direct proportionality between the textile construction and Weft Breaking Strength of the research samples. Also the contribution factor that (0.74 %) of variable was mainly caused by the textile construction.

The effect of wefts material as independent variable on the Weft Breaking Strength with fixing the other variables:-
It is shown in table (7) that Nylon material affects extremely On Weft Breaking Strength (WBS), so WBS of Nylon material produced samples is usually higher than WBS of polypropylene and polyester material produced samples because of Wefts Yarns Feature that which appears in yarns tests result and is shown in table (4) Nylon WBS (17.08 Newton) is higher than Polyester WBS (10.01 Newton) and polypropylene WBS (14.07 Newton). The next figure (7) shows the relation between Weft Material Type and Weft WBS of the research produced fabrics.

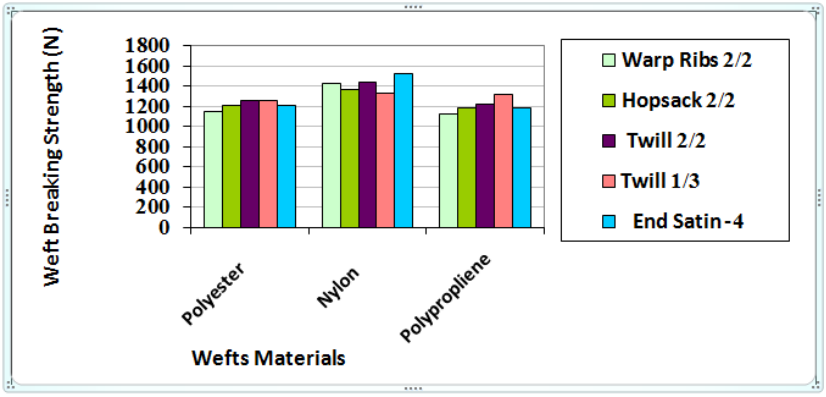

Figure (7) shows the relation between Weft Material Type and Weft WBS of the research produced fabrics.

Table (8) shows the relations between the research variables and Weft Breaking Strength of the produced tests samples, in addition to the contribution factor and the relation factor:-

The Research variable	The Steep line formula	The Relation factor	The Contribution factor %
The textile construction	X= 536.21 + 0.28 Y	0.86	74
The Wefts material	X = 496.72 + 0.67 Y	0.88	77

From table (6)The Relation factor (0.88) refer to strong directly proportionality between wefts material and weft tensile strength of the research samples, also the contribution factor refer that (77%) of variables is a result of wefts material.

The effect of the research variables on Warp Elongation%:-

Table (9) shows the test result of Elongation% of the research produced sample:-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	20.35	33.68	42.32
Twill 2/2	40.15	33.91	35.22
4- End Satin	37.18	31.90	31.43
Hopsack 2/2	35.15	32.65	30.72
Warp Ribs 2/2	41.03	34.23	32.48

The test result of weft Elongation in table (9) refer to the effect of Elongation of the samples as a result of the interfering of the textile construction and material wefts, so the Elongation% reached to the maximum by using nylon material wefts (count: 600denier and wefts density: 17 weft per cm), and 1/3twill textile construction. Also the Elongation% of the research produced samples reached to the minimum by using polypropylene material wefts (count: 450denier and wefts density: 20 weft per cm), and 1/3 twill textile.

The next bellow are shown by studying of each variable alone:-

The effect of textile construction as independent variable on the Warp Elongation Ratio% with fixing the other variables:-

It is cleared, the different construction affect on Warp Elongation% Rates. So its rates is increased by using 2/2 twill textile construction more than by using the other textiles constructions like (1/3 twill, 4-end stain, 2/2 hopsack, 2/2 warp ribs).

The rising of Elongation% of 2/2 twill rates as result of float long different of twill textile construction, comparing with the other textile construction in the study topic like (2/2 hopsack and 2/2 Warp ribs). Although the equality of the float long of the weft yarns number, but 2/2 twill achieves the maximum of weft % Elongation ratio. The Warp Rips construction could not remove yarns wrinkles (crimps) because of the rising of Weft cover Factor. So Actual wefts factor: (14.7) is used in addition to the interlacements signs spreading methods in the textile construction.

From table (10)The Relation factor (0.79) refer to strong directly proportionality between the Warp Elongation ratio% and the textile construction of the research samples, also the contribution factor refer that (62%) of variables is a result of the textile construction.

The effect of wefts material as independent variable on the Warp Elongation Ratio% with fixing the other variables:-

It is shown in table (9) that polypropylene material increases Warp Elongation Ratio% (WER), so WER of polypropylene material produced samples is usually higher than WER of Nylon and polyester material produced samples because of Propylene Yarns properties effect themselves on polyester warp yarns through the textile interlaced between them. So polypropylene wefts achieve Elongation%: (112.3 %), but Polyester Warps yarns achieve Elongation% (58.2 %) as shown in table (4), the nearness between the readings of Weft Elongation% of the produced samples and the study topic Wefts material which hesitate between highness and lowness which shown in table (9). The next figure (8) shows the relation between Weft material type and Weft Elongation % of the research produced samples.

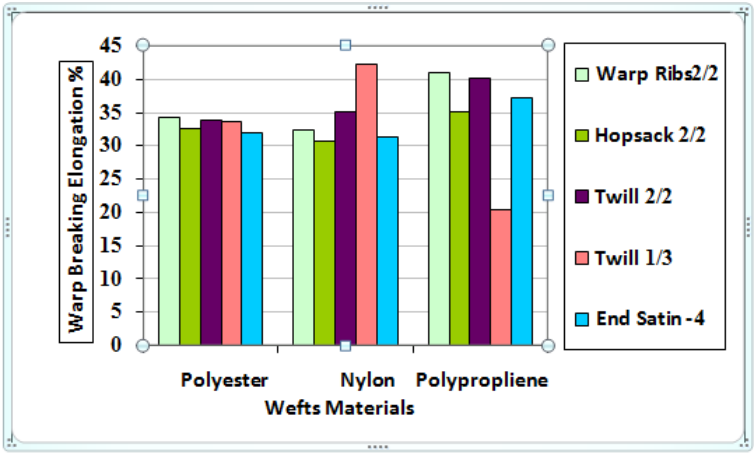

Figure (8) shows the relation between Weft Material Type and Elongation ratio% of the research produced fabrics.

Table(10) shows the relations between the research variables and Warp Elongation ratio% of the produced experiments samples, in addition to the contribution factor and the relation factor:-

Research variable	Steep line formula	Relation factor	Contribution factor %
The textile construction	X = 1.46 + 2.07 Y	0.79	62
Wefts material	X = 2.79 + 1.08 Y	0.81	66

From table (10)The Relation factor (0.81) refer to strong directly proportionality between wefts material and Warp Elongation ratio% of the research samples, also the contribution factor refer that (66%) of variables are a result of wefts material.

The effect of the research variables on Weft Elongation%:-

Table (11) shows the test result of Weft Elongation % of the research produced sample:-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	43.75	27.30	14.50
Twill 2/2	75.9	32.62	12.85
4- End Satin	61.3	30.31	15.63
Hopsack 2/2	60.7	31.66	11.59
Warp Ribs 2/2	60.5	26.56	14.31

The test result of weft Elongation % in table (11) refer to the effect of Elongation of the produced fabrics samples as a result of the interfering of the textile construction and material wefts, so the Elongation ratio% reached to the maximum by using polypropylene material wefts (count: 450 denier and wefts density: 20 weft per cm), and 2/2 twill textile construction. Also the Elongation % of the research produced samples reached to the minimum by using Nylon material wefts (count: 600denier and wefts density: 17 weft per cm), and 2/2 hopsack textile.

The next bellow are shown by studying of each variable alone:-
The effect of textile construction as independent variable on the Weft Elongation Ratio% with fixing the other variables:-
It is cleared, the different construction affect on Weft Elongation% Rates. So its rates are increased by using 2/2 twill textile construction more than by using the other textiles constructions like (1/3 twill, 4-end stain, 2/2 hopsack, 2/2 warp ribs).
The rising of Elongation% of 2/2 twill rates of twill textile construction, comparing with the other textile construction in the study topic like (4-end stain and 1/3 twill) is as result of weft float long above Warp yarns. In spite of the rising of number interlacements of the yarns weft of the 2/2 Warp Rips construction, but 2/2 twill achieves the maximum of weft Elongation ratio% during comparing between them, so that the cause of the happen

stress in 2/2 Warp Rips construction is because rising of cover factor (warp actual cover factor: 14.4) which lead to weft yarns under Tensile Affect is not able to benefit from its crimp.
From table (12)The Relation factor (0.81) refer to strong directly proportionality between the textile construction and the Weft Elongation ratio% of the research samples, also the contribution factor refer that (66%) of variables is a result of the textile construction.

The effect of wefts material as independent variable on the Warp Elongation Ratio% with fixing the other variables:-
It is shown in table (11) that wefts material Affects on Warp Elongation Ratio% (WER), so WER of polypropylene material produced samples is usually more than WER of Nylon and polyester material produced samples because of Propylene Yarns properties effect themselves. So polypropylene wefts achieve Elongation%: (112.3 %), as shown in table (4).
The little deferent between the readings of wefts Elongation% of propylene produced samples and the nylon and polyester of Wefts material which shown in table (11). The next figure (9) shows the relation between Weft material Type and Weft Elongation% of the research produced sample.

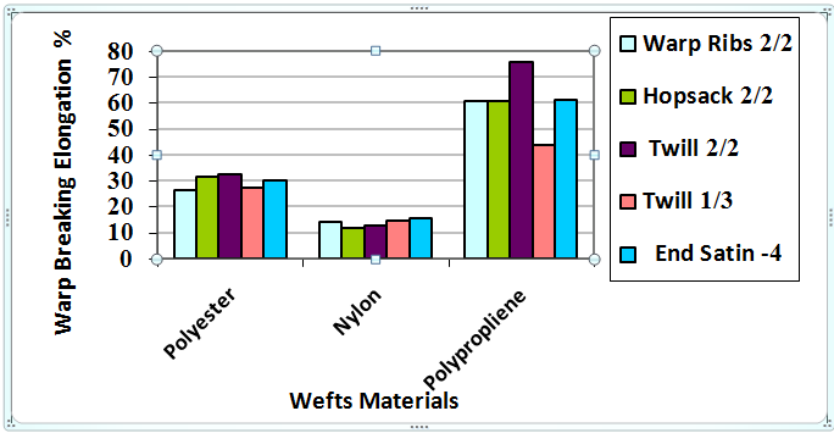

Figure (9) shows the relation between Weft Material Type and Elongation ratio% of the research produced fabrics.

Table (12) shows the relations between the research variables and Weft Elongation ratio% of the produced experiments samples, in addition to the contribution factor and the relation factor:-

Research variable	Steep line formula	Relation factor	Contribution factor %
The textile construction	X = 6.12 + 0.73 Y	0.81	66
Wefts material	X = 5.06 + 1.27 Y	0.75	56

From table (12)The Relation factor (0.75) refer to strong directly proportionality between wefts material and Weft Elongation ratio% of the research samples, also the contribution factor refer that (56%) of variables are a result of wefts material.
[9.5] The effect of the research variables on Weft Breaking Strength (WBS) (Newton):-

Table (13) shows the test result of Warp Breaking strength (WBS) of the research produced sample:-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	134.6	80.9	98.8
Twill 2/2	122.4	74.1	91.6
4- End Satin	113.9	79.3	104.4
Hopsack 2/2	140.7	153.2	188.8
Warp Ribs 2/2	132.6	95.1	141.o

The test result of weft breaking strength in table (13) refer to the effect of WBS of the samples as a result of the interfering of the textile construction and material wefts, so the WBS reached to the maximum levels by using nylon material wefts (count: 600denier and wefts density: 17 weft per cm), and 2/2 hopsack textile. Also the WBS reached to the minimum by using polyester material wefts (count: 300denier and wefts density: 24.5 weft per cm), and 2/2 twill textile construction.

The next bellow are shown by studying of each variable solely:-
The effect of textile construction as an independent variable on the Warp Breaking Strength with fixing the other variables:-
It is cleared in table (13), the different construction affect on Breaking Strength Rates. So Warp Breaking Strength rates is increased by using 2/2 hopsack textile construction more than by using the other textiles constructions like (1/3 twill, 4-end stain, 2/2 twill, 2/2 warp ribs).
The 2/2 Warp Rips textile construction comes at the second rank after the 2/2 hopsack textile construction, against krook and fox opinion that floats long is increasing also Warp Breaking Strength is increasing.
From table (14)The Relation factor (0.95) refer to strong directly proportionality between textile constructions and Warp Breaking Strength ratio of the research samples, also the contribution factor refer that (90%) of variables are a result of textile construction.

The effect of Wefts material as an independent variable on the Warp Tearing Strength with fixing the other variables:-
It is shown in table (13) that polypropylene material achieved the maximum Warp Tearing Strength (WTS) by using polypropylene wefts material of produced samples is usually higher than WTS by using Nylon and Polyester material produced samples. This Warp Tearing Strength rising by using wefts propylene because of the ability declining of Warp yarns (polyester) to tear yarns weft (polypropylene); (in this test warp yarns tear or cut weft yarns)because the strong yarns rising (polypropylene wefts) comparing with the warp yarns strength of polyester, so the polypropylene yarns wefts achieved tensile strength (14.07 Newton), and the polyester yarns warp achieved tensile strength (10.98 Newton)which is shown table (4), and the next figure (10) shows the relation between Weft Material Type and warp tearing strength of the research produced samples.

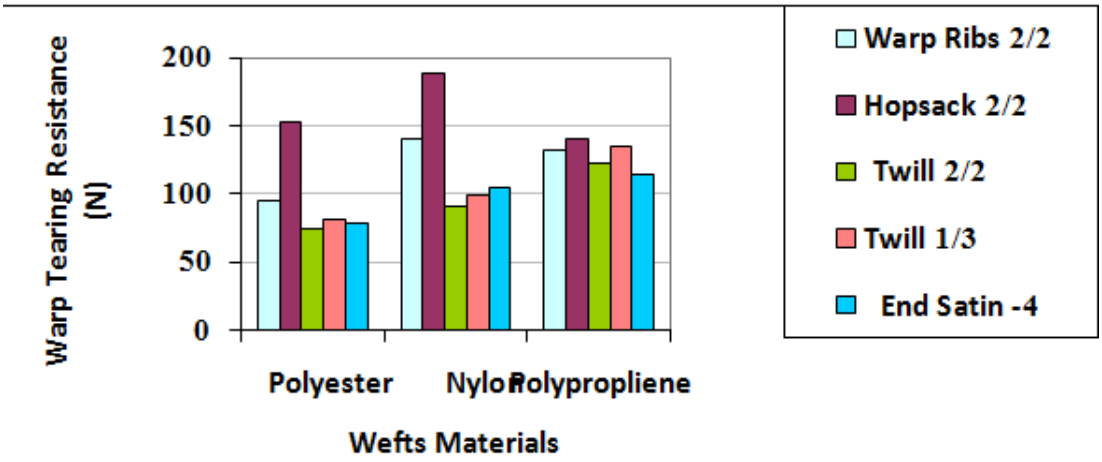

Figure (10) shows the relation between Weft Material Type and Warp Tearing Strength of the research produced samples.

Table (14) shows the relations between the research variables and Warp Tearing Strength of the produced tests samples, in addition to the contribution and the relation factor:-

Research variable	Steep line formula	Relation factor	Contribution factor %
The textile construction	X = 26.49 + 1.82 Y	0.95	90
Wefts material	X = 32.61 + 1.67 Y	0.92	85

From table (14)The Relation factor (0.92) refer to strong directly proportionality between wefts material and Warp Tearing strength of the research samples, also the contribution factor refer that (85%) of variables is a result of wefts material.

The effect of the research variables on Weft Tearing Strength (WTS) Ratio (Newton):-

Table (15) shows the test result of Weft Tearing strength (WBS) of the research produced sample:-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	108.4	84.7	99.8
Twill 2/2	110.7	87.9	102.8
4- End Satin	112.8	85.9	91.4
Hopsack 2/2	205.8	132.6	145.1
Warp Ribs 2/2	131.03	84.1	99.0

The test result of weft Tearing strength in table (15) refer to the effect of WTS Ratio of the samples as a result of the interfering of the textile construction and wefts material, so the WTS reached to the maximum levels by using Polypropliene material wefts (count: 450denier and wefts density: 20 weft per cm), and 2/2 hopsack textile construction. Also the WTS reached to the minimum by using polyester material wefts (count: 300denier and wefts density: 24.5 weft per cm), and 2/2 Warp Rips textile construction.

The next bellow are shown by studying of each variable solely:-
The effect of textile construction as an independent variable on the Fabrics Tearing Resistance with fixing the other variables:-
It is cleared, the different construction textile affect on Weft Tearing Resistance. So Weft Tearing Resistance rates is increased by using 2/2 hopsack textile construction more than by using the other textiles constructions of the topic study like (1/3 twill, 4-end stain, 2/2 twill, 2/2 warp ribs).
The 2/2 Warp Rips textile construction comes at the second rank after the 2/2 hopsack textile construction, which was against krook and fox [30] opinion that floats longs are increased also Fabrics Tearing Resistance is increased.
From table (16)The Relation factor (0.91) refer to the strong directly proportionality between textile constructions and Weft Tearing Resistance ratio of the research samples, also the contribution factor refer that (83%) of variables are a result of textile construction.

The effect of Wefts material as an independent variable on the Warp Tearing Strength with fixing the other variables:-
It is shown, that polypropylene material achieved the maximum Warp Tearing Strength Rates (WTS) by using polypropylene wefts material of produced samples is usually more than WTS Rates by using Nylon and Polyester material produced samples. This Weft Tearing Resistance Rising Rates by using wefts propylene because of the wefts yarns properties (polypropylene) of (Tensile Strength and Elongation), comparing to the wefts yarns properties (Nylon and polyester), as shown table (4) , which shows the used specifications of the warps and wefts yarns of the research produced samples. Also the next figure (11) shows the relation between Weft Material Type and Weft Tearing Resistance of the research produced samples.

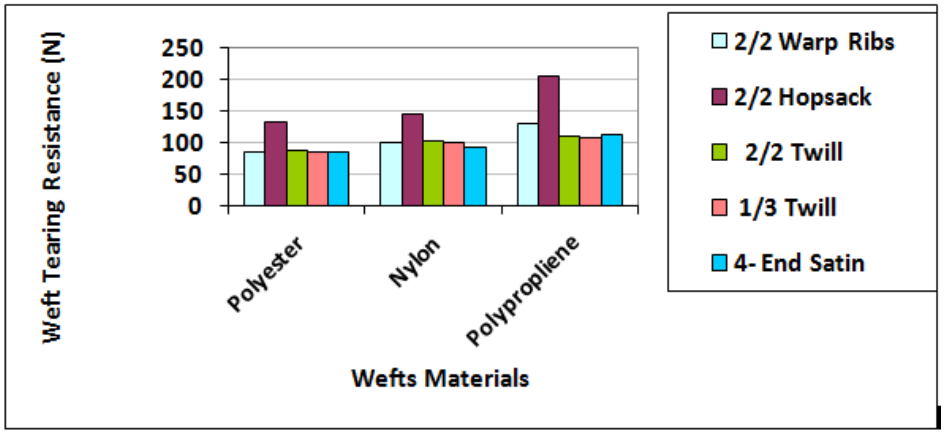

Figure (11) shows the relation between Weft Material Type and Weft Tearing Resistance of the research produced samples.

Table (16) shows the relations between the research variables and Weft Tearing Resistance of the produced experiments samples, in addition to the contribution and the relation factor:-

Research variable	Steep line formula	Relation factor	Contribution factor %
The textile construction	X = 13.50 + 0.46 Y	0.91	83
Wefts material	X = 14.62 + 1.37 Y	0.93	86

From table (16) The Relation factor (0.93) refer to strong directly proportionality between wefts material, And Weft Tearing Resistance of the research samples, also the contribution factor refer that (86%) of variables is a result of wefts material.

The effect of the research variables on Abrasion Resistance Rate:-

Table (17) shows the test result of Abrasion Resistance of the research produced sample:-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	1048	347. 3	302
Twill 2/2	2014	428	389.3
4- End Satin	6996.7	316	230
Hopsack 2/2	246	288	154. 7
Warp Ribs 2/2	212.7	251.3	311.7

The test results of Abrasion Resistance Rate in table (17) refer to the effect of Abrasion Resistance Rate of the produced samples as a result of the interfering both of the textile construction and the wefts material, so the Abrasion Resistance Rate reached to the maximum levels by using the Polypropliene material wefts (count: 450denier and wefts density: 20 weft per cm), and 4-end stain textile construction. Also the Abrasion Resistance Rates reached to the minimum by using polyester material wefts (count: 600denier and wefts density: 17 weft per cm), and 2/2 hopsack textile construction.

The next bellow are shown by studying of each variable solely:-
The effect of textile construction as an independent variable on the Fabrics Abrasion Resistance Rate with fixing the other variables:-
It is cleared, the different construction textile affect on Abrasion Resistance Rates. So Abrasion Resistance Rates is increased by using 4-end Stain textile construction more than by using the other textiles constructions of the topic study like (1/3 twill, 2/2 hopsack, 2/2 twill, 2/2 warp ribs).
The float long rising of 4-end stain was the reason, comparing to the 2/2 twill construction, the 2/2 hopsack, the 2/2 warp ribs. Also the textile construction interlacements rising affects on the textile surface roughness which leads to

the resistance declining of the abrasion fabrics (Warp yarns number: 24 warp per cm or 4-end stain float rate = 1.25 mm). Although the float long equality of the 4-end stain and the 1/3 twill while comparing between them, the 4-end stain abrasion rising reason because of the spreading method and the different technique of the textile interlacements signs between the two constructions.

Mohamed Sabry[14] asserted the aforesaid that the resulted smooth surfaces of the impact textile construction was able to resist the surfaces abrasion action more than the zigzag surfaces fabrics but Harby[29] did not agree with that opinion, because he said that the abrasion fabrics resistance is increased by the float long declining according to the used textile construction.

From table (18) The Relation factor (0.88) refers to the strong directly proportionality between the textile construction and Weft Tearing Resistance ratio of the research samples, also the contribution factor refers that (77%) of variables are a result of textile construction.

The effect of Wefts material as an independent variable on the Abrasion Resistance Rate with fixing the other variables:-

It is shown in table (17), that Wefts material affects on Abrasion Resistance Rate, so Abrasion Resistance Rate achieved the maximum Rate (WTS) by using polypropylene wefts material of produced samples is usually more than Abrasion Resistance Rate by using Nylon and Polyester material produced samples. This Rising of Abrasion Resistance Rate by using propylene material because of the high resistance of the abrasion propylene fibers[10] , comparing with the other produced samples like (Nylon and polyester material wefts, and the next figure (12) shows the relation between Weft Material Type and Abrasion Resistance of the research produced samples.

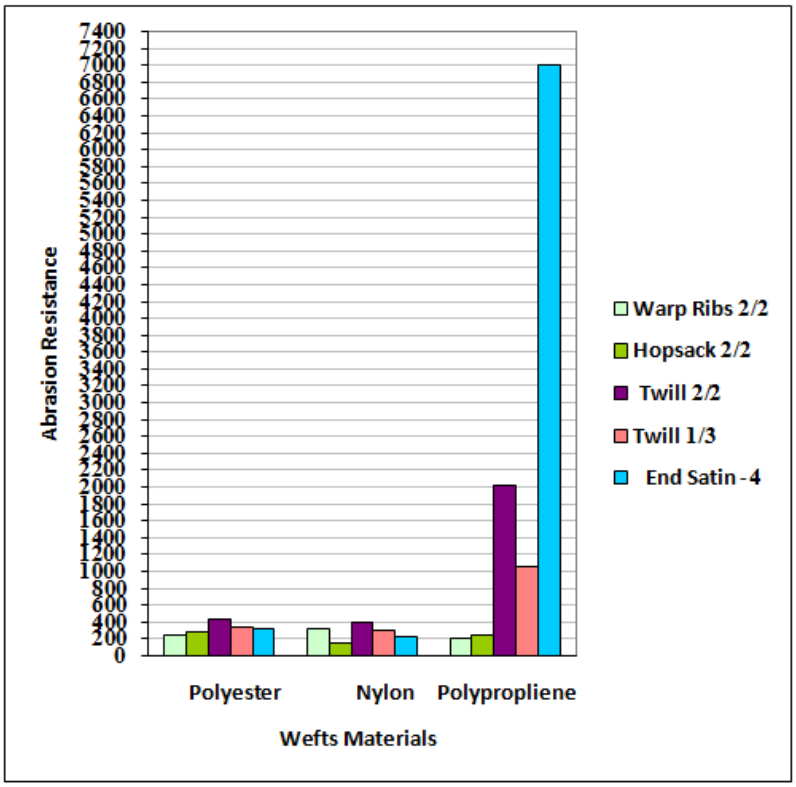

Figure (12) shows the relation between Weft Material Type and Abrasion Resistance of the research produced samples.

Table (18) shows the relations between the research variables and Weft Tearing Resistance of the produced experiments samples, in addition to the contribution and the relation factor:-

The Research Variables	The Steep line formula	The Relation factor	The Contribution factor %
The textile construction	X = 532.61 + 1.66 Y	0.88	77
The Wefts Material	X = 341.5 + 1.32 Y	0.84	71

From table (18) The Relation factor (0.84) refer to strong directly proportionality between the wefts material and the Abrasion Resistance of the research samples, also the contribution factor refer that (71%) of variables is a result of wefts material.

The effect of the research variables on the produced fabrics Thickness (mm):-

Table (19) shows the test results of Thickness Rate (mm) of the research produced samples:-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	0.478	0.35	0.505
Twill 2/2	0.438	0.311	0.467
4- End Satin	0.426	0.357	0.489
Hopsack 2/2	0.397	0.314	0.488
Warp Ribs 2/2	0.484	0.357	0.518

The test results of Fabric Thickness Rate in table (19) refer to the effect of Fabric Thickness Rate of the produced samples as a result of the interfering both of the textile construction and the wefts material, so the Fabric Thickness Rate reached to the maximum levels by using the Nylon material wefts (count: 600 denier and wefts density: 17 weft per cm), and 2/2 Warp Rips textile construction. Also Fabric Thickness Rate reached to the minimum levels by using polyester material wefts (count: 300 denier and wefts density: 24.5 weft per cm), and 2/2 twill textile construction.

The next bellow are shown by studying of each variable solely:-

The effect of textile construction as an independent variable on the Fabrics Thickness Rate with fixing the other variables:-

It is cleared, the different construction textile affect on Fabric Thickness Rates. So Fabric Thickness Rates is increased by using the 2/2 warp ribs textile construction more than by using the other textiles constructions of the topic study like (1/3 twill, 2/2 hopsack, 2/2 twill, 4-end Stain).

The outstanding, that the 2/2 hopsack reached to the minimum level of Fabric Thickness Rate of the produced samples.

From table (20) The Relation factor (0.86) refers to the strong directly proportionality between the wefts material and the Fabric Thickness Rate of the research samples, also the contribution factor refer that (74%) of variables is a result of Textile Construction.

The effect of Wefts material as an independent variable on the Fabric Thickness Rate with fixing the other variables:-

It is cleared, that The Wefts material different affects on Fabric Thickness Rate, so Fabric Thickness Rate reached to the rising Rate by using Nylon wefts material of produced samples is usually more than Fabric Thickness Rate by using Polyester and Propylene material produced samples. The outstanding, that the wefts material of polyester achieved the minimum levels of Fabric Thickness Rate of the produced samples because of the wefts yarns thickness affect (count), in spite of fixing of fabric cover factor to the whole produced samples, and the next figure (13) shows the relation between Weft Material Type and fabric thickness (mm) of the research produced samples.

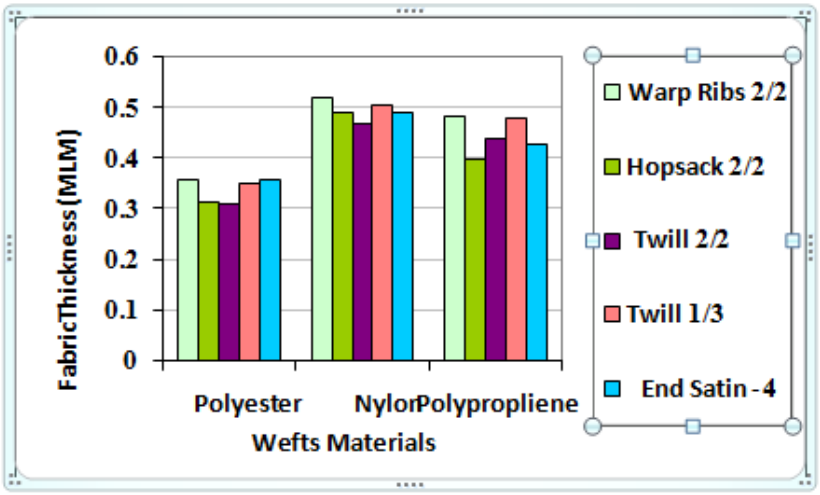

Figure (13) shows the relation between Weft Material Type and Fabric Thickness of the research produced samples.

Table (20) shows the relations between the research variables and Fabric Thickness of the produced experiments samples, in addition to the contribution and the relation factor:-

The Research Variables	The Steep line formula	The Relation factor	The Contribution factor %
The textile construction	X = 0.18 + 0.86 Y	0.86	74
The Wefts Material	X = 0.14 + 0.48 Y	0.87	76

From table (20) The Relation factor (0.86) refers to the strong directly proportionality between the wefts material and the fabric thickness of the research samples, also the contribution factor refer that (76%) of variables is as a result of wefts material.

The effect of the research variables on the Square Meter Weight (gram) of the research samples:-

Table (21) shows the test results of Weigh Rate (mm) of the research produced samples:-

Wefts Materials / Textile Structure	Polypropliene	Polyester	Nylon
Twill 1/3	2.56045	2.094	2.4411
Twill 2/2	2.61795	2.09235	2.4097
4- End Satin	2.4555	2.0739	2.58835
Hopsack 2/2	2.7805	2.0669	2.41115
Warp Ribs 2/2	2.3454	2.0641	2.39385

The test results of The Square Meter Weight Rate in table (21) refer to the effect on the Square Meter Weight of the produced samples as a result of the interfering both of the textile construction and the wefts material, so the Square Meter Weight Rate reached to the maximum levels by using the polypropylene material wefts (count: 450 denier and wefts density: 20 weft per cm), and 2/2 hopsack textile construction. Also The Square Meter Weight Rate reached to the minimum levels by using polyester material wefts (count: 300 denier and wefts density: 24.5 weft per cm), and 2/2 warp ribs textile construction.

The next bellow are shown by studying of each variable solely:-
The effect of textile construction as an independent variable on the Square Meter Weight Rate with fixing the other variables:-
It is cleared, the different construction textile affect on The Square Meter Weight Rate. So The Square Meter Weight Rates is increased by using the 2/2 hopsack textile construction more than by using the other textiles constructions of the topic study like (1/3 twill, 2/2 hopsack, 2/2 twill, 4-end Stain).
The outstanding, that the 2/2 warp ribs reached to the minimum level of The Square Meter Weight Rate of the produced samples.
From table (22) The Relation factor (0.72) refers to the strong directly proportionality between the Textile construction and the Square Meter Weight Rate of the research samples, also the contribution factor refer that (52 %) of variables is a result of Textile Construction.

The effect of Wefts material as an independent variable on the Square Meter Weight Rate with fixing the other variables:-
It is cleared, that The Wefts material different affects on The Square Meter Weight Rate, so The Square Meter Weight Rate reached to the rising Rate by using Polypropylene wefts material of produced samples is usually more than The Square Meter Weight Rate by using Polyester and Nylon material produced samples. The outstanding, that the wefts material of polyester achieved the minimum levels of The Square Meter Weight Rate of the produced samples, and the next figure (14) shows the relation between Weft Material Type and The Square Meter Weight (g) of the research produced samples.

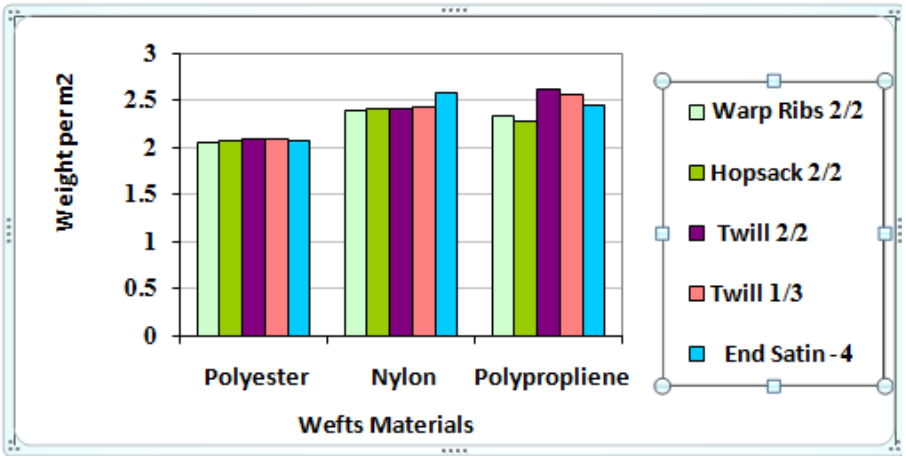

Figure (14) shows the relation between Weft Material Type and The Square Meter Weight of the research produced samples.

Table (22) shows the relations between the research variables and The Square Meter Weight of the produced experiments samples, in addition to the contribution and the relation factor:-

The Research Variables	The Steep line formula	The Relation factor	The Contribution factor %
The textile construction	X = 1.15 + 1.02 Y	0.72	52
The Wefts Material	X = 1.16 + 1.29 Y	0.85	72

From table (22) The Relation factor (0.85) refers to the strong directly proportionality between the wefts material and the fabric thickness of the research samples, also the contribution factor refer that (76%) of variables is as a result of wefts material.

Conclusions:-

We can conclude through the produced samples of the study, some different of textile construction factors (the textile construction, Wefts material) and the tests which are implemented on these samples, the tests results are shown in table (23) as follows.

	The textile construction					Wefts material		
	1/3 twill	2/2 twill	4-end stain	2/2 hopsack	2/2 warp ribs	Nylon	Polyester	Poly propylene
Warp Breaking Strength	----	Max	----	----	Mini	Max	----	min
Weft Breaking Strength	----	Max	----	----	Mini	Max	----	min
Warp Elongation%	min	Max	----	----	----	----	Min	Max
Weft Elongation%	min	Max	----	----	----	----	Min	Max
Abrasion Resistance	----	----	Max	Min	----	min	----	Max
Warp Tearing Resistance	----	min	----	Max	----	----	Min	Max
Weft Tearing Resistance	----	----	min	Max	----	----	Min	Max
Fabric Thickness	----	----	----	Min	Max	Max	Min	----
Weight per m^2	----	----	----	Max	min	----	Min	Max

From the previous table(23) we can conclude:

The effect of textile construction as independent variable on the produced fabrics properties with fixing the other variable:-

- The independent variable (2/2 twill) achieves the maximum of weft and warp Breaking Strength, warp and weft Elongation, also achieves the minimum of warp Tearing Resistance.
- The independent variable (2/2 hopsack) achieves the maximum of weft and warp Breaking Strength, the maximum of Weight per m^2, the minimum of Thickness, also achieves the minimum of Abrasion Resistance.
- The independent variable (2/2 warp ribs) achieves the minimum of and warp Breaking Strength, the maximum of Thickness, also achieves the minimum of Weight per $m^{2.}$
- The independent variable (4-end stain) achieves the maximum of Abrasion Resistance and achieves of the minimum of Warp Tearing Resistance.
- The independent variable (1/3 twill) achieves the minimum of Warp and Weft Elongation.

The effect of wefts material as independent variable on the produced fabrics properties with fixing the other variable:-

- The independent variable (nylon material) achieves the maximum of Warp and Weft Breaking Strength, the minimum of Abrasion Resistance, also achieves the maximum of Thickness.
- The independent variable (propylene material) achieves the maximum of Warp and Weft Elongation, the maximum of Warp and Weft Tearing Resistance, the maximum of Abrasion Resistance, the minimum of Weft and Warp Breaking Strength, also achieves the maximum of Weight per $m^{2.}$
- The independent variable (polyester material) achieves the minimum of Warp and Weft Elongation, the minimum of Warp and Weft Tearing Resistance, the minimum of the Thickness, also achieves minimum of Weight per $m^{2.}$

The interfering of the research variables (textile construction and wefts material),the following results have been achieved:-

- The produced sample of wefts nylon material and 1/3 twill textile construction achieved the maximum of Warp Tearing Strength ratio.
- The produced sample of wefts nylon material and 4-end stain textile construction achieved the maximum of Weft Tearing Strength ratio.
- The produced sample of wefts nylon material and 1/3 twill textile construction achieved the maximum of Warp Elongation ratio.
- The produced sample of wefts propylene material and 2/2 twill textile construction achieved the maximum of Weft Elongation ratio.

- The produced sample of wefts nylon material and 2/2 hopsack textile construction achieved the maximum of Warp Tearing Strength ratio.
- The produced sample of wefts polypropylene material and 2/2 hopsack textile construction achieved the maximum of Weft Tearing Strength ratio.
- The produced sample of wefts polypropylene material and 4-end stain textile construction achieved the maximum of Abrasion Resistance ratio.
- The produced sample of wefts nylon material and 2/2 twill textile construction achieved the maximum of the Thickness.
- The produced sample of wefts polypropylene material and 2/2 hopsack textile construction achieved the maximum of Weight per m^{2}.

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