# Study of some factors which affect properties of fabrics made of viscose and its blends with cotton and polyester fibers

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The aesthetic characteristics of garments are mainly controlled by several properties of the used fabric such as fabric stiffness, drapability and crease recovery . These properties depend essentially on type of raw material and its blends with other materials , and fabric characteristics including fabric design and specifications. How for these properties could be controlled is a matter of question which needs full answer. In the present work, two blends of viscose /cotton and viscose / polyester with various blending ratios are used to produce fabrics at two fabric designs, namely 1/1 plain 2/2 twill weave at various fabric weight per square meter. Results are collected, analysis of variance is performed, and the significant effects are determined.

يتعرض البحث لبعض العوامل المؤثرة على خواص الأقمشة المصنعة من خلطات الفسكوز مع كل من شعيرات البول أستر والقطن. بالأخص إنسدالية ومرونة الأقمشة القابلة للكرمشة. ولقد تم إنتاج الأقمشة بخلطات من شعيرات الفسكوز على شعيرات البولى أستر والقطن بنسب مختلفة. ولقد تم دراسة تأثير كل من التركيب النسيجي للقماش ووزن المتر المربع من الأقمشة المنتجة على خواص الأقمشة المختلفة.

**Keywords:** Viscose blends, Fabric stiffness, Drapability, Crease recovery

## 1. Introduction

When selecting a fabric for a given purpose, it is usually known what characteristics of the material are required for optimum performance. When a fabric is chosen for apparel manufacturing, essential fabric properties are examined. Such properties include stiffness, draping and crease recovery .

Pierce [1] observed that when the handle of a fabric is judged the sensations of stiffness or limpness, hardness or softness, and roughness or smoothness , are all made use of. Joseph [2] explained the importance of geometric factors to the hand and drape of a fabric. Flexibility, compressibility, extensibility, resilience, density, surface contour, surface friction , and thermal character influence the drape of fabrics. The geometric factors involved in the creation of the subjectively described fabric and its hand and drape include contour, cross section , and length of fiber, arrangement of fibers in yarns, and arrangement of yarns in fabrics. The method of measuring drape was developed by Chu and others [3], in which the warp and weft way characteristics interact and produce the type of graceful folding seen in tailors ' shop windows when suiting is draped over circular supports. This method is also described by Kaswell [4]. It informs about the drape coefficient and other values which are obtained by further analysis of the shape of the projected outline. A relevant literature on creasing and related fabric properties is given by Kaswell [4] and Marsh [5]. Cellulosic materials are notoriously susceptible to creasing and the removal of this defect may perhaps be regarded as one of the greatest achievements in the history of textile finishing. Many materials resist creasing , which means they resist deformation and are therefore rigid, but what is required is a product, which can be deformed but rapidly recovers from deformation.

There must be a resilience, which includes some resistance to creasing, but also a powerful and rapidly recover its form . Marsh [5] also stated that amongst the common textile materials the order of diminishing crease resistance is wool , silk , acetate rayon , viscose rayon, cupramonium rayon , cotton and flax .

Sultan et al. [6] developed an objective method for testing fabric hand or handle by

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using a simple device that can be fitted to tensile testing machine. The results of withdrawal force were compared with fabric hand ranking by the method of Kawabata [7] Behery [8] who investigated the relation of withdrawal-force measurement to KES values by using a hole with conical geometry. Several other special instruments for the measurement of drape and related fabric properties are described by Olofsson [9], Howorth [10] and Cusick [11].

Apart from the different methods of measuring and evaluating each of the fabric stiffness, drape and crease recovery , there is a necessary for evaluating these properties for fabrics made of blends in general , and in particular the viscose blends with each of cotton and polyester taking into consideration various blending ratios and different fabric specifications and structure.

## 2. Experimental work

Table 1 shows the details of the experimental plan.

## 3. Testing procedures

Fabric samples are collected , conditioned for 24 hours in standard atmosphere (65%± 2% RH and 20 C ° ± 2 C °) then tested according to the following :

1- Fabric stiffness is tested by using Curley type stiffness tester, which is based on measuring the deflection of a pointer, which swings around a frictionless center by the stiffness of the sample .

2- Fabric drapability is expressed as drape coefficient, which is calculated using drapemeter.

3- Fabric crease recovery is determined using Monsanto type creasy recovery tester. The test results are analyzed statistically, where correlation factor, coefficient of determination, Beta coefficient, and summary of the regression analysis for each case is illustrated. A scatter plot for each case shows that a second – degree polynomial is a good representative of the relation between the dependant and independent variables . The t-test is carried out to determine the significant difference of the responses in each case.

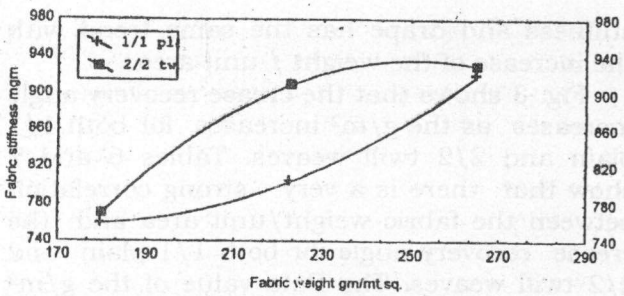
Table 1
Plan of the experimental work

| No. | Material/blending ratio | Weave | Weight, g /m² | Thread/inch | |
|---|---|---|---|---|---|
| | | | | Weft | Warp |
| 1 | Viscose 100% | Plain1/1 | 160 | 20 | 30 |
| 2 | Viscose 100% | Plain1/1 | 205 | 25 | 30 |
| 3 | Viscose 100% | Plain1/1 | 240 | 30 | 30 |
| 4 | Viscose 100% | Twill 2/2 | 180 | 20 | 30 |
| 5 | Viscose 100% | Twill 2/2 | 223 | 25 | 30 |
| 6 | Viscose 100% | Twill 2/2 | 265 | 31 | 30 |
| 7 | 75% Viscose - 25% polyester | Twill 2/2 | 220 | 35 | 20 |
| 8 | 50% Viscose - 50% polyester | Twill 2/2 | 218 | 30 | 25 |
| 9 | 25% Viscose - 75% polyester | Twill 2/2 | 219 | 30 | 30 |
| 10 | 100% polyester | Twill 2/2 | 221 | 25 | 30 |
| 11 | 75% Viscose - 25% polyester | Plain1/1 | 219 | 35 | 20 |
| 12 | 50% Viscose - 50% polyester | Plain1/1 | 218 | 25 | 35 |
| 13 | 25% Viscose - 75% polyester | Plain1/1 | 223 | 23 | 42 |
| 14 | 100% polyester | Plain1/1 | 221 | 25 | 30 |
| 15 | cotton 100% | Plain1/1 | 165 | 40 | 40 |
| 16 | cotton 100% | Plain1/1 | 205 | 50 | 42 |
| 17 | cotton 100% | Plain1/1 | 242 | 60 | 45 |
| 18 | 75% Viscose – 25% cotton | Plain1/1 | 207 | 40 | 35 |
| 19 | 50% Viscose – 50% cotton | Plain1/1 | 210 | 45 | 32 |
| 20 | 25% Viscose – 75% cotton | Plain1/1 | 206 | 48 | 30 |

## 4. Results and discussion

### *4.1.Effect of fabric weight/unit area and fabric design on stiffness, drape and crease recovery of 100% viscose fabrics*

Fig. 1 shows the effect of the fabric weight g/m² on fabric stiffness for 100%viscose, 1/1 plain and 2/2 twill weave. It is clear, that the fabric stiffness increases due to the increase in g/m². sq. This is expected result since increasing the g/m² was achieved through increasing the number of thread/inch which produces a fabric more compact, then have more stiffness. Tables 2 and 3 show the regression summary for this case. It is clear that there is a strong correlation between the g/m². sq and the fabric stiffness for both 1/1 plain and 2/2 twill weave. The degree of contribution of g/m² to the fabric stiffness is about 94% for 1/1 plain weave and 92% for 2/2 twill weave, however, it has a lower significance level in both cases. The coefficient of determination shows that 90% of the variability in the first case could be explained as shown in table 2, and approximately 85% in case of 2/2 twill as shown in table 3. The test shows that there is no significant difference between the fabric stiffness of both 1/1 plain and 2/2 twill 100% viscose fabrics.




Y1 (1/1 plain) = 1.37 e3-6.97*x+0.02*x^2+eps
Y2(2/2twill)=-1..129e3+16.434*x-0.033*x^2 +eps

Fig. 1. Effect of fabric weight on fabric stiffness for plain and twill weave of 100% viscose fabric.

Fig. 2 shows that increasing the weight / unit area results in increasing the drape coefficient for both 1/1 plain and 2/2 twill weave, moreover the 2/2 twill weave has higher drape coefficient than 1/1 plain weave. Statistically from the t-test this increase is not significant. Tables 4 and 5 show that there is a strong correlation between the gm/mt and coefficient of drape for both 1/1 plain and 2/2 twill weave. The contribution of the weight per unit area in determining the drape coefficient is about 96% for 1/1 plain weave and 92 % for 2/2 plain weave. The coefficient of determination in the first case is 0.93 and about 0.85 in the second, but at less significant level. It is clear that both fabric

Table 2
Regression summary of g/m²on fabric stiffness for 100% viscose, 1/1 plain weave

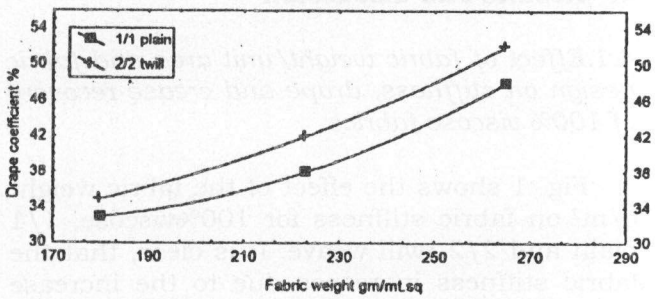
| Stat. multiple regress | Regression summary variable STIFFIJ_1<br>R=949405533 R² 90137049 Adjusted R² 80274098<br>F(1,1)=9.1390 P<20337 std. error of estimate 36.647 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err Of B | T(1) | p-level |
| Interept | | | 434.4041 | 132.0142 | 3.290586 | 187821 |
| GM_1 | 949405 | 314053 | 1.9534 | 6462 | 3.023070 | 203374 |

Table 3
Regression summery of g/m²on fabric stiffness for 100% viscose, 2/2 twill weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=92034071 R² 84702703 Adjusted R² 69405406<br>F(1,1)=5.5371 P<25582 std. error of estimate 48.220 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | | 449.6494 | 180.7930 | 2.487096 | 243376 |
| GM2_2 | 920341 | 391118 | 1.8878 | 8023 | 2.353105 | 255823 |

stiffness and drape has the same trend with the increase of the weight / unit area.

Fig. 3 shows that the crease recovery angle increases as the g/m² increases for both 1/1 plain and 2/2 twill weaves. Tables 6 and 7 show that there is a very strong correlation between the fabric weight/unit area and the crease recovery angle for both 1/1 plain and 2/2 twill weaves. The Beta value of the g/m² in the first case was approximately 98.8% at significant level 91 % , and it was 99 % at significant level 94 % for the second case. The t-test shows that there is no significant difference between the crease recovery for 1/1 plain and 2/2 twill, 100 % viscose fabrics.




Y1 (1/1 plain) = 69.596 – 0.461 x+0.001x^2eps
Y2 (2/2 twill) =41.259-0.194 x=0x^2+eps

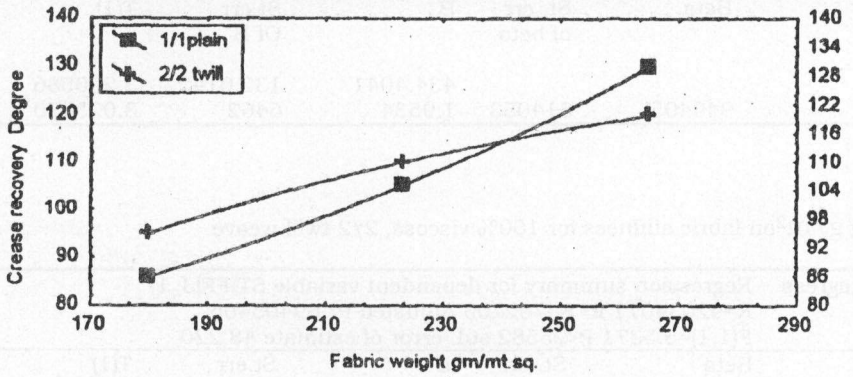
Fig. 2. Effect of fabric weight on fabric drapability for plain and twill weave of 100% viscose fabric.

Table 4
Regression summary of g/m² on fabric drape coefficient for 100% viscose, 1/1 plain weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=96582997 R² 93282754 Adjusted R² 86565507<br>F(1,1)=13.887 P<16690 std. error of estimate 2.7994 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | | 2.572539 | 10.08442 | 255100 | 840989 |
| GM1_1 | 965830 | 259177 | 183938 | .04936 | 3.726534 | 166902 |

Table 5
Regression summery of g/m² on fabric crease recovery for 100% viscose, 1/1 plain weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=92034071 R² 84702703 Adjusted R² 69405406<br>F(1,1)=5.5371 P<25582 std. error of estimate 48.220 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | | 449.6494 | 180.793 | 2.487096 | 243376 |
| GM2_2 | 0920341 | 391118 | 1.8878 | 8023 | 2.353105 | 255823 |




Y2 (2/2 twill) =-20.087+0.874*x-0.001*x^2+eps Y2 (2/2 twill) =-20.087 + 0.874*x-0.001*X^2+eps

Fig.3. Effect of fabric weight g/m² on fabric crease recovery for 100% viscose fabric.

Table 6
Regression summery of g/m² on fabric crease recovery for 100% viscose, 1/1 plain weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=98867953 R² 97748721 Adjusted R² 9547441<br>F(1,1)=43.419 P<09588 std. error of estimate 4.6827 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err Of B | T(1) | p-level |
| Interept | | | -2.71503 | 16.86848 | -160953 | 0898406 |
| Gm1_1 | 988680 | 150043 | .54402 | 08256 | 6.589324 | 095882 |

Table 7
Regression summery of g/m² on fabric crease recovery for 100% viscose, 2/2 twill weave

| Stat. Multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=99415547 R² .334510 Adjusted R² 97669020<br>F(1,1)=84.801 P<36 std. error of estimate 1.9211 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | | 42.79480 | 7.202907 | 5.941323 | |
| GM2_2 | .994155 | 107 | 29433 | 031963 | 9.208737 | |

*4.2. Effect of blending ratio and fabric design on stiffness, drape and crease recovery of 100% viscose fabrics.*

Fig. 4 shows the effect of the blending ratio of polyester / viscose and fabric design on fabric stiffness. It is clear that increasing the percentage of polyester fibers results in increasing the fabric stiffness, for both 1/1 plain and 2/2 twill weave. This could be explained through the nature and the properties of the polyester fibers itself. Tables 8 and 9 show that there is a strong and significant correlation between the increasing of the ratio of polyester fibers in blend and fabric stiffness. The coefficient of determination shows that approximately 90% of the variability occurred in 1/1 plain weave could be explained at significant level 96% , however it was 88 % in 2/2 twill weave at significant level approximately 89 %. The t-test has shown that there is a significant difference between the stiffness of fabrics made of polyester / viscose blends for 1/1 plain and 2/2 twill weave. The 2/2 twill weave was found to be stiffer than 1/1 plain weave.

Fig. 5 shows the effect of blending ratio and fabric design on fabric drape coefficient. It is clear that increasing the polyester content in the blend leads into producing fabric with less drapability (i.e. higher drape coefficient) for both 1/1 plain and 2/2 twill weave. From the t-test it is shown that there is a significant difference between the drape coefficient of both 1/1 plain and 2/2 twill weave. The level of significance was 93 %. This means that blended fabrics of polyester / viscose of 2/2 twill weave have higher drape coefficient (less drapability) than the corresponding fabrics of 1/1 plain weave. Tables 10 and 11 show that there is a very strong and significant correlation between the content of polyester fibers in the polyester / viscose blend and fabric drape coefficient for both 1/1 plain and 2/2 twill weave. The coefficients of determination in both cases reveals that the suggested models could be twill weave.

Fig. 6 shows the effect of increasing the blending ratio of polyester / viscose for 1/1plain and 2/2 twill weaves on fabric crease recovery. It is clear that there is a slight difference between both fabric designs, but statistically by using t-test, it was found that this difference is not significant. Tables 12 and 13 show that there is a very strong and significant correlation between increasing the polyester content in the blend and the crease recovery of the produced fabrics. Increasing the polyester content in the blend results in a greater angle of recovery, then increasing the resistance of creasing of the produced fabrics. On the other hand, increasing the polyester

Table 8
Regression summary of blending ratio polyester/viscose on fabric stiffness for 100% viscose, 1/1 plane weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=95271617 R² 90766810 Adjusted R² 86150215<br>F(1,2)=19.661 P<04827 std. error of estimate 20.979 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | 952716 | 214863 | 850.5000 | 25.69338 | 33.10191 | 000911 |
| VAR9 | | | 1.6640 | 37528 | 4.43407 | 047284 |

Table 9
Regression summary of blending ratio polyester/viscose on fabric stiffness for 100% viscose, 2/2 twill weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=88402652 R² 78150289 Adjusted R² 67225434<br>F(1,2)=7.1534 P<04728 std. error of estimate 26.084 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | | 905.0000 | 31.94683 | 28.32832 | 001244 |
| Pot%2 2 | .884027 | 330528 | 1.2480 | 46661 | 2.67459 | 115973 |

Table 10
Regression summary of blending ratio polyester/viscose on fabric drape coefficient % for 100% viscose, 1/1 plain weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=95466874 R² 91139241 Adjusted R² .86708861<br>F(1,2)=20.571 P<04533 std. error of estimate 5.9161 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | | 24.00000 | 7.245688 | 3.312315 | 080318 |
| POL%2_2 | 954669 | 210485 | 48000 | 105830 | 4.535574 | 045331 |

Table 11
Regression summary of blending ratio polyester/viscose on fabric drape coefficient % for 100% viscose, 2/2 twill weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=95466874 R² 91139241 Adjusted R² .86708861<br>F(1,2)=20.571 P<04533 std. error of estimate 5.9161 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | | 48.50000 | 1.620185 | 29.93485 | |
| POL%2_2 | 991818 | 090272 | 26000 | 023664 | 10.98701 | |

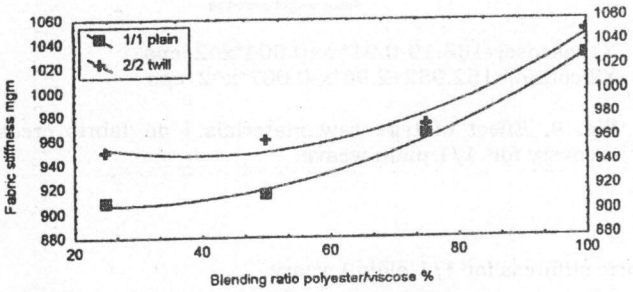
Table 12
Regression summary of blending ratio polyester/viscose on fabric crease recovery for 100% viscose, 1/1 plain weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=95466874 R² 91139241 Adjusted R² .86708861<br>F(1,2)=20.571 P<04533 std. error of estimate 5.9161 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | 220763 | 92.00000 | 12.72792 | 7.228203 | 018607 |
| POL%2_2 | 950014 | 090272 | 80000 | 18590 | 4.303315 | 049986 |

Table 13
Regression summary of blending ratio polyester/viscose on fabric crease recovery for 100% viscose, 2/2 twill weave

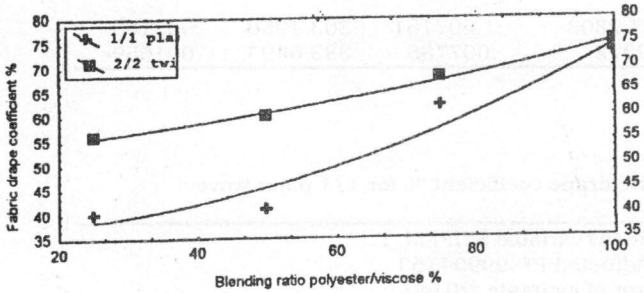
| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=95001425 $R^2$ .9252709 Adjusted $R^2$ .85379061<br>F(1,2)=18.519 P<04999 std. error of estimate 10.392 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | T(1) | p-level |
| Interept | | 110802 | 117.5000 | 3.901923 | 30.11336 | 001101 |
| POL%2_2 | .987647 | | 5080 | 0.56991 | 8.91365 | 012353 |

content in the blend leads to produce a fabric with less ability of moisture absorption. A compromise solution should be considered and a separate work is needed to optimize the polyester content in the blend, regarding the effect on the ability of moisture absorption. The coefficient of determination in both cases of fabric designs reveals that there is a good fitness of the suggested models to cover the variability of the crease recovery due to the variation of the blending ratio of polyester viscose percentage.



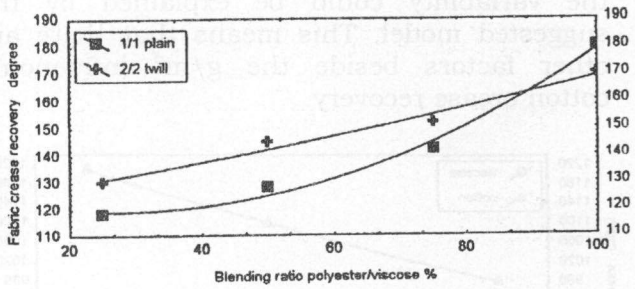

Y1 (1/1 plain) = 923 – 1.236*x+0.023*x^2+eps
Y2(2/2 twill) = 990 –2.15236 x+0.027x^2+eps

Fig. 4. Effect of polyester/viscose blending ratio on fabric stiffness for 1/1 plain and 2/2 twill weave.




Y1 (1/1 plain) = 36.5-0.02*x+0.004*x^2+eps
Y2(2/2 twill)=52.25+0.11*x+0.001*x^2+eps

Fig. 5. Effect of polyester/viscose blending ratio % on fabric crease recovery for 1/1 plain and 2/2 twill weave.




Y1 (1/1 plain) = 127 – 0.6*x+0.011*x^2+eps
Y2(2/2 twill)=121.25+0.358*x+0.001*x^2+eps

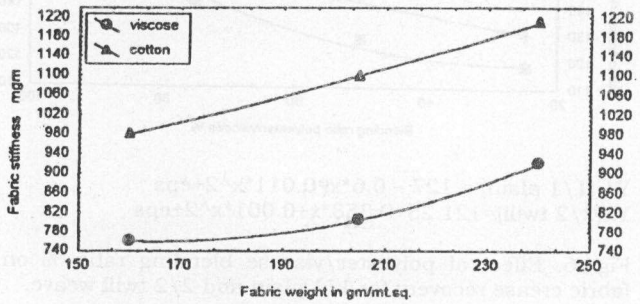
Fig. 6. Effect of polyester/viscose blending ratio % on fabric crease recovery for 1/1 plain and 2/2 twill weave.

### *4.3. Effect of type of fibers on fabric stiffness, drape and crease recovery for 1/1 plain weave*

Fig. 7 shows the effect of the fabric weight g/m² on fabric stiffness for both 100% cotton and 100% viscose for fabric design 1/1 plain weave. It is clear that cotton fabrics are stiffer than viscose fabrics. Statistically, this difference is strongly significant. Tables 2 and 14 show the analysis of variance for both cases. It is clear that the relation in case of 100 % cotton is approximately straight line. The correlation factor is seen 0.999 at very high significant level (about 99.9 %), however for viscose, as mentioned above, the correlation factor was 0.9 at low significant level (about 80 %). Fig 8 compares the drape coefficient for both pure cotton and pure viscose. It is clear that cotton fabrics have higher drape coefficient (less drape) than viscose fabrics. This difference is statistically significant.

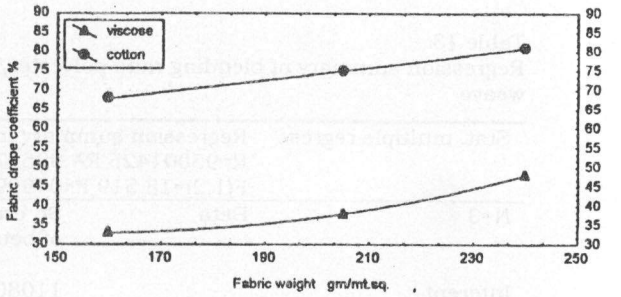
Tables 3 and 15 confirm that increasing the g/m² for both pure cotton and pure viscose leads to significant increase in the drape coefficient for both fabrics. This means

that the higher g/m², the less fabric drapability. Fig 9 compares the crease recovery of both pure cotton and pure viscose at different g/m² It is clear that the cotton fabrics have more crease recovery than viscose fabrics. This difference is strongly significant. Table 16 shows that the correlation factor between the g/m² of pure cotton and its crease recovery is 0.89, but at low significant level. The coefficient of determination in this case is 0.797, which means that only 79.9% of the variability could be explained by the suggested model. This means that there are other factors beside the g/m² influencing cotton crease recovery.



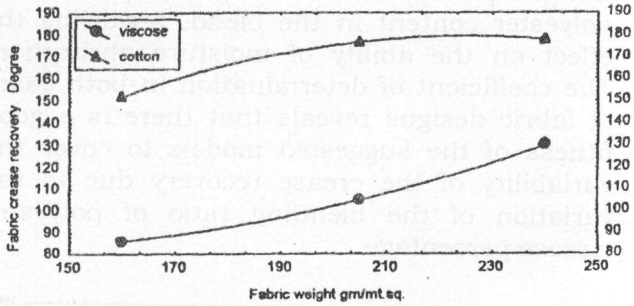

Y1(viscose)=1.537e3– 9.429 *x^2+eps
Y2(cotton)=748.571+0.494*x+0.006*x^2+eps

Fig. 7. Effect of raw material on fabric stiffness for 1/1 plain weave.




Y1(viscose)=86.81-0.686 x+0.002x^2+eps
Y2(cotton)=49.619+0.083*x+0*x^2+eps

Fig. 8. Effect of raw material on fabric drapability for 1/1 plain weave.




Y1(viscose)=138.19-0.91* x+0.004*x^2+eps
Y2(cotton)=152.952+2.96*x-0.007*x^2+eps

Fig. 9. Effect of type raw materials 1 on fabric crease recovery for 1/1 plain weave.

Table 14
Regression summary of the g/m² of 100% cotton on fabric stiffness for 1/1 plain 1 weave

| Stat. multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=.99999660 R² .99999321 Adjusted R² ..99998641<br>F(1,1)=1472E2 P<00166 std. error of estimate 42405 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | t(1) | p-level |
| Interept | | | 487.2803 | 1.607151 | 303.1950 | .002100 |
| COTNG_M | .999997 | .002607 | 2.9872 | .007786 | 383.6493 | .001659 |

Table 15
Regression summary of the g/m² of 100% cotton on fabric drape coefficient % for 1/1 plain wave

| Stat. Multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=.999976603 R² .99952082 Adjusted R² .99904163<br>F(1,1)=2085.9 P<01394 std. error of estimate .20142 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err Of B | t(1) | p-level |
| Interept | | | 40.20814 | .763397 | 52.67003 | .012085 |
| COTNG_M | .999760 | .021890 | .16891 | .003698 | 45.67144 | .013937 |

Table 16
Regression summary of the g/m² of 100% cotton on crease resaving for 1/1 plain weave

| Stat. Multiple regress | Regression summary for dependent variable STIFFIJ_1<br>R=.89285104 R² =79718297 Adjusted R² =59436595<br>F(1,1)=3.9306 P<29740 std. error of estimate 9.3820 | | | | | |
|---|---|---|---|---|---|---|
| N=3 | Beta | St. err of beta | B | St.err of B | t(1) | p-level |
| Interept | | | 99.32637 | 35.55823 | 2.793344 | .218856 |
| COTNG_M | ..892851 | .450352 | .34154 | 1.7227 | 1.982562 | .297403 |

## 5. Conclusions

1. Fabric stiffness is affected significantly by the type of the raw materials used in the blend, fabric weight per unit area and the blending ratio, but not affected significantly by the type of weave for the chosen structure 1/1 plain or 2/2 twill weave.
2. Fabric drape is strongly correlated with fabric stiffness. Besides this, the fabric coefficient of drape has approximately the same trend in the behavior as fabric stiffness.
3. Crease recovery will significantly increase with the increase in each weight of unit area and blending ratio of polyester / viscose. There is no significant difference between crease recovery in both 1/1 plain and 2/2 twill weave.

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