Middle-East Journal of Scientific Research 11 (4): 491-497, 2012
ISSN 1990-9233

Assessment of Quality and Performance of Some Selected Furnishing Fabrics

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Abstract: A comparative study has been made on the quality and performance of some selected foreign and locally made furnishing fabrics. Properties, such as, fabric weight, fabric sett, thickness, yarn crimp, linear density, wettability, flammability, shrinkage, handle, drape, wash fastness, light fastness, tensile, soil retention, crease recovery, air-permeability and abrasion resistance were investigated. The results obtained show that these fabrics possess acceptable properties for their end-use suitability. The locally made fabrics are better in terms of wash fastness, fabric shrinkage, air permeability and abrasion resistance while the foreign fabrics are better in terms of crease recovery, drapeability, tensile properties, wettability, crimp, thickness, flammability and soil retention rating, fabric sett, fabric weight, light fastness and fabric handle. Also, the locally made fabrics favourably match up to the imported ones.

Key words: Furnishing · Curtains · Fabrics · Quality · Properties

INTRODUCTION

The term furnishing fabric refers to any material, knitted, felted, or otherwise produced from or in combination with any natural or synthetic fibre, film or substitute there of which is intended for use or which may reasonably be expected to be used in interior furnishing. It may be in homes, offices or other places of assembly or accommodation [1]. This includes a wide range of fabrics for use in the manufacture of window coverings (curtains, drapes and blinds), bedding products (e.g. comforters, duvet covers, cushions and pillow cases) and shower curtains, table cloths, etc.

Furnishing fabrics differ from apparel fabrics because they do not give the required comfort property required for humans. Clothing fabrics cannot be used for comforters, bedspreads or duvets because they are not strong enough to meet the tear strength specification and are not sufficiently opaque for such uses.

With the exception of bed sheet fabrics, which the customer might have a preference for 100% cotton or polyester/cotton fabrics over polyester or polyester/rayon fabrics, for curtains, comforters and any bedding and household articles, there is definitely no customer preference as far as fibre content or fabric specifications are concerned, other than being washable, colourfast and tear-resistant [2].

Curtains are pieces of hanging cloth that can be pulled across to cover a window, door, etc to darken a room. They can also be sheets of heavy materials that can be made to come down across the front of the stage in a theatre.

The performance of any textile material is dependent upon a combination of inherent fibre properties, as well as upon the geometrical arrangement of fibres in yarns and yarns in fabrics. The properties of woven fabrics are determined by the properties of the fibres, the yarns and by other factors introduced by weaving. The choice of fibre in fabric construction is, therefore, of great importance in obtaining the desired result[3]. Most of the furnishing fabrics used in this country are either locally made or imported largely from the Asian countries. It is well known that most Nigerians prefer imported fabrics to the locally made ones.

In this study, the properties of some selected locally and foreign made furnishing fabrics have been investigated in order to make a comparative assessment of quality and performance.

MATERIALS AND METHODS

Equipment: Essdiel thickness gauge, Shirley air permeability tester, dissecting needle, counting glass, Cussick drape tester, Martindale wear and abrasion tester, Universal strength testing machine, digital balance, Shirley crease recovery tester, Gray scales for assessing change in colour/staining, stop watch, Xenon lamp and Shirley crimp tester.

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Materials: Ten furnishing fabrics (curtains) used for this study were bought from the open market. The fabrics were selected to be representative of the ranges in weave and quality commercially available in the Nigerian market. The fabrics have been labeled as: Locally manufactured - (S_1, S_2, S_3, S_4, S_5) and Foreign fabrics - (S_6, S_7, S_8, S_9, S_{10}).

Conditioning of Samples: All the fabric samples were conditioned for forty-eight hours and tested under standard conditions of relative humidity of 65±2% and temperature of 20±2°C.

Experimental Methods: Ten tests were carried for each property tested and the mean values, standard deviation and C.V.% were calculated.

Yarn Count (Linear Density): The count of the warp and weft yarns was determined in accordance with British Standards 2616 (1979). 30cm lengths of yarn were taken and weighed. The yarn count was evaluated using the formula below:

$$\text{Tex count} = W/L \times 100.$$

Where W= weight of yarn in grams and L = length in metres.

Fabric Thickness: The thickness of all the fabric samples was determined as described in B.S. Handbook No. 11: (1974) using the Essdeiel Thickness Gauge. The distance between two plain parallel plates was measured when the fabric under a specified pressure separates them. The pressure used was 1.96×10^{-3}N/mm^2.

Fabric Weight: The fabric was cut to a dimension of 10cm x 5cm and weighed. The fabric weight was calculated using the formula below:

$$\text{Fabric weight} = W/A$$

Where W = weight of fabric and A = area of fabric in m^2

Yarn Crimp: The crimp in both warp and weft directions were obtained for each sample as described in B.S. Handbook No. 11 (1974), using the Shirley Crimp tester. Yarns from the fabrics were straightened and their lengths measured. The distance between the ends of the threads while in the cloth was also measured. The percentage yarn crimp was calculated thus:

$$\% \text{ Crimp} = \{(\text{straightened yarn length} - \text{length of yarn in fabric})/\text{length of yarn in fabric}\} \times 100$$

Fabric Sett: The warp and weft threads per centimetre for each fabric were determined with the aid of a counting glass placed on the fabric as described in the BS Handbook No. 11:1974.

Crease Recovery: The tests were carried out in accordance with British Standards 3086: (1979) using the Shirley Crease Recovery Angle instrument. Ten regular strips of 5cm x 2.5 cm in dimensions were cut out, five each from warp and weft directions. The samples were carefully creased by folding in half, placing each between two glass plates. The crease recovery angle of each sample was determined after applying a load of 2kg to the folded specimen for 120 seconds. Abrasion Resistance: The test was conducted as described in British Standards 5690 BS Handbook 11 (1974) using the Martindale Wear and Abrasion tester. The machine was set at 20000 rubs. The weight of each specimen was determined before and after abrasion; the time taken for the fabric to abrade was also recorded.

Fabric Drape: The tests were carried out in accordance with British Standard 5058 BS Handbook (1973) using the Cussick Drape Tester. The drape coefficient was calculated using the following formula:

$$\text{Drape coefficient} = M_2/M_1 \times 100\ (\%)$$

Where M_1 is the total mass of paper ring and M_2 is the shaded area of the paper ring.

Air Permeability: The tests were done as described in British Standards 5636 BS Handbook (1974) using the Shirley Air Permeability tester. The test area used was 5.02cm^2 in each case and this was selected randomly to be representative of the sample.

Fabric Shrinkage: The test consists of cutting out a strip of 10cm x 10cm dimensions from each fabric sample. The samples were then immersed in boiling water for 2 hours. The fabrics were allowed to dry naturally at room temperature; the dimensions of the strips of fabrics were re-measured and the percentage shrinkage was calculated for both warp and weft directions.

Wettability: The tests were conducted in accordance with the method in B.S. Handbook 11 (1974). The test specimen was mounted in the embroidery frame and placed in a horizontal position. A drop of distilled water was allowed to fall from a burette on to the fabric while starting the stopwatch at the instant when the diffused reflection from the liquid vanished and the liquid was stopped and time noted.

Soil Retention: A predetermined amount of soil of weight 0.8g containing a mixture of dust under carpet, oil and clay was applied to each specimen of dimension 5cm x 3cm. It was then allowed to aerate for 24hours. A standard solution of soap (containing 5g/l soap and 2g/l Na_2CO_3) was used to wash each specimen at room temperature. The time taken for complete removal of the soil from each specimen was recorded.

Flammability Test: The test was carried out in accordance with the procedure in BS Handbook 11(1974). The vertical strip test method was employed. The test specimen of dimension 4cm x 1cm was suspended in air-free cabinet and held at the top and over the topmost wire by clips. The flame from a candlestick was put one inch before the lower end of the specimen. The time taken to consume the specimen from its lower end to the top end was recorded and used for the carpet flammability grading.

Tensile Strength: The test was carried out in accordance with the British Standards Handbook 11 (1974) using the Universal Tensile Strength tester. Five strips from both warp and weft directions were cut out from the fabric with dimensions of 15cm x 15cm each. Each sample was axially extended until it broke under the applied load.

Wash Fastness: The test procedure was in accordance with B.S. 1006, B.S. Handbook 1978. The test specimen of dimension 5cm x 4cm was placed between two specified pieces of undyed cloth of dimension 10cm x 8cm. The three pieces were stitched together to form a composite. The composite specimen was placed in a container containing 5g/l soap and 2g/l Na_2CO_3 solution at a temperature of 60 ±2°C. Liquor to goods ratio of 50:1 was used. The composite specimen was removed, rinsed and assessed. Assessment of change in colour of the specimen and the staining of the adjacent fabric was carried out using a Gray-scale.

Light Fastness: The test was carried out according to the procedure in BO2: 1978. The test specimen was exposed to artificial light source from Xenon lamp along side with standard dyed material of known light fastness (blue standard).

Fabric Handle: The fabric samples were assessed subjectively for their handle. A cross-section of 100 individuals was given the samples to touch and feel in order to rate the handle of the fabrics based on their individual sense of feeling. Some have had technical experience of handling fabrics, but some do not have. The fabrics were kept inside separate bags so that the judges could not see the fabrics being handled.

RESULTS AND DISCUSSION

The results obtained are presented in Tables 1, 2 and 3. The mean values, standard deviations and coefficient of variations have been reported.

Yarn Linear Density: The yarn count indicates the relationship between weight and length and consequently, is a direct measurement of yarn thickness. Table 1 shows that warp count is greater than the weft count in all the fabric samples tested except for sample S_{10}.

Fabric Thickness: The thickness of a fabric depends on its mass per unit area, the type of yarns used, the weave structure, the fabric sett and density [3]. From Table 1, it is observed that sample S_{10} has the highest value of thickness while sample S_2 has the lowest. The fabric thickness increases in the following order: $S_2 < S_4 < S_5 < S_3 < S_7 < S_1 < S_6 < S_8 < S_9 < S_{10}$. Fabric thickness affects various properties such as thermal insulation, dimensional stability, stiffness and abrasion resistance [3]. The foreign furnishing fabrics have higher thickness than the locally made ones.

Fabric Weight: Table 1 shows that sample S_{10} has the highest fabric weight while sample S_2 has the lowest. The fabric weight increases in the following order:

$$S_2 < S_1 < S_4 < S_8 < S_5 < S_6 < S_9 < S_7 \text{ and } S_8 < S_{10}$$

The foreign fabrics have higher fabric weight compared to the locally made ones. Fabrics with high fabric weight have better drape [4] than those with low fabric weight.

Table 1: linear Density, Fabric Thickness, Fabric Weight, Percentage Crimp, Fabric Sett, Crease Recovery Angle, Abrasion Resistance, Drape Coefficient and Air Permeability

Properties		S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	S_{10}
Linear	Warp	66.5	33.13	33.2	33.07	33.2	22.2	11.3	34.77	66.23	22.13
Density	S.D.	0.2	0.15	0.1	0.12	0.1	0.1	0.3	2.8	0.21	0.15
(Tex)	C.V.%	0.3	0.45	0.3	0.36	0.3	0.45	2.66	8.05	0.32	0.68
	Weft	23.13	23.47	33.1	23.2	22.77	10.87	7.33	11.13	22.27	22.33
	S.D.	0.15	0.47	0.17	0.17	0.68	0.32	0.25	0.15	0.25	0.34
	C.V.%	0.65	2	0.51	0.73	2.99	2.94	3.41	1.35	1.12	1.52
Fabric	Mean	5.8	4.77	5.57	5.22	5.32	5.81	5.66	6.1	7.02	8.23
Thickness	S.D.	0.04	0.01	0.01	0.03	0	0.02	0.19	0.04	0.01	0
x 10^{-4} (mm)	C.V.%	0.69	0.21	0.18	0.58	0	0.34	3.36	0.66	0.14	0
Fabric weight	Mean	1.14	1.13	1.4	1.28	1.44	1.7	1.75	1.75	1.73	2.04
x 10^{-2} (g/m2)	S.D.	0.02	0.04	0.07	0.04	0.08	0.12	0.1	0.08	0.05	0.12
	C.V.%	1.75	3.54	5	3.13	5.56	7.06	5.71	4.57	2.89	5.88
Crimp	Warp	10.18	10.36	10.45	10.33	10.48	10.69	10.71	10.56	10.53	11.14
(%)	S.D.	0.07	0.04	0.04	0.04	0.06	0.03	0.04	0.05	0.04	0.04
	C.V.%	0.69	0.39	0.38	0.39	0.57	0.28	0.37	0.47	0.38	0.36
	Weft	10.38	10.3	10.21	10.23	10.38	10.13	10.46	10.37	10.39	10.45
	S.D.	0.08	0.03	0.05	0.09	0.03	0.04	0.04	0.19	0.03	0.04
	C.V.%	0.77	0.29	0.49	0.88	0.29	0.4	0.38	1.83	0.29	0.38
Fabric	epcm	20	26	32	34	40	64	64	34	70	48
Sett	ppcm	17	15	20	16	18	20	14	21	16	16
	(epcm x ppcm)	340	390	640	544	720	1280	896	714	1120	768
Crease	Warp	121.8	141.8	119.8	143	135.4	133.4	96.2	144.8	134.4	148.6
Recovery	S.D.	2.28	2.17	2.59	1.41	1.67	1.67	2.17	0.45	0.55	0.55
Angle (°)	C.V.%	1.87	1.53	2.16	0.99	1.23	1.25	2.26	0.31	0.41	0.37
	Weft	114	136.25	113.75	139	130.75	130	96	140	131.25	145.75
	S.D.	2.58	2.06	1.89	1.41	1.71	0.82	1.83	1.41	1.89	1.5
	C.V.%	2.26	1.51	1.66	1.01	1.31	0.63	1.91	1.01	1.44	1.03
Abrasion	Mean	9.6	2.2	4.3	4	1.9	3.8	9	5.1	6.8	5
Resistance	S.D.	0.24	0	0.06	0.09	0	0.05	0.34	0.07	0.11	0.06
(% Weight Loss)	C.V.%	2.5	0	1.4	2.25	0	1.32	3.78	1.37	1.62	1.2
Drape	Mean	72.2	59.28	53.5	43.35	61.15	64.26	40.85	60.35	32.6	39.5
Coefficient	S.D.	1.11	0.89	0.62	0.33	0.75	1.01	0.52	0.92	0.44	1.13
	C.V.%	1.54	1.5	1.16	0.76	1.23	1.57	1.27	1.52	1.35	2.86
Air	Mean	109	107.4	107.8	107	106.4	84	105.6	116.2	105.4	105.2
Permeability	S.D.	0.71	2.07	0.84	0.71	1.14	3.67	0.55	2.67	0.55	0.84
(cm^3/s)	C.V.%	0.65	1.93	0.78	0.66	1.07	4.37	0.52	2.3	0.52	0.8

Table 2: Shrinkage, Wettability, Soil Retention, Flammability, Tensile Strength, Breaking Extension, Wash Fastness and Light Fastness

Properties		S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	S_{10}
Shrinkage	Warp	3	1	1	1	0	1	2	3	0	4
(%)	S.D.	0.02	0	0	0.01	0	0.04	0.1	0.05	0	0.12
	C.V.%	0.67	0	0	0.1	0	4	5	1.67	0	3
	Weft	0	2	2	1	2	0	3	1	1	3
	S.D.	0	0.01	0.03	0	0.04	0	0.07	0.01	0	0.19
	C.V.%	0	0.5	1.5	0	2	0	2.33	1	0	6.33
Wettability	Mean	237.1	35.1	32.7	72.9	75.2	84.7	36.4	21.7	15.2	42.6
(sec) *	S.D.	11.01	1.66	1.03	0.81	1.78	2.16	0.83	1.66	0.37	0.88
	C.V.%	4.64	4.73	3.15	1.11	2.37	2.55	2.28	7.65	2.43	2.07

Table 2: Continued

Properties		S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	S_{10}
Soil **	Mean	346.75	255.25	385.25	321.25	350.5	370.75	203.5	337.5	224.75	230.5
Retention	S.D.	6.9	5.62	25.97	31.19	4.93	26.92	4.51	9.57	6.6	6.66
(sec)	C.V.%	1.99	2.2	6.74	9.71	1.41	7.26	2.22	2.84	2.94	2.89
Flammability	Mean	10.9	13.8	16.2	12.8	12.4	31.2	21.4	48.8	24.4	19.4
(sec) ***	S.D.	0.28	0.13	0.16	0.18	0.18	0.22	0.61	0.28	1	0.43
	C.V.%	2.57	0.94	0.99	1.41	1.45	0.71	2.85	0.57	4.1	2.22
Tensile	Warp	1.46	1.11	1.09	1.12	1.25	1.34	1.01	1.18	1.14	1.59
Strength	S.D.	0.06	0.03	0.03	0.02	0.04	0.05	0.02	0.03	0.02	0.05
(Breaking	C.V.%	4.11	2.7	2.75	1.79	3.2	3.73	1.98	2.54	1.75	3.15
Load)	Weft	0.24	0.42	0.42	0.41	0.33	0.77	0.22	0.7	0.26	0.14
(N)	S.D.	0	0.01	0	0.02	0.01	0.02	0	0.03	0	0
	C.V.%	0	2.38	0	4.88	3.03	2.6	0	4.29	0	0
Breaking	Warp	49.92	40.96	41.24	38.58	41.91	44.22	50.22	33.38	43.28	60.66
Extension	S.D.	0.62	0.66	0.72	0.8	1.02	0.85	1.23	0.64	1	1.25
(%)	C.V.%	1.24	1.61	1.75	2.07	2.43	1.92	2.45	1.92	2.31	2.06
	Weft	13.52	21.76	25.39	35.47	17.23	50.69	31.38	30.99	21.13	51.69
	S.D.	0.33	0.52	0.64	0.48	0.3	1.05	0.78	0.55	0.43	1.09
	C.V.%	2.44	2.39	2.52	1.35	1.74	2.07	2.49	1.78	2.04	2.11
Wash Fastness	Change in Colour	5-Apr	4	5-Apr	5	5	5-Apr	5-Apr	3	5	4-Mar
Rating	Staining	5	5	5	5	5	5	5	5	5	4
Light Fastness Rating		2	2	4	4	2	6	3	4	5	6

***A-Highly Flammable (1 - 10 Seconds); B-Flammable (11 - 20 Seconds); C-Flame Retardant (21 - 30 Seconds) and D-Flame Proof or Self Extinguishing (31 Seconds and above).

Table 3: Fabric Handle of Some Selected Foreign and Locally Made Furnishing Fabrics

	Judges										
Test Sample	1	2	3	4	5	6	7	8	9	10	Rating*
S1	5	0	1	0	3	1	2	4	6	36	10
S2	3	6	5	7	8	6	6	4	12	4	9
S3	4	8	15	11	10	7	3	2	2	1	3
S4	10	17	8	4	6	2	2	8	2	2	2
S5	9	10	12	8	11	4	5	5	1	1	5
S6	12	13	4	4	8	8	5	3	4	0	1
S7	3	1	3	12	7	14	11	3	4	0	4
S8	10	4	4	3	1	4	9	10	5	9	7
S9	1	0	5	10	4	10	10	13	10	0	6
S10	11	5	10	2	3	4	6	8	17	5	8

`*Order of increasing stiffness = 1<2<3<4<5<6<7<8<9<10

Yarn Crimp: Yarn crimp is a feature of woven fabrics and it influences fabric performance and end uses. Crimp is caused by the bending of yarns round each other when interlaced and increases with the comparative thickness of yarns [4]. From Table 1, it could be seen that sample S_{10} has the highest % crimp and sample S_4 has the lowest % crimp along the warp way. Along the weft way, sample S_7 has the highest % crimp while sample S_6 has the lowest. The foreign fabrics have higher percentage crimp compared to the locally made furnishing fabrics. This may be attributable to the type of weave structure and designs used.

Fabric Sett: The density of a fabric is controlled by the cover factor. Table 1 shows that sample S_6 has high fabric sett, while sample S_1 has low sett. The foreign fabrics have higher fabric sett than the locally made ones. This may be linked to their air permeability, thus the higher the fabric sett, the lower the air permeability. For all the fabrics, the epcm is higher than ppcm. This may be due to the bulky nature of the weft yarn. All the fabric samples are unbalanced, since the epcm and ppcm are not equal. In an unbalanced fabric, the greater number of yarns is usually in the warp for more economical weaving [5].

Crease Recovery: Crease recovery is a factor that depends on the elastic behaviour of the fibre, yarn and fabric geometry and the ability of the fabric to recover from deformation. In Table 1, Sample S_{10} has the highest crease recovery angle in both warp and weft directions. Sample S_7 on the other hand has the lowest crease recovery angle. The order of decreasing crease recovery is: $S_{10} > S_8 > S_7 > S_2 > S_5 > S_9 > S_6 > S_1 > S_3 > S_7$. The foreign furnishing fabrics have better crease recovery angle than the locally made ones.

Abrasion Resistance: Fabric abrasion has been defined as a simple rubbing action [3]. The life of a fabric is very dependent on its resistance to abrasion. Table 1 shows that Sample S_5 with the lowest weight loss has very good abrasion resistance followed by sample S_2. Sample S_1 has the lowest abrasion resistance followed by sample S_7. The order of decreasing abrasion resistance is $S_5 > S_2 > S_6 > S_4 > S_3 > S_{10} > S_8 > S_7 > S_1$. The abrasion resistance results were better for the locally made furnishing fabrics.

Fabric Drape: Fabric drape is related to the graceful folding of fabrics and is defined as the extent to which a fabric will deform when it is allowed to hang under its own weight [3]. Table 1 shows that sample S_9 has the lowest drape coefficient (the highest drapeability) followed by sample S_{10}. The order of increasing drape coefficient is $S_9 > S_{10} > S_7 > S_4 > S_3 > S_3 > S_2 > S_8 > S_5 > S_6 > S_1$. The foreign fabrics have better drapeability than the locally made ones.

Air Permeability: The air permeability of a fabric is the volume of air measured in cubic centimetres passed per second through 1 cm^2 of the fabric at pressure of 1 cm of water [6]. It is dependent on the porosity, the amount and size of open pores, fabric cover (fabric sett) and fabric thickness. Sample S_8 has the highest air permeability and sample S_6 has the lowest. Order of increasing air permeability is $S_6 > S_{10} > S_9 > S_7 > S_4 > S_5 > S_2 > S_3 > S_1 > S_8$. The locally made furnishing fabrics have higher air permeability than the foreign ones.

Fabric Shrinkage: Table 2 shows that sample S_{10} has the highest percentage shrinkage followed by sample S_8 and sample S_7. Percentage shrinkage is an indication of dimensional stability of a fabric. The locally made fabrics are more dimensionally stable.

Wettability: Sample S_9 has the least time for water absorption followed by sample S_8. The order of increasing time is; $S_9 < S_8 < S_3 < S_2 < S_7 < S_{10} < S_4 < S_5 < S_6 < S_1$. The foreign fabrics have better wettability than the locally made ones.

Soil Retention: The higher the time taken to wash off the dirt completely from the fabric sample, the higher the soil retention property. The order of decreasing soil retention property is. $S_3 > S_6 > S_5 > S_1 > S_8 > S_4 > S_2 > S_{10} > S_9 > S_1$. The fibre types, as well as, the electrostatic properties of fabrics influence soil retention property [7]. The locally made furnishing fabrics have higher soil retention property than the foreign ones. All the fabrics tested have very high soil retention property.

Fabric Flammability: The test results show that samples S_1, S_2, S_3, S_4, S_5 and S_{10} are flammable, samples S_7 and S_9 are flame retardant, while samples S_6 and S_8 are flame proofed. It was observed that all the foreign fabrics have better flammability ratings than the locally made ones. The variation in flammability rating may be attributable to the type of fibre used, as well as, the type and extent of the flame retardant finishing imparted on the fabrics [7].

Tensile Properties: The yarn strength among other factors determines the breaking load (strength) of a fabric. Table 2 shows that sample S_{10} has the highest breaking load while sample S_3 has the lowest. The order of increasing breaking load is: $S_7 < S_3 < S_2 < S_4 < S_9 < S_5 < S_8 < S_6 < S_1 < S_{10}$. The foreign made furnishing fabrics have higher breaking loads than the locally made ones. Also, the breaking load of the warp in all the samples is relatively higher than the weft. The extension at break is higher for the foreign furnishing fabrics than the locally made ones.

Wash Fastness: Samples S_4, S_5 and S_9 have the highest colour change rating while samples S_8 and S_{10} have the lowest. The rating for the staining test is the same for all samples except sample S_{10} that has a rating of 4. The good wash fatness rating displayed by the samples may be due to the high quality of the dyes employed. The locally made furnishing fabrics have better ratings than the foreign ones.

Light Fastness: The results obtained show that samples S_6 and S_{10} have the highest light fastness rating of very good, while sample S_1, S_2 and S_5 have the lowest rating of poor. With the exception of samples S_1, S_2 and S_5, all other samples tested have acceptable light fastness rating.

Fabric Handle: Fabric handle is defined as the impression that arises when fabrics are touched, squeezed, rubbed, or handled [8]. It depends on the sense of touch of individuals and it is therefore, subjective. Table 3 shows that sample S_6 has the softest handle of all the fabrics. The order of decreasing softest is as follows $S_6 > S_4 > S_3 > S_7 > S_5 > S_9 > S_8 > S_{10} > S_2 > S_1$. The locally made furnishing fabrics have good handle, but not as good as those of foreign furnishing fabrics.

CONCLUSION

The conclusion that may be drawn from this study is that the end-use performance of a fabric is influenced by fabric properties. The properties and quality of the fabrics are adequate for their end-use performance. The locally manufactured fabrics compare favourably with the foreign ones.

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