

DRAFT UGANDA STANDARD

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School wear fabrics – Part 4: Polyester and Viscose fabrics

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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 7, [Textile, Leather, Paper and Related products], Subcommittee SC 1, [Textile and Related products].

DUS 1700 consists of the following parts, under the general title School Clothing:

- Part 1: Basic requirements
- Part 2: Blazer fabrics
- Part 3: Polyester and wool fabrics
- Part 4: Polyester and viscose fabrics
- Part 5: Polyester and cotton fabrics
- Part 6: Shirting and blouse fabrics
- Part 7: Fabrics containing textured yarns
- Part 8: Warp knitted fabrics

School wear fabrics — Part 4: Polyester and Viscose fabrics

1 Scope

This part of DUS 1700 covers the requirements for polyester-and-viscose fabrics, of three weave structures, suitable for use in the manufacture of school clothing

2 Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DUS ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

DUS ISO 9073-1, *Textiles — Test methods for nonwovens — Part 1: Determination of mass per unit area*

DUS ISO 12945-3, *Textiles — Determination of the fabric propensity to surface pilling, fuzzing or matting — Part 3: Random tumble pilling method*

DUS ISO 13935-1, *Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 1: Determination of maximum force to seam rupture using the strip method*

DUS ISO 13935-2, *Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 2: Determination of maximum force to seam rupture using the grab method*

US 441-2/ISO 7211-2, *Textiles — Woven fabrics — construction — Methods of analysis — Part 2: Determination of number of threads per unit length*

US ISO 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

US ISO 105-C10, *Textiles — Tests for colour fastness — Part C10: Colour fastness to washing with soap or soap and soda*

US ISO 105-E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration*

US ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

US ISO 1833-1, *Textiles — Quantitative chemical analysis — Part 1: General principles of testing*

US ISO 3801, *Textiles — Woven fabrics — Determination of mass per unit length and mass per unit area*

US ISO 5077, *Textiles — Determination of dimensional change in washing and drying*

US ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force*

DUS 1700-1, *School wear fabrics — Part 1: General requirements*

3 Requirements

3.1 General

The fabric shall

- a) comply with the basic requirements given in DUS 1700-1;
- b) have been made from two-ply yarns in the warp and either two-ply or single yarns in the weft;
- c) have been singed and heat-set; and
- d) have a bleached, a piece-dyed or a fibre-dyed finish or a printed pattern of the required design and colour(s)(see A.1).

3.2 Fabric

The fabric shall comply with the relevant requirements given in table 1 (see A.1).

3.3 Defects

The assessment and stringing of defects, in terms of 4.8 of DUS 1700-1, shall be based on the following LAQ's:

- a) For pieces: 12
- b) For a lot: 10

Table 1—Fabric requirements

1	2	3	4	5
Property	Requirement			US number (unless otherwise indicated)
Composition, %				US ISO 1833-1
Polyester, min	50			
Viscose, max	50			
Weave^a	Plain	Twill	Cord	Visual examination
Breaking strength, N, min				US ISO 13934-1
Warp	750	1000	1000	
Weft	520	650	580	
Seaming properties(after washing)				DUS ISO 13935-1 and DUS ISO 13935-2
Resistance to opening at seams, N, min.^b	125			
Seam strength, N, min.^b	165			
Ply of yarns				Visual examination
Warp	2			
Weft	2			
Resistance to pilling Rating, min	3-4 (i.e. slight to moderate)			DUS ISO 12945-3
Removable non-fibrous material	5			Annex D

content , %, max		
Dimensional changes on Washing , % max		US ISO 5077
Warp	2	
Weft	2	
Colour fastness to:		
Washing , rating, min.		US ISO 105-C10
Change in colour	4	
Staining of transfer cloths	3-4	
Perspiration , rating, min.		US ISO 105-E04
Change in colour	4	
Staining of transfer cloths	3-4	
Rubbing , rating, min.		US ISO 105-X12
Dry	4	
Wet	3-4	
Light , rating, min	5	US ISO 105-B02
a As required.		
b Both warp and weft directions		

4 Packing, labelling, marking and inspection

The relevant clauses of DUS 1700-1 shall apply (see A.1).

Annex A
(Normative)

Note to purchasers

A.1 The following requirements shall be specified in tender invitations and in each order or contract:

- a) the finish and, in the case of plain dyed fabric, the colour(s)(see 3.1 and 4.7 of DUS 1700-1);
- b) when a printed pattern is required, the design and colour(s)(see 3.1 and 4.7of DUS 1700-1);
- c) when relevant, that a particular fibre blend is required (see table 1);
- d) the weave structure required (see table 1);
- e) the method of packing, if other than as specified (see 6.1 of DUS 1700-1); and
- f) additional marking, if required (see 6.3 of DUS 1700-1).

A.2 The following requirements shall be agreed upon between the purchaser and the supplier:

- a) the acceptance of split or fringe selvages (see 4.3 of DUS 1700-1); and
- b) the fabric width (see 4.4 of DUS 1700-1).

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Annex B (Informative)

Recommended end use

The recommended end use for the weave structures of fabrics that comply with the requirements of this part of DUS 1700 is given in table B.1.

Table B.1 — Recommended end use for weave structures

1	2
Weave structure	End use
Plain, twill or cord	Boys' trousers and shorts
Plain or twill	Girls' dresses, tunics and gyms
Plain or twill	Girls' slacks and skirts

Annex C (Informative)

Guide to manufactures and purchasers

The fabric types given in table C.1 have been found suitable for use in the manufacture of polyester-and viscose school clothing.

Table C.1 — Suitable fabric types

1	2	3	4	5	6	7	8	9	10	11	12	13
Property	Requirement											US number (unless otherwise indicated)
	Type ^a											
	SD47	PR56 ^b	PR47 ^b	SS60	SK54FD ^c	SK55FD ^c	SK54	PR54 ^b	SK59	PR74 ^b	SS66	
Composition, % Polyester Viscose	65±5 35±5											US ISO 1833-1
Weave	Plain			Cord	2/2"Z"twill			Plain	2/2"Z" twill	Cord		Visual examination
Mass per unit area (free from non-fibrous material), g/m ² , min	185	200	210	235	235	245	245	245	255	300	315	US ISO 3801 and DUS ISO 9073-1
Number of threads per cm, min: Warp Weft	25 19	35 18	26 19	33 24	32 22	31 22	33 19	35 18	32 25	50 22	40 28	US 441-2/ISO 7211- 2

a Designation by the type number is restricted to fabrics that comply with the above requirements.

b Fabric types identical to those of woven cotton and similar apparel fabrics

c Both the polyester and the viscose components of the yarns comprise white and coloured fibres in approximately equal quantities.

Annex D (Normative)

Removable non-fibrous material content of textiles (scouring method)

B.1 Purpose

This annex specifies the scouring method for the determination of the removable non-fibrous material content of textiles.

B.2 Reagents

B.2.1 Soap powder or chips, as specified in US ISO 105-C10.

B.2.2 Soap solution, that contains 1 g of soap (see B.2.1) per 1,000 mL of water.

B.2.3 Scouring solution that contains 3 g of sodium carbonate (Na_2CO_3) and 3 g of soap per 1,000 mL of water.

B.2.4 Scouring solution that contains a volume fraction of approximately 5 % ethanoic acid (acetic acid).

B.3 Apparatus

B.3.1 Analytical balance, with a resolution of 0.01 g or better.

B.3.2 Forced-draught oven, maintained at between 105 °C and 110 °C

B.3.3 Heat-resistant container, of size suitable for accommodating the test specimen(s) in the appropriate volume of solution

B.4 Sampling and preparation of test specimen

B.4.1 Take a laboratory sample in accordance with US ISO 5089. Condition the laboratory sample in accordance with DUS ISO 139. From the conditioned laboratory sample cut a test specimen of mass approximately 10 g (see B.3.1).

B.4.2 Take the test specimen in accordance with US ISO 5089 or as agreed upon between the test laboratory and the manufacturer to assure a reasonable and acceptable reliability at a reasonable and acceptable confidence level.

B.4.3 Dry the test specimen to constant mass in the forced-draught oven (see B.3.2) and record, to the nearest milligram, the final result as the oven-dry mass, in grams, of the test specimen before treatment.

NOTE Constant mass is assumed to have been attained when successive weighings, at intervals of 20 min, differ by less than 0.05 %.

B.5 Procedure

B.5.1 Prescouring

B.5.1.1 Immerse the test specimen, using a liquor ratio of 100 mL/g of the oven-dried mass of the test specimen (see B.4.3), in the soap solution (see B.2.2 and B.3.3) maintained at boiling point, and allow it to boil for 15 min.

B.5.1.2 Rinse the test specimen twice with water at a temperature of $80\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.

B.5.2 Scouring

B.5.2.1 Immerse the test specimen, using a liquor ratio of 100 mL/g of the oven-dried mass of the test specimen (see B.4.3), in the scouring solution (see B.2.3) maintained at $75\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$, and allow the test specimen to steep in the solution for 30 min with intermittent stirring.

B.5.2.2 Rinse the test specimen five times with water at a temperature of $80\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.

B.5.2.3 Rinse the test specimen once with the scouring solution (see B.2.4) and then five times with cold water.

B.5.2.4 Dry the test specimen to constant mass in the forced-draught oven and record, to the nearest milligram, the final result as the oven-dry mass, in grams, of the test specimen after treatment.

B.6 Calculation

Calculate the removable non-fibrous material content of the test specimen as follows:

$$N = \frac{m_1 - m_2}{m_1} \times 100$$

where

N is the non-fibrous material content, expressed as a percentage of the oven-dried mass of the test specimen;

m_1 is the oven-dry mass, in grams, of the test specimen before treatment (see B.4.3);

m_2 is the oven-dry mass, in grams, of the test specimen after treatment (see B.5.2.4).

B.7 Test report

Report the following information:

- a) all the data needed to identify the laboratory sample tested;
- b) confirmation that the test was carried out in accordance with this standard;
- c) if applicable, the sampling method used (see B.4.2);
- d) any deviation from this standard; and
- e) the percentage of non-fibrous material content present.

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