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PROJET DE NORME CAMEROUNAISE PNC 3029 : 2026 - CT 31

2026

SCHOOL WEAR FABRICS – PART. 4 - POLYESTER AND VISCOSE FABRICS

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PROJET DE NORME CAMEROUNAISE

ENQUETE PUBLIQUE N° : 19

Durée de l'enquête Du 21/09/2026 Au 19/10/2026

Edition et diffusion par l'Agence des Normes et de la Qualité

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DN-R2/PR-01/ENR-02
16/12/2015

School wear fabrics — Part 4: Polyester and viscose fabrics



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This African Standard was prepared by the ARSO Technical Harmonization Committee Number 7 on Leather and Textile Products (ARSO/THC 07).

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School wear fabrics — Part 4: Polyester and viscose fabrics

1 Scope

This part of ARS 1567 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 are indispensable for the application 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.

ARS 1456, *Soap powder or chips — Specification*

ARS 1551, *Textiles and textile merchandise — Terms and definitions*

ARS 1567-1, *School wear fabrics — Part 1: Basic requirements*

ASTM D629, *Standard Test Methods for Quantitative Analysis of Textiles*

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

ISO 105-C06, *Textiles — Tests for colour fastness — Part C06: Colour fastness to domestic and commercial laundering*

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

ISO 105-D01, *Textiles — Tests for colour fastness — Part D01: Colour fastness to dry cleaning*

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

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

ISO 137, *Wool — Determination of fibre diameter — Projection microscope method*

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

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

ISO 1833-11, *Textiles — Quantitative chemical analysis — Part 11: Mixtures of cellulose and polyester fibres (method using sulfuric acid)*

ISO 3175-2, *Textiles — Dry cleaning and finishing — Part 2: Procedures for tetrachloroethene*

ISO 3759, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change*

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

ISO 3998, *Textiles — Determination of resistance to certain insect pests*

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

ARS 1567-4:2017(E)

ISO 5089, *Textiles — Preparation of laboratory test samples and test specimens for chemical testing*

ISO 6330, *Textiles — Domestic washing and drying procedures for textile testing*

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

ISO 8498, *Woven fabrics — Description of defects — Vocabulary*

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

ISO/TR 11827, *Textiles — Composition testing — Identification of fibres*

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

ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

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*

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*

3 Terms and definitions

For the purpose of this standard the terms and definitions in ARS 1551 and the following apply.

3.1

piece

unit that consists of a single article, a pair, a set or a length within a lot

3.2

lot

collection of pieces of the same product type

4 Requirements

4.1 General

The fabric shall

- a) comply with the basic requirements given in ARS 1567-1,
- 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).

4.2 Fabric

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

4.3 Defects

The assessment and stringing of defects, in terms of 4.8 of ARS 1567-1, shall be in accordance with

ISO 8498 and shall be based on the following AQL's:

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

Table 1 — Fabric requirements

1	2	3	4	5
Property	Requirement			Test method
Composition, %				ISO 1833-1 and ISO 1833-11
Polyester, min.	50			
Viscose, max.	50			
Weave ^a	Plain	Twill	Cord	Visual examination
Breaking strength, N, min.				ISO 13934-1
Warp	750	1 000	1 000	
Weft.....	520	650	580	
Seaming properties (after washing) ^b				ISO 13935-1/-2
Resistance to opening at seams, N, min. ^c	125			
Seam strength, N, min. ^c	165			
Ply of yarns				Visual examination
Warp	2			
Weft.....	2			
Resistance to pilling ^b				ISO 12945-3
Rating, min.	3-4 (i.e. slight to moderate)			
Removable non-fibrous material content, %, max.	5			Annex C
Dimensional changes on washing, % max.				ISO 6330
Warp				Washing procedure A1
Weft.....				Drying procedure E
Colourfastness to washing, rating, min.				ISO 6330: Procedure C
Change in colour.....	4			
Staining of transfer cloths.	3-4			
Colourfastness to perspiration, rating, min.				ISO 105-E04
Change in colour.....	4			
Staining of adjacent fabrics	3-4			
Colourfastness to rubbing, rating, min.				ISO 105-X12
Dry	4			
Wet	3-4			
Colourfastness to light, rating, min.	5			ISO 105-B02
.....				
^a As required.				
^b After washing the test specimens in accordance with ISO 6330: Procedure A.				
^c Both warp and weft directions.				

5 Packing, labelling, marking and inspection

The relevant clauses of ARS 1567-1 shall apply (see A.1).

Annex A
(normative)

Notes 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 ARS 1567-1);
- b) when a printed pattern is required, the design and colour(s) (see 3.1 and 4.7 of ARS 1567-1);
- 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 ARS 1567-1); and
- f) additional marking, if required (see 6.3 of ARS 1567-1).

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 ARS 1567-1); and
- b) the fabric width (see 4.4 of ARS 1567-1).

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 ARS 1567 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
(normative)

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

C.1 Purpose

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

C.2 Reagents

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

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

C.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.

C.2.4 Souring solution, that contains a volume fraction of approximately 5 % ethanoic acid (acetic acid).

C.3 Apparatus

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

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

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

C.4 Sampling and preparation of test specimen

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

C.4.2 Take the test specimen in accordance with 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.

C.4.3 Dry the test specimen to constant mass in the forced-draught oven (see C.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 %.

C.5 Procedure

C.5.1 Prescouring

C.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 C.4.3), in the soap solution (see C.2.2 and C.3.3) maintained at boiling point, and allow it to boil for 15 min.

C.5.1.2 Rinse the test specimen twice with water at a temperature of 80 °C $\pm$ 5 °C.

C.5.2 Scouring

C.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 C.4.3), in the scouring solution (see C.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.

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

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

C.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.

C.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 C.4.3);

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

C.7 Test report

Report the following information:

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

Annex D
(informative)

Guide to manufacturers and purchasers

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

Table D.1 — Suitable fabric types

1	2	3	4	5	6	7	8	9	10	11	12	13
Property	Requirement											Method of test indicated)
	Type											
	PV 4	PV 5	PV 6	PV 7	PV 8	PV 9	PV 10	PV 11	PV 12	PV 13	PV 14	
Composition, %												ISO 1833-1 and ISO 1833-11
Polyester	65 ± 5											
Viscose	35 ± 5											
Weave	Plain			Cord	2/2 "Z" twill			Plain	2/2 "Z" twill	Cord		Visual examination
												ISO 3801/ ISO 9073-1
Mass per unit area (free from non-fibrous material), g/m ² , min.	185	200	210	235	235	245	245	245	255	300	315	
Number of threads per centimetre, min.												ISO 7211-2
Warp	25	35	26	33	32	31	33	35	32	50	40	
Weft	19	18	19	24	22	22	19	18	25	22	28	
a Designation by the type number is restricted to fabrics that comply with the above requirements.												
b Fabric types identical to those given in Table 1.												
c Both the polyester and the viscose components of the yarns comprise white and coloured fibres in approximately equal quantities.												

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