

**ETHIOPIAN
STANDARD**

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Requirements For Organic Textile Production

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Foreword

This Ethiopian Standard has been prepared under the direction of Technical Committee for Textile Yarns (TC 68) and published by the Ethiopian Standards Agency (ESA).

In preparing this standard reference has been made to an Indian Organic Textile Standards (IOTS)

Acknowledgement is made to the Indian Organic Textile Standards for the use of the said publication in preparing the standard.

Requirements For Organic Textile Production

1. Scope

This Ethiopian standard specifies for organic textiles which covers the manufacturing, processing, packaging, labeling and distribution of organic textiles. The final product may include fibers, yarns, fabrics, made-up and garments including home textile products.

This standard does not cover Indigo dyed product

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.

ES 6674 Guideline for Organic Cotton Production

ES 6289 Standard Terminology for yarn spinning systems

ES ISO 14001 Environment Management system

ES ISO 26000 Social responsibility management system

3. Terms and Definitions

For the purpose of this standard ES 6289 and the following definitions shall apply

3.1.

Textile production:

Textile production is the process by which fibers, yarn, fabric and garments are made. both process have their own steps for production.

3.2.

Organic:

It is of food or farming methods produced or involving production without the use of chemical fertilizers, pesticides, or other artificial chemicals.

3.3.

Organic Textile:

Organic Textile is a textile product that is manufactured without the involvement of chemicals.

3.4.

Certification:

A process verifying the compliance of farm management with organic standards; based on inspection of the farm and its documentation.

4. General requirements

4.1 Requirements for Accessories

The materials used for accessories must be free from PVC and product materials derived from endangered species.

All accessories should be tested and must meet the requirements of residue limit mentioned in Annex D.

4.1.1. For Yarn and Fabric Materials

Natural/man-made fibers (Polyester, Viscose, Nylon, and Polyurethane) are permitted but preferably natural materials should be used as much as possible.

4.1.2. For Appliqué

Only natural materials are permitted.

4.1.3. For Metal Part

Metal, free from chrome and nickel is permitted.

The requirement for additional material and accessories is given in Annex E.

4.2. Orientation Values for Residues in Organic Textiles

Final products labeled according to these standards shall comply with the chemical quality parameters given in Annex D.

The licensee of the final product must indicate information on any potential non-compliance(s) in the product declaration.

4.3. Environmental Management

4.3.1. Management Practices

The processing unit shall have policies and procedures in place for environmental management as per the norms of the respective State and Central Pollution Control Boards.

The environmental management practices should cover the following:

- Effective Environment Management System with a written Policy Statement
- Delegation of responsibilities
- Monitoring air and water pollution as well as solid waste management plan
- Optimum utilization of water, energy and dyes/chemicals/auxiliaries in use along with plans and strategy to minimize usage further
- Waste disposal program
- Training
- Complete records of all the activities

4.3.2. Waste Water Treatment

Waste water, before discharge, shall be purified to the extent it meets the local standards as laid down by the Environment, Forest and Climate Change Commission.

Waste water analyses and treatment details should be documented.

The effluent treatment plants for the waste water processing must have an approval as per the norms laid by the Environment, Forest and Climate Change Commission.

4.4. Social Responsibility

The processing units shall follow the social standards in accordance with the prevailing law of the land.

4.5. Storage, Packaging and Transport

Organic product integrity shall be maintained during packaging, storage and transportation by segregation from conventional products. The packaging materials must be free from PVC and external treatment such as biocide or pesticides.

4.6. Documentation and Internal Quality Assurance

Each step in the handling of the product, for all operations shall be documented during the audit trail by the certification bodies. The audit trail should ensure organic integrity relating to the nature of the raw material used, the quantity and reconciliation of these raw materials with the final products. The operator of the final product shall be responsible for ensuring the organic integrity in the entire processing chain.

4.7. Analysis and Residue Testing

Risk analysis can be carried out at any stage of processing during the inspection right from ginning to final product. For ensuring integrity, samples for residue testing and GM testing shall be taken.

4.7.1. Mandatory Verification

Verification is mandatory for ensuring compliance to this standard during the inspection by the accredited certification body right from fiber to final product.

4.7.2. During Production

System plan should be submitted by the operator to the accredited certification body in the approved format.

The operator and certification body shall maintain the documentation that contains the following information:

- Description of the production unit in terms of name, facility, location, activity being performed and output being produced
- List of all the practical measures taken at the unit to ensure compliance of the unit
- Maintain purchase and sale records of organic blend inputs and outputs
- Records should be accurate, complete and easily auditable to enable the certification body to trace the organic fiber at different stages of processing
- The certification body must ensure that the operator has valid certificates of all the suppliers of organic cotton during the physical audit
- A representative of the company seeking certification must sign the statement
- with description, list of practical measures taken for compliance with this standard
- If any deficiencies and non-compliances are observed and identified by the certification body during the inspection, the same should be communicated to the operator seeking certification
- The operator should counter sign the non-compliance (NC) report and take necessary corrective measures

- Certification should be granted after deficiencies or non-conformities are corrected by the operator and physically verified by the accredited certification agency

5. Inspection.

The inspection should be carried out according to aforementioned of the standard.

6. Marking and Labeling

If the organic fiber content is less than 95 percent and more than 70 percent in the final product, the textiles should be labeled as 'made with organic fiber'. The rest 30 percent of the composition shall be natural fiber devoid of GMO fiber and/or synthetic regenerated fiber.

ANNEX A

Prohibited Substances during Textile Processing

Sr. No.	Parameters	Test Methods	Criteria
1.	Chlorophenols PCP, TeCP	ISO 17070	< 0.01 mg/kg
2.	o-Phenylphenol	Extraction; Analysis on GC/MS	< 1.0 mg/kg
3.	Amines (amine releasing azo dyes)	EN 14362-1 IS: 15570	< 30 mg/kg
4.	AOX	ISO 9562	< 0.5 mg/kg
5.	Disperse Dyes (classified as allergenic or carcinogenic)	DIN 53160	< 30 mg/kg
6.	Formaldehyde - Free - Released	ISO 14184-1, IS: 14563 I ISO 14184-2, IS: 14563 II	< 16 mg/kg
7.	Glyoxal and Other Short Chain Aldehydes	Extraction, MBTH, UV-Vis	< 20 mg/kg
8.	pH, aqueous extract	ISO 3071, IS 1390	4.5 – 8.0
9.	Pesticides	Extraction, GC & GC/MS	< 0.1 mg/kg

ANNEX B

Restricted and Allowed Substances during Textile Processing

Sr. No.	Processing Stage	Restriction/Allowed Limits: Product and Process
1.	Spinning	Use of products is restricted to: Paraffin, Paraffin oils, natural waxes and substances derived from natural raw materials
2.	Sizing, weaving and knitting	• Synthetic binder not to exceed 20 per cent on weight of starch/starch derivatives-based product (GMO-free) • Preservatives need to be eco-friendly • Knitting and weaving oil must be heavy metal free (ETAD limit)
3.	Non-woven	Processes are restricted to: mechanical compacting, webbing and entangling
4.	Ammonia treatment	Processing only in closed circuit
5.	Bleaching	Restricted to only oxygen-based (Peroxide, Ozone, etc.) bleaches
6.	Desizing/ Bio-finishing	Use is restricted to only GMO-free enzymes
7.	Mercerisation	Caustic wash liquor to be recycled/reused
8.	Dyeing	a. Dye stuffs to meet ETAD limits b. Use is restricted to dye stuffs free of objectionable amines (MAC group III 1, 2, 3)

ANNEX C

Quality Parameters of Finished Product

Sr. No.	Parameters	Test Methods	Rating
1.	Dry rubbing fastness	ISO 105 X 12, IS: 766	Minimum 4
2.	Wet rubbing fastness	ISO 105X12, IS: 766	Minimum 3
3.	Perspiration fastness, acidic and alkaline	ISO 105 E 04, IS: 971	Minimum 4
4.	Washing fastness, 60 0C	ISO 105 C 10, IS: 764	Minimum 4
5.	Saliva fastness	DIN 53160	"Fast" for baby clothing
6.	Shrinkage	ISO 6330	2-3 per cent for wovens 8 per cent (maximum) for hosiery
7.	Light Fastness	ISO 105 B 02, IS: 2454	Minimum 4

ANNEX D

Orientation Values for Residues in Organic Textiles

Sr. No.	Parameters	Test Methods	Criteria
1.	Chlorophenols PCP, TeCP	ISO 17070	< 0.01 mg/kg
2.	o-Phenylphenol	Extraction; Analysis on GC/MS	< 1.0 mg/kg
3.	Amines (amine releasing azo dyes)	EN 14362-1 IS: 15570	< 30 mg/kg
4.	AOX	ISO 9562	< 0.5 mg/kg
5.	Disperse Dyes (classified as allergenic or carcinogenic)	DIN 53160	< 30 mg/kg
6.	Formaldehyde - Free - Released	ISO 14184-1, IS: 14563 I ISO 14184-2, IS: 14563 II	< 16 mg/kg
7.	Glyoxal and Other Short Chain Aldehydes	Extraction, MBTH, UV-Vis	< 20 mg/kg
8.	pH, aqueous extract	ISO 3071, IS 1390	4.5 – 8.0
9.	Pesticides	Extraction, GC & GC/MS	< 0.1 mg/kg

Sr. No.	Parameters	Test Methods	Criteria
10.	Heavy Metals	ISO 105 E04 Extraction)	
	Antimony (Sb)	Determination by using: ICP-MS (DIN 38406- H22)/ICP-OES (ISO 11885)/AAS	< 0.2 mg/kg
	Arsenic (As)		< 0.2 mg/kg
	Lead (Pb)		< 1.0 mg/kg (outerwear) < 0.2 mg/kg (others)
	Cadmium (Cd)		< 0.1 mg/kg
	Chromium (Cr)		< 2.0 mg/kg (outerwear) < 1.0 mg/kg (others)
	Chromium VI (Cr –VI)		< 0.5 mg/kg
	Cobalt (Co)		< 4.0 mg/kg (outerwear) < 1.0 mg/kg (others)
	Copper (Cu)		< 50 mg/kg (outerwear) < 25 mg/kg (others)
	Nickel (Ni)		< 4.0 mg/kg (outerwear) < 1.0 mg/kg (others)
	Mercury (Hg)		< 0.02 mg/kg
	Selenium (Se)		< 0.2 mg/kg
11.	Organotin Compounds - MBT - DBT - TBT	Extraction, GC/MS	< 0.1 mg/kg < 0.05 mg/kg < 0.05 mg/kg
Additional Tests for Accessories			
12.	Disperse Dyes (classified as allergenic or carcinogenic)	DIN 54231	< 30 mg/kg
13.	Formaldehyde - Free	ISO 14184-1, IS: 14563 I	< 75 mg/kg (no skin contact)
14.	Nickel Release	EN 12472, EN 1811	<0.5 µg/cm ² /week

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes. Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

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