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STANDARD**

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Guideline for Sustainable 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 OEKO-TEX Standard for *Guideline for Sustainable Textile Production*

Acknowledgement is made to the OEKO-TEX for the use of the said publication in preparing the standard.

Guideline for Sustainable Textile Production

1. Scope:

This Ethiopian standard specifies the general guideline for planning and implementing sustainable Textile production.

2. Normative reference

ES 6265 -Terminology Relating to Textiles

ES 6289 - Standard Terminology for Yarn Spinning Systems

ES ISO 20670 Water reuse vocabulary

ES 6268 Standard Terminology Relating to Care Labeling for Apparel, Textile, Home Furnishing, and Leather Products

ES ISO 14001 Environment management system

ES ISO 50001: Energy management system

3. Terms and definition

3.1.

Sustainability

State of the global system, including environmental, social and economic aspects which are referred to us the three dimensions of sustainability, in which the needs of the present are met without compromising the ability of future generations to meet their own needs.

3.2.

sustainable Production

the act of producing goods following the essence of sustainability.

3.3.

packaging

it is the science, art and technology of enclosing or protecting products for distribution, storage, sale and use.

4. GUIDELINE FOR SUSTAINABLE TEXTILE PRODUCTION

4.1. General Guide lines

- The textile manufacturers should focus on the sustainability aspects of production and follow the sustainability guidelines outlined in the ES ISO 5001, ES ISO 14001, and ILO standards.

- The textile manufacturers may consider certification their process and products who wants to communicate their sustainable production system through different certification body such as STeP by OEKO-TEX and OEKO-TEX 100.
- The industry should be Source their suppliers based on their social and environmental performances.
- The focus should be on use of alternative advanced techniques or combined processes, new chemical formulations, reuse of dye-bath and other materials, waste reduction, and effluent treatment.
- The industry should focus on use of best practices in technological innovation (Screen Technological Development) which contribute to improve the environmental foot print of processes.
- The manufacturer should devise a system and/or method on Substituting hazardous substances with safer substances.
- The focus should be to develop and offer more environmentally friendlier textiles.
- The use of more sustainable fibers likes organic cotton, recycled fibers, etc. should be promoted.
- Research about new fibers and materials with lower environmental impacts
- Compared to natural fibers should be assessed and used.
- Improve care labels on products, and together with retailers increase focus on consumer
- There should be communication strategy to promote responsible care;
- The reuse/recycling of old clothes and textiles to produce new clothes, rather than using new raw materials, promote remanufacturing and fashion upgrades should be encouraged;
- Human and labor rights and better livelihoods considerations into business planning should be integrated.
- The manufacturers should provide guidelines to consumers on the process of making sustainable choices and provide creative incentives for doing so.
- Asustainable raw material planning approach, including a portfolio of preferred fibers and materials should be adopted.
- As a part of a cleaner approach to approach production, a textile process or should be lean, efficient and innovative, which can be achieved by the following ways: -

Lean

- o By maintaining good housekeeping, conservation and control.

Efficient

- o By adopting the 'right-first-time' (RFT) approach, chemical/water/energy/machine audits and optimization/rationalization.

Innovative

- o Reuse, recovery and recycle initiatives for process change.
- Fashion products should be manufactured with the objective that they are serviceable for a sufficient amount of time and recyclable so that they are not used in landfill at the End of Life

(EOL). Extending the overall service life of apparel can reduce the environmental load.

Approaches such as:

- o Manufacturing products with extended durability or reconfigurable garments so that their durability is extended in the first life,
- o Manufacturing reusable garments,
- o Making garments reusable after their first life, and
- o Selecting fibers with easy recyclability for manufacturing the garment; can help to address sustainability issues.

4.2. Guide lines for Environmental and Economical Sustainability for Textile Production

4.2.1. Toxic chemicals guideline

- The manufacturers should have information regarding Restricted Substances List (RSL) released by Ethiopian government, other countries and Regions.
- The industry should avoid using RSL, reducing the extent of use of hazardous chemicals or totally substituting the process by using safe chemicals.
- As a means of substituting hazardous chemicals the textile industry may utilize Various biotechnologies such as enzymes.
- Production of cotton fiber consumes substantial amount of synthetic fertilizer, the seeds are treated with insecticides, herbicides applied to control weed growth and pesticides applied for pest control and hence textile industries should promote the use of more sustainable fibers like organic cotton, soya, bamboo, Polylactic acid (PLA) and other fibers which are prepared from renewable biological sources and biodegrade after disposal.

4.2.2. Water consumption guideline

- The industry should evaluate water consumption and implement wastewater management system.
- The water consumption should be measured by installing modern water gauges.
- The textile industry should adopt methods to the reuse of wastewater which can present important savings, namely in the reduction of water, energy and chemical consumption.
- The manufacturing industry should devise a method/technology to recycling of waste water, especially process baths and rinsing waters, before water is taken for treatment.
- The textile industry should adopt methods to recover steam condensate and cooling water as they are clean. Their thermal energy can quickly pay back the investment.
- A system should be in place to reduce excessive use of water in washing operations;
- Poor housekeeping such as broken or missing valves and unattended leaks through pipes and hoses should be handled immediately;
- Bad working practices such as instances when cooling waters are left running when machinery is shut down and use of fresh water at all points of water use should be overcome;

- While selecting Machineries for washing process the textile industries should give due attention to technologies that uses less water and short washing cycles.

4.2.3. Energy consumption guideline

- While selecting Machineries for their products the textile industries should give due attention to technologies that uses less energy, works with higher efficiency and generates less dust and noise.
- Electric and steam energy measurement instruments should be installed to measure and monitor energy consumption.
- Power factor instrument should be installed for effective utilization of electrical energy
- Methods and/or technologies should be adopted for using renewable energy in the textile industry such as:-
 - o installation of wind-powered turbo ventilators on production plant roofs;
 - o use of direct solar energy for water heating in the textile industry
 - o Solar electricity generation should be the focus area.
- The textile manufacturers should focus on the sustainability aspects of production and follow the Energy management guidelines outlined in the ISO 50001.
- The manufacturers should use of energy efficient tools, equipment and machinery for yarn and fabric production; and the use of ecofriendly processes are the key factors requiring improvement to produce sustainable products.
- Energy and water saving strategies should be implemented, such as installing water efficient fixtures, training the staffs on energy efficiency skill sets, energy efficient heating/cooling devices, sensorenabled lighting systems, and rain-water harvesting for nondrinking purposes can also help in achieving sustainable fashion.

4.2.4. Waste generation and minimization guideline

- While selecting raw materials for textile and fashion production, the objective should focus on renewable (natural fibers such as jute, cotton, flax, wool and silk) and recyclable materials (fibers such as recyclable polyester and nylon).
- As the synthetic fibers are not biodegradable, hence should be selected so that they are recyclable at the End-of-Life (EOL) to minimize accumulation of waste.
- Like any other industry, the textile industry generates all categories of industrial wastes: liquids, solids and gases. For greener processes, non renewable wastes should be recycled and renewable wastes need to be composted if recycling is not an option.
- The textile industries should adopt method for the recovery of different useful chemicals such as sodium hydroxide from textile process wastes.
- The industries should have effluent treatment facility with appropriate/updated technology
- The treated effluent comes out from the waste water treatment plant need to be in line with the rules and regulation set by the Environment, Forest and Climate Change Commission.

4.2.5. Packing materials guideline

- Companies implementing eco-friendly actions should focus on reducing their carbon footprint by using more recycled materials
- They should give due attention reusing packaging components for other purposes or products
- Recycled materials (e.g., paper, cotton, jute, hemp, wood), biodegradable materials, natural products grown without the use of pesticides or artificial fertilizers and reusable materials should be employed (e.g., cotton bags or hemp).

4.2.6. Ethics guideline

- Business transactions should comply with national law and international covenants. It should be prohibited the following practices
 - a) Abuse market power or dominance
 - b) Acquire market power or dominance by means other than efficient performance
 - c) Engage in anti-competitive agreements or arrangements (whether formal or informal) are considered illegal by sustainable cotton production system.
- Business activities should comply with national, regional and international environmental laws and norms.

4.3. Guide lines for Social Sustainability for Textile Production

- The working conditions in production units should have the basic amenities such as: -
 - o availability of clean drinking water, good sanitary facilities, a well illuminated and ventilated working area
 - o The sound level in the production unit should be up to the standard of human health.
 - o well managed waste disposal system, first aid facilities, and fire extinguishers
 - o manufacturing buildings should equip with emergency exits
 - o provide the required safety devices and protective clothing to the workers
- The industry should implement social sustainability standards as defined by different ILO conventions;
 - o Voluntary: no forced labor (ILO conventions 29 and 105)
 - o No discrimination in employment (ILO conventions 100 and 111)
 - o No exploiting child work (ILO convention 138)
 - o Respect the right of alliances and the right for negotiation of wage agreements (ILO conventions 87 and 98)
- The work force should be equipped with basic skills like firefighting, first aid, etc.

Annex A: Pillars of Sustainability and its textile context

Pillars	Subgroups
Environmental	Green and sustainable practices in garment production
	Green and sustainable practices in textile production
	Sustainable practices for treating and evaluating effluents
Social	Work place related, such as work practice, facilities, light, amenities, tools and working aids
	Work force related, such as incentives and rewards
	Enhancing skill by training and workshops
Economic	Related to business strategies and profitability
	Related to economic development
	Related to resource consumption

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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

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