
**Textiles- Woven high density polyethylene/
polypropylene sacks for cement-
Specification**

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Foreword

This Ethiopian Standard has been prepared under the direction of Technical Committee for Textile-Fabrics (TC 70) and published by the Ethiopian Standards Agency (ESA).

In preparing this Ethiopian Standard reference has been made to the following:

ARS 1571: 2019 Textiles - Woven high density polyethylene/ polypropylene sacks for cement- Specification published by Afrian Regional Organization for Standardization (ARSO)

Acknowledgement is made for the use of information from the above publication.

DRAFT STANDARD

Textiles- Woven high density polyethylene/polypropylene sacks for cement- Specification

1. Scope

This Ethiopian Standard prescribes construction details and other requirements of woven sack made from High Density Polyethylene (HDPE) / Polypropylene (PP) fibers with or without paper liner.

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

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

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

ES ISO 22198, Textiles — Fabrics — Determination of width and length

3. Terms and definitions

For the purpose of this standard the following definitions shall apply.

3.1.

gussets

A fold inserted in the longitudinal sides of a tube or sack

3.2.

Gusseted sack

A sack manufactured by forming a gusseted tube

3.3.

flat Sack

A block sack made from a flat tube and formed into a block by end folding

3.4.

Block bottom valve sack

a sack made from tabula woven coated fabric by ends folding

3.5.

valve depth

Length of the valve batch toward inside of the valve mouth

3.6.

valve height

Diameter of the valve mouth

4. Manufacture

4.1. Fabric

- 4.1.1. The fabric used in the manufacture of woven sacks for packing cement shall be woven from High Density Polyethylene (HDPE) or polypropylene (PP) tap.
- 4.1.2. The minimum width of tapes used for making fabric shall be 3.5 ± 1 mm. The tapes shall be woven sufficiently tight and coated with PP or PE lamination so that the packaged cement does not sift out of the sack.
- 4.1.3. The breaking strength and elongation at break of the fabric shall be determined in accordance with ES ISO 13934-1.

4.2. Sack

The sack shall be constructed from flat or tabular woven fabric which shall be coated with lamination grade Polypropylene or Polyethylene cut to the specified size. The lamination coating shall not be less than 20 GSM.

4.2.1. Stitched sack

The stitching shall be done only at the bottom and at the sack's mouth excluding valve. The stitching shall be done with one rows of the chain stitch. The number of stitches per dm shall be 12 ± 2 . The stitching shall be done by any suitable multifilament thread having breaking load suitable to achieve the specified seam strength of an acceptable quality.

4.2.2. Bonded Sack

The sack shall be bonded by thermal plastics welding or adhesive to close the side from bottom to the mouth of the sack. The overlapping from one another shall not be less than 3 cm. The bottom and upper side shall be well gusseted or flattened and bonded inside and top bonded with piece of sack not less than 10 cm width.

4.3. Valve for filling of sacks

The valve shall be formed at one corner of the top of the sack by folding the corner of the sack inside first and then stitching or bonding the outer layer of fabric forming the top seam or bonded piece of sack. The valve shall be closed and sealed sufficiently after filling so as to avoid leakage.

- 4.4. The sack shall have a nominal capacity of holding 50 kg cement. With accessibility of the changes in dimensions only, the sack may have a holding capacity from 5 kg and above. Other requirements shall conform to Table 1.

5. Requirements

- 5.1. The HDPE/PP woven sacks, gusseted or non-gusseted, with or without liner for packing cement shall conform to the requirements as laid down in Table 1. Also sacks made for packing cement shall conform to dust emission limits laid below in this Table 1.

5.2. Liner

The High Density Polyethylene or Polypropylene (HDPE/PP) woven sack may be constructed by insertion of a free inner liner made of sack craft paper.

The sack may be lightly perforated along with the inner liner where applicable from 2 cm below the sack mouth and not exceeding 15 cm lengthwise from the top.

Table 1 – Requirements of HDPE/PP woven sacks for packing cement

S/N	Parameter	Requirement	Tolerance	Test method
1.	Dimensions, cm			ES ISO 22198
	a) Length of sack (L)	61.5	-2 +7	
	b) Width of sack (W)	50	± 2	
	c) Width of valve (V)	9.5	± 0.5	
	e) Depth of valve, min (f)	16	± 2	
	f) Where applicable the length of the liner	61.5	± 2	
	g) Top width, cm	11	± 1	
	h) Bottom width, cm	11	± 1	
2.	Bursting strength KN/M ² , min	1500		ES ISO 13938 (1 &2)
3	Number of Tape per decimeter			
4.	Ends per dm,	40	1	ES ISO 7211-2
	picks/dm	40	1	
5.	Mass of fabric, g/m ² , min.	77		ES ISO 3801
6.	Where applicable the mass of paper liner g/m ² ,	65	± 5	ES ISO 3801
7	Tensile strength at break in Newton			ES ISO 13934-1
	a) Width-wise min	500		
	b) Length-wise min	600		
8	Elongation at break in percent			ES ISO 13934-1
	a) Width-wise min	20		
	b) Length-wise min	20		

6. Packaging and marking

6.1. Packaging

The sacks shall be packed to form a bale using a layer of HDPE/PP woven fabric and suitably secured. The bale should contain 500 sacks or as agreed between manufacture and buyer.

6.2. Marking

The identification mark of the manufacturer, along with any information required by the buyer, shall be printed on the sacks by using ink or other suitable method that will ensure legibility during use. And the bales shall be marked with the following information:

- a) Name of the manufacture;
- b) Type and size of sacks;;
- c) Number of sacks;
- d) Gross weight;

- e) Net weight
- f) Disposal instructions of the sack
- g) Month and year of manufacture; and
- h) Any other information required by the buyer

7. Sampling and criteria for conformity

7.1. Sampling

7.1.1. All the sacks of the same construction in a consignment shall be grouped together to constitute a lot.

7.1.2. The conformity of the lot to the requirements of this standard shall be determined on the basis of the test carried out on samples randomly selected from the lot.

7.1.3. The requirements for sampling for the various tests are specified in table.

Table 2 — Scale of sampling

Number of sacks in lots	Number of bales to be sampled	Sample size for visual inspection and measurement of dimension and mass	Sample size for measurement of breaking strength after exposure to UV radiation and breaking strength of the seam
Up to 12500	3	13	8
12501 to 25000	5	20	8
25001 to 50000	8	32	13
50001 and above	1 2	50	20

7.2. Criteria for conformity

The lot shall be considered as conforming to the requirement of this African Standard when the following conditions are satisfied:

- a) The number of sacks found defective in the case of visual inspection and measurement of dimensions shall be no more than 10 % of the sample size specified in Table 2
- b) No sack shall exhibit an elongation outside the range specified in Table 1
- c) The strength and durability of the valve shall be of acceptable quality in such a way that the cement cannot sift through it.

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- ❖ 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.

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More Information?

Contact us at the following address.

The Head Office of ESA is at Addis Ababa.

☎ 011- 646 06 85, 011- 646 05 65

☎ 011-646 08 80

✉ 2310 Addis Ababa, Ethiopia

E-mail: info@ethiostandards.org,

Website: www.ethiostandards.org



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