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TANZANIA STANDARD

Plastic carrier bags – Specification

TANZANIA BUREAU OF STANDARDS

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The Environmental Management Divisional Standards Committee, under whose supervision this Tanzania Standard was prepared, consists of representatives from the following organizations:

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University College of Lands and Architectural Studies (UCLAS)
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Tanzania Electric Supply Company Ltd. (TANESCO)
Cleaner Production Centre of Tanzania (CPCT)
Tanzania-China Friendship Textile Mills Ltd. (URAFIKI)
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The organization marked with an asterisk (*) in the above list, together with the following were directly represented on the technical committee entrusted with the preparation of this Tanzania Standard:

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0 Foreword

The use of plastic materials has grown significantly in modern times. One major use is for shopping. However, plastic carrier bags pose numerous environmental, aesthetic and public health concerns. These includes blockage of drainage systems, dangers to animals when swallowed, nuisance to surroundings, and interference with natural infiltration of water in the ground. It was therefore, found necessary to have a National Standard, specifying requirement of carrier plastic bags for the purpose of reducing and/or eliminating environmental and public health concerns.

This Tanzania Standard specifies the minimum requirements of plastic carrier bags which shall be manufactured, imported and/or distributed in the country. It specifies requirements for the thickness for purpose of enhancing re-usability and re-cycleability in line with the available technology.

The type of ink, which can be used for printing on the plastic material, has also been prescribed for the same purpose.

In reporting the results of a test made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, unless otherwise explained, it shall be done in accordance with TZS 4 (see clause 2).

In the preparation of this Tanzania Standard, assistance was derived from:

SLS 607: 1983, *Specification for high density polyethylene shopping bags*, prepared by the Sri Lanka Standards Institute;

SLS 835: 1988, *Specification for polyethylene garbage bags*, prepared by the Sri Lanka Standards Institute;

South Africa Standard (Government Gazette No. 24734 of 2003), *Specification for Plastic carrier bags and flat bags*, published by the South African Bureau of Standards (SABS);

Mauritius Environmental Protection Regulation, Government Notice No. 14 of 2003, *Plastic carrier bags*.

1 Scope

This Tanzania Standard specifies requirements for carrier bags that are made from plastic materials. The standard covers plastic carrier bags both domestically produced and imported, for use within the country (Tanzania). This Tanzania Standard covers the thickness and printing requirement of these bags.

This Tanzania Standard does not cover some specific plastic packaging materials such as bread bags, candies, laundry bags, refuse bags, bin liners and cement bags.

Packages of specific items that must use plastics will be covered by separate standards.

2 Normative references

The following standards contain provisions, which, through reference in this text, constitute provisions of this Tanzania Standard. All standards are subject to revision and, since any reference to the standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this

Tanzania Standard are encouraged to ensure the use of most recent edition of the standard indicated below.

TZS 928:2006/ISO 4593:1993 (E)/SANS 4591*, Plastics – Film and sheeting – Determination of average thickness of a sample, and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness);*

TZS 4:1979*, Rounding off numerical values;*

ASTM D 3826:1998, *Standard practice for determining degradation end point in degradable polyethylene and polypropylene, using a tensile test;*

ASTM D 5208:2001, *Standard practice for operating fluorescent ultraviolet (UV) and condensation apparatus for exposure of photodegradable plastics.*

TZS 928:2006-ISO 4593/SANS 4591, *Plastics – Film and sheeting – Determination of average thickness of a sample, and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness)*

NOTE – Information on currently valid national and international standards can be obtained from the Tanzania Bureau of Standards (TBS).

3 Definitions

For the purposes of this Tanzania Standard, the following definitions shall apply:

3.1 degradable plastic

Plastic film containing a controlled percentage of an appropriate toxic, non-tinting additive, which will enable the plastic film to totally degrade when exposed to aerobic or anaerobic conditions, including when disposed in a landfill or other regulated dumping area.

3.2 carrier bag

Bag constructed with handles, and with or without gussets.

3.3 commercial distribution

Practice of making plastic bags directly or indirectly available for package carrying of goods.

3.4 plastic carrier bag

Vested-type carrier bag made of plastic, which is designed for the general purpose of carrying goods purchased by consumer.

3.5 plastic film

Continuous, thin, non-woven membranous skin, or layer of flexible material, made of plastic materials.

3.6 trade

The sale of plastic bags to any person including, but not limited to, manufacturers, wholesalers and retailers of goods.

3.7 vest-type carrier bags

Plastic bags constructed with handles and gussets (see also 3.3).

4 Requirements

4.1 The bags shall be free from defects such as gels, streaks, pinholes, and particles of foreign matter, indispersed raw materials, cuts and tears that would impair the performance of the bags.

4.2 Colour and opacity

The colour and level of opacity of the bags shall be as agreed to between the purchaser and the supplier.

4.3 Ease of opening

The bags shall be capable of being opened readily by hand.

4.4 Odour

The polyethylene or polypropylene bags used in manufacturing of bags shall not impart any objectionable odour.

4.5 Construction and materials

4.5.1 Plastic bags, offered for trade or commercial distribution, as carrier bags shall be made from plastic film consisting of polyethylene or polypropylene. Biodegradable materials may also be used in construction of plastic carrier bags.

4.5.2 When degradable plastic materials are used to manufacture plastic carrier bags, they shall totally be degraded within a period of 12 months, when exposed to aerobic or anaerobic conditions, including when disposed in landfill or regulated dumping area, as tested against ASTM D 3826-98 and ASTM D 5208-01 (see clause 2).

4.5.3 When recyclable plastic materials are used in manufacturing plastic carrier bags, the type of plastics shall be identified through coding or otherwise (see clause 7.2.7).

4.6 Film thickness

When the film thickness of a plastic carrier bag is measured in accordance with 6.1, the thickness of general purpose carrier bags/shopping bags shall not be less than 30 *µm* (0.03 mm). The tolerance on a nominal thickness shall be ± 10%.

5 Printing requirements

5.1 Types of ink

5.1.1 Ink used for printing on plastic carrier bags shall be classified as one of the following types:

- Type A: Ink that is a single resin based system, based on a co-solvent polyamide.
- Type B: Ink that does not comply with the requirements for type A.

5.1.2 When compliance with the requirements for type A ink (see 5.1.1) is claimed, the claimant shall supply a declaration of conformity with the requirements for type A with each consignment or batch of bags.

5.1.3 When dried ink is tested in a accordance with 6.2, type A ink shall not exhibit any change of colour.

5.2 Ink adhesion

In case of printed bags the print shall remain on the bag when tested as prescribed bellow:

Ink adhesion test

Method – Cut a piece of 25 mm wide pressure sensitive tape (for example, adhesion tape) about 75 mm long from the roll. Press the tape on the bag using firm finger pressure. Within 30 sec. of application, remove the tape by pulling. Examine for removal.

5.3 Permitted coverage of printing

5.3.1 For ink of type A, the mass percentage of dried solid printed ink, relative to the mass of an unprinted bag, shall not exceed 2.5%.

5.3.2 For ink of type B, the mass percentage of dried solids of printed ink, relative to the mass of unprinted bag, shall not exceed 1.125%.

6 Test methods

6.1 Film thickness

Measure the thickness of the plastic film using the method described in TZS 928-ISO 4593/SANS 4591, and check the results for compliance with 4.6.

6.2 Type of ink (nitrocellulose spot test)

6.2.1 *Principle*

A solution of diphenylamine in concentrated sulfuric acid is used to indicate the presence of nitrocellulose. The reagent causes an almost instantaneous formation of a dark blue colour on contact with nitrocellulose.

> **CAUTION** – The substances used for this test are extremely dangerous. Gloves and safety glasses should be used throughout the preparation and use of this solution.

6.2.2 *Preparation of test solution*

6.2.2.1 Carefully mix together the following ingredients in a conical flask whilst cooling the flask under running water:

a) 0.5 g diphenylamine ($C_{12}H_{11}N$);

b) 10.0 g distilled water; and

c) 30.0 g concentrated sulfuric acid (98 %).

> **CAUTION** – Add the acid slowly to the water.

6.2.2.2 Carefully add a further 60.0 g of concentrated sulfuric acid, and mix gently.

6.2.2.3 Transfer the contents of the flask to a dark glass bottle, and label and date the bottle.

> NOTE – The solution should have a shelf life of approximately one month. The solution will initially be yellow/orange colour, and it should be discarded and prepared afresh if it shows any signs of discolouration (which would probably indicate a reaction with light, oxidation or contamination).

6.2.3 *Procedure*

6.2.3.1 Place one drop of the test solution on a sample of the dried ink to be tested.

6.2.3.2 Check after 30 seconds for any colour change.

NOTE – If the colour changes to dark blue, it indicates the presence of nitrocellulose.

7 Packaging, consignment slips and marking

7.1 Packaging

7.1.1 Bags shall be supplied in a sealed outer packet. The number of bags in each packet shall be as agreed to between the purchaser and the supplier.

7.1.2 Each packet shall in turn be packed in master packs.

7.2. Consignment slips and marking

The following information shall be provided, either in print on each bag, or in the form of a consignment slip included with every consignment or batch of bags:

7.2.1 Name of the product;

7.2.2 Name and address of manufacturer (including country of origin);

7.2.3 Registered trademark, if any;

7.2.4 Number of bags in a packet;

7.2.5 Film thickness specification of each bag;

7.2.6 In case of recyclable plastic, the product shall be coded “recyclable”;

7.2.7 Recyclable plastic carrier bags shall bear a code number for identification purpose.

7.3 All markings on the consignment slips (or bags) shall either be in English, Kiswahili or both.

8 Sampling

Representative samples of the product for ascertaining conformity to the requirements of this Tanzania Standard shall be drawn as prescribed in annex A.

9 Criteria for conformity

A lot shall be declared as conforming with the requirements of this Tanzania Standard if the following conditions are satisfied:

9.1 Plastic materials pass the tests of clause 4.1 to 4.6;

9.2 Plastic materials pass requirements given in table 1;

9.3 The number of bags not conforming to the requirements mentioned in annex A.3 is less than or equal to the corresponding acceptance number given in column 4 of table 1.

NOTE – No person or company, industry or trader shall manufacture, import, stockpile, trade or distribute for local use plastic carrier bags, which are in contravention of this Tanzania Standard.

10 Disposal of non-conforming materials

Disposal of all non-conforming plastic materials shall be in accordance with relevant regulations.

Annex A

Sampling

A.1 Lot – In any consignment all the plastic materials of same dimension and shape manufactured by one organization under the same conditions of manufacture shall be grouped together to form a lot.

A.2 Scale of sampling

A.2.1 Samples shall be tested from each lot separately for ascertaining the conformity of plastic carrier and flat bags to the requirements of this Tanzania Standard**.**

A.2.2 The number of packets to be selected from the lot shall be in accordance with column 1 and column 2 of table 1.

Table 1 – Scale of sampling

S/No.	No. of packets in lot (1)	No. of packets to be selected (2)	No. of bags to be selected (3)	Acceptance number (4)
1	Up to 35 36 to 150 151 to 500 501 to and above	4 6 10 16	32 48 80 128	3 5 7 10

A.2.3 From each packet selected, eight plastics shall be drawn at random, so as to get the total number of plastic bags from the lot as shown in column 3 of table 1.

A.2.4 When the packets are contained in master packs, the number of master packs to be selected shall be half the number given in column 2 of table 1. Two packets shall be drawn from each master pack selected.

A.2.5 Packets and plastics shall be selected at random. To ensure randomness of selection, random number tables shall be used.

A.3 Number of tests

All plastic carrier and flat bags selected as in A.2.3 shall be inspected for requirements given in 4.1 to 4.6.