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**DRAFT FOR
PUBLIC
COMMENT**

Draft Zambian Standard

PLASTIC CARRIER BAGS AND FLAT BAGS - Specification

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ZAMBIA BUREAU OF STANDARDS

DATE OF PUBLICATION

This Zambian Standard has been published under the authority of the Bureau on

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TECHNICAL COMMITTEE RESPONSIBLE

The preparation of this Zambian Standard has been under taken by the Plastic Carrier Bags and Flat Bags Technical Working Group constituted by the Environmental Council of Zambia, in collaboration with the Zambia Bureau of Standards and stakeholders drawn from the following organizations;

Acton Plastics
Environmental Council of Zambia (Secretariat)
Games Stores Limited
Habib Industries Limited
Lusaka City Council – Waste Management Unit
Ministry of Commerce, Trade and Industry
Ministry of Finance and National Planning
Ministry of Tourism, Environment & Natural Resources
Plastex Packaging
Polythene Products
Shoprite
Spar Limited
University of Zambia (Chairing)
Zambia Bureau of Standards
Zambia Revenue Authority

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FOREWORD

Having a clean and healthy environment is in the interest of all persons in Zambia. The failure to use plastics responsibly means that the parties involved in the plastics value chain – manufacturers, importers, distributors, retailers, and consumers are denying Zambians their right to a clean environment.

Plastics are essential elements of industrialization and socio-economic development of a country. This is due to linkage of the use of plastics to the other sectors of the economy be it manufacturing, trade, transport, agriculture or social activities. Globally, best practices in business aim at ensuring that the packaging for their products complies with the waste management policies in target markets. In addition, these businesses ensure that their corporate goals fulfill the triple bottom line by meeting the financial, social and environmental goals.

However, plastics products pose disposal concerns. Discarded plastic products and packaging make up a growing portion of municipal and solid waste. Because of its resistance to degradation, improper plastic disposal can have a particularly serious effect in the environment, leading to clogged sewers and the constant outbreak of various diseases. Burnt chlorinated plastics are the main sources of the most toxic gases known as furans and dioxins.

All of us agree that there is need to address environmental issues, including plastic waste, in a sustainable manner. It is further indisputable that the collection and disposal of plastic bags is a growing problem in Zambia and that the impacts of the plastic waste menace cannot be ignored any further.

It is against this background that this standard on Plastic Carrier Bags and Flat Bags has been developed.

ACKNOWLEDGEMENT

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VC 8087: 2003 Compulsory specification for Plastics Carrier bags and Flat bags, a publication of the South African Bureau of Standards.

Environment Protection (Plastic Carry Bags) Regulations 2004 under the Environment Protection Act 2002, a publication of the South African Government

The Environmental Management (Prohibiting of Manufacturing, Importation, Selling, Buying and use of Plastics Bags) Regulations 2006 under the Environmental Management Act, 2004, a publication of the Tanzania Government.

BOS 186:2006 Standard for Plastic for Plastic Carrier Bags and Flat Bags Specification, a publication of the Botswana Government.

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ZAMBIA BUREAU OF STANDARDS

DRAFT ZAMBIAN STANDARD

PLASTIC CARRIER BAGS AND FLAT BAGS - Specification

1. SCOPE

- 1.1 This draft Zambian standard specifies requirements for carrier bags and flat bags that are made from thermoplastic materials.
- 1.2 This standard covers plastic carrier bags and flat bags, both domestically produced and imported, for use within Zambia.
- 1.3 This standard covers the thickness, materials used and printing requirements of these bags.
- 1.4 This standard does not cover barrier bags of thickness of less than 5 µm.

2. NORMATIVE REFERENCE

The following standard contains provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent edition of the standards indicated below.

ZS ISO 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).

ASTM D 3826 – Standard practice for determining degradation end point in degradable polyethylene and polypropylene using tensile test.

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

ASTM D 5510 – Standard practice for heating ageing of oxidatively degradable plastics

3. DEFINITIONS

For the purposes of this draft standard, following definitions apply:

- 3.1 **Barrier bag** - Thin or flimsy bag, used to separate incompatible products at the final point of sale, for health, hygiene or transport purposes
- 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 packaging or carrying of goods
- 3.4 **Degradable plastic** – A plastic film containing a controlled percentage of an appropriate non-toxic and non-tinting additive, which will enable the plastic film to totally degrade, within a period of 12-24 months, when exposed to aerobic or anaerobic conditions, including when disposed in a landfill or other regulated disposal sites.
- 3.5 **Flat bag** - Bag constructed without handles, and with or without gussets
- 3.6 **Packets** –Lowest unit of sale or distribution by the manufacturer to the retailer.
- 3.7 **Plastic film** - continuous, thin, non-woven membraneous skin, or layer of flexible material, made of thermoplastic materials
- 3.8 **Primary packaging** - packaging that is in direct contact with the product, and the purpose of which is to contain the product during transport, or handling to, the point of distribution or use
- 3.9 **Trade** - the sale of plastic bags to any person including, but not limited to, manufacturers, wholesalers and retailers of goods, for use in Zambia.

4. REQUIREMENTS

4.1 Construction and materials

- 4.1.1 All plastic bags, offered for trade or commercial distribution (except for carrier bags or refuse bags as indicated in item 4.1.2 below) shall be made from plastic film consisting of polyethylene or polypropylene.
- 4.1.2 All Plastic bags, offered for trade or commercial distribution as carrier bags or refuse bags, shall be made from degradable plastic film, which shall totally degrade within a period of 12-24 months, when exposed to aerobic or anaerobic conditions.

4.2 Film thickness

When the film thickness of a plastic carrier bag or flat bag is measured in accordance with 6.1, no individual thickness measurement shall be less than **24 µm**.

5. PRINTING REQUIREMENTS

5.1 Types of ink

5.1.1 Ink used for printing on plastic carrier bags or flat bags shall be food based ink and 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 accordance with 6.2, type A ink shall not exhibit any change of colour.

5.2 Permitted coverage of printing

5.2.1 For ink of type A , the mass percentage of dried solids of the printed ink, relative to the mass of an unprinted bag, shall not exceed 2.25 %.

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

6. TEST METHODS

6.1 Film thickness

Measures the thickness of the plastic film using the method described in ZS ISO 4591 and check the results for compliance with 4.2.

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 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 water; and
- c) 30.0 g concentrated sulphuric 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 a 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.

6.3 Film Degradability

Measures the degradability of the plastic film using the method described in ASTM D 3826, ASTM D 5208 and ASTM D 5510 and check the results for compliance with 4.1.2.

7. CONSIGNMENT SLIPS AND MARKINGS

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

- a) The name and physical address of the manufacturer, importer or distributor (who shall be domiciled in Zambia);
 - b) The country of origin; and;
 - c) In case of plastic carrier bags or flat bags, the type of plastic used its manufacture shall be indicated.
- 7.2** All markings on the consignment slips (or bags) shall be at least in the English language.