

UGANDA STANDARD

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Plastics — Codes for resin identification on plastics container



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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Tourism, Trade and Industry established under Cap 327, of the Laws of Uganda. UNBS is mandated to co-ordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT/SPS Agreements of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

Committee membership

The following organisations were represented on the Technical Committee UNBS/TC 5, Chemicals and Environment Standards in the preparation of this standard:

- Consumer Education Trust (CONSENT)
- Government Analytical Laboratory
- Ministry of Finance, Planning and Economic Development (MFPED)
- Nile Plastics
- Plastics recycling industries
- Uganda Consumer Protection Association
- Uganda National Bureau of Standards
- Uganda Revenue Authority (URA)

Introduction

Plastic waste is one of the main components in municipal solid waste (MSW). It constitutes about 15% to 20% by weight and around one-third by volume in the waste stream. Compared with other recyclable materials (such as paper, metals and aluminium cans), the recycling and recovery rates of plastic waste in Uganda are fairly low.

To facilitate the development of a sustainable plastic waste recycling industry appropriate to local conditions, measures under the Waste Reduction Framework Plan are developed to promote and support the current recycling industry. Recycling of waste materials is preferable to incinerating or landfilling those materials because recycling conserves valuable resources, saves energy in the manufacturing process and extends the life of disposal facilities. Increased recycling is necessary because it will lead to reduction of the solid waste stream and plastics have been shown to be recyclable.

One of the barriers to increased recycling of plastics is the necessity of keeping the various types of plastic separate, based on the resin from which they are made, thus a need to develop a coding system that can be used to label plastic containers so as to identify the type of resin from which they are made. This standard therefore is intended to facilitate the recycling of plastic containers by requiring that these containers be labelled according to resin type.

Plastics — Codes for resin identification on plastics containers

1 Scope

This Uganda Standard provides the codes for identifying the resin content of plastics containers used by the public and to facilitate sorting as prerequisites for successful plastic recovery and recycling.

The code is not intended to be a guarantee to consumers that a given item bearing the code will be readily accepted for recycling. Users of the code are encouraged to adhere to the guidelines.

2 Definitions

For the purposes of this standard, the following terms and definitions shall apply.

2.1

biodegradable

substances that will decay relatively quickly as a result of the action of micro organisms and break down elements that are recycled naturally

2.2

degradable

able to undergo physical and chemical decomposition or degraded in any way into component parts within 360 days under exposure to the elements

2.3

label

molded, imprinted, or raised symbol on a plastic product, rigid plastic container or plastic bottle

2.4

container

object such as a box, jar, bag, or bottle including a wrapper film that is used to hold something, especially when its being stored, transported or wrapped

2.5

plastic

any synthetic material made from polymerisation of organic compounds and additives that can be molded in many different forms for use

2.6

plastic product

product made of synthetic material from polymerisation of organic compounds and additives

2.7

plastic container

an object made of a synthetic material that is intended for holding something

2.8

recycle

processing used or waste material so that can be used again

2.9

recyclable

suitable or adapted for recycling

3 Symbols (and abbreviated terms)

<i>D</i>	degradable
<i>HDPE</i>	high density polyethylene
<i>LDPE</i>	low density polyethylene
<i>PETE (PET)</i>	polyethylene terephthalate
<i>PP</i>	polypropylene
<i>PS</i>	polystyrene
<i>V (PVC)</i>	vinyl
<i>OTHER</i>	multilayer

NOTE Where other is Nylon (polyamide), ABS, PC, PMMA, PU, phenolics

4 Requirements

4.1 General

4.1.1 The code shall confirm the type of resin in the products.

4.1.2 The coding system shall offer a means of identifying the resin material of plastics containers used by the public.

4.1.3 The plastic material coded shall be of resins:

- a) polyethylene terephthalate (PET or PETE);
- b) high-density polyethylene (HDPE);
- c) polyvinyl chloride (PVC or V);
- d) low-density polyethylene (LDPE);
- e) polypropylene (PP); and
- f) polystyrene (PS).

Each of the resin types is represented by a number under the coding system as specified under clause 4.3 below.

4.1.4 The coding system shall include a seventh code, identified as "other" but specified. The use of this code indicates that the product in question is made of a resin other than the six listed above, or is made of more than one resin used in combination.

4.2 Labelling requirement

Any plastic container/product shall be labelled with a code identifying the appropriate resin type used to produce the structure of the container. The code shall consist of a number placed within three triangulated arrows and a letter placed below the triangle of arrows.

The triangulated arrows shall be equilateral, formed by three arrows with the apex of each point of the triangle at the midpoint of each arrow, rounded with a short radius.

The pointer (arrowhead) of each arrow shall be at the midpoint of each side of the triangle with a short gap separating the pointer from the base of the adjacent arrow.

The triangle, formed by the three arrows curved at their midpoints, shall depict a clockwise path around the code number. The numbers and letters used shall be as follows:

- 1 = PETE/PET (polyethylene terephthalate);
- 2 = HDPE (high density polyethylene);
- 3 = V/PVC (vinyl);
- 4 = LDPE (low density polyethylene);
- 5 = PP (polypropylene);
- 6 = PS (polystyrene); and
- 7 = Other [specified as either Nylon (polyamide), ABS, PC, PMMA, PU, phenolics].

4.3 Guidelines for coding




4.3.1 General





The following are general guidelines for coding:

- a) the code shall be used on plastic containers and plastic products solely to identify resin material;
- b) the code shall appear on the container, and shall be feasible;
- c) the design of the code shall not be modified (the resin acronym in the code shall not be replaced and other types of chasing arrows shall not be used); and
- d) there shall not be any recyclability or other environmental claims in close proximity to the code, even if such claims are properly qualified. Specifically, do not use the term "recyclable" in proximity to the code.

4.3.2 Identification codes, properties and applications

Table 1 — Plastic types, identification codes, properties and applications

Type of plastic material	Identification code	Properties	Packaging applications
PET / PETE Polyethylene terephthalate		Clarity Toughness Barrier to gas and moisture Heat resistance Resistance to grease/oil	<ul style="list-style-type: none"> • Mineral water bottles • 2 litre soda bottles • Cooking oil bottles • Powder detergent jars • Juice bottles • Sports drink bottles • Peanut butter jars • Ovenable food trays • Vinegar bottles
HDPE High Density Polyethylene		Rigidity Strength Toughness Water barrier Chemical resistance Ease of forming Low cost Permeable to gas Natural milky white colour	<ul style="list-style-type: none"> • Detergent jerricans and bottles • Bleach jerricans and bottles • Cosmetics • Lubricants • Milk containers • Rigid pipe • Buckets • Basins • Milk crates • Beer crates • “Crinkly” shopping bags • Plastic flower pots • Bottle caps
PVC Polyvinyl chloride or vinyl (V)		Clarity/Transparency Strength Toughness Resistance to lubricants Non flammability Can be solvent welded Electrical insulation	<ul style="list-style-type: none"> • Floor tiles • Wire and cable insulation • Garden hoses • Electrical conduits • Blood bags • Surgical gloves • Medical tubing • Bottles for disinfectants • Shoe soles and uppers • Water pipes and fittings • Carpet backing • Window frames • Wall cladding • Outdoor furniture • Shrink wrap

<p>LDPE Low density polyethylene</p>		<p>Strength Toughness Ease of processing Flexibility Moisture barrier Low melting point allows heat sealing</p>	<p>Bags for</p> <ul style="list-style-type: none"> • Dry cleaning • Groceries • Retail • Frozen foods • Trash cans • Bread • Squeezable bottles • Polyethylene sheets and films • Wire and cable insulation
<p>PP Poly propylene</p>		<p>Hard but flexible Waxy surface Resistant to heat Translucence</p>	<ul style="list-style-type: none"> • Crisp bags • Drinking straws • Hinged lunch boxes • Margarine tubs • Yoghurt containers • Medicine bottles • Car battery cases • Brooms and brushes • Bottle caps • PP bags
<p>PS Polystyrene</p>		<p>Inexpensive Hardness Can be blown (expanded)</p>	<ul style="list-style-type: none"> • Packaging pellets • Clear coffee / Tea cups • Clam shell take away containers • Plastic cutlery • Video tape cases/ CD cases • Meat trays • Protective packing for computers and electronics • Egg trays
<p>Other plastics including:</p> <ul style="list-style-type: none"> • Nylon (polyamide) • ABS • PC • PMMA • PU • Phenolics 		<p>Not available in sufficient quantities for recycling</p>	

Bibliography

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