Plastics—Codes for resin identification on plastics container
Compliance with this standard does not, of itself confer immunity from legal obligations

A Uganda Standard does not purport to include all necessary provisions of a contract. Users are responsible for its correct application
Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate 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 Agreement 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 key stakeholders including government, academia, consumer groups, private sector and other interested parties.

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.

The committee responsible for this document is Technical Committee UNBS/TC 5, [Chemicals and Environment], Subcommittee SC 03, Plastics and Related products.

This second edition cancels and replaces the first edition (US 786:2007), which has been technically revised.
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 container

1 Scope

This Draft 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 Normative references.

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:
— ISO Online browsing platform: available at http://www.iso.org/obp

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

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

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

3.4 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

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

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

3.8 recycle
process used on waste material so that it can be used again

4 Abbreviations
a) D — degradable
b) HDPE — high density polyethylene
c) LDPE — low density polyethylene
d) PETE (PET) — polyethylene terephthalate
e) PP — polypropylene
f) PS — polystyrene
g) V (PVC) — vinyl
h) OTHER — multilayer  NOTE  Where other is Nylon (polyamide), ABS, PC, PMMA, PU, phenolics

5 General requirements
5.1 The code shall confirm the type of resin in the products.
5.2 The coding system shall offer a means of identifying the resin material of plastic containers used by the public.
5.3 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)
5.4 Each of the resin types is represented by a number under the coding system as specified under clause 6.4.
5.5 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.

6 Labelling

6.1 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.

6.2 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.

6.3 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.

6.4 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, phenolic

7 Guidelines for coding

7.1 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.
### 7.2 Identification codes, properties and applications

#### Table 1 — Identification codes, properties and applications

<table>
<thead>
<tr>
<th>Type of plastic material</th>
<th>Identification code</th>
<th>Properties</th>
<th>Packaging applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>PETE/PET</td>
<td><img src="pete.png" alt="" /></td>
<td>Clarity</td>
<td>• water and beverage bottles and jars</td>
</tr>
<tr>
<td>Polyethylene terephthalate</td>
<td>PETE</td>
<td>Toughness</td>
<td>• Cooking oil bottles</td>
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<tr>
<td></td>
<td></td>
<td>Barrier to gas and moisture heat resistance</td>
<td>• Powder detergent jars</td>
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<td></td>
<td></td>
<td>Resistance to grease/oil</td>
<td>• Oven able food trays</td>
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<td></td>
<td></td>
<td></td>
<td>• Vinegar bottles</td>
</tr>
<tr>
<td>HDPE</td>
<td><img src="hdpe.png" alt="" /></td>
<td>Rigidity</td>
<td>• jerricans and bottles</td>
</tr>
<tr>
<td>High Density Polyethylene</td>
<td>HDPE</td>
<td>Strength</td>
<td>• Detergent, Bleach Cosmetics, Lubricants, Milk</td>
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<tr>
<td></td>
<td></td>
<td>Toughness</td>
<td>• Rigid pipe</td>
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<tr>
<td></td>
<td></td>
<td>Water barrier</td>
<td>• Buckets, Basin, crates</td>
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<td></td>
<td></td>
<td>Chemical resistance</td>
<td>• Crinkly shopping bags</td>
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<td></td>
<td></td>
<td>Ease of forming</td>
<td>• plastic flower pots</td>
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<td></td>
<td></td>
<td>Low cost</td>
<td>• bottle caps</td>
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<tr>
<td></td>
<td></td>
<td>Permeable to gas Natural milky white colour</td>
<td>• Garbage bins</td>
</tr>
<tr>
<td>PVC</td>
<td><img src="pvc.png" alt="" /></td>
<td>Clarity/Transparency</td>
<td>• Floor tiles</td>
</tr>
<tr>
<td>Polyvinyl chloride or vinyl (V)</td>
<td>PVC</td>
<td>Strength</td>
<td>• Wire and cable insulation</td>
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<td></td>
<td></td>
<td>Toughness</td>
<td>• Garden horses</td>
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<td></td>
<td></td>
<td>Resistance to lubricants</td>
<td>• Electrical</td>
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<tr>
<td>Can be solvent welded</td>
<td>Electrical insulation</td>
<td>Non flammability</td>
<td>Conducts</td>
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<td>• Blood bags</td>
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<td>• Surgical gloves</td>
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<td></td>
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<td>• Medical tubing</td>
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<td></td>
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<td>• Bottles for disinfectants</td>
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<td>• Shoe soles and uppers</td>
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<td>• Water pipes and fittings</td>
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<td></td>
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<td>• Carpet backing</td>
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<td></td>
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<td>• Window frames</td>
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<td></td>
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<td>• Wall cladding</td>
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<td></td>
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<td>• Outdoor furniture</td>
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<td></td>
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<td></td>
<td>• Shrink wrap</td>
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<tr>
<td>Material</td>
<td>Properties</td>
<td>Uses</td>
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<tr>
<td>LDPE</td>
<td>Strength, Toughness, Ease of processing, Flexibility, Moisture barrier, Low melting point allows heat sealing</td>
<td>• Bags for: dry cleaning, Groceries, Retail, Frozen foods, Trash cans, Bread, Squeezable bottles, Polyethylene sheets and film, Wire and cable insulation</td>
<td></td>
</tr>
<tr>
<td>PP</td>
<td>Hard but flexible, Resistant to heat, Translucent</td>
<td>• Crisp bags, Drinking straws, Hinged lunch boxes, Margarine tubs, Yoghurt containers, Medicine bottles, Car battery cases, Brooms and brushes, Bottle caps</td>
<td></td>
</tr>
<tr>
<td>PS</td>
<td>Hardness, Can be blown(expanded)</td>
<td>• Packing pellets, Clear coffee/tea cups, Clam shell take away containers, Plastic cutlery, Video tape cases CD</td>
<td></td>
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<tr>
<td>Other plastics including</td>
<td>Not available in sufficient quantities for recycling</td>
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<td>-----------------------------------------</td>
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<td></td>
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<tr>
<td>• Nylon (polyamide) • ABS • PC • PMMA • PU • Phenolic</td>
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</table>
Bibliography


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