

Saudi Standards, Metrology and Quality Org (SASO)

SASO 2899/2018

Single-Use Drinking Water bottles Made of Polyethylene Terephthalate

This document is a draft of the General Saudi Standards to be commented on. Therefore, it is subject to change and may not be referred to as the Saudi Standards, unless being approved by the Board of Directors.

Introduction

The Saudi Standards, Metrology and Quality Organization (SASO) has prepared the Saudi Standards for Single–Used Drinking Water bottles made of Polyethylene Terephthalate after reviewing the specifications of Arab, foreign and international standards and reviewing the related reference literature.

ICS 55.100

Single-Use Drinking Water bottles Made of Polyethylene Terephthalate

1- Scope

This Saudi standard is concerned with the general requirements, and characteristics of single-used plastic bottles made of Polyethylene Terephthalate (PET), formed by injection and blowing, for packing drinking water. It does not include bottles that are refilled more than once.

2- Normative References

- 2.1 SASO ISO 472/ 2017 "Plastics - vocabulary".
- 2.2 SASO ASTM D 6988/ 2016 Standard Guide for Determination of Thickness of Plastic Film Test Specimens
- 2.3 SASO ASTM D4603/2017 Standard Test Method for Determining Inherent Viscosity of Poly(Ethylene Terephthalate) (PET) by Glass Capillary Viscometer
- 2.4 SASO ASTM F2013 /2017 Standard Test Method for Determination of Residual Acetaldehyde in Polyethylene Terephthalate Bottle Polymer Using an Automated Static Head-Space Sampling Device and a Capillary GC with a Flame Ionization Detector.
- 2.5 SASO ASTM D2911 / D2911M/2017 Standard Specification for Dimensions and Tolerances for Plastic Bottles.
- 2.6 SASO-GSO-1863:2013 Food packages - part 2 plastic packages – general requirements.

3- Terms and Definitions

3.1 Polyethylene Terephthalate (PET)

A polymer produced by multiple condensation of Ethylene Glycol, Terephthalic Acid or Dimethyl Terephthalate.

3.2 Plastic bottle

A bottle made of plastic material and used for bottling and packaging materials to contain, retain, and protect them. It has a variety of forms.

4- Requirements

4.1 Raw Materials

Plastic bottle : use for bottling and retaining water are made of Polyethylene Terephthalate . Type and source of the raw materials from which the bottle is manufactured shall be known. The same materials may be used and recycled in the manufacture , provided that the final product complied with all the requirements of this standard.

4.2 Visual Examination

Plastic containers used for bottling and retain water shall have the following requirements:

- 4.2.1 They shall clean, homogeneous, free of strange materials, bulges, and air pockets.
- 4.2.2 They shall not affected, when they are bottled, closed, stored, transferred, and used; which may result in their deformation or changing their chemical and physical properties.

4.3 Form and Design

- 4.3.1 Forms, sizes, and designs of the containers must be upon the request of the consumer or the packing company.
- 4.3.2 Covers have been designed based on the design of the bottle necks, they must be designed to be tightly closed and avoid leakage of water.
- 4.3.3 The bottle shall be designed to prevent burning by collecting sunlight

4.4 Acetaldehyde Content

The content of acetaldehyde shall not exceed (4 part of a million) in water bottles. according to standard in item 2/4

4.5 PH

The PH of water, with a PH ranges between 6-8 when filled in a bottle for 24 hours, shall not be changed.

4.6 Intrinsic Viscosity

The viscosity coefficient illustrates and measures the length of the chemical chain of molecular weight and depends on the degree of dryness of the raw material during manufacturing. In one way or another, the drying time shall not exceed 8 hours and at a temperature below 170 ° C. and Intrinsic Viscosity should be 0.8 ±0.02 dl/g.

4.7 Free Fall

bottles must not be cracked or damaged when being dropped on a hard surface for three consecutive times as the following :

- From 75 cm height for bottle with capacity 2 liter or more
- From 150 cm height for bottle with capacity less than 2 liter.

4.8 Color

The bottle shall be transparent or colored according to the color agreed upon with the buyer, provided that the color of the package is homogeneous and free from any apparent color differences. Colors used should be allow to contact the food.

4.9 Dimensions and capacity

The bottle shall retain its initial engineering dimensions and initial formation during manufacture. Unless the measurement and tolerance are specified, the measurement and dimension tolerance of each container according to standard in item 2/5.

4.10 Material Migration

There should be no significant change in the chemical structure or the physical properties and the appearance of the bottle; which means the non-transfer of a number of the plastic bottle components to the liquid content. The percentage of material transfer from the wall of the bottle should not exceed 60 mg / kg. according to standard in item 2/6

5- Bottling and Packaging

Bottles are packed and packaged properly so as not to be affected or damaged.

6- Transport, Storage, and Handling

6.1 Transport

Water bottles must be safely transported to be protected from damage and pollution under the same storage conditions.

6.2 Storage and Handling

6.2.1 Bottles of water shall be stored away from any toxic or harmful substances and away from sources of high temperatures and pollution at room temperature.

6.2.2 Bottles of water shall be stored in well ventilated places free from aromatic substances.

7- marking :

A clear external Label, which is difficult to be removed, must be put on the container. The following data must be written in Arabic or English, in a bold and readable form:

7.1 Name of the manufacturer or its trademark

7.2 Type of plastic and code

7.3 batch number

7.4 Capacity (Size)

References:

- 1- Specifications of the International Commission for Beverages Technology (ICBT).
- 2- Gulf Standard Specifications 462/1994 Single-Used cups and bottle made of rigid and semi-rigid plastic for packing beverages and milk products, and for similar purposes.
- 3- The Egyptian Standard Specifications 3019/2007 The basic requirements and the standard specifications of single-used plastic cups and containers for packing food stuff.