

# **Saudi Standards, Metrology and Quality Org (SASO)**

**Project ( Update ) No. 29245 /2020**

## **Disposable Plastic Tableware**

ICS 83.140.10

---

THIS DOCUMENT IS A DRAFT SAUDI STANDARD CIRCULATED FOR COMMENT. IT IS, THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS A SAUDI STANDARD UNTIL APPROVED BY THE BOARD OF DIRECTORS.

**Introduction**

Saudi Standards, Metrology and Quality Organization (SASO) has update the Saudi Standard No 2888/2017 "**Disposable Plastic Tableware**" based on relevant ADMO, International and National foreign Standards and references.

## Disposable Plastic Tableware

### 1. scope of application

This standard specification is concerned with the specification and methods of testing applied to " **Disposable Plastic Tableware** " made from polyethylene, polypropylene, polystyrene, polyvinyl chloride, polyethylene terephthalate, such as plates, cups, spoons, forks, cutlery, etc. which are used only once. This does not include the packs used in the preservation and packaging of food products, and also plastic products of frequent use.

### 2. Complementary references:

2/1 ISO 472:2013 "Plastics - Vocabulary".

2/2 GSO ISO 4481:1977 "Cutlery and flatware - Nomenclature"

2/3 SASO GSO 839 Food packages - part 1 - general requirements

2/4 SASO-GSO-1863: 2013 "Food packages - Part 2: Plastic package - General requirements".

2/5 SASO GSO 2231/2012 General Requirements for the materials intended to come into contact with food

2/6 SASO ASTM D 6988:2016 "Standard Guide for Determination of Thickness of Plastic Film Test Specimens".

2/7 BS EN 1186-1:2002 Materials and articles in contact with foodstuffs-Plastic

2/8 BS EN 14233:2002 Materials and articles in contact with foodstuffs - Plastics - Determination of temperature of plastics materials and articles at the plastics/food interface during microwave and conventional oven heating in order to select the appropriate temperature for migration testing.

### 3. Definitions

3/1 For the purposes of this Standard, the following terms and definitions shall be used in addition to those contained in the International Standard ISO mentioned in items 2/1 and 2/2.

**3/2 Plastic materials**

Materials made from simple petrochemical materials with a small partial weight that are polymerized to produce compounds of heavy partial weight such as polyethylene, polypropylene, polyvinyl chloride, polystyrene and polyethylene terephthalate.

**4- Requirements:****4/1 Chemical composition of plastics:**

4/1/1 These products are made up of suitable plastic materials, which are permitted for use in food industries such as polyethylene, polypropylene, polyvinyl chloride, polystyrene and polyethylene terephthalate.

4/1/2 The origin and composition of the raw materials must be well known in order to avoid the use of previously used plastic and packaging materials in manufactured products of a single layer. In the case of products made from several layers, recycled materials (factory only) are allowed in the layers that do not contact with food.

**4/2 Suitability for use**

The products must be food grade and suitable for the purpose of their manufacture, functional requirements and design, and samples shall be free from bulges and air pockets and free from manufacturing defects such as (color mismatch, irregular thickness of walls and edges, acceptable hardness, leakage).

**4/3 Temperature Impact**

The sample should have no distortion or change in the shape or sizes at the appropriate temperature of the product. When tested as follows:

The sample is attached through a hole on the top and put in the cup with suitable size for sample containing distilled water, At 83 to 86 ° C for 15 minutes. The sample must be completely immersed in the distilled water, and no part of the sample touches the cup. After the 15 minutes, it is removed from the water. Any change or deformation in the sample shape is considered a failure of the test.

**4/4 Printing Inks and Coloring Materials**

The inks used for printing or plastics coloring materials shall be from the allowed nutritionally homogeneous and identical for their standard specifications.

**4/5 Odor and taste**

The sample shall be free from any unacceptable odor and taste during carrying out the test as follows:

Submerge the sample, in distilled water at 83 to 86 ° C for 15 minutes. After the end of that time, they must be removed and tested for the odor. Re-immerses in distilled water at 27 to 32 ° C for 15 minutes. After the end of that time, as appropriate, it should be removed and tasted for evaluation by placing it in the mouth in a simulation of the actual eating process. The presence of any unacceptable odor or taste is considered a test failure.

**4/6 Stack ability**

Samples should be capable of stacking on top of one another and can be easily removed by simple hand-pulling.

**4/7 Bottom level (only for dishes and cups)**

The bottom of the cup or dish should be flat and not crooked so that they can easily be placed on the table during carrying out the test on them as follows:

The sample shall be placed in its normal position when used on a flat surface and shall be fixed with a slight pressure on the middle of the bottom by one of the hand fingers. It is noted that it is not possible to put a 0.4 mm thickness probe at any point between the sample base and the flat surface it is put on.

**4/8 Test for Serration (for knife only)**

serrated knife must be minimum 20% of length

**4/9 Residual materials (heavy elements):**

Heavy metals shall be directly assessed on the test material in order to verify that its concentration is within the acceptable limits as follows:

**Table (1)**

<b>Element</b>	<b>Mg/kg of the dry material</b>
Zinc	100
Copper	5

Arsenic	2
Lead	1
Chrome	1

#### 4/10 Contact in a microwave oven

For materials and articles intended for use in microwave ovens, either migration testing maybe carried out in a conventional oven or a microwave oven provided the appropriate time and temperature conditions to be selected according to the clause 2/7,2/8.

Note: this test only applies to tableware indicated, claimed or marked to be microwave safe.

#### 4/11 Microwave high–frequency heat test

- Equipment

A microwave with a rated frequency modulation output power of less than 2 kW.

- Procedures

Place a sample in the microwave, select the heating time from Table 3 which corresponds to the

rated output power of the microwave to heat the sample. After the heating is completed, remove the sample from the microwave, cool to room temperature, In addition, allow the microwave to cool to room temperature.

Test another sample repeating the above procedure.

Note: this test only applies to tableware indicated, claimed or marked to be microwave safe.

Table 3 Contrast of output power and heating time

Rated output power, kW	.Heating time, min
٢,٠	١,٠
١,٠	٢,٠
٠,٦	٣,٥
٠,٥	٤,٠

**4/12** Microwave heat-resistance test:

- Reagent: Olive oil, food-grade.

- Equipment:

A microwave with a rated frequency modulation output power of less than 2 kW.

A thermometer, a digital display thermocouple.

- Procedure:

Pour approximately 50% of the sample volume of olive oil into the sample, place the sample into the microwave and start heating.

When the safe temperature of the sample for microwave use is marked as under 200°C, then heat the olive oil until the temperature thereof reaches the designated temperature.

When the safe temperature of the sample for microwave use is marked as equal to or more than 200°C, then heat the olive oil until the temperature thereof reaches 200°C.

When the required temperature has been reached, stop heating, remove the sample, leave it to cool at room temperature until its temperature falls to room temperature and then check the sample for any deformation, defect, leakage and abnormality thereto.

Test another two samples, repeating the above procedure.

Note: this test only applies to tableware, which would be intended for containing liquid and is indicated, claimed or marked to be microwave safe.

**4/13 Leakage Test**

The surface of the sample must be solid without any pores that allow the leakage of the inside, when tested as follows:

The product shall be filled with an ink solution at a temperature of 80° C with a color contrasting to that color of the product and be left for 8 hours. Any presence of the ink color on the outside surface of the product is considered a failure of the sample .

**5. Test methods:**

The tests shall be carried out in accordance with the Saudi Standards specifications mentioned in Clause 2.

5/1 visual inspection

5/2 Temperature Impact

5/3 Odor and taste

5/4 Stack ability

5/5 Bottom level (only for dishes and cups)

5/6 Serration (for knife only)

5/7 Residual materials (heavy elements)

5/8 Microwave high-frequency heat test

5/9 Microwave heat-resistance test

5/10 Leakage

## **6. Packing, transportation and storage**

The following shall be met during transportation, storage and handling of packages:

6/1 They shall remain tightly closed to avoid exposure to any contamination till they are used.

6/2 They shall be transported in suitable means of transportation so as to protect them from mechanical damage and contamination.

6/3 They shall be stored in suitable places so as to protect them from mechanical damage and contamination.

## **7. MARKING :**

Each piece must be written on (in a readable and indelible manner, with the following information in Arabic or in both Arabic and English) and in case of the small pieces, writing shall be on the container.

7/1 The type of the plastic material and product name

7/2 The manufacturer's name or brand .

7/3 The country of origin .

7/4 Production date and validity period

7/5 Number of units or pieces inside container and nominal capacity of cups.

7/6 validity period

7/7 storage conditions.

7/8 Determine the temperature suitable for use on the product.

7/9 Logo of validity for food use figure (1)

7/10 Logo of microwave safe use ( If it is safe to use the microwave )



( 1 ) figure

Logo of validity for food use

**References:**

- 1 - Commission Directive 2004/19/EC of 1 March 2004 relating to plastic materials and articles intended to come into contact with food stuffs.
- 2- Egyptian Standard 3019/2007-general requirements for single- use of plastic cups and containers for packaging food products
- 3- SFDA.FD.1863 Food packages - part 2 plastic packages - general requirements.
- 4-SFDA.FD 839 Food packages - part 1 - general requirements
- 5- GB 18006-1/2009 General requirement of plastic disposable tableware.