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Household stainless steel sink

家用不锈钢水槽

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Household stainless steel sink

1 Scope

This standard specifies the terms and definitions, product classification, requirements, test methods, inspection rules, labels and markings, instructions for use, packaging, transportation, storage of household stainless steel sinks (hereinafter referred to as sinks).

This standard applies to stainless steel sinks for household and similar purposes.

This standard does not address safety requirements, which are related to food contact materials.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 191 Packaging - Pictorial marking for handling of goods

GB/T 223 Chemical analysis methods of iron, steel and alloy

GB/T 223.4 Methods for chemical analysis of iron, steel and alloy - The volumetric method for determination of manganese content by ammonium nitrate oxidation

GB/T 223.5 Steel and iron - Determination of acid-soluble silicon and total silicon content - Reduced molybdosilicate spectrophotometric method

GB/T 223.11 Iron, steel and alloy - Determination of chromium content - Visual titration or potentiometric titration method

GB/T 223.18 Methods for chemical analysis of iron, steel and alloy - The sodium thiosulfate separation iodometric method for the determination of copper content

GB/T 223.19 Methods for chemical analysis of iron, steel and alloy - The neocuproine-chloroform extraction photometric method for the

5.4 Corrosion resistance

After the metal materials of the sink and its accessories, which come into contact with food, are tested according to 6.5, they shall meet the requirements of appearance rating 9 in GB/T 6461-2002.

5.5 Drainage mechanism

5.5.1 Materials

It shall meet the relevant requirements of JC/T 932.

5.5.2 Dimensions

5.5.2.1 The size of the drain outlet should be ϕ114 mm, ϕ140 mm, ϕ160 mm.

5.5.2.2 The wall thickness of plastic drainage pipes and components (excluding the tapered part, at the end of the plastic pipe and the corrugated pipe) shall not be less than 1.57 mm.

5.5.2.3 The wall thickness of the metal drainage pipe shall meet the following requirements:

a) The wall thickness of straight pipes, which are made of brass or copper, shall not be less than 0.73 mm; the wall thickness of straight pipes, which are made of stainless steel, shall not be less than 0.30 mm;

b) The wall thickness of the threaded part shall not be less than 0.83 mm;

c) The wall thickness of the corrugated pipe shall not be less than 0.40 mm.

5.5.2.4 The outer diameter of the drainage pipe shall comply with the size matching requirements for nominal diameter (inner diameter) ϕ40 mm or ϕ50 mm, in GB/T 5836.2.

5.5.3 Use performance

5.5.3.1 Drain filter

5.5.3.1.1 After the test according to the method of 6.6.3.1.1, the leakage shall not exceed 1%.

5.5.3.1.2 The drain filter, which is configured in the main washing bowl of the sink, shall have a filter basket; the steel ball shall not fall off, after the test according to the method of 6.6.3.1.2.

5.5.3.1.3 After the test according to the method of 6.6.3.1.3, the surface of the drainage filter shall not have cracks, fractures, bubbles, delamination,

permanent discoloration, etc.

5.5.3.1.4 After the test according to the method of 6.6.3.1.4, the surface of the drainage filter shall not be obviously damaged.

5.5.3.2 Overflow parts

5.5.3.2.1 There shall be an overflow outlet on the sink.

5.5.3.2.2 According to the test method in 6.6.3.2.2, the time, FROM the beginning of the overflow TO the time when the water overflows from the sink, shall not be less than 5 min.

5.5.3.3 Other properties

5.5.3.3.1 The drainage mechanism shall drain the full sink of water, within 2 minutes.

5.5.3.3.2 After the test according to the method in 6.6.3.3.2, there shall be no leakage of water at the joint, between the drainage mechanism and the bowl; the hose shall not be displaced from the connection, when the hot water is being discharged.

5.5.3.3.3 The height of the water seal of the water trap shall not be less than 50 mm.

5.5.3.3.4 After the test according to the method of 6.6.3.3.4, the non-metallic drainage pipe shall be free of cracks and water leakage.

5.5.3.3.5 After the test according to the method of 6.6.3.3.5, the drainage pipe and its components shall be free of leakage, cracking, permanent deformation, etc.

5.5.3.3.6 Effective sealing material shall be arranged, at the end of the drainage mechanism.

5.6 Bearing performance

After the test according to 6.7, there shall be no abnormal phenomena, such as sinking, cracking, de-soldering of the sink; the deformation of the bottom shall be less than 3 mm.

5.7 Faucet opening

5.7.1 Strength

After the test according to the method of 6.8.1, the deformation of the opening of the faucet shall be less than 3 mm.

as filler spots, ripples, overflow marks, shrinkage marks, warpage, fusion marks, etc., nor shall there be obvious scratches, modification damage, dirt.

5.11.2.4 There shall be no obvious defects, such as dents and broken teeth, on the thread surface.

5.11.3 Appearance of anti-condensation coating

It shall be firm and uniform in spraying; there shall be no defects, such as flow marks, bottoming, wrinkles, falling off.

5.12 Waterproof strip

The sink for installation on or below the counter-top shall be equipped with waterproof strips; there shall be no leakage, after the test according to 6.13.

5.13 Fastening device

The sink shall be equipped with a fastening device. The straight-line distance, between two adjacent fastening devices of the sink, which is installed on or below the counter-top, shall not be greater than 250 mm. Meanwhile, after the test according to 6.14, the fastening device shall not fall off or deform. Meanwhile, it shall not cause the sink to deform.

5.14 Accessories

5.14.1 Pop-up

5.14.1.1 The operating force of the lift and push-type pop-up switch shall be no more than 10 N; the switch torque of the knob-type pop-up device shall not be more than 3 N·m.

5.14.1.2 After the test in accordance with 6.15.1.2, the use function of the pop-up device shall be normal AND meet the requirements of 5.5.3.1.1.

5.14.2 Faucet

5.14.2.1 The faucet, which is matched with the sink, shall meet the requirements of the kitchen faucet in GB 18145.

5.14.2.2 For the faucet, which is matched with the sink, the size of the bottom fixing part shall be less than ϕ35 mm; the size of the base shall not be less than ϕ45 mm and not more than ϕ60 mm.

5.14.3 Drain basket

After the test according to the method of 6.15.3, there shall be no fracture, twist, de-soldering or other deformation, which affects the use.

5.15 Auxiliary functions

For the sink with other auxiliary functions (such as washing, purification, antibacterial, garbage disposal, etc.), it shall not only meet the requirements of this standard, but also meet the relevant national standards and industry standards.

5.16 Packaging properties

5.16.1 Vibration resistance

After the sink package is subjected to the vibration test, according to the method in 6.17.1, the appearance of the package shall be free from obvious damage and deformation; the product surface and accessories shall not be mechanically damaged.

5.16.2 Drop resistance

After the sink package is subjected to the drop test, according to the method in 6.17.2, the product shall not have indentation, deformation, damage.

6 Test methods

6.1 Test conditions

6.1.1 The test is carried out at normal temperature.

6.1.2 The main equipment, instruments, tools in the test, include:

a) Glass jar container: The capacity is 10000 mL;

b) Salt spray test chamber: It shall comply with the provisions of GB/T 10125-2012;

c) Feeler gauge: 0.02 mm ~ 1.00 mm;

d) Paint film pencil hardness tester;

e) Paint film adhesion scratcher;

f) Dial-type or pointer-type torque meter: The measuring range is 0 N·m ~ 150 N·m, which shall meet the requirements of GB/T 15729;

g) Dial-type or pointer-type dynamometer: The maximum load value is 20 N; the load graduation value is 0.1 N;

h) Constant temperature and humidity box;

shall make measurements on the thickness, at 6 different points on the vertical surface (side wall of bowl) and the corner parts (R corner at the sink bottom), AND take the average value; it shall make 6 measurements on the thickness, on the horizontal surface (respectively take 3 points each on the bowl flange surface and bottom), AND take the average value. The thickness of the vertical surface (the side wall of the bowl) and the thickness of the corners (the R corner at the bottom of the bowl) shall be measured. See Appendix B for the location of the measurement points.

6.3 Hand accessible parts

Hand touching, visual inspection.

6.4 Flatness

6.4.1 Place the sink, which is installed on the counter-top, on a horizontal operation counter-top (without installing fastening device and waterproof strip); OR place the sink, which is installed below the counter-top, upside down on the horizontal operation counter-top. According to the size of the test sample, take the feeler gauge, which has the thickness corresponding to the flatness limit in Table 2. Try to insert it from the largest gap on the edge, to check whether the feeler gauge can pass.

6.4.2 Fill the bowl with water and drain it. After 1 minute, use paper towels to collect all the residual water at the bottom. Calculate the difference between the mass of the paper towels, before and after the test, which is the mass of the residual water at the bottom of the sink.

6.5 Corrosion resistance

According to the neutral salt spray test (NSS) method of GB/T 10125-2012, spray continuously for 24 h. After the test, check the condition of the food contact surface.

6.6 Drainage mechanism

6.6.1 Materials

Carry out the test, according to the provisions of JC/T 932 AND the corresponding material standards.

6.6.2 Dimensions

6.6.2.1 The size of the drain outlet is measured by a vernier caliper.

6.6.2.2 The wall thickness of plastic drainage pipes and components shall be measured, by a wall thickness micrometer.

6.6.2.3 The wall thickness of metal drainage pipes shall be measured, by a wall thickness micrometer.

6.6.2.4 The outer diameter of the drainage pipe, is measured, by a vernier caliper.

6.6.3 Use performance

6.6.3.1 Drain filter

6.6.3.1.1 Close the drain filter. Use a measuring tool, to fill the sink with water (add it to the overflow outlet). Record the total volume of water in the sink. Place the container under the drain filter. After 2 hours, use a measuring cup to measure the leakage. Calculate the percentage of leakage.

6.6.3.1.2 Visually check whether the drain filter of the main washing sink has a filter basket. Put the main washing sink in the state of sealing water AND fill it with water. Put in 100 pcs of φ4 mm steel balls. Open the drain filter. Drain off the water. Check the number of steel balls.

6.6.3.1.3 At room temperature, install the drain filter in the test sink, in the normal state of use AND in a closed state. Inject (750 ± 50) mL of edible oil, which was preheated to (230 ± 5) °C into the exposed surface of the drain filter. Hold the hot oil in the sink for (30 ± 5) min. Empty it. Use household cleaning agent, to thoroughly remove oil from the surface of the drainage filter. Use water-soluble ink or contrast pigment to soak it for 30 minutes. Use water to rinse it clean. Wipe it dry, before checking.

6.6.3.1.4 Install the drain filter in the test sink, according to the normal use state. Use a steel ball, which has a mass of (0.23 ± 0.01) kg AND a diameter of about ϕ38 mm, to drop vertically from a height of (600 ± 5) mm AND hit two different locations at edge area of the upper plane of the drainage filter and filter basket, once for each, before making visual inspection.

6.6.3.2 Overflow parts

6.6.3.2.1 Use visual inspection.

6.6.3.2.2 Install the sink on a horizontal counter-top, according to the installation instructions. Close the drainage filter. Add water to the sink, at a flow rate of 9 L/min. Use a timer to record the time, from the end of the overflow pipe until the water overflows the sink.

6.6.3.3 Other properties

6.6.3.3.1 Fill the bowl with water. Open the drain outlet. Measure the time for draining the water.

6.9 Anti-vibration pads

6.9.1 Senses

Make sensory examination.

6.9.2 Dimensions

Use a ruler to measure and calculate the area. Select 3 different points, to measure the thickness with a vernier caliper. Calculate the average value (the coating is removed first, if any).

6.9.3 Limits of hazardous substances in adhesives

Carry out test according to the provisions of HJ 2541-2016.

6.10 Anti-condensation coating

6.10.1 Anti-condensation

In an environment, which has an indoor temperature of (25 ± 2) °C and a relative humidity of (60 ± 2)%, add water, which has a temperature of (23 ± 2) °C, to 1/3 of the bowl volume; then add ice cubes which have a mass of 2 kg; check after 1 h.

6.10.2 Limits of hazardous substances

Carry out test, according to the method in Chapter 6 of HJ 2537-2014.

6.10.3 Thickness

Select 3 different points, on the side wall of the bowl, the R corner of the bottom, the bottom plane of the bowl. Use a coating thickness gauge, to measure the thickness of the anti-condensation coating. Take the average value.

6.10.4 Adhesion

Carry out test, according to the 3 mm cutting spacing, in GB/T 9286-1998.

6.11 Dimensions

6.11.1 Recommended dimensions

Use a ruler and vernier caliper to make measurements.

6.11.2 Limit deviation

Use vernier calipers to make measurements.

6.12 Appearance

6.12.1 Appearance of the bowl

Make visual inspection, at a distance of 750 mm ~ 800 mm, in natural light or near natural light, within an illuminance in the range of 300 lx ~ 600 lx (for example, a 40 W fluorescent lamp).

6.12.2 Appearance of drainage mechanism

Visual inspection.

6.12.3 Appearance of anti-condensation coating

Visual inspection.

6.13 Waterproof strip

Install the sink, which is equipped with waterproof strip, on the horizontal counter-top, according to the size of the opening. Install the fastening device. After continuously spraying the tap water, to the connection, between the sink and the countertop, for 5 minutes. Wipe the water dry. Take out the sink. Check whether there is any leakage.

6.14 Fastening device

Use a ruler, to measure the spacing of the fastening devices. Place the sink horizontally. Hang a weight of 22.5 kg, on any fastening device. Unload the heavy object, after standing for 2 minutes. Check the fastening device and the sink, after 5 minutes.

6.15 Accessories

6.15.1 Pop-up device

6.15.1.1 The lifting and press-type test is to install the pop-up device on the test device, according to the normal use state. After repeated operation for 3 times, use a dynamometer, to measure the opening and closing operation force of the pop-up device. The test is carried out three times in a row; take the maximum reading once. The knob type test is to install the pop-up device on the test device, according to the normal use state. After repeated operations for 3 times, use a torque wrench, to clamp the knob, to carry out the opening and closing operation. Read the maximum value of the torque wrench in the test. The test is carried out 3 times in a row. Take the maximum reading once.

6.15.1.2 Install the pop-up device on the test device, according to the normal use state. Test the pop-up device, by simulating the normal use state. The switching frequency is 20 times/min. A cycle consists one opening and one

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