

TEST REPORT

Report No.: BCTC2412321855S

Applicant: JiaXing Tosun Rubber&Plastic Co.,LTD.

Product Name: QSDQ601301

Test Model: /

Tested Date: 2024-12-02 to 2024-12-04

Issued Date: 2024-12-05

Shenzhen BCTC Testing Co., Ltd.



TEST REPORT UL 94 STANDARD FOR SAFETY Tests for Flammability of Plastic Materials for Parts in Devices and Appliances	
Report Number BCTC2412321855S Date of issue 2024-12-05 Total number of pages 10 pages	
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Applicant's name JiaXing Tosun Rubber&Plastic Co., LTD. Address NO.229, Middle Fengqi Road, Economic Development	
Test specification: Standard UL 94:2023 Ed.7 Test procedure Test report Non-standard test method N/A	
Test Item description QSDQ601301 Trade Mark N/A Manufacturer JiaXing Tosun Rubber&Plastic Co.,LTD. NO.229, Middle Fengqi Road, Economic Development Model/Type reference : / Ratings N/A	



Testing procedure and testing location:**Testing Laboratory..... : Shenzhen BCTC Testing Co., Ltd.****Address..... : 1-2/F., East of B Building, Pengzhou Industrial Park,
Fuyuan 1st Road, Zhancheng, Fuyong Street, Bao'an
District, Shenzhen, Guangdong, China****Tested by (name, function, signature) ... : Goff Tung
(Project Handler)****Approved by (name, function, signature)
..... : Winnie Wang
(Reviewer)**

1.1 Test specimens

All specimens are to be cut from sheet material, or are to be cast or injection, compression, transfer or pultrusion molded to the necessary form. After any cutting operation, care is to be taken to remove all dust and any particles from the surface; cut edges are to have a smooth finish. Fabrication of test specimens shall be in accordance with current ASTM Practices

Standard bar specimens are to be 125 ± 5 mm long by 13.0 ± 0.5 mm wide, and provided in the minimum and maximum thicknesses. The minimum thickness shall be limited to 0.025 mm, except as indicated in 8.1.2. The maximum thickness is not to exceed 13 mm. Specimens in intermediate thicknesses are also to be provided and shall be tested if the results obtained on the minimum or maximum thickness indicate inconsistent test results. Intermediate thicknesses are not to exceed increments of 3.2 mm. Also, the edges are to be smooth, and the radius on the corners is not to exceed 1.3 mm.

Material Ranges – If a material is to be considered in a range of colors, densities, melt flows, or reinforcement, specimens representing these ranges are also to be provided

Specimens in the natural and in the most heavily pigmented light color (often white) and dark color (often black/including carbon black) are to be provided and considered representative of the color range, if the test results are essentially the same. In addition, a set of specimens is to be provided in the heaviest organic pigment loading (not carbon black), unless the most heavily pigmented light and dark colors include the highest organic pigment level. When certain color pigments (for example, red, yellow, or the like) are known to affect flammability characteristics, they are also to be provided.

Specimens in the extremes of the densities, melt flows and reinforcement contents are to be provided and considered representative of the range, if the test results are essentially the same. If the burning characteristics are not essentially the same for all specimens representing the range, evaluation is to be limited only to the materials in the densities, melt flows, and reinforcement contents tested, or additional specimens in intermediate densities, melt flows, and reinforcement contents are to be provided for tests.

1.2 Procedure

Three test specimens shall be tested. Each test specimen shall be marked with two lines perpendicular to the longitudinal axis of the bar, $25\text{ mm} \pm 1\text{ mm}$ and $100\text{ mm} \pm 1\text{ mm}$ from the end that is to be exposed to the test flame.

Clamp the test specimen at the end furthest from the 25 mm mark, with its longitudinal axis approximately horizontal and its transverse axis inclined at $45^\circ \pm 2^\circ$, as illustrated in Figure 1. Clamp the wire gauze (see 6.6) horizontally $10\text{ mm} \pm 1\text{ mm}$ beneath the lower edge of the test specimen. The free end of the test specimen shall be vertically even with the edge of the gauze as shown in Figure 1. Any material remaining on the wire gauze from previous tests shall be burned off or a new wire gauze shall be used for each test.

If the test specimen sags at its free end and is not able to maintain the distance of $10\text{ mm} \pm 1\text{ mm}$, the support fixture (see 6.9) shown in Figure 2 shall be used. Place the support fixture on the gauze in such a manner that the test specimen is supported by the support fixture to maintain the distance of $10\text{ mm} \pm 1\text{ mm}$ with the small extended portion of the support fixture approximately 10 mm from the free end of the test specimen. Provide enough clearance at the clamped end of the test specimen so that the support fixture can be moved freely sideways.

With the central axis of the burner tube vertical, place the burner remote from the test specimen and set the burner (see 6.2) to produce a standardized 50 W nominal test flame, conforming with IEC 60695-11-4. The flame shall be confirmed

- a) when the gas supply is changed,
- b) when any test apparatus and/or parameters are changed, or
- c) in case of dispute,

but at least once per month. Wait for a minimum of 5 min to allow the burner conditions to reach equilibrium.

Maintaining the central axis of the burner tube at an angle of $45^\circ \pm 2^\circ$ to the horizontal and inclined towards the free end of the test specimen, apply the flame to the lower edge of the test specimen's free end so that the central axis of the burner tube is in the same vertical plane as the longitudinal bottom edge of the test specimen (see Figure 1). Position the burner so that the flame impinges on the free end of the test specimen over a length of approximately 6 mm.

As the flame front (see 8.2.5) progresses along the test specimen, withdraw the support fixture (if used) at approximately the same rate, preventing the flame front from contacting the support fixture, so that there is no effect on the flame or on the burning of the test specimen.

The test flame shall either be applied without changing its position for $30\text{ s} \pm 1\text{ s}$ or removed as soon as the flame front on the test specimen reaches the 25 mm mark if within less than 30 s. Restart the timing device (see 6.4) when the flame front reaches the 25 mm mark.

If the test specimen continues to burn with a flame after removal of the test flame, record the elapsed time t , in seconds to the nearest whole second, for the flame front to travel from the 25 mm mark past the 100 mm mark, and record the damaged length L as 75 mm. If the flame front passes the 25 mm mark but does not pass the 100 mm mark, record the elapsed time t , in seconds to the nearest whole second, and the damaged length L , in millimetres, between the 25 mm mark and the mark where the flame front stops.

Test two additional new test specimens. The contents of the laboratory fume/chamber hood shall be evacuated after each test specimen.

If only one test specimen from the first set of three test specimens (see 7.3) fails to conform to the criteria indicated in 8.4.1 and 8.4.2, another set of three test specimens shall be tested. All test specimens from the second set shall conform to all the specified criteria for the relevant classification.

1.3 Results

Calculate the linear burning rate v , in units of millimetres per minute, for each test specimen where the flame front passes the 100 mm mark, using the following equation:

$$v = \left(\frac{L}{t} \right) \times \left(\frac{60 \text{ s}}{\text{min}} \right)$$

where

- v is the linear burning rate (see 3.22);
 L is the damaged length (see 8.2.5); and
 t is the time (see 8.2.5).

The materials shall be classified HB, HB40 or HB75 (HB = horizontal burning) in accordance with the criteria given below.

HB classification

A material classified HB shall conform to one of the following criteria:

- it does not burn with a flame after the ignition source is removed;
- if the test specimens continue to burn with a flame after removal of the ignition source, the flame front does not pass the 100 mm mark;
- if the flame front passes the 100 mm mark,
 - it does not have a linear burning rate exceeding 40 mm/min for a thickness of 3,0 mm to 13,0 mm or
 - a linear burning rate not exceeding 75 mm/min for a thickness of less than 3,0 mm;If the linear burning rate does not exceed 40 mm/min for tests performed with specimens between 1,5 and 3,2 mm, the HB classification shall automatically be accepted down to a 1,5 mm minimum thickness.

HB40 classification

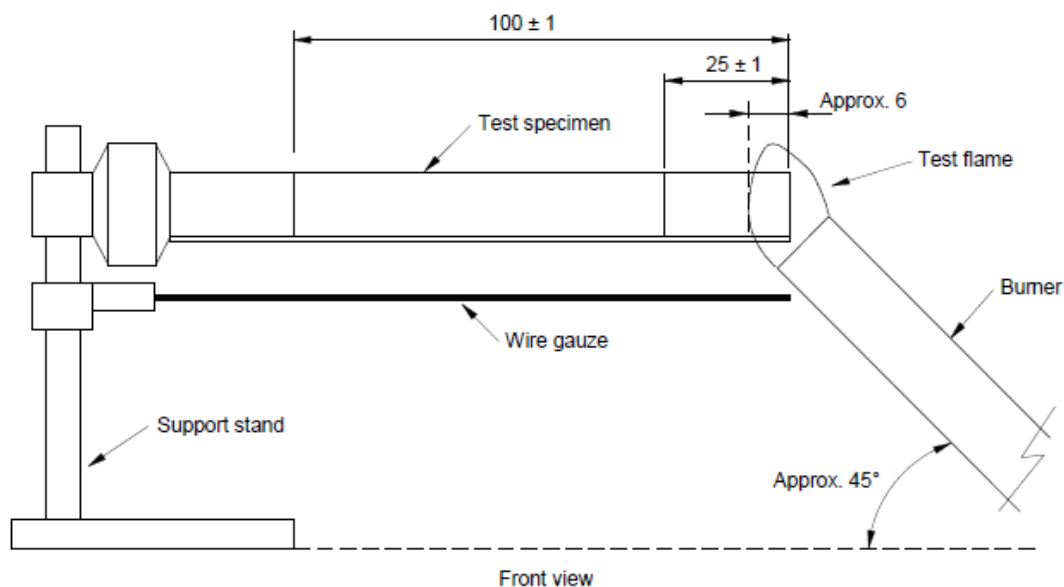
A material classified HB40 shall conform to one of the following criteria:

- if it does not burn with a flame after the ignition source is removed;
- if the test specimens continue to burn with a flame after removal of the ignition source, and the flame front does not pass the 100 mm mark;
- if the flame front passes the 100 mm mark and it does not have a linear burning rate exceeding 40 mm/min;

HB75 classification

A material classified HB75 shall conform to one of the following criteria:

- if it does not burn with a flame after the ignition source is removed;
- if the test specimens continue to burn with a flame after removal of the ignition source, and the flame front does not pass the 100 mm mark;
- if the flame front passes the 100 mm mark and it does not have a linear burning rate exceeding 75 mm/min.



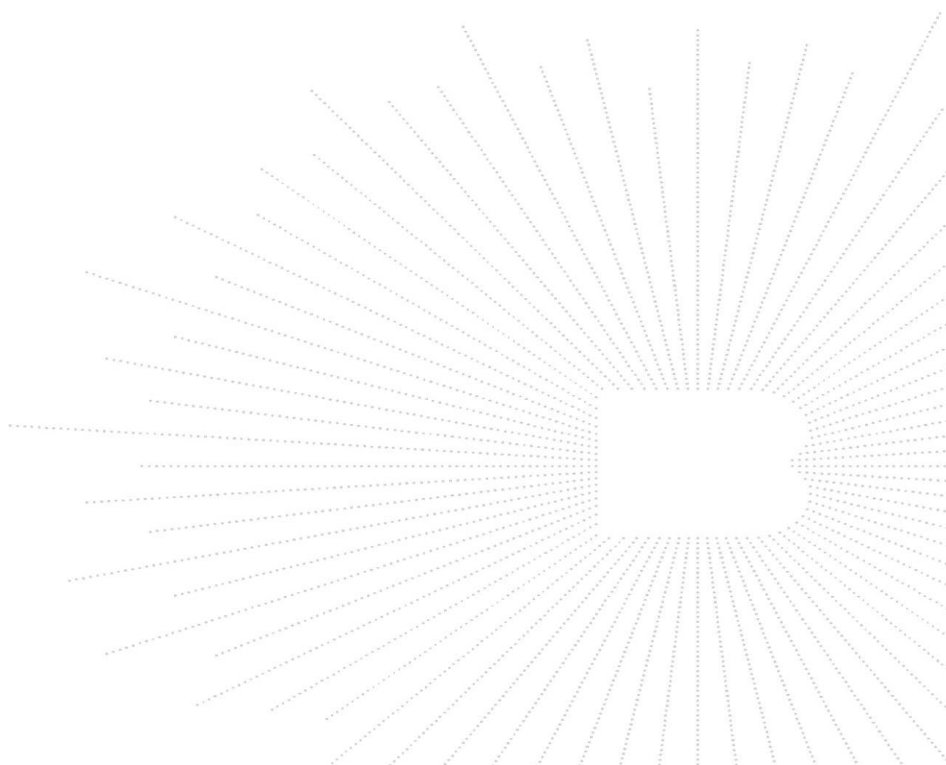
2. Test result

Table	Horizontal classification (HB)			P
Sample No. /group	T(s)	L(mm)	V(mm/min)	
1/A	168	--	--	
2/A	169	--	--	
3/A	141	--	--	
Test result: HB				
The flame front no passes the 25 mm mark				

Sample No. /group	It does not burn with a flame after the ignition source is removed	The flame front passes the 100 mm mark	Sample thickness (mm)	Classified
1/A	No	No	2.0	HB
2/A	No	No	2.0	HB
3/A	No	No	2.0	HB

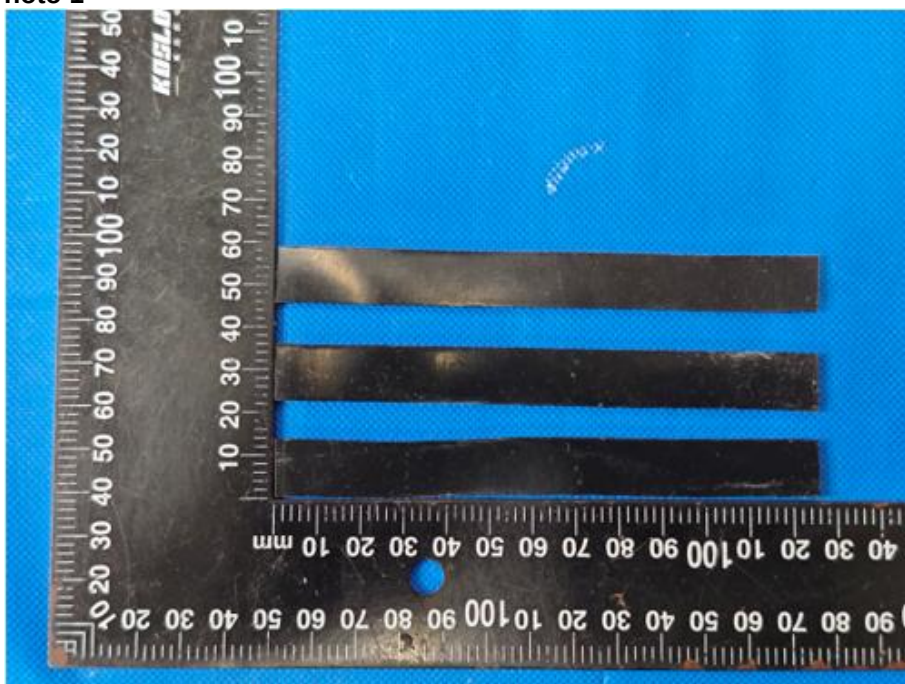
3. List of Measurement Equipment

Name	Model No.	Manufacturer	Calibration Date	Calibration Cycle
Horizontal and Vertical Burning Tester	OJN-9302	Shenzhen Auchno Technology Co., Ltd.	2024-07-26	One year
Temperature & Humidity Datalogger	TH20R	shenzhenHua Han Wei Technology Co., LTD	2024-7-30	One year

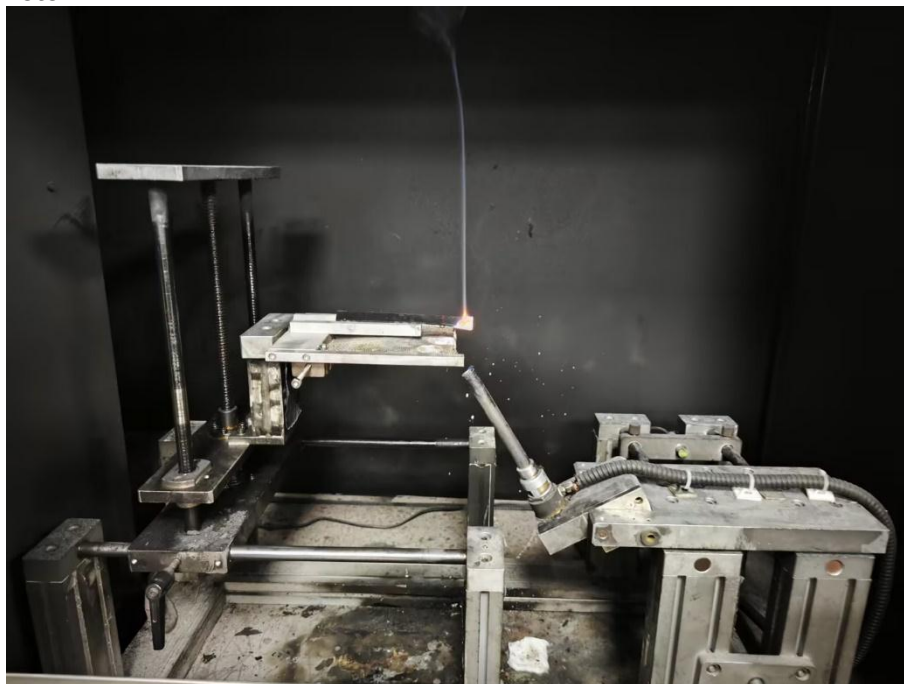


4. Photos of EUT

EUT Photo 1



EUT Photo 2



STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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