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# TEST REPORT

**Test Report No.** : **4396417.54** Version 1  
**Project No.** : **4396417.00**  
**Test Report Date** : **2022-11-25**

Job No. : 22-03602  
Applicant : Flashbay Electronics  
Building 2, Jixun Industrial Park, Xinjiao, Dong'ao Village, Shatian Town,  
Huiyang District, Huizhou City, Guangdong Province, P.R. China  
Product Name : Travel Cups  
Model No. : Metro \ MTR  
Test Requested : 1. Regulation (EC) No 1935/2004, Regulation (EU) 10/2011, EU 2020/1245  
and its amendments  
- Overall migration  
- Specific migration of heavy metals  
- Specific migration of primary aromatic amine  
2. Overall migration according to Council Europe Resolution AP (2004) 5  
on Silicones Used for Food Contact Applications  
3. Extractable heavy metals (23 elements) according to EU Technical  
Guide Council of Europe Resolution CM/Res (2013)9 on metals and  
alloys Used in Food Contact Materials and Articles  
Test Method : Please refer to next pages  
Sample Received : 2022-11-03 and 2022-11-07  
Testing Period : 2022-11-03 to 2022-11-16

Test Results  
- following pages -

**Resume:**

| No. | Parameter   | Sample photos:   |   |
|-----|---|--|---|
|     |   |  |  |
|     |   |  | (Blank)   |
| 1.  | Overall migration<br>(EU 10/2011 and EU 2020/1245)                            | PASS   |   |
| 2.  | Specific migration of heavy metals<br>(EU 10/2011 and EU 2020/1245)           | PASS   |   |
| 3.  | Specific migration of Primary Aromatic Amine<br>(EU 10/2011 and EU 2020/1245) | PASS   |   |
| 4.  | Overall migration<br>(Resolution AP(2004) 5)                                  | PASS   |   |
| 5.  | Extractable heavy metals (23 elements)<br>(Europe Resolution CM/Res(2013)9)   | PASS   |   |

Guangzhou, November 25, 2022

Signed for and on behalf of

**DEKRA Testing and Certification (Shanghai) Ltd., Guangzhou branch**

Chemical & Mechanical



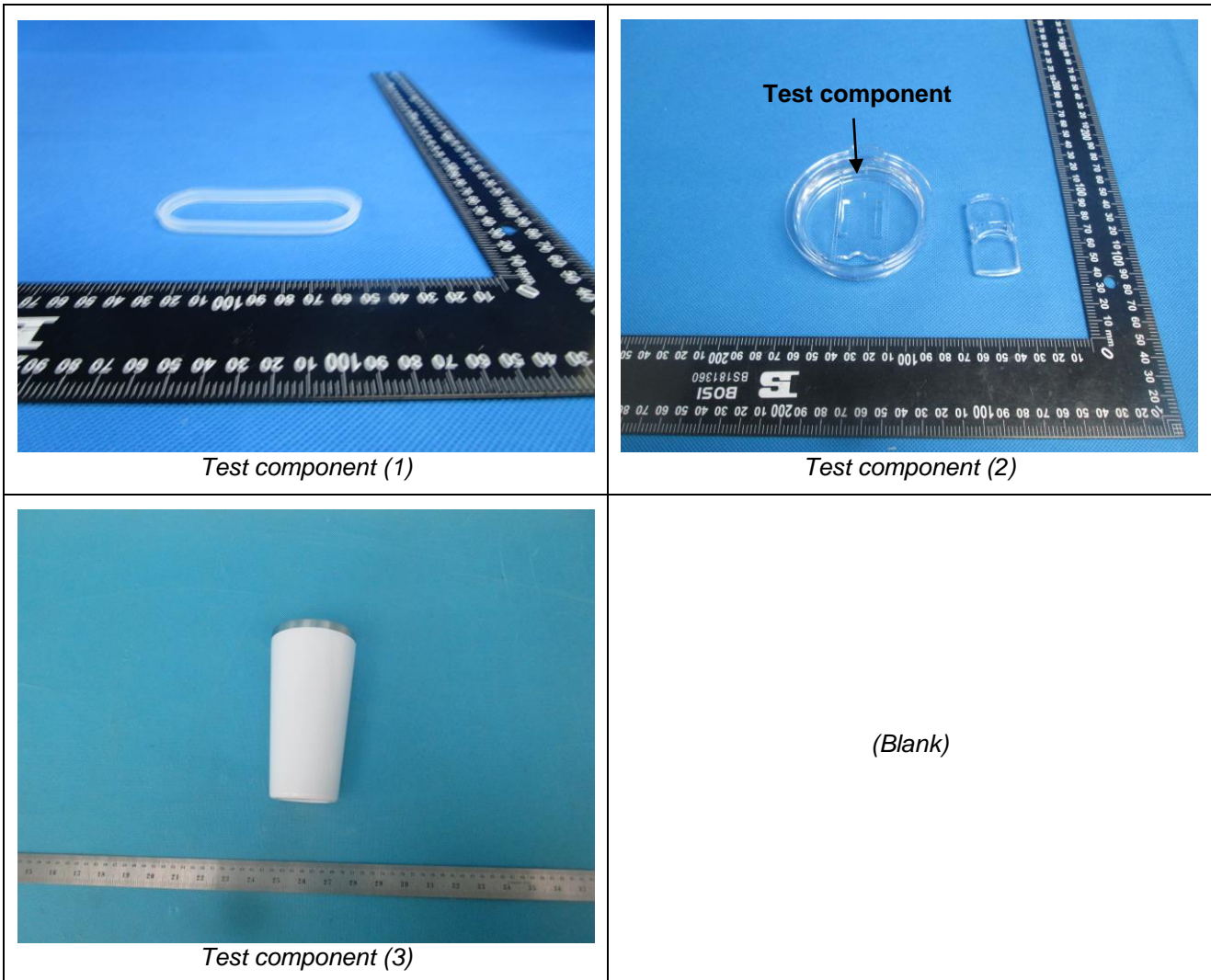

Devin Ai  
Assistant Manager

Attention: Please note that every statement made in this report is only valid for the samples tested and reported herein. This report shall not be reproduced except in full, without the written approval of the testing laboratory.

**Sample Descriptions:**

| No. | Description(s)        | Material(s) (claimed by applicant) |
|-----|-----------------------|------------------------------------|
| (1) | Sealing ring          | Silicone (Transparent)             |
| (2) | Cover / Sliding block | TRITAN (Transparent)               |
| (3) | Body (Inner side)     | Stainless steel                    |

**Sample photo**



## TEST RESULTS

### 1. Regulation (EC) No 1935/2004, Regulation (EU) 10/2011, EU 2020/1245 and its amendments

#### Overall migration

With reference to (EU) No.10/2011 and its amendments, analysis by method EN 1186-3: 2022.

| Parameter         | Test Condition                 | Result (mg/dm <sup>2</sup> ) |                 |                 | Limit (mg/dm <sup>2</sup> ) |
|-------------------|--------------------------------|------------------------------|-----------------|-----------------|-----------------------------|
|                   |                                | (2)                          |                 |                 |                             |
|                   |                                | 1 <sup>st</sup>              | 2 <sup>nd</sup> | 3 <sup>rd</sup> |                             |
| Overall migration | 20%(v/v) Ethanol, 70°C, 2 h    | <3                           | <3              | <3              | 10                          |
|                   | 3%(w/v) Acetic acid, 70°C, 2 h | <3                           | <3              | <3              | 10                          |
|                   | 95%(v/v) Ethanol, 60°C, 2 h    | <3                           | <3              | <3              | 10                          |
|                   | Iso-octane, 40°C, 0.5 h        | <3                           | <3              | <3              | 10                          |

Remark:

1. mg/dm<sup>2</sup> = milligram per square decimeter

#### Specific migration of heavy metals

With reference to (EU) No. 2020/1245 for selection of conditions and test method for specific migration. Analysis was performed by inductively coupled plasma optical emission spectrometer (ICP-OES) and inductively coupled plasma mass spectrometer (ICP-MS).

| Parameter      | Test Condition                 | Result (mg/kg)  |                 |                 | MDL (mg/kg) | Limit (mg/kg) |
|----------------|--------------------------------|-----------------|-----------------|-----------------|-------------|---------------|
|                |                                | (2)             |                 |                 |             |               |
|                |                                | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |             |               |
| Barium (Ba)    | 3%(w/v) Acetic acid, 40°C, 24h | N.D.            | N.D.            | N.D.            | 0.1         | 1             |
| Cobalt (Co)    |                                | N.D.            | N.D.            | N.D.            | 0.03        | 0.05          |
| Copper (Cu)    |                                | N.D.            | N.D.            | N.D.            | 0.5         | 5             |
| Iron (Fe)      |                                | N.D.            | N.D.            | N.D.            | 5.0         | 48            |
| Lithium (Li)   |                                | N.D.            | N.D.            | N.D.            | 0.1         | 0.6           |
| Manganese (Mn) |                                | N.D.            | N.D.            | N.D.            | 0.1         | 0.6           |
| Zinc (Zn)      |                                | N.D.            | N.D.            | N.D.            | 1           | 5             |
| Aluminum (Al)  |                                | N.D.            | N.D.            | N.D.            | 0.5         | 1             |
| Nickel (Ni)    |                                | N.D.            | N.D.            | N.D.            | 0.02        | 0.02          |
| Antimony (Sb)  |                                | N.D.            | N.D.            | N.D.            | 0.01        | 0.04          |

| Parameter       | Test Condition | Result (mg/kg)  |                 |                 | MDL (mg/kg) | Limit (mg/kg) |
|-----------------|----------------|-----------------|-----------------|-----------------|-------------|---------------|
|                 |                | (2)             |                 |                 |             |               |
|                 |                | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |             |               |
| Arsenic (As)    |                | N.D.            | N.D.            | N.D.            | 0.01        | N.D.          |
| Cadmium (Cd)    |                | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| Chromium (Cr)   |                | N.D.            | N.D.            | N.D.            | 0.01        | N.D.          |
| Lead (Pb)       |                | N.D.            | N.D.            | N.D.            | 0.01        | N.D.          |
| Mercury (Hg)    |                | N.D.            | N.D.            | N.D.            | 0.01        | N.D.          |
| Lanthanum (La)  |                | N.D.            | N.D.            | N.D.            | 0.01        | 0.05          |
| Europium (Eu)   |                | N.D.            | N.D.            | N.D.            | 0.01        |               |
| Gadolinium (Gd) |                | N.D.            | N.D.            | N.D.            | 0.01        |               |
| Terbium (Tb)    |                | N.D.            | N.D.            | N.D.            | 0.01        |               |
| Tungsten (W)    |                | N.D.            | N.D.            | N.D.            | 0.01        |               |

## Remark:

1. mg/kg = milligram per kilogram
2. N.D. = Not Detected (below MDL)
3. MDL = Method Detection Limit

**Specific migration of Primary Aromatic Amine (PAA)**

With reference to (EU) No. 2020/1245, analysis was performed by Liquid chromatography tandem mass spectrometry.

| Parameter                    | Test Condition                     | Result (mg/kg)  |                 |                 | MDL (mg/kg) | Limit (mg/kg) |
|------------------------------|------------------------------------|-----------------|-----------------|-----------------|-------------|---------------|
|                              |                                    | (2)             |                 |                 |             |               |
|                              |                                    | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |             |               |
| 4-Aminobiphenyl              | 3%(w/v) Acetic acid,<br>40°C, 24 h | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| Benzidine                    |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 4-Chloro-o-Toluidine         |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 2-Naphthylamine              |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| o-Aminoazotoluene            |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 5-Nitro-o-toluidine          |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 4-Chloro-Aniline             |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 4-Methoxy-m-phenylenediamine |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 4,4'-Methylenedianiline      |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 3,3'-Dichlorobenzidine       |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 3,3'-Dimethoxybenzidine      |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 3,3'-Dimethylbenzidine       |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |
| 4,4-Methylenedi-o-toluidine  |                                    | N.D.            | N.D.            | N.D.            | 0.002       | N.D.          |

| Parameter                           | Test Condition | Result (mg/kg)  |                 |                 | MDL<br>(mg/kg) | Limit<br>(mg/kg) |
|-------------------------------------|----------------|-----------------|-----------------|-----------------|----------------|------------------|
|                                     |                | (2)             |                 |                 |                |                  |
|                                     |                | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |                |                  |
| 2-Methoxy-5-Methylaniline           |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| 4,4'-Methylene bis(2-chloroaniline) |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| 4,4'-Diaminodiphenylether           |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| 4,4'-Thioaniline                    |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| o-Toluidine                         |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| 2,4-Toluenediamine                  |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| 2,4,5-Trimethylaniline              |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| o-Anisidine                         |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| 4-Aminoazobenzol                    |                | N.D.            | N.D.            | N.D.            | 0.002          | N.D.             |
| Other PAAs                          |                | N.D.            | N.D.            | N.D.            | 0.002          | 0.01             |

## Remark:

1. mg/kg = milligram per kilogram
2. N.D. = Not Detected (below MDL)
3. MDL = Method Detection Limit
4. Those analyses were performed in DEKRA's partner lab.

## **2. Overall migration according to Council Europe Resolution AP (2004) 5 on Silicones Used for Food Contact Applications**

With reference to Resolution AP (2004) 5, analysis by method EN 1186-3: 2022.

| Parameter         | Test Condition                    | Result (mg/kg)  |                 |                 | Limit<br>(mg/kg) |
|-------------------|-----------------------------------|-----------------|-----------------|-----------------|------------------|
|                   |                                   | (1)             |                 |                 |                  |
|                   |                                   | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |                  |
| Overall migration | 20%(v/v) Ethanol,<br>70°C, 2 h    | <10             | <10             | <10             | 60               |
|                   | 3%(w/v) Acetic acid,<br>70°C, 2 h | <10             | <10             | <10             | 60               |
|                   | 95%(v/v) Ethanol,<br>60°C, 2 h    | <10             | <10             | <10             | 60               |
|                   | Iso-octane,<br>40°C, 0.5 h        | 37.4            | 22.8            | 18.78           | 60               |

## Remark:

1. mg/kg = milligram per kilogram

### **3. Extractable heavy metals (23 elements) according to EU Technical Guide Council of Europe Resolution CM/Res(2013)9 on metals and alloys Used in Food Contact Materials and Articles**

With reference to European Resolution CM/Res (2013)9 on metals and alloys used in food contact materials and articles. Analyzed by inductively coupled plasma optical emission spectrometer (ICP-OES) and inductively coupled plasma mass spectrometer (ICP-MS).

| Parameter       | Result(s) of 1 <sup>st</sup> + 2 <sup>nd</sup> Migration (mg/kg) | MDL (mg/kg) | Limit (mg/kg) |
|-----------------|--|-------------|---------------|
|                 | (3)  |             |               |
| Aluminium (Al)  | N.D.   | 0.2         | 35            |
| Barium (Ba)     | N.D.   | 0.2         | 8.4           |
| Chromium (Cr)   | N.D.   | 0.1         | 1.75          |
| Copper (Cu)     | N.D.   | 0.2         | 28            |
| Iron (Fe)       | 0.201  | 0.2         | 280           |
| Manganese (Mn)  | N.D.   | 0.2         | 12.6          |
| Nickel (Ni)     | N.D.   | 0.1         | 0.98          |
| Molybdenum (Mo) | N.D.   | 0.1         | 0.84          |
| Magnesium (Mg)  | N.D.   | 0.2         | --            |
| Titanium (Ti)   | N.D.   | 0.2         | --            |
| Tin (Sn)        | N.D.   | 2           | 700           |
| Zinc (Zn)       | N.D.   | 0.2         | 35            |
| Beryllium (Be)  | N.D.   | 0.02        | 0.07          |
| Antimony (Sb)   | N.D.   | 0.02        | 0.28          |
| Mercury (Hg)    | N.D.   | 0.004       | 0.021         |
| Lithium (Li)    | N.D.   | 0.02        | 0.336         |
| Cobalt (Co)     | N.D.   | 0.02        | 0.14          |
| Silver (Ag)     | N.D.   | 0.02        | 0.56          |
| Lead (Pb)       | N.D.   | 0.02        | 0.07          |
| Vanadium (V)    | N.D.   | 0.02        | 0.07          |
| Arsenic (As)    | N.D.   | 0.004       | 0.014         |
| Cadmium (Cd)    | N.D.   | 0.004       | 0.035         |
| Thallium (Tl)   | N.D.   | 0.0002      | 0.0007        |

| Parameter      | Result(s) of 3 <sup>rd</sup> Migration (mg/kg) | MDL (mg/kg) | Limit (mg/kg) |
|----------------|--|-------------|---------------|
|                | (3)  |             |               |
| Aluminium (Al) | N.D.   | 0.1         | 5             |
| Barium (Ba)    | N.D.   | 0.1         | 1.2           |
| Chromium (Cr)  | N.D.   | 0.05        | 0.25          |
| Copper (Cu)    | N.D.   | 0.1         | 4             |
| Iron (Fe)      | N.D.   | 0.1         | 40            |
| Manganese (Mn) | N.D.   | 0.1         | 1.8           |

| Parameter       | Result(s) of 3 <sup>rd</sup> Migration (mg/kg) | MDL<br>(mg/kg) | Limit<br>(mg/kg) |
|-----------------|--|----------------|------------------|
|                 | (3)  |                |                  |
| Nickel (Ni)     | N.D.   | 0.05           | 0.14             |
| Molybdenum (Mo) | N.D.   | 0.05           | 0.12             |
| Magnesium (Mg)  | N.D.   | 0.1            | --               |
| Titanium (Ti)   | N.D.   | 0.1            | --               |
| Tin (Sn)        | N.D.   | 1              | 100              |
| Zinc (Zn)       | N.D.   | 0.1            | 5                |
| Beryllium (Be)  | N.D.   | 0.01           | 0.01             |
| Antimony (Sb)   | N.D.   | 0.01           | 0.04             |
| Mercury (Hg)    | N.D.   | 0.002          | 0.003            |
| Lithium (Li)    | N.D.   | 0.01           | 0.048            |
| Cobalt (Co)     | N.D.   | 0.01           | 0.02             |
| Silver (Ag)     | N.D.   | 0.01           | 0.08             |
| Lead (Pb)       | N.D.   | 0.01           | 0.01             |
| Vanadium (V)    | N.D.   | 0.01           | 0.01             |
| Arsenic (As)    | N.D.   | 0.002          | 0.002            |
| Cadmium (Cd)    | N.D.   | 0.002          | 0.005            |
| Thallium (Tl)   | N.D.   | 0.0001         | 0.0001           |

## Remark:

1. mg/kg = milligram per kilogram
2. N.D. = Not Detected (below MDL)
3. MDL = Method Detection Limit
4. The test condition was 0.5% citric acid at 40°C for 24 h.

---End of Report---