

## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 1 of 12

Client Name : VI-TAMIX CORPORATION

Client Address : 8615 USHER ROAD, CLEVELAND, OHIO 44138 USA

Sample Name : VM0136 CONTAINERS &amp; ASY-1 BLADE ASSEMBLIES

The above sample(s) and information were provided by the client.

SGS Job No. : SHHL2202005534CW - SH  
 Date of Sample Received : 10 Feb 2022  
 Testing Period : 10 Feb 2022 - 18 Feb 2022  
 Test Requested : Selected test(s) as requested by client.  
 Test Method : Please refer to next page(s).  
 Test Results : Please refer to next page(s).

## Result Summary :

Test Requested	Conclusion
(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation-Overall migration	PASS
Regulation (EC) No 1935/2004 of the European Parliament and of the Council of 27 October 2004-Sensorial examination odour and taste test	PASS
(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation -Specific migration of heavy metal*	PASS
(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation-Specific migration of primary aromatic amine (total)*	PASS
(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation-Specific migration of 2,2,4,4-Tetramethyl-1,3-cyclobutanediol(TMCD)*	PASS
Europe Resolution CM/Res(2013)9-Extractable heavy metals*	PASS

Signed for and on behalf of  
 SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Lucia Liu

Lucia Liu  
 Approved Signatory

scan to see the report



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 2 of 12

Test Results :

## Test Part Description :

Specimen No.	SGS Sample ID	Description	Material (claimed by the client)
SN1	SHA22-021773.001	Transparent blue plastic container	Tritan
SN2	SHA22-021773.002	Silvery stainless steel blade	Stainless steel

Remarks :

- (1) mg/dm<sup>2</sup> = milligram per square decimeter
- (2) mg/kg = milligram per kilogram
- (3) °C= degree Celsius
- (4) < = less than
- (5) MDL = Method Detection Limit
- (6) ND = Not Detected ( < MDL)

(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation-Overall migration

Test Method : With reference to Commission Regulation (EU) No 10/2011 of 14 January 2011 Annex III and Annex V for selection of condition and EN 1186-1:2002 for selection of test methods;  
EN 1186-2: 2002 olive oil by total immersion method;  
EN 1186-3: 2002 aqueous food simulants by total immersion method.

Simulant Used	Time	Temperature	Max. Permissible Limit	Result of 001 Overall migration	Conclusion
3% Acetic acid (W/V) aqueous solution (Third migration)	2.0hr(s)	70°C	10mg/dm <sup>2</sup>	<3.0mg/dm <sup>2</sup>	PASS
3% Acetic acid (W/V) aqueous solution (Second migration)	2.0hr(s)	70°C	-	<3.0mg/dm <sup>2</sup>	
3% Acetic acid (W/V) aqueous solution (First migration)	2.0hr(s)	70°C	-	<3.0mg/dm <sup>2</sup>	
Stability			-	--	YES
20% Ethanol (V/V) Aqueous Solution (Third migration)	2.0hr(s)	70°C	10mg/dm <sup>2</sup>	<3.0mg/dm <sup>2</sup>	PASS
20% Ethanol (V/V) Aqueous Solution (Second migration)	2.0hr(s)	70°C	-	<3.0mg/dm <sup>2</sup>	
20% Ethanol (V/V) Aqueous Solution (First migration)	2.0hr(s)	70°C	-	<3.0mg/dm <sup>2</sup>	



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 3 of 12

Stability			-	--	YES
Rectified olive oil (Third time)	2.0hr(s)	70°C	10mg/dm <sup>2</sup>	<3.0mg/dm <sup>2</sup>	PASS
Rectified olive oil (Second time)	2.0hr(s)	70°C	-	<3.0mg/dm <sup>2</sup>	
Rectified olive oil (First migration)	2.0hr(s)	70°C	-	<3.0mg/dm <sup>2</sup>	
Stability			-	--	YES

## Notes :

- (1) Analytical tolerance of aqueous simulants is 2 mg/dm<sup>2</sup> or 12 mg/kg.
- (2) Analytical tolerance of fatty food simulants is 3 mg/dm<sup>2</sup> or 20mg/kg.
- (3) Test condition & simulant were specified by client.

**Regulation (EC) No 1935/2004 of the European Parliament and of the Council of 27 October 2004-Sensorial examination odour and taste test**

Test Method : With reference to DIN 10955: 2004  
No. of panelist: 6

Test Item(s)	Limit	001	002
Test media	-	DW	DW
Test time (hr(s))	-	0.5	0.5
Temperature(°C)	-	70	70
Sensorial examination odour (Point scale)	2.5	0	0
Sensorial examination taste (Point scale)	2.5	0	0
Conclusion		PASS	PASS

## Notes :

Scale evaluation:

- 0 – no perceptible difference
- 1 – just perceptible difference
- 2 – slight difference
- 3 – marked difference
- 4 – strong difference

DW= Distilled water



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 4 of 12

(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation -Specific migration of heavy metal\*

Test Method : With reference to EN13130-1:2004, analysis was performed by ICP-OES and ICP-MS.

Sample 001

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 0.5 hr(s)

<u>Test Item(s)</u>	<u>Max. Permissible Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Test result</u>
Migration times	-	-	-	First
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Arsenic(As)	ND	mg/kg	0.01	ND
Cadmium(Cd)	ND	mg/kg	0.002	ND
Chromium(Cr)	ND	mg/kg	0.01	ND
Mercury(Hg)	ND	mg/kg	0.01	ND
Lead(Pb)	ND	mg/kg	0.01	ND
Aluminium(Al)	-	mg/kg	0.1	ND
Barium(Ba)	-	mg/kg	0.25	ND
Cobalt(Co)	-	mg/kg	0.01	ND
Copper(Cu)	-	mg/kg	0.25	ND
Iron(Fe)	-	mg/kg	5	ND
Lithium(Li)	-	mg/kg	0.1	ND
Manganese(Mn)	-	mg/kg	0.1	ND
Zinc(Zn)	-	mg/kg	0.5	ND
Nickel(Ni)	-	mg/kg	0.01	ND
Antimony(Sb)	-	mg/kg	0.01	ND
Europium (Eu)	-	mg/kg	0.025	ND
Gadolinium(Gd)	-	mg/kg	0.025	ND
Lanthanum(La)	-	mg/kg	0.025	ND
Terbium(Tb)	-	mg/kg	0.025	ND
Europium (Eu)+ Gadolinium(Gd)+ Lanthanum(La)+ Terbium(Tb)	-	mg/kg	-	ND

Sample 001

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 0.5 hr(s)



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 5 of 12

Test Item(s)	Max. Permissible Limit	Unit	MDL	Test result
Migration times	-	-	-	Second
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Arsenic(As)	-	mg/kg	0.01	ND
Cadmium(Cd)	-	mg/kg	0.002	ND
Chromium(Cr)	-	mg/kg	0.01	ND
Mercury(Hg)	-	mg/kg	0.01	ND
Lead(Pb)	-	mg/kg	0.01	ND
Aluminium(Al)	-	mg/kg	0.1	ND
Barium(Ba)	-	mg/kg	0.25	ND
Cobalt(Co)	-	mg/kg	0.01	ND
Copper(Cu)	-	mg/kg	0.25	ND
Iron(Fe)	-	mg/kg	5	ND
Lithium(Li)	-	mg/kg	0.1	ND
Manganese(Mn)	-	mg/kg	0.1	ND
Zinc(Zn)	-	mg/kg	0.5	ND
Nickel(Ni)	-	mg/kg	0.01	ND
Antimony(Sb)	-	mg/kg	0.01	ND
Europium (Eu)	-	mg/kg	0.025	ND
Gadolinium(Gd)	-	mg/kg	0.025	ND
Lanthanum(La)	-	mg/kg	0.025	ND
Terbium(Tb)	-	mg/kg	0.025	ND
Europium (Eu)+ Gadolinium(Gd)+ Lanthanum(La)+ Terbium(Tb)	-	mg/kg	-	ND

## Sample 001

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 0.5 hr(s)

Test Item(s)	Max. Permissible Limit	Unit	MDL	Test result
Migration times	-	-	-	Third
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Arsenic(As)	ND	mg/kg	0.01	ND
Cadmium(Cd)	ND	mg/kg	0.002	ND
Chromium(Cr)	ND	mg/kg	0.01	ND
Mercury(Hg)	ND	mg/kg	0.01	ND
Lead(Pb)	ND	mg/kg	0.01	ND
Aluminium(Al)	1	mg/kg	0.1	ND



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 6 of 12

Barium(Ba)	1	mg/kg	0.25	ND
Cobalt(Co)	0.05	mg/kg	0.01	ND
Copper(Cu)	5	mg/kg	0.25	ND
Iron(Fe)	48	mg/kg	5	ND
Lithium(Li)	0.6	mg/kg	0.1	ND
Manganese(Mn)	0.6	mg/kg	0.1	ND
Zinc(Zn)	5	mg/kg	0.5	ND
Nickel(Ni)	0.02	mg/kg	0.01	ND
Antimony(Sb)	0.04	mg/kg	0.01	ND
Europium (Eu)	-	mg/kg	0.025	ND
Gadolinium(Gd)	-	mg/kg	0.025	ND
Lanthanum(La)	-	mg/kg	0.025	ND
Terbium(Tb)	-	mg/kg	0.025	ND
Europium (Eu)+ Gadolinium(Gd)+ Lanthanum(La)+ Terbium(Tb)	0.05	mg/kg	-	ND
Stability	-	-	-	YES
<b>Conclusion</b>				<b>PASS</b>

## Notes :

(1) Test condition &amp; simulant were specified by client.

**(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation-Specific migration of primary aromatic amine (total)\***

Test Method : With reference to EN 13130-1: 2004, analysis was performed by UV-Vis.

**Sample 001**

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 2.0 hr(s)

<u>Test Item(s)</u>	<u>Max. Permissible Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Test result</u>
Migration times	-	-	-	First
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Specific migration of primary aromatic amine	-	mg/kg	0.002	ND

**Sample 001**

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 2.0 hr(s)



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 7 of 12

<u>Test Item(s)</u>	<u>Max. Permissible</u> <u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Test result</u>
Migration times	-	-	-	Second
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Specific migration of primary aromatic amine	-	mg/kg	0.002	ND

**Sample 001**

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 2.0 hr(s)

<u>Test Item(s)</u>	<u>Max. Permissible</u> <u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Test result</u>
Migration times	-	-	-	Third
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Specific migration of primary aromatic amine	0.01	mg/kg	0.002	ND
Stability	-	-	-	YES
<b>Conclusion</b>				<b>PASS</b>

Notes :

(1) Test condition &amp; simulant were specified by client.

**(EU) No 10/2011 and its amendment (EU) 2020/1245 Regulation-Specific migration of 2,2,4,4-Tetramethyl-1,3-cyclobutanediol(TMCD)\***

Test Method : With reference to EN 13130-1: 2004, analysis was performed by GC-MS.

**Sample 001**

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 0.5 hr(s)

<u>Test Item(s)</u>	<u>Max. Permissible</u> <u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Test result</u>
Migration times	-	-	-	First
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Specific migration of 2,2,4,4-Tetramethyl-1,3-cyclobutanediol(TMCD)	-	mg/kg	0.5	ND

**Sample 001**

Simulant Used : 3% Acetic acid (W/V) aqueous solution



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 8 of 12

Test Condition : 70 °C 0.5 hr(s)

<u>Test Item(s)</u>	<u>Max. Permissible Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Test result</u>
Migration times	-	-	-	Second
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Specific migration of 2,2,4,4-Tetramethyl-1,3-cyclobutanediol(TMCD)	-	mg/kg	0.5	ND

**Sample 001**

Simulant Used : 3% Acetic acid (W/V) aqueous solution

Test Condition : 70 °C 0.5 hr(s)

<u>Test Item(s)</u>	<u>Max. Permissible Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Test result</u>
Migration times	-	-	-	Third
Area/volume	-	dm <sup>2</sup> /kg	-	6.0
Specific migration of 2,2,4,4-Tetramethyl-1,3-cyclobutanediol(TMCD)	5	mg/kg	0.5	ND
Stability	-	-	-	YES
<b>Conclusion</b>				<b>PASS</b>

Notes :

(1) Test condition &amp; simulant were specified by client.

**Europe Resolution CM/Res(2013)9-Extractable heavy metals\***

Test Method : With reference to EN 13130-1:2004, analysis was performed by ICP-OES and ICP-MS.

**Sample 002: PASS**

Simulant Used : 0.5% Citric acid (W/V) aqueous solution

Test Condition : 70 °C 0.5 hr(s)

Area/Volume : 6.0 dm<sup>2</sup>/kg

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>1st + 2nd Migration</u>
Aluminium(Al)	35	mg/kg	0.2	ND
Antimony(Sb)	0.28	mg/kg	0.02	ND
Chromium(Cr)	1.750	mg/kg	0.100	ND
Cobalt(Co)	0.14	mg/kg	0.01	ND
Copper(Cu)	28	mg/kg	0.1	ND
Iron(Fe)	280	mg/kg	0.25	0.70
Manganese(Mn)	12.6	mg/kg	0.25	ND
Molybdenum(Mo)	0.84	mg/kg	0.02	ND



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 9 of 12

Test Item(s)	Limit	Unit	MDL	1st + 2nd Migration
Nickel(Ni)	0.98	mg/kg	0.05	ND
Silver(Ag)	0.56	mg/kg	0.03	ND
Tin (Sn)	700	mg/kg	5	ND
Vanadium(V)	0.07	mg/kg	0.005	ND
Zinc(Zn)	35	mg/kg	1	ND
Arsenic(As)	0.014	mg/kg	0.001	ND
Barium(Ba)	8.4	mg/kg	0.25	ND
Beryllium(Be)	0.07	mg/kg	0.005	ND
Cadmium(Cd)	0.035	mg/kg	0.002	ND
Lead(Pb)	0.070	mg/kg	0.005	ND
Lithium(Li)	0.336	mg/kg	0.02	ND
Mercury(Hg)	0.021	mg/kg	0.002	ND
Thallium(Tl)	0.0007	mg/kg	0.0001	ND
Magnesium(Mg)	-	mg/kg	5	ND
Titanium(Ti)	-	mg/kg	0.05	ND
Test Item(s)	Limit	Unit	MDL	3rd Migration
Aluminium(Al)	5	mg/kg	0.2	ND
Antimony(Sb)	0.04	mg/kg	0.02	ND
Chromium(Cr)	0.250	mg/kg	0.100	ND
Cobalt(Co)	0.02	mg/kg	0.01	ND
Copper(Cu)	4	mg/kg	0.1	ND
Iron(Fe)	40	mg/kg	0.25	ND
Manganese(Mn)	1.8	mg/kg	0.25	ND
Molybdenum(Mo)	0.12	mg/kg	0.02	ND
Nickel(Ni)	0.14	mg/kg	0.05	ND
Silver(Ag)	0.08	mg/kg	0.03	ND
Tin (Sn)	100	mg/kg	5	ND
Vanadium(V)	0.01	mg/kg	0.005	ND
Zinc(Zn)	5	mg/kg	1	ND
Arsenic(As)	0.002	mg/kg	0.001	ND
Barium(Ba)	1.2	mg/kg	0.25	ND
Beryllium(Be)	0.01	mg/kg	0.005	ND
Cadmium(Cd)	0.005	mg/kg	0.002	ND
Lead(Pb)	0.010	mg/kg	0.005	ND
Lithium(Li)	0.048	mg/kg	0.02	ND
Mercury(Hg)	0.003	mg/kg	0.002	ND
Thallium(Tl)	0.0001	mg/kg	0.0001	ND
Magnesium(Mg)	-	mg/kg	5	ND
Titanium(Ti)	-	mg/kg	0.05	ND

Notes :

(1) Test condition &amp; simulant were specified by client.



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 10 of 12

(2) Requirement for repeat use article: According to Council of Europe Resolution CM/Res(2013)9, the result from 3rd migration shall comply with the Specific Release Limit (SRL) and the sum of 1st and 2nd migration shall not exceed seven times of SRL for repeated use articles

Remark: Test item marked"" in this report are not included in CNAS Accredited Scope for our laboratory.



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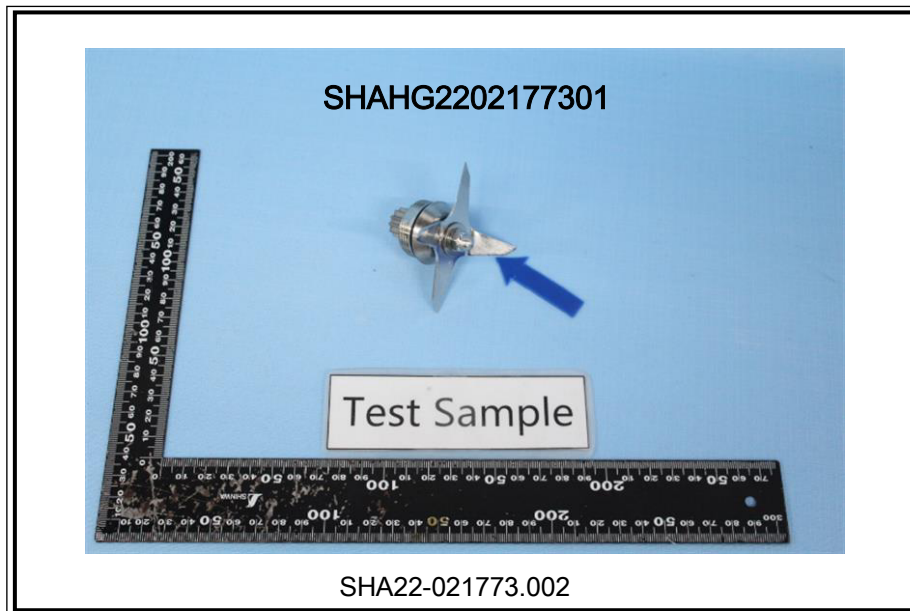
## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 11 of 12

Sample photo:



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## Test Report

No. SHAHG2202177301

Date: 18 Feb 2022

Page 12 of 12



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\*\*\* End of Report \*\*\*



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