

TEST REPORT

Test Report # 22W-020546 Date of Report Issue: January 6, 2023
Date of Sample Received: December 19, 2022 Pages: Page 1 of 47

CLIENT INFORMATION:

Company: Spector & Co.
Address: testing@spectorandco.com



SAMPLE INFORMATION:

Description: 18 OZ High borosilicate glass tumbler with PP lid with detachable silicone straw and silicone sleeve.
Assortment: BLK /WHT/BLU/GRY/RED/
PO No.: PO 31820 PO 72454
Item No./Name: DW500
Item Class: HOT SHOT
Factory/Supplier: USN039
Country of Origin: China
Country of Distribution: Canada, United States
Testing Period: 12/20/2022-01/06/2023

OVERALL RESULT:

PASS with information

Please refer to the following pages for test result summary and appropriate notes.

QIMA (HANGZHOU) TESTING CO., LTD.

Jeremy Xu
Chemical Laboratory Supervisor

QIMA (HANGZHOU) TESTING CO., LTD.

Ada Guo
Assist Physical Laboratory Manager



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Test(s) marked with 'φ' was subcontracted to external laboratory.

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TEST RESULTS SUMMARY:

At the request of the client, the following tests were conducted:

CONCLUSION	TEST(S) CONDUCTED
PASS	California Proposition 65, Total Lead in Paints and Surface Coatings
PASS	California Proposition 65, Total Lead in Substrate Materials
PASS	Canadian Surface Coating Materials Regulations SOR/2016-193, Total Lead and Mercury in Paints and Surface Coatings
PASS	Canadian Consumer Products Containing Lead Regulations (SOR/2018-83), Total Lead Content
PASS	California Proposition 65, Total Cadmium in Paints and Surface Coatings
PASS	California Proposition 65, Total Cadmium in Substrate Materials
Not Applicable	Client's requirement, Total Nickel content
PASS	Client's requirement, Bisphenol A content
PASS	CPSC 16 CFR 1307 Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates (DBP, BBP, DEHP, DINP, DHEXP / DnHP, DCHP, DIBP, DPENP)
PASS	California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)
PASS	Client's Requirement, Phthalates content
PASS	California Proposition 65, Leachable Lead and Cadmium from Food Contact Articles – Interior
PASS	Massachusetts Regulation 105 CMR 460.000 Lead Poisoning Prevention and Control – Leachable Lead from Ceramics – Interior
PASS	Canadian Glazed Ceramics and Glassware Regulations SOR/2016-175, Leachable Lead and Cadmium from Ceramics and Glassware – Interior
PASS	FDA CPG 545.400 & CPG 545.450, Leachable Cadmium and Lead from Ceramics – Interior
PASS	FDA 21 CFR 177.1210, Closures with Sealing Gaskets
PASS	FDA 21 CFR 177.1520, Polypropylene Copolymers
PASS	FDA 21 CFR 177.1520, Polypropylene Homopolymers
PASS	FDA 21 CFR 177.2600, Rubber
Information only	Client-Performance Requirement-Thermal Shock
Information only	ASTM F2179-20-Glass Candle Containers-Annealing Test
Information only	Client-Performance Requirements-Freezer Test (24 Hours)
Information only	Client-Performance Requirements-Oven Test (over 150°C, within 24 Hours)
Information only	Fabfitfun-Performance Requirements-Effects of Boiling Water
Information only	Client-Performance Requirements-Stain Resistance
Information only	Microwave Safety Test
Information only	Dishwasher Safe Test



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CONCLUSION	TEST(S) CONDUCTED
Information only	Client-Performance Requirements-Fit for Use Test



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DETAILED RESULTS:

California Proposition 65, Total Lead in Paints and Surface Coatings

Test Method: CPSC-CH-E1003-09.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	7	---	---	---	---	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Lead (Pb)	ND	---	---	---	---	90
Conclusion	PASS	---	---	---	---	

Note:

mg/kg =Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 15mg/kg)

Remark:

The specification is quoted from client's requirement.

Data Consolidation Reference:

Specimen No.	Transferred from		Date of Issue
	Report No.	Specimen No.	
7	22W-019801	6	December 21, 2022



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DETAILED RESULTS:

California Proposition 65, Total Lead in Substrate Materials

Test Method: CPSC-CH-E1001-08.3 (Metal), CPSC-CH-E1002-08.3 (Non-Metal)
 Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+8+16	2+9+17	4+11+19	6	12+15	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Lead (Pb)	ND	ND	ND	ND	ND	100
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	13+21	20+23	---	---	---	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Lead (Pb)	ND	ND	---	---	---	100
Conclusion	PASS	PASS	---	---	---	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 15 mg/kg)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

The specification is quoted from client's requirement.

Data Consolidation Reference:

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	Report No.	Specimen No.	
2+9+17	22W-019801	1+2+3	December 21, 2022
6	22W-019801	5	December 21, 2022



DETAILED RESULTS:

Canadian Surface Coating Materials Regulations SOR/2016-193, Total Lead and Mercury in Paints and Surface Coatings

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	7	---	---	---	---	Total Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Lead (Pb)	ND	---	---	---	---	90
Total Mercury (Hg)	ND	---	---	---	---	10
Conclusion	PASS	---	---	---	---	

Note:

mg/kg=Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit: Pb=15 mg/kg; Hg = 10 mg/kg)

Data Consolidation Reference:

Specimen No.	Transferred from		Date of Issue
	Report No.	Specimen No.	
7	22W-019801	6	December 21, 2022



DETAILED RESULTS:

Canadian Consumer Products Containing Lead Regulations (SOR/2018-83), Total Lead Content

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+8+16	2+9+17	4+11+19	6	7	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	12+15	13+21	20+23	---	---	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Lead (Pb)	ND	ND	ND	---	---	90
Conclusion	PASS	PASS	PASS	---	---	

Note:

mg/kg=Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 15 mg/kg)

Composite results are based on specimen of least mass resulting in highest potential concentration.

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	Report No.	Specimen No.	
2+9+17	22W-019801	1+2+3	December 21, 2022
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DETAILED RESULTS:

California Proposition 65, Total Cadmium in Paints and Surface Coatings

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	7	---	---	---	---	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Cadmium (Cd)	ND	---	---	---	---	75
Conclusion	PASS	---	---	---	---	

Note:

mg/kg =Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 15 mg/kg)

Remark:

The specification is quoted from client's requirement.

Data Consolidation Reference:

Specimen No.	Transferred from		Date of Issue
	Report No.	Specimen No.	
7	22W-019801	6	December 21, 2022



DETAILED RESULTS:

California Proposition 65, Total Cadmium in Substrate Materials

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+8+16	2+9+17	4+11+19	6	12+15	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	13+21	20+23	---	---	---	Limit (mg/kg)
Test Item	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Total Cadmium (Cd)	ND	ND	---	---	---	75
Conclusion	PASS	PASS	---	---	---	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 15 mg/kg)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

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Data Consolidation Reference:

Specimen No.	Transferred from		Date of Issue
	Report No.	Specimen No.	
2+9+17	22W-019801	1+2+3	December 21, 2022
6	22W-019801	5	December 21, 2022



DETAILED RESULTS:

Client's requirement, Bisphenol A content

Test Method: In-House Method

Analytical Method: Liquid Chromatography-Mass Spectrometer Mass Spectrometer (LC-MS/MS)

Specimen No.		1	2	4	8	Client's limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Bisphenol A (BPA)	80-05-7	ND	ND	ND	ND	Not Detected
Conclusion		PASS	PASS	PASS	PASS	

Specimen No.		9	11	12	13	Client's limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Bisphenol A (BPA)	80-05-7	ND	ND	ND	ND	Not Detected
Conclusion		PASS	PASS	PASS	PASS	

Specimen No.		15	16	17	19	Client's limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Bisphenol A (BPA)	80-05-7	ND	ND	ND	ND	Not Detected
Conclusion		PASS	PASS	PASS	PASS	

Note:

mg/kg=milligram per kilogram

ND=Not Detected (Reporting limit = 1.0mg/kg)

Data Consolidation Reference:

Specimen No.	Transferred from		Date of Issue
	Report No.	Specimen No.	
2	22W-019801	2	December 21, 2022
9	22W-019801	3	December 21, 2022
17	22W-019801	1	December 21, 2022



DETAILED RESULTS:

Client's requirement, Bisphenol A content

Test Method: In-House Method

Analytical Method: Liquid Chromatography-Mass Spectrometer Mass Spectrometer (LC-MS/MS)

Specimen No.	20	21	23	---	Client's limit (mg/kg)
Test Item CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Bisphenol A (BPA) 80-05-7	ND	ND	ND	---	Not Detected
Conclusion	PASS	PASS	PASS	---	

Note:

mg/kg=milligram per kilogram

ND=Not Detected (Reporting limit = 1.0mg/kg)



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DETAILED RESULTS:

CPSC 16 CFR 1307 Prohibition of Children’s Toys and Child Care Articles Containing Specified Phthalates (DBP, BBP, DEHP, DINP, DHEXP / DnHP, DCHP, DIBP, DPENP)

Test Method: CPSC-CH-C1001-09.4

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+8+16	2+9+17	4+11+19	7	Limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	ND	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	ND	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	ND	1000
Di-n-pentyl phthalate (DPENP)	131-18-0	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 150 mg/kg)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Data Consolidation Reference:

Specimen No.	Transferred from		Date of Issue
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2+9+17	22W-019801	1+2+3	December 21, 2022
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DETAILED RESULTS:

CPSC 16 CFR 1307 Prohibition of Children’s Toys and Child Care Articles Containing Specified Phthalates (DBP, BBP, DEHP, DINP, DHEXP / DnHP, DCHP, DIBP, DPENP)

Test Method: CPSC-CH-C1001-09.4
 Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		12+15	13+21	20+23	---	Limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	---	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	---	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	---	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	---	1000
Di-n-pentyl phthalate (DPENP)	131-18-0	ND	ND	ND	---	1000
Conclusion		PASS	PASS	PASS	---	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 150 mg/kg)

Composite results are based on specimen of least mass resulting in highest potential concentration.



DETAILED RESULTS:

California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)

Test Method: CPSC-CH-C1001-09.4
 Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+8+16	2+9+17	4+11+19	7	Limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

mg/kg (Milligrams per kilogram) = 0.0001 % w/w (Percent by weight)

LT = Less than

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Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

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2+9+17	22W-019801	1+2+3	December 21, 2022
7	22W-019801	6	December 21, 2022



DETAILED RESULTS:

California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)

Test Method: CPSC-CH-C1001-09.4
 Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		12+15	13+21	20+23	---	Limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	---	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	---	1000
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	ND	---	1000
Conclusion		PASS	PASS	PASS	---	

Note:
 mg/kg (Milligrams per kilogram) = 0.0001 % w/w (Percent by weight)
 LT = Less than
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DETAILED RESULTS:

Client's Requirement, Phthalates content

Test Method: CPSC-CH-C1001-09.4
 Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+8+16	2+9+17	4+11+19	7	Limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	ND	1000
Di-n-octyl phthalate (DNOP)	117-84-0	ND	ND	ND	ND	1000
Diethyl phthalate (DEP)	84-66-2	ND	ND	ND	ND	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	ND	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	ND	1000
Di-n-pentyl phthalate (DPENP/DnPP)	131-18-0	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	



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LT = Less than

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Remark:

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DETAILED RESULTS:

Client's Requirement, Phthalates content

Test Method: CPSC-CH-C1001-09.4
 Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		12+15	13+21	20+23	---	Limit (mg/kg)
Test Item	CAS No.	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	---	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	---	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	---	1000
Di-n-octyl phthalate (DNOP)	117-84-0	ND	ND	ND	---	1000
Diethyl phthalate (DEP)	84-66-2	ND	ND	ND	---	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	---	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	---	1000
Di-n-pentyl phthalate (DPENP/DnPP)	131-18-0	ND	ND	ND	---	1000
Conclusion		PASS	PASS	PASS	---	

Note:

mg/kg (Milligrams per kilogram) = 0.0001 % w/w (Percent by weight)

LT = Less than

ND = Not detected (Reporting Limit = 150 mg/kg)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

The specification is quoted from client's requirement.



DETAILED RESULTS:

California Proposition 65, Leachable Lead and Cadmium from Food Contact Articles – Interior

Test Method: ASTM C738-94(Reapproved 2020)
 Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	5-A	5-B	5-C	5-D	5-E	5-F	Average (mg/L)	Limit (mg/L)
Test Item	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)		
Volume of acid used (mL)	600	600	600	600	600	600		
Leachable Lead (Pb)	ND	ND	ND	ND	ND	ND	NA	0.100
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	ND	NA	0.189
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	NA	

Note:
 mL = Millilitres
 mg/L (Milligrams per litre) = ppm (Parts per million)
 NA = Not applicable
 LT = Less than
 ND = Not detected (Reporting Limit: Pb = 0.1 mg/L; Cd = 0.02 mg/L)

Category		Leachable Pb (mg/L)	Leachable Cd (mg/L)
X	Cups and Mugs (Any of 6)	0.100	0.189
	Flatware (Average of 6)	0.226	0.5
	Large Hollowware (Any of 6)	0.100	0.049
	Small Hollowware (Any of 6)	0.100	0.189
	Pitchers (Any of 6)	0.100	0.049



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DETAILED RESULTS:

Massachusetts Regulation 105 CMR 460.000 Lead Poisoning Prevention and Control – Leachable Lead from Ceramics – Interior

Test Method: ASTM C738-94(Reapproved 2020)

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	5-A	5-B	5-C	5-D	5-E	5-F	Average (mg/L)	Limit (mg/L)
Test Item	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)		
Volume of acid used (mL)	600	600	600	600	600	600		
Leachable Lead (Pb)	ND	ND	ND	ND	ND	ND	ND	2
Conclusion							PASS	

Note:

mL = Millilitre

mg/L (Milligrams per litre) = ppm (Parts per million)

NA = Not applicable

LT = Less than

ND = Not detected (Reporting Limit: Pb = 0.2 mg/L)



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DETAILED RESULTS:

Canadian Glazed Ceramics and Glassware Regulations SOR/2016-175, Leachable Lead and Cadmium from Ceramics and Glassware – Interior

Test Method: ISO 6486-1:2019

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	5-A	5-B	5-C	5-D	5-E	5-F	Limit (mg/L)
Test Item	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	
Volume of acid used (mL)	600	600	600	600	600	600	
Leachable Lead (Pb)	ND	ND	ND	ND	ND	ND	0.5
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	ND	0.50
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	

Note:

mL = Millilitres

mg/L (Milligrams per litre) = ppm (Parts per million)

LT = Less than

ND = Not detected (Reporting Limit: Pb = 0.2mg/L; Cd = 0.02 mg/L)

Category		Leachable Pb (mg/L)	Leachable Cd (mg/L)
X	Cups and Mugs (Any of 6)	0.5	0.50
	Flatware (Any of 6)	3.0	0.50
	Large Hollowware (Any of 6)	1.0	0.25
	Small Hollowware (Any of 6)	2.0	0.50
	Pitchers (Any of 6)	0.5	0.25



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DETAILED RESULTS:

FDA CPG 545.400 & CPG 545.450, Leachable Cadmium and Lead from Ceramics – Interior

Test Method: ASTM C738-94(Reapproved 2020)

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	5-A	5-B	5-C	5-D	5-E	5-F	Average (mg/L)	Limit (mg/L)
Test Item	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)		
Volume of acid used (mL)	600	600	600	600	600	600		
Leachable Lead (Pb)	ND	ND	ND	ND	ND	ND	NA	0.5
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	ND	NA	0.5
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	NA	

Note:

mL = Millilitres

mg/L (Milligrams per litre) = ppm (Parts per million)

NA = Not applicable

LT = Less than

ND = Not detected (Reporting Limit: Pb = 0.1 mg/L; Cd = 0.02 mg/L)

Category		Leachable Pb (mg/L)	Leachable Cd (mg/L)
X	Cups and Mugs (Any of 6)	0.5	0.5
	Flatware (Average of 6)	3.0	0.5
	Large Hollowware (Any of 6)	1.0	0.25
	Small Hollowware (Any of 6)	2.0	0.5
	Pitchers (Any of 6)	0.5	0.25



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DETAILED RESULTS:

FDA 21 CFR 177.1210, Closures with Sealing Gaskets

Test Method: FDA 21 CFR 177.1210

Specimen No.			3	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
n-Heptane extractive (mg/kg)	120°F	0.25hours	ND	10	50
8% Ethanol extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
Conclusion			PASS		

Specimen No.			10	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
n-Heptane extractive (mg/kg)	120°F	0.25hours	ND	10	50
8% Ethanol extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
Conclusion			PASS		

Note:

Temp. = Temperature

°F = Degree Fahrenheit

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1210 Table 2 Section 3.



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DETAILED RESULTS:

FDA 21 CFR 177.1210, Closures with Sealing Gaskets

Test Method: FDA 21 CFR 177.1210

Specimen No.			14	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
n-Heptane extractive (mg/kg)	120°F	0.25hours	ND	10	50
8% Ethanol extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
Conclusion			PASS		

Specimen No.			18	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
n-Heptane extractive (mg/kg)	120°F	0.25hours	ND	10	50
8% Ethanol extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
Conclusion			PASS		

Note:

Temp. = Temperature

°F = Degree Fahrenheit

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1210 Table 2 Section 3.



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DETAILED RESULTS:

FDA 21 CFR 177.1210, Closures with Sealing Gaskets

Test Method: FDA 21 CFR 177.1210

Specimen No.			22	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
n-Heptane extractive (mg/kg)	120°F	0.25hours	ND	10	50
8% Ethanol extractive (mg/kg)	Fill boiling	Cooling to 100°F	ND	10	50
Conclusion			PASS		

Note:

Temp. = Temperature

°F = Degree Fahrenheit

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1210 Table 2 Section 3.



DETAILED RESULTS:

FDA 21 CFR 177.1520, Polypropylene Copolymers

Test Method: FDA 21 CFR 177.1520

Specimen No.			1	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.87	NA	0.85 – 1.00
n-Hexane extractive (% w/w)	50°C	2 hours	ND	0.4	5.5
Xylene extractive (% w/w)	Reflux	2 hours	ND	1	30
Conclusion			PASS		

Specimen No.			8	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.89	NA	0.85 – 1.00
n-Hexane extractive (% w/w)	50°C	2 hours	ND	0.4	5.5
Xylene extractive (% w/w)	Reflux	2 hours	1.2	1	30
Conclusion			PASS		

Note:

Temp. = Temperature

°C = Degree Celsius

g/cc = Grams per cubic centimeter

% w/w = Percent by weight

NA = Not applicable

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1520 (c) 3.1a.



DETAILED RESULTS:

FDA 21 CFR 177.1520, Polypropylene Copolymers

Test Method: FDA 21 CFR 177.1520

Specimen No.			12	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.87	NA	0.85 – 1.00
n-Hexane extractive (% w/w)	50°C	2 hours	ND	0.4	5.5
Xylene extractive (% w/w)	Reflux	2 hours	ND	1	30
Conclusion			PASS		

Specimen No.			16	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.87	NA	0.85 – 1.00
n-Hexane extractive (% w/w)	50°C	2 hours	ND	0.4	5.5
Xylene extractive (% w/w)	Reflux	2 hours	ND	1	30
Conclusion			PASS		

Note:

Temp. = Temperature

°C = Degree Celsius

g/cc = Grams per cubic centimeter

% w/w = Percent by weight

NA = Not applicable

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1520 (c) 3.1a.



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DETAILED RESULTS:

FDA 21 CFR 177.1520, Polypropylene Copolymers

Test Method: FDA 21 CFR 177.1520

Specimen No.			20	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.87	NA	0.85 – 1.00
n-Hexane extractive (% w/w)	50°C	2 hours	ND	0.4	5.5
Xylene extractive (% w/w)	Reflux	2 hours	ND	1	30
Conclusion			PASS		

Note:

Temp. = Temperature

°C = Degree Celsius

g/cc = Grams per cubic centimeter

% w/w = Percent by weight

NA = Not applicable

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1520 (c) 3.1a.



DETAILED RESULTS:

FDA 21 CFR 177.1520, Polypropylene Homopolymers

Test Method: FDA 21 CFR 177.1520

Specimen No.			4	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.895	NA	0.880 – 0.913
Melting point (°C)	NA	NA	167	NA	150 – 180
n-Hexane extractive (% w/w)	Reflux	2 hours	ND	0.1	6.4
Xylene extractive (% w/w)	Reflux	2 hours	ND	0.5	9.8
Conclusion			PASS		

Specimen No.			11	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.889	NA	0.880 – 0.913
Melting point (°C)	NA	NA	172	NA	150 – 180
n-Hexane extractive (% w/w)	Reflux	2 hours	ND	0.1	6.4
Xylene extractive (% w/w)	Reflux	2 hours	ND	0.5	9.8
Conclusion			PASS		

Note:

Temp. = Temperature

°C = Degree Celsius

g/cc = Grams per cubic centimeter

% w/w = Percent by weight

NA = Not applicable

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1520 (c) 1.1.



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DETAILED RESULTS:

FDA 21 CFR 177.1520, Polypropylene Homopolymers

Test Method: FDA 21 CFR 177.1520

Specimen No.			15	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.897	NA	0.880 – 0.913
Melting point (°C)	NA	NA	170	NA	150 – 180
n-Hexane extractive (% w/w)	Reflux	2 hours	ND	0.1	6.4
Xylene extractive (% w/w)	Reflux	2 hours	ND	0.5	9.8
Conclusion			PASS		

Specimen No.			19	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.891	NA	0.880 – 0.913
Melting point (°C)	NA	NA	165	NA	150 – 180
n-Hexane extractive (% w/w)	Reflux	2 hours	ND	0.1	6.4
Xylene extractive (% w/w)	Reflux	2 hours	ND	0.5	9.8
Conclusion			PASS		

Note:

Temp. = Temperature

°C = Degree Celsius

g/cc = Grams per cubic centimeter

% w/w = Percent by weight

NA = Not applicable

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1520 (c) 1.1.



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DETAILED RESULTS:

FDA 21 CFR 177.1520, Polypropylene Homopolymers

Test Method: FDA 21 CFR 177.1520

Specimen No.		23		RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Density (g/cc)	NA	NA	0.895	NA	0.880 – 0.913
Melting point (°C)	NA	NA	166	NA	150 – 180
n-Hexane extractive (% w/w)	Reflux	2 hours	ND	0.1	6.4
Xylene extractive (% w/w)	Reflux	2 hours	ND	0.5	9.8
Conclusion			PASS		

Note:

Temp. = Temperature

°C = Degree Celsius

g/cc = Grams per cubic centimeter

% w/w = Percent by weight

NA = Not applicable

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.1520 (c) 1.1.



DETAILED RESULTS:

FDA 21 CFR 177.2600, Rubber

Test Method: FDA 21 CFR 177.2600

Specimen No.			2	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/in ²)	Reflux	First 7 hours	ND	2	20
Distilled water extractive (mg/in ²)	Reflux	Succeeding 2 hours	ND	0.1	1
Conclusion			PASS		

Specimen No.			9	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/in ²)	Reflux	First 7 hours	ND	2	20
Distilled water extractive (mg/in ²)	Reflux	Succeeding 2 hours	ND	0.1	1
Conclusion			PASS		

Note:

Temp. = Temperature

mg/in² = Milligrams per square inch

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.2600 (e) and 177.2600 (f).

From Client's information, rubber article was intended for repeated use in contact with aqueous food only, therefore n-hexane extractive was not conducted.



DETAILED RESULTS:

FDA 21 CFR 177.2600, Rubber

Test Method: FDA 21 CFR 177.2600

Specimen No.			13	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/in ²)	Reflux	First 7 hours	ND	2	20
Distilled water extractive (mg/in ²)	Reflux	Succeeding 2 hours	ND	0.1	1
Conclusion			PASS		

Specimen No.			17	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/in ²)	Reflux	First 7 hours	ND	2	20
Distilled water extractive (mg/in ²)	Reflux	Succeeding 2 hours	0.1	0.1	1
Conclusion			PASS		

Note:

Temp. = Temperature

mg/in² = Milligrams per square inch

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.2600 (e) and 177.2600 (f).

From Client's information, rubber article was intended for repeated use in contact with aqueous food only, therefore n-hexane extractive was not conducted.



DETAILED RESULTS:

FDA 21 CFR 177.2600, Rubber

Test Method: FDA 21 CFR 177.2600

Specimen No.			21	RL	Limit
Test Item	Test Condition		Result		
	Temp.	Duration			
Distilled water extractive (mg/in ²)	Reflux	First 7 hours	ND	2	20
Distilled water extractive (mg/in ²)	Reflux	Succeeding 2 hours	ND	0.1	1
Conclusion			PASS		

Note:

Temp. = Temperature

mg/in² = Milligrams per square inch

LT = Less than

ND = Not detected. Result value is less than reporting limit (RL).

Remark:

The specification is quoted from 21 CFR 177.2600 (e) and 177.2600 (f).

From Client's information, rubber article was intended for repeated use in contact with aqueous food only, therefore n-hexane extractive was not conducted.



DETAILED RESULTS:

Client-Performance Requirement-Thermal Shock

Test method: The submitted sample was tested according to the EN 1183: 1997 method A.

Test procedure:

- 1) Test method A as specified in the standard was adopted for the test.
- 2) The sample was initially heated in water bath set to 60°C for 5 minutes.
- 3) It was then transferred to cold water at 20°C and immersed for a period of approximately 1 minute.
- 4) The above steps were repeated except that the temperature of the water bath was increased by: 10°C for temperature differences ≤ 100°C
- 5) The test completed when failure occurred on all tested specimens or t₁ reaches to 100°C.
- 6) The cumulative failure in % and the standard deviation were determined.
- 7) Number of samples tested: Ten (10) pieces as per client's request.

Tested Sample	Result(s)				
	Temperature of sample t ₁ (°C)	Temperature of water bath t ₂ (°C)	Temperature difference t ₁ - t ₂ (°C)	Number of failures at t ₁	Cumulative failure in %
18 OZ High borosilicate glass tumbler	60	20	40	0	0
	70	20	50	0	0
	80	20	60	0	0
	90	20	70	0	0
	100	20	80	0	0
	$\Delta t_{50}(\text{°C})$				-

Note:

t₁ = Temperature of sample equilibrium to hot water bath.

t₂ = Temperature of water in cold water bath.

Failure = There is a slight crack on surface and some samples showed the phenomenon of whole cracking.



DETAILED RESULTS:

ASTM F2179-20-Glass Candle Containers-Annealing Test

Test	Test Method	Observation	Conclusion
Annealing Test	With a tungsten carbide scribe, scratch once around the inside knuckle of the article. Then scratch an "X" across the entire inside bottom surface of the article. All scratches are to be made using sufficient pressure to just penetrate the surface of the glass.	No abnormal changes are found	Information only



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DETAILED RESULTS:

Client-Performance Requirements-Freezer Test (24 Hours)

Test	Test Method	Observation	Conclusion
Freezer Test	Put the sample in the -18°C low-temperature environment 24 hours, then remove the sample into 23+2 °C humidity 63% room, after 4 hours, check whether the sample broken ,or other appearance changes	No abnormal changes are found	Information only



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DETAILED RESULTS:

Client-Performance Requirements-Oven Test (over 150°C, within 24 Hours)

For white style (Count: 2), grey style (Count: 1)

Test	Test Method	Observation	Conclusion
Heat Resistance	Put the sample in the oven 105 °C 8 hours, remove the sample into 23±2 °C humidity 63% room, 4 hours, check whether the sample broken ,or other appearance changes	No abnormal changes are found	Information only



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DETAILED RESULTS:

Fabfitfun-Performance Requirements-Effects of Boiling Water

Test	Test Method	Observation	Conclusion
Effects of Boiling Water	Put the sample into the boiling water, make sure the water level submerges 5 cm of the sample and boil for 30 minutes remove the sample into 23+2 °C humidity 63% room te.4 hours, check whether the sample broken, or other appearance changes	No abnormal changes are found	Information only



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DETAILED RESULTS:

Client-Performance Requirements-Stain Resistance

Test	Test Method	Observation	Conclusion
Stain Resistance	Put 80% soda, juice, ketchup, soy sauce in the container, shake for 1 minute, make sure the cap is also contaminated with liquid, let stand at room temperature for 2 hours, pour the liquid, manually clean the bottle, you can add dish soap, rinse well, check whether the bottle body and the lid are contaminated	No abnormal changes are found	Information only



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DETAILED RESULTS:

Microwave Safety Test

Test standard: in house method.

Test Procedure:

1. Sample is filled with tap water apart from the rim within 10mm.
2. Start microwave to continue heating until boiling is achieved.
3. Remove the tested sample from microwave oven and allow the sample to equilibrate to the room temperature.
4. Visually examine the tested sample. Note any cracks, broken, or other damages.
5. Repeat two times for a total of three cycles. Evaluate the tested sample at the end of each cycle.

Specimen No.	Test result(s)	Rating
18 OZ High borosilicate glass tumbler of white style	No visible damage or change in color/size was observed on the tested sample.	Information only



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DETAILED RESULTS:

Dishwasher Safe Test

The submitted samples were subjected to the following wash cycles and visual examination by naked eye was made in comparison with the control sample.

Wash condition:

wash / rinse / dry normal cycle (Duration approximately 60 minutes / temperature over 140°F/60°C).

Number of cycles: Five (5) cycles.

Detergent: Cascade (30 gram).

Dishwasher: SIEMENS-SJ235I01JC.

Number of sample tested: Three (3) piece per style plus three (3) piece as control sample.

Sample Description	Test result(s)	Rating
18 OZ High borosilicate glass tumbler of grey style	No visible damage or change in color/size was observed on the tested sample.	Information only



REFERENCE PHOTO:

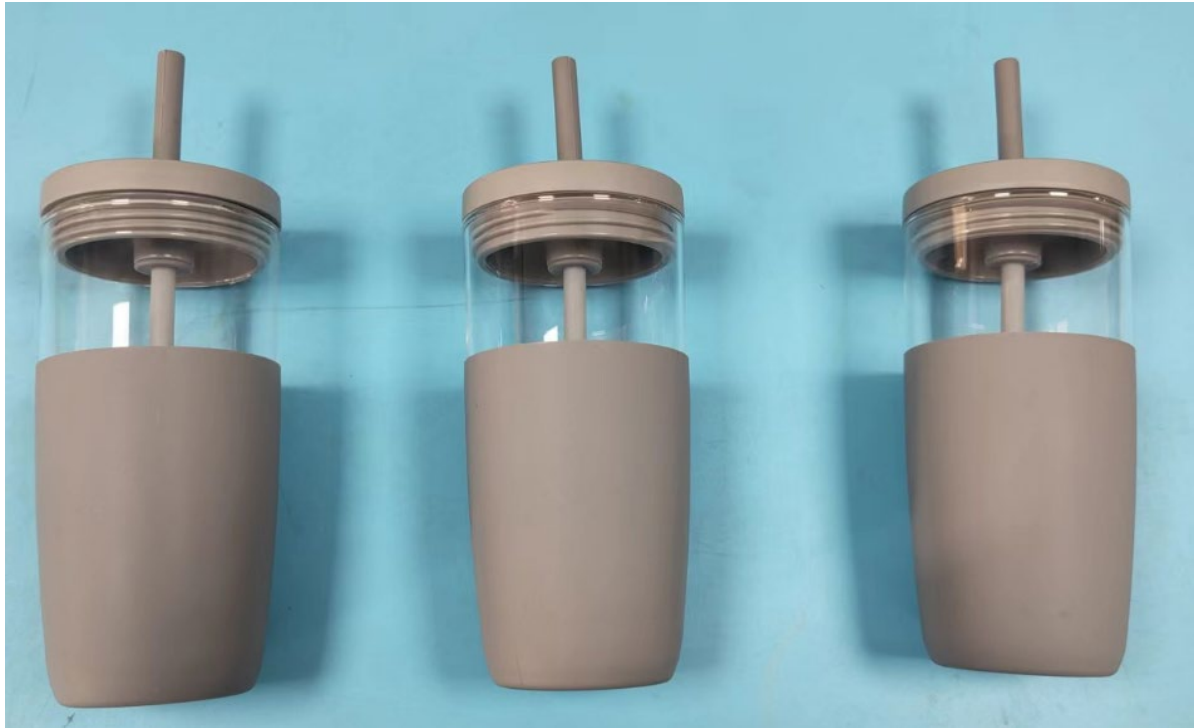


Photo before Dishwasher Safe Test

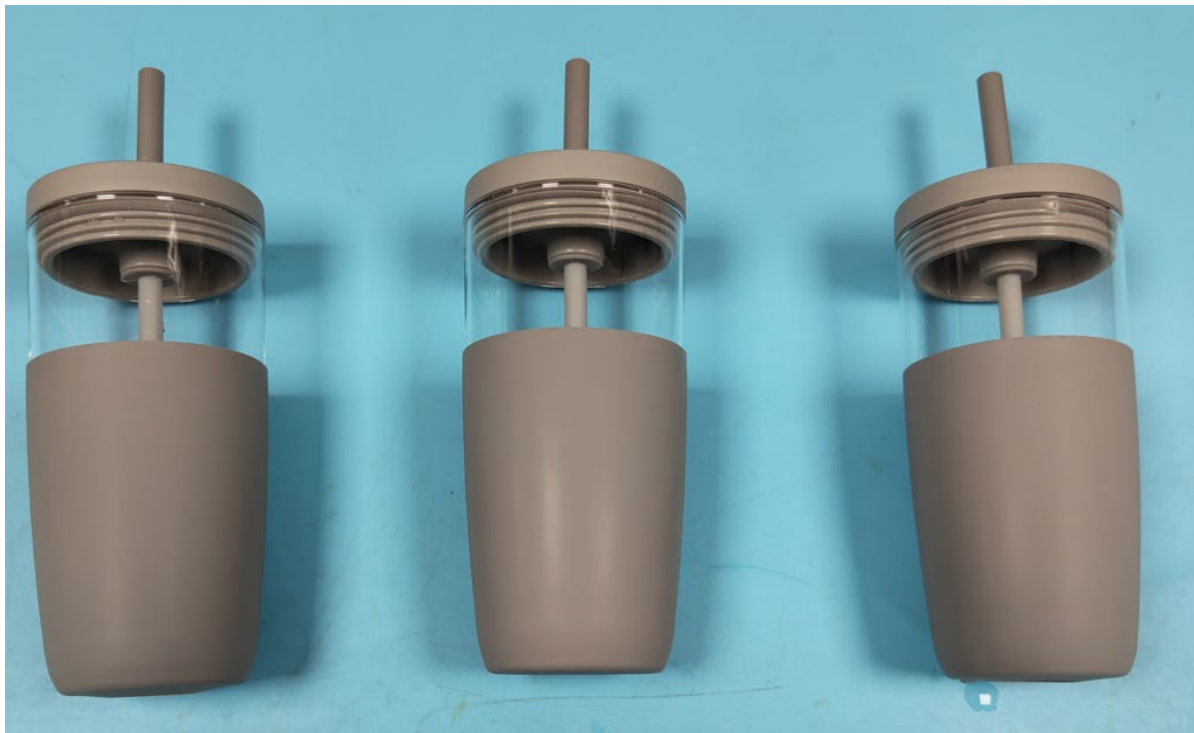


Photo after Dishwasher Safe Test



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DETAILED RESULTS:

Client-Performance Requirements-Fit for Use Test

Test	Test Method	Observation	Conclusion
Tilt resistance	a) placed empty without the lid on a 5° inclined surface in the least favourable position, b) placed with 80% water without the lid on a 5° inclined surface in the least favourable position, c) placed empty with the lid on a 5° inclined surface in the least favourable position, d) placed with 80% water with the lid on a 5° inclined surface in the least favourable position	No abnormal changes are found	Information only



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SPECIMEN DESCRIPTION:

Specimen No.	Specimen Description	Location
1	Black plastic	Lid (black style)
2	Black soft plastic	Nozzle (black style)
3	Black soft plastic	Sealing ring (black style)
4	Black plastic	Straw (black style)
5	Transparent glass	Interior (all styles)
6	Transparent glass	Main body (all styles)
7	Dark grey coating	Base (black style)
8	White plastic	Lid (white style)
9	White soft plastic	Nozzle (white style)
10	White soft plastic	Sealing ring (white style)
11	White plastic	Straw (white style)
12	Blue plastic	Lid (blue style)
13	Blue soft plastic	Nozzle (blue style)
14	Blue soft plastic	Sealing ring (blue style)
15	Blue plastic	Straw (blue style)
16	Grey plastic	Lid (grey style)
17	Grey soft plastic	Nozzle (grey style)
18	Grey soft plastic	Sealing ring (grey style)
19	Grey plastic	Straw (grey style)
20	Red plastic	Lid (red style)
21	Red soft plastic	Nozzle (red style)
22	Red soft plastic	Sealing ring (red style)
23	Red plastic	Straw (red style)



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-End Report-

