

TEST REPORT NUMBER: PRTH00096231 Page 1 of 8
APPLICANT: MATCERAMICA-FABRICO DE LOUÇA , S.A. **DATE OF EMISSION:** 30/03/2022
 APARTADO 150
 OUTEIRO DO SEIXO - VALE DE OURÉM

For the attention of ANA MARQUES

SAMPLE DESCRIPTION: PEDIDO 656
 PO 220069
 1 - SALAD PLATE BEACHGRASS GREEN G595=PRATO SOBREMESA 22 (CARIMBO)
 MATÉRIA VERDE SEMI-MATE G0595
 REF.: SID-BG-G7880G0595
 GRES
DATE OF RECEPTION: 29/03/2022
TEST PERFORMED BETWEEN DATES: 29/03/2022 and 30/03/2022
WORK DAYS: 2
REQUEST: Tests performed in accordance with APPLICANT TEST REQUEST specification
NOTES:

Samples

Test	1
* Dishwasher Safe	M
Extractable lead & cadmium	M
* Freezer Safe	M
* Impact testing of hollowware - rim	M
* Microwave Safe	M
Thermal Shock	M

M = Meet buyer's requirement; NM = does not meet buyer's requirement; NR = Not requested; NA = Not applicable; NC = No comment; SC = Still continues

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Test Method	Results	Requirements
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*** Dishwasher Safe**

ITS-M0001

Sample: 1
Test conditions

Shall exhibit no discoloration, rusting, or surface degradation.

Detergent: 108
Rinse aid: 51
Washing cycles: 10
Mass of detergent: 25 g
Washing cycle characteristics: 1
Nº of tested specimens: 3

No apparent changes

Extractable lead & cadmium

SOP 201: 2017-09-28 (Method equivalent to ASTM C738: 94 (2016))

Sample: 1

Specimen	Cadmium(Cd) (mg/L)	Lead(Pb) (mg/L)
1	<0,04	<0,1
2	<0,04	<0,1
3	<0,04	<0,1
4	<0,04	<0,1
5	<0,04	<0,1
6	<0,04	<0,1

FDA	
Limits (mg/L)	
Pb	
Flatware	3.0
Small Holloware	2.0
Large Holloware	1.0
Cups & Mugs	0.5
Pitchers	0.5
Cd	
Flatware	0.5
Small Holloware	0.5
Large Holloware	0.25
Cups & Mugs	0.5
Pitchers	0.25

Sample Capacity: 280 mL
Sample Category: Flatware

Quantification limit: Pb:0,1mg/L; Cd:0,04 mg/L
< = Less than

Proposition 65	
Limits (mg/L)	
Pb	
Flatware	0.226
Small Holloware	0.1
Large Holloware	0.1
Cups & Mugs	0.1
Pitchers	0.1



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Sample: 1

Cd
Flatware 1.8532
Small Holloware 0.1886
Large Holloware 0.0492
Cups & Mugs 0.0492
Pitchers 0.0492

Uncertainty: Cadmium(Cd) $\pm 15\%$ of value; Lead(Pb) $\pm 25\%$ of value

*** Freezer Safe**

ITS-M0004

Sample: 1

Shall exhibit no damage and noticeable change.

Freezer Safe

Test conditions

Freezer temperature: $-18,9^{\circ}\text{C}$
Freezer time contact: 24 h
Room temperature: $20,4^{\circ}\text{C}$
N^o of tested specimens: 1

No apparent changes

*** Impact testing of hollowware - rim**

BS EN 12980:2000

Sample: 1

The impact energy to produce failure on ceramic ware and glass ware shall not be less than 0.05 J (0.04 ft-lbf) when the flatware and hollowware (consisting of cups, mugs, ovenware or vases) are impact tested at the rim.

Test conditions:

N^o of tested articles: 10

Testing plan: b

IMPACT RESISTANCE ON RIM



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Sample: 1

The impact energy to produce failure on ceramic ware and glass ware shall not be less than 0.05 J (0.04 ft-lbf) when the flatware and hollowware (consisting of cups, mugs, ovenware or vases) are impact tested at the rim.

	Energy (J)	Height (m)	Angular (°)	Energy (ft,lbf)	Length of pendulum (m)	Pendulum (Kg)
1	0,069	0,070	40	0,051		
2	0,069	0,070	40	0,051		
3	0,053	0,054	35	0,039		
4	0,069	0,070	40	0,051		
5	0,053	0,054	35	0,039	0,300	0,100
6	0,053	0,054	35	0,039		
7	0,053	0,054	35	0,039		
8	0,069	0,070	40	0,051		
9	0,053	0,054	35	0,039		
10	0,069	0,070	40	0,051		

Average 0,061 0,062

*** Microwave Safe**

ITS-M0002

Sample: 1

Test conditions:

Sample volume: 280 mL
Water volume: 220 mL
Grip zone: rim
Microwave power: 750 w
Test time: 5 minutes
Nº of tested specimens:1

Shall exhibit no damage & noticeable change.

All tested samples at any spot should not reach temperature more than 60 °C.



Sample: 1

Shall exhibit no damage & noticeable change.
All tested samples at any spot should not reach temperature more than 60 °C.

Cycle (°C)	Water temperature (°C)	Temperature
1	20,2	39,7
2	20,1	38,9
3	20,4	39,3
4	21,3	38,7
5	20,2	39,1
6	20,9	38,7

No apparent changes

Thermal Shock

BS EN 1183: 1997 - METHOD B

Sample: 1

Time of thermal equilibrium: 60 min

Nr. of samples tested: 10

For ceramic ware and glass ware:
- Oven ware: Temperature difference shall not be less than 302 °F (150 °C);
- Not Oven ware: Temperature difference shall not less than 194 °F (90°C).

T1(°C)	T2(°C)	T1-T2(°C)	Nº of failures at T1	Cumulative failures (%)
120	20	100	0	0
140	20	120	0	0
160	20	140	0	0
180	20	160	0	0
200	20	180	0	0
220	20	200	0	0
240	20	220	8	80



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Sample: 1
8 80

Thermal Shock endurance

For ceramic ware and glass ware:
- Oven ware: Temperature difference shall not be less than 302 °F (150 °C);
- Not Oven ware: Temperature difference shall not less than 194 °F (90°C).

Δt_{50} (temperature difference at which 50% of the samples have failed) 220 °C
S (Standard Deviation) = 0

Conclusion: Based on the testes concluded the article should resist thermal shock until a temperature of 220 °C.

