

**Certificate of Analysis No. : 1726808**

**Customer**

KARAKOUSIS G. SA  
5<sup>th</sup> KM OLD NATIONAL ROAD LIVADIA-ATHENS  
32100 LIVADIA

Attn.: Mr KARAKOUSIS

Date of issue: 3/11/2017

**Sample information**

Sample kind : Material intended to come into contact with food, for repeated use  
Sample identification : Polyethylene tank  
Received on : 25/9/2017 10:20:00 a.m.  
Packaging : 51 pieces  
Seals : None  
Temperature : Ambient  
Condition on receipt : Normal

**Sampling information**

Sampling responsible : Customer  
Date : ---  
Location : ---  
Point : ---  
Method : ---

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**Analysis results**

Date of analysis : 26/9/2017 – 2/11/2017

PARAMETER	METHOD	UNITS	RESULT	LIMITS
<b>Overall migration (simulant D2: vegetable oil)</b>	O.626 based on EN 1186-2:2002	Contact conditions:	<b>10 days @ 40°C (M1)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	4 <sup>th</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	Average	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
<b>Overall migration (simulant D2: vegetable oil)</b>	O.626 based on EN 1186-2:2002	Contact conditions:	<b>20 days @ 40°C (M2)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	4 <sup>th</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	Average	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
<b>Overall migration (simulant D2: vegetable oil)</b>	O.626 based on EN 1186-2:2002	Contact conditions:	<b>30 days @ 40°C (M3)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	4 <sup>th</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
	Average	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=1	-
				Difference (M3-M2): max 10 & (M3-M2)<M1 & (M3-M2)<(M2-M1)

LOD: Limit of detection.

(M1)-(M2)-(M3): The tests were carried out on 3 different test specimens.

LIMITS: Regulation (EU) 10/2011, on plastic materials and articles intended to come into contact with food, as amended and is valid.

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**Analysis results**

Date of analysis : 26/9/2017 – 2/11/2017

PARAMETER	METHOD	UNITS	RESULT	LIMITS
<b>Overall migration (simulant A: ethanol 10%)</b>	EN 1186-3:2002	Contact conditions:	<b>10 days @ 40°C (B1)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	Average	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
<b>Overall migration (simulant A: ethanol 10%)</b>	EN 1186-3:2002	Contact conditions:	<b>10 days @ 40°C (B2)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	Average	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	B2<B1
<b>Overall migration (simulant A: ethanol 10%)</b>	EN 1186-3:2002	Contact conditions:	<b>10 days @ 40°C (B3)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	-
	Average	mg / dm <sup>2</sup>	<b>Not detected</b> LOD=0,8	B3:max 10 & B3<B2

LOD: Limit of detection.

(B1)-(B2)-(B3): The 3 tests were carried out successively on the same test specimen using another portion of simulant on each occasion.

LIMITS: Regulation (EU) 10/2011, on plastic materials and articles intended to come into contact with food, as amended and is valid.

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**Analysis results**

Date of analysis : 26/9/2017 – 2/11/2017

PARAMETER	METHOD	UNITS	RESULT	LIMITS
<b>Overall migration (simulant B: acetic acid 3% w/v)</b>	EN 1186-3:2002	Contact conditions:	<b>10 days @ 40°C (C1)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	Average	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
<b>Overall migration (simulant B: acetic acid 3% w/v)</b>	EN 1186-3:2002	Contact conditions:	<b>10 days @ 40°C (C2)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	Average	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 C2<C1
<b>Overall migration (simulant B: acetic acid 3% w/v)</b>	EN 1186-3:2002	Contact conditions:	<b>10 days @ 40°C (C3)</b>	-
	1 <sup>st</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	2 <sup>nd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	3 <sup>rd</sup> test	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 -
	Average	mg / dm <sup>2</sup>	<b>Not detected</b>	LOD=0,8 C3:max 10 & C3<C2

LOD: Limit of detection.

(C1)-(C2)-(C3): The 3 tests were carried out successively on the same test specimen using another portion of simulant on each occasion.

LIMITS: Regulation (EU) 10/2011, on plastic materials and articles intended to come into contact with food, as amended and is valid.

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**Analysis results**

Date of analysis : 26/9/2017 – 2/11/2017

PARAMETER	METHOD	UNITS	RESULT	LIMITS
<b>Migration test in acetic acid 3% (B)</b>	* EN 13130-1:2004 by total immersion	Contact conditions:	<b>10 days @ 60°C</b>	-
<b>Specific Migration of Metals (reg.10/11)</b>			.	-
<b>Barium</b>	* A.A.S.			-
	1 <sup>st</sup> test	mg Ba / Kg simulant	<b>Not detected</b>	LOD=0,07 -
	2 <sup>nd</sup> test	mg Ba / Kg simulant	<b>Not detected</b>	LOD=0,07 -
	3 <sup>rd</sup> test	mg Ba / Kg simulant	<b>Not detected</b>	LOD=0,07 max 1
<b>Cobalt</b>	* GF-A.A.S.			-
	1 <sup>st</sup> test	mg Co / Kg simulant	<b>Not detected</b>	LOD=0,0006 -
	2 <sup>nd</sup> test	mg Co / Kg simulant	<b>Not detected</b>	LOD=0,0006 -
	3 <sup>rd</sup> test	mg Co / Kg simulant	<b>Not detected</b>	LOD=0,0006 max 0,05
<b>Lithium</b>	* A.A.S.			-
	1 <sup>st</sup> test	mg Li / Kg simulant	<b>Not detected</b>	LOD=0,046 -
	2 <sup>nd</sup> test	mg Li / Kg simulant	<b>Not detected</b>	LOD=0,046 -
	3 <sup>rd</sup> test	mg Li / Kg simulant	<b>Not detected</b>	LOD=0,046 max 0,6
<b>Manganese</b>	* GF-A.A.S.			-
	1 <sup>st</sup> test	mg Mn / Kg simulant	<b>0,0027</b>	-
	2 <sup>nd</sup> test	mg Mn / Kg simulant	<b>&lt;0,0014</b>	-
	3 <sup>rd</sup> test	mg Mn / Kg simulant	<b>Not detected</b>	LOD=0,0003 max 0,6
<b>Iron</b>	* GF-A.A.S.			-
	1 <sup>st</sup> test	mg Fe / Kg simulant	<b>0,09</b>	-
	2 <sup>nd</sup> test	mg Fe / Kg simulant	<b>0,014</b>	-
	3 <sup>rd</sup> test	mg Fe / Kg simulant	<b>0,009</b>	max 48
<b>Copper</b>	* GF-A.A.S.			-
	1 <sup>st</sup> test	mg Cu / Kg simulant	<b>&lt;0,007</b>	-
	2 <sup>nd</sup> test	mg Cu / Kg simulant	<b>Not detected</b>	LOD=0,0023 -
	3 <sup>rd</sup> test	mg Cu / Kg simulant	<b>Not detected</b>	LOD=0,0023 max 5

*The analysis results refer only to the items tested*

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*(\*Method out of the scope of accreditation)*

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**Analysis results**

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PARAMETER	METHOD	UNITS	RESULT	LIMITS
<b>Zinc</b>	* A.A.S.			-
	1 <sup>st</sup> test	mg Zn / Kg simulant	<b>0,053</b>	-
	2 <sup>nd</sup> test	mg Zn / Kg simulant	<b>Not detected</b>	LOD=0,009 -
	3 <sup>rd</sup> test	mg Zn / Kg simulant	<b>Not detected</b>	LOD=0,009 max 5
<b>Aluminium</b>	* GF-A.A.S.			-
	1 <sup>st</sup> test	mg Al / Kg simulant	<b>0,019</b>	-
	2 <sup>nd</sup> test	mg Al / Kg simulant	<b>Not detected</b>	LOD=0,00051 -
	3 <sup>rd</sup> test	mg Al / Kg simulant	<b>Not detected</b>	LOD=0,00051 max 1
<b>Nickel</b>	* GF-A.A.S.			-
	1 <sup>st</sup> test	mg Ni / Kg simulant	<b>0,001</b>	-
	2 <sup>nd</sup> test	mg Ni / Kg simulant	<b>Not detected</b>	LOD=0,00023 -
	3 <sup>rd</sup> test	mg Ni / Kg simulant	<b>Not detected</b>	LOD=0,00023 max 0,02
<b>Heavy metals (directive 94/62/EC)</b>			.	-
<b>Sample preparation (digestion)</b>	* Microwave-Assisted digestion		.	-
<b>Cadmium</b>	* GF-AAS	mg Cd / Kg	<b>Not detected</b>	LOD=0,01 -
<b>Mercury</b>	* Hydride-A.A.S.	mg Hg / Kg	<b>Not detected</b>	LOD=0,02 -
<b>Lead</b>	* GF-AAS	mg Pb / Kg	<b>&lt;0,4</b>	-
<b>Chromium hexavalent</b>	* EPA 7196 A	mg Cr / Kg	<b>Not detected</b>	LOD=3 -
<b>Sum of heavy metals</b>	* by calculation	mg / Kg	<b>&lt;0,4</b>	max 100

LOD: Limit of detection

The 3 tests, for each metal, were carried out successively on the same test specimen using another portion of simulant on each occasion.

LIMITS: Regulation (EU) 10/2011, as amended and is valid, on plastic materials and articles intended to come into contact with food & Directive 94/62/EC, article 11, on packaging and packaging waste, as amended and are valid.

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**EVALUATION: According to the above information:**

1. The sample complies with the overall migration limits set by Regulation (EU) 10/2011, for repeated use (Annex V, chap. 3), for the following types of foods and intended food contact conditions:

**TYPES OF FOODS**

All types of foods	Annex III, Point 4
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**INTENDED FOOD CONTACT CONDITIONS (Annex V, Chap.3, Table 3)**

Test number OM2	Any long term storage at room temperature or below, including when packaged under hot-fill conditions, and/or heating up to a temperature T where $70\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$ for a maximum of $t = 120/2^{((T-70)/10)}$ minutes.
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2. The sample complies with the limits of specific migration of metals set by Regulation (EU) 10/2011, for repeated use (Annex V, chap.2).
3. The sample complies with the Directive 94/62/EC on the heavy metals content.

For  
A. TSAKALIDIS Inc.

A. TSAKALIDIS  
Managing Director