

TEST REPORT**Requested by:**

Euro Pool System International B.V.
Attn. Mr. P. van Zuidam
2289 DJ Rijswijk
Netherlands

Subject: Migration testing on two types of crates

Dear Mr. Van Zuidam

Hereby I present to you the results of the laboratory investigation, that was carried out by your request (ref SO09564).

Hoping this information will meet your approval,

Yours sincerely,



Job Ridderbecks
Expert Regulatory Services

Intertek Chemicals & Pharmaceuticals

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TEST REPORT

Sample and analysisDate samples received

March 21, 2014

Description of samples

1. EPS red tray HDPE
Intertek LIMS ID: 21977650
2. EPS red tray PP
Intertek LIMS ID: 21977652

Method(s) applied**Overall migration**

The overall migration has been performed according to Commission Regulation (EU) No 10/2011 (and amendments) relating to plastic materials and articles intended to come into contact with food.

Test methods as described in:

- EN 1186-1; *Guide to the selection of conditions and test methods for overall migration.*
- EN 1186-2; *Test methods for overall migration into olive oil by total immersion.*
- EN 1186-3; *Test methods for overall migration into aqueous food simulants by total immersion.*

Simulants and test conditions:

Simulants	Test conditions
10 % ethanol	10 days at 50 °C, repeated use ⁽¹⁾
3 % acetic acid	10 days at 50 °C, repeated use ⁽¹⁾
Olive oil	10 days at 50 °C, repeated use ⁽²⁾

According to EN 1186-1, paragraph 9.8: Articles intended for repeated use

⁽¹⁾ When a material is intended to come into repeated contact with foodstuffs, the migration tests are carried out three times on the same test sample in accordance with the conditions laid down, using a fresh sample of the food simulant on each occasion.
The compliance of the material shall be checked on the basis of the level of the migration found in the third test.

⁽²⁾ When a material is intended to come into repeated contact with foodstuffs, the migration tests will be performed on two sets of samples. The first and the second sample are exposed for a period of twice that of the initial prescribed test condition or respectively three times that of the initial prescribed test condition.
The difference in results of the first and the second sample is the result of the migration test in olive oil.

The tests with the aqueous simulants are performed in triplicate and the test with olive oil in quadruplicate.

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TEST REPORT

Heavy metals

Heavy metals (Cadmium, Mercury, Lead and hexavalent Chromium) according to European Directive 94/62/EC; on packaging and packaging waste.

Limits: the sum of these metals shall not exceed 100 ppm.

Micro-wave destruction and determination of the metals Lead, Cadmium and Hexavalent Chromium by ICP-OES and Mercury by FIMS.

Results

Overall migration

Sample: EPS Red tray HDPE

The results are expressed in mg/dm².

Method Replicates	EN 1186-2 Migration into olive oil Run 1 20 days, 50 °C Contact area: 1.0 dm ² Volume simulant: 100 ml	EN 1186-2 Migration into olive oil Run 2 30 days, 50 °C Contact area: 1.0 dm ² Volume simulant: 100 ml	EN 1186-2 Migration into olive oil Result (Run 2 – Run 1)
	(mg/dm ²)	(mg/dm ²)	(mg/dm ²)
1	< 1	< 1	< 1
2	< 1	< 1	< 1
3	< 1	< 1	< 1
4	< 1	< 1	< 1
Mean result	< 1	< 1	< 1

Method Replicates	EN 1186-3 Migration into 10 % ethanol 10 days, 50 °C, repeated use Contact area: 1.0 dm ² Volume simulant: 100 ml	EN 1186-3 Migration into 3 % acetic acid 10 days, 50 °C, repeated use Contact area: 1.0 dm ² Volume simulant: 100 ml
	(mg/dm ²)	(mg/dm ²)
1	< 0.5	< 0.5
2	< 0.5	< 0.5
3	< 0.5	< 0.5
Mean result	< 0.5	< 0.5

Overall migration limit is 10 mg/dm² contact area.

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TEST REPORT

Sample: EPS Red tray PP

The results are expressed in mg/dm².

Method Replicates	EN 1186-2 Migration into olive oil Run 1 20 days, 50 °C Contact area: 1.0 dm ² Volume simulant: 100 ml	EN 1186-2 Migration into olive oil Run 2 30 days, 50 °C Contact area: 1.0 dm ² Volume simulant: 100 ml	EN 1186-2 Migration into olive oil Result (Run 2 – Run 1)
	(mg/dm ²)	(mg/dm ²)	(mg/dm ²)
1	< 1	< 1	< 1
2	< 1	< 1	< 1
3	< 1	< 1	< 1
4	< 1	< 1	< 1
Mean result	< 1	< 1	< 1

Method Replicates	EN 1186-3 Migration into 10 % ethanol 10 days, 50 °C, repeated use Contact area: 1.0 dm ² Volume simulant: 100 ml	EN 1186-3 Migration into 3 % acetic acid 10 days, 50 °C, repeated use Contact area: 1.0 dm ² Volume simulant: 100 ml
	(mg/dm ²)	(mg/dm ²)
1	< 0.5	< 0.5
2	< 0.5	< 0.5
3	< 0.5	< 0.5
Mean result	< 0.5	< 0.5

Overall migration limit is 10 mg/dm² contact area.

Heavy metals

Sample	Cadmium (mg/kg)	Chromium VI * (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)
EPS Red tray HDPE	< 10	< 10	< 0.02	< 6
EPS Red tray PP	< 10	< 10	< 0.02	< 6

ppm = mg/kg

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Specific migration

According to the information provided by Euro Pool the following specific migration components are present in the materials used.

Overall migration has been performed under conditions for specific migration, to provide a screening method for the specific migration, as described in Section 2.2.1 of Annex V of Commission Regulation (EU) 10/2011.

For exclusion based on overall migration, the standard EU ratio of 1 kg of food in contact with 6 dm² of contact area has been used to calculate between overall migration and specific migration. For use with fresh meat, a reduction factor of 4 is applicable to the results.

Material	Component	CAS	SML	Status
Sabic PHC27	No components with a specific migration limit present			
Egyptene HDPE 6070UA	poly[6-[(1,1,3,3-tetramethylbutyl)amino]-1,3,5-triazine-2,4-diyl]-[(2,2,6,6-tetramethyl-4-piperidyl)-imino]hexamethylene[(2,2,6,6-tetramethyl-4-piperidyl) imino] (Chimassorb 944)	71878-19-8	3	Excluded by overall migration, considering reduction factor of 4
Schulman MASTERBATCH ERZ54175U ("Deltaplast Rood")	Zinc stearate	-	25 (as Zinc)	Excluded by overall migration
	octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate (Irganox 1076)	2082-79-3	6	Excluded by overall migration
	1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethyl piperidine-succinic acid, dimethyl ester, copolymer (Tinuvin 622)	65447-77-0	30	Excluded by overall migration
	Chimassorb 944	71878-19-8	3	(See above)

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TEST REPORT**Conclusion****Overall migration**

The overall migration results obtained of both samples were found to be in compliance with the restriction for the overall migration limit ($< 10 \text{ mg/dm}^2$) as defined in Commission Regulation (EU) No 10/2011 for food contact materials for the tests with 3 % acetic acid, 10 % ethanol and olive oil under the above mentioned test conditions.

Heavy metals

The sum of the four heavy metals is $< 100 \text{ ppm}$ for both samples are below the limit as laid down in European Directive 94/62/EC; *on packaging and packaging waste*.

Specific migration

The specific migration results of all components were found to be in compliance with the restriction for the specific migration limits as defined in Commission Regulation (EU) 10/2011 for food contact materials for the tests under the above mentioned test conditions.

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