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## Analytical report

### Project data

Analysis requested : Determination of overall migration  
 Client : 4PET Holding BV, Druten, the Netherlands  
 TNO project number : 031.12511/01.35  
 Analyses date : July 2008  
 Date of issue : July 2008  
 Validity : July 2008 – July 2011  
 Evaluation : This investigation must be re-evaluated if the relevant regulation is changed, or the composition or the production process of the product is changed, or at July 2011 the latest.

### Sample data

#### *Samples received by TNO and sent by client*

Sample number/sample code		Sample description		Sample received at
TNO	Client	TNO	Client	
0939-03-0333	APET Foil PT100	Transparent sheets	Foil	8 July 2008
0939-03-0334	APET Foil PT300	Transparent sheets	Foil	8 July 2008

### Legislative context

The report, the experiments described and the conditions used to obtain the results presented are based on the following legislation:

- Commodity Act Packaging and Food Utensils Regulation of The Netherlands of 20 November 1979 and its amendments up to and including VGP/PSL 2847501 of 14 May 2008
- EU Directive 82/711/EEC of 18 October 1982 and its subsequent amendments up to and including EU Directive 97/48/EC of 29 July 1997
- EU Directive 85/572/EEC of 19 December 1985
- EU Directive 2002/72/EC of 6 August 2002 and its amendments up to and including 2008/39/EC of 6 March 2008

To state that a material is in compliance with the above legislation a set of experiments is needed. The experiments may include one or more of the following experiments: organoleptic tests, overall migrations, specific migrations and residual contents.

In this investigation we have only performed the tests that were requested by the client. The values obtained were compared with the limits from the above legislation. The experiments selected by the client may not necessary include all



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the experiments that are required to prove that the sample(s) do(es) comply with the above legislation.

## Methods applied

The methods described in this section are chosen based on the requested tests at the conditions of contact as were selected by the client.

### *Migration conditions*

To determine the overall migration from sample 0939-03-0333 and 0939-03-0334, specimens were mounted in a TNO-migration cell to obtain single-side contact of the sample material with the food simulant. Cells were filled with 100 ml of 50% ethanol and stored for 10 days at 40°C. The contact areas of sample 0939-03-0333 and 0939-03-0334 were 2.34 dm<sup>2</sup>.

The simulants, contact time, and contact temperature were selected according EU Directive 82/711/EEC and its subsequent amendments up to and including EU Directive 97/48/EC and following CEN method EN 1186-1:2002 (17 April 2002) and CEN method EN 13130-1:2004 (26 May 2004). After the storage period the samples were analysed as is described in the overall migration section.

### *Overall migration*

After the storage period, the overall migration from sample 0939-03-0333 and 0939-03-0334 were determined following the CEN method EN 1186-5:2002 (17 April 2002) (cell, aqueous food simulants) as close as possible.

## Results

### *Overall migration after contact time and temperature as described above*

Sample	Simulant	Overall migration (mg/dm <sup>2</sup> )			
		Measurement 1	Measurement 2	Average	Limit
0939-03-0333	50% ethanol	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10
0939-03-0334	50% ethanol	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10

n.d. = not detectable

## Conclusions

For this investigation only the migration experiments that were requested by the client were determined. The values obtained were compared with the limits from the above legislation. The experiments determined may not necessary include all the experiments that are required to prove that the sample(s) do(es) comply with the above legislation.



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The values obtained for the overall migrations from sample 0939-03-0333 and 0939-03-0334 into 50% ethanol after a contact period of 10 days at 40°C meet the limits as specified in the Commodity Act Packaging and Food Utensils Regulation of The Netherlands of 20 November 1979 and its amendments up to and including VGP/PSL 2847501 of 14 May 2008 and EU Directive 2002/72/EC of 6 August 2002 and its amendments up to and including 2008/39/EC of 6 March 2008.

In conclusion, regarding the experiments that were requested by the client as described above sample 0939-03-0333 and sample 0939-03-0334 are considered to be suitable for contact with alcoholic (up to 50%) foodstuff and milk products for a storage period longer than 24 hours at room temperature and any contact condition considered less severe according to the Commodity Act Packaging and Food Utensils Regulation of The Netherlands of 20 November 1979 and its amendments up to and including VGP/PSL 2847501 of 14 May 2008 and EU Directive 2002/72/EC of 6 August 2002 and its amendments up to and including 2008/39/EC of 6 March 2008.

Supporting documents with all details of the analytical experiments will be filed for a period of five years and can be accessed by enforcement authorities upon agreement of the client.

Approved by

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H.M. Veendaal  
Project Manager Packaging Research



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## Analytical report

### Project data

Analysis requested : Testing according EU and Dutch food contact legislation  
 Client : 4PET Holding BV, Druten, the Netherlands  
 TNO project number : 031.11154/01.01  
 Analyses date : December 2006  
 Date of issue : December 2006  
 Validity : December 2006 – December 2009  
 Evaluation : This investigation must be re-evaluated if the relevant regulation is changed, or the composition or the production process of the product is changed, or at December 2009 the latest.

### Sample data

#### *Samples received by TNO and sent by client*

Sample number/sample code		Sample description		Sample received at
TNO	Client	TNO	Client	
0939/02/1138	PT 100	Transparent colourless film	Sample I	6 November 2006
0939/02/1139	PT 300	Transparent colourless film	Sample II	6 November 2006

### Legislative context

The report, the experiments described and the conditions used to obtain the results presented are based on the following legislation:

- Commodity Act Packaging and Food Utensils Regulation of The Netherlands of 20 November 1979 and its amendments up to and including VGP/PSL 2792080 of 21 August 2007
- EU Directive 82/711/EEC of 18 October 1982 and its subsequent amendments up to and including EU Directive 97/48/EC of 29 July 1997
- EU Directive 85/572/EEC of 19 December 1985
- EU Directive 2002/72/EC of 6 August 2002 and its amendments up to and including 2008/39/EC of 6 March 2008

To state that a material is in compliance with the above legislation a set of experiments is needed. The experiments may include one or more of the following experiments: organoleptic testing, overall migrations, specific migrations and residual contents.

In this investigation we have only performed the tests that were requested by the client. The values obtained were compared with the limits from the above



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legislation. The experiments selected by the client may not necessary include all the experiments that are required to prove that the sample(s) do(es) comply with the above legislation.

## Methods applied

The methods described in this section are chosen based on the requested tests at the conditions of contact as were selected by the client.

### *Migration conditions*

To determine the overall migration from sample 0939/02/1138 and sample 0939/02/1139, specimens were mounted in a TNO-migration cell to obtain single-side contact of the sample material with the food simulant. Cells were filled with 100 ml of 3% acetic acid and stored for 10 days at 40°C, cells were filled with 100 ml of 15% ethanol and stored for 10 days at 40°C and cells were filled with 90 g of olive oil and stored for 10 days at 40°C. The contact area was 2.34 dm<sup>2</sup>.

The simulants, contact time, and contact temperature were selected according EU Directive 82/711/EEC and its subsequent amendments up to and including EU Directive 97/48/EC and following CEN method EN 1186-1:2002 (17 April 2002) and CEN method EN 13130-1:2004 (26 May 2004). After the storage period the samples were analysed as is described in the overall migration section.

### *Overall migration*

After the storage period, the overall migration from sample 0939/02/1138 and sample 0939/02/1139 was determined following the CEN method EN 1186-5:2002 (17 April 2002) (cell, aqueous food simulants) or CEN method EN 1186-4:2002 (17 April 2002) (cell, olive oil food simulants) as close as possible.

## Results

### *Overall migration after contact time and temperature as described above*

Sample	Simulant	Overall migration (mg/dm <sup>2</sup> )			Limit
		Measurement 1	Measurement 2	Average	
0939/02/1138	3% acetic acid	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10
0939/02/1138	15% ethanol	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10
0939/02/1138	Olive oil	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10
0939/02/1139	3% acetic acid	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10
0939/02/1139	15% ethanol	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10
0939/02/1139	Olive oil	n.d. (<1.0)	n.d. (<1.0)	n.d. (<1.0)	10

n.d. = not detectable



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## Conclusions

For this investigation only the migration experiments that were requested by the client were determined. The values obtained were compared with the limits from the above legislation. The experiments determined may not necessary include all the experiments that are required to prove that the sample(s) do(es) comply with the above legislation.

The values obtained for the overall migrations from sample 0939/02/1138 and sample 0939/02/1139, into 3% acetic acid after a contact period of 10 days at 40°C, into 15% ethanol after a contact period of 10 days at 40°C and into olive oil after a contact period of 10 days at 40°C meet the limits as specified in the Commodity Act Packaging and Food Utensils Regulation of The Netherlands of 20 November 1979 and its amendments up to and including VGP/PSL 2792080 of 21 August 2007 and EU Directive 2002/72/EC of 6 August 2002 and its amendments up to and including 2008/39/EC of 6 March 2008.

In conclusion, regarding the experiments that were requested by the client as described above sample 0939/02/1138 and sample 0939/02/1139 are considered to be suitable for contact with aqueous, acidic, alcoholic (up to 15%) and fatty foodstuff, excluded milk products, for any time at room temperature and any contact condition considered less severe according to the Commodity Act Packaging and Food Utensils Regulation of The Netherlands of 20 November 1979 and its amendments up to and including VGP/PSL 2792080 of 21 August 2007 and EU Directive 2002/72/EC of 6 August 2002 and its amendments up to and including 2008/39/EC of 6 March 2008.

Supporting documents with all details of the analytical experiments will be filed for a period of three years and can be accessed by enforcement authorities upon agreement of the client.

Approved by

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H.M. Veenendaal  
Manager Packaging Research