



INSTITUT PRO TESTOVÁNÍ A CERTIFIKACI, a.s.

**třída Tomáše Bati 299, 764 21 Zlín - Louky
TESTING LABORATORY - TESTING DIVISION**

issues

ATTEST

No. 472107457

On samples:

**General purpose polystyrene SYNTHOS PS GP
type SYNTHOS PS GP 137, SYNTHOS PS GP 152, SYNTHOS PS GP 154,
SYNTHOS PS GP 171, SYNTHOS PS GP 174**

Client - producer:

SYNTHOS Kralupy a.s.,
O. Wichterleho 810, 278 01 Kralupy nad Vltavou, Czech Republic
ID: 28214790

Values obtained and the assessment of the technical parameters:

Evaluated technical parameters of the given types of general purpose polystyrene **SYNTHOS PS GP 137, SYNTHOS PS GP 152, SYNTHOS PS GP 154, SYNTHOS PS GP 171, SYNTHOS PS GP 174** meet the requirements by the Commission Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food in the parameters – overall migration into food simulants A, B, C and substitute fatty food simulants; specific migration of zinc according to the Annex II, paragraph 1; content of the primary aromatic amines according to the Annex II, paragraph 2.

This Attest has been issued on the basis of the Test Report No. 472107457 issued on August 5, 2014.

Issued on: August 5, 2014

Valid till: August 4, 2017




Dipl. Ing. Jiří Samsoněk, Ph.D.
Head of Testing laboratory

Conditions for use of the Attest and associated information:

1. The Attest applies only to the sample tested by our laboratory.
2. The Attest remains in effect until production technology, initial materials and standards or corresponding regulations are changed; however, its validity will extend beyond the period of its effect.



ATTEST No. 472107457

Table I: **Determination of overall migration into food simulants; primary aromatic amines, specific migration of zinc,**
sample No. 472107457/1 – general purpose polystyrene SYNTHOS PS GP type SYNTHOS PS GP 137

Evaluated parameter	Unit	Value obtained ¹⁾				Uncertainty	Limit value ³⁾
Determination of overall migration into food simulants - 100 cm ² /100 ml of simulant							
Simulant – 10% ethanol (40°C, 10 days)	mg/dm ²	< 0,5	< 0,5	< 0,5	ø < 0,5	1 ²⁾	max. 10
Simulant – 3% acetic acid (40°C, 10 days)	mg/dm ²	1,7	1,7	0,7	ø 1,4	1 ²⁾	max. 10
Simulant – 20% ethanol (40°C, 10 days)	mg/dm ²	1,0	0,7	0,5	ø 1,3	1 ²⁾	max. 10
Simulant – 95% ethanol (40°C, 10 days)	mg/dm ²	1,2	0,5	< 0,5	ø - ⁴⁾	3 ²⁾	max. 10
Simulant – isooctane (23°C, 2 days)	mg/dm ²	1,6	1,0	1,3	ø 1,3	3 ²⁾	max. 10
Determination of primary aromatic amines content	mg/kg	< 0,01				-	max. 0,01
Determination of specific migration of zinc into food simulant – 3% acetic acid, 60 cm ² /100 ml simulant, 60°C, 10 days							
- zinc	mg/kg	< 0,10				-	max. 25
Determination of specific migration of zinc into food simulant – 95% ethanol, 60 cm ² /100 ml of simulant, 50°C, 25 days							
- zinc	mg/kg	< 0,50				-	max. 25

Table II: **Determination of overall migration into food simulants; primary aromatic amines, specific migration of zinc,**
sample No. 472107457/2 – general purpose polystyrene SYNTHOS PS GP type SYNTHOS PS GP 152

Evaluated parameter	Unit	Value obtained ¹⁾				Uncertainty	Limit value ³⁾
Determination of overall migration into food simulants - 100 cm ² /100 ml of simulant							
Simulant – 10% ethanol (40°C, 10 days)	mg/dm ²	1,9	1,4	1,5	ø 1,6	1 ²⁾	max. 10
Simulant – 3% acetic acid (40°C, 10 days)	mg/dm ²	1,4	1,3	1,4	ø 1,4	1 ²⁾	max. 10
Simulant – 20% ethanol (40°C, 10 days)	mg/dm ²	< 0,5	< 0,5	< 0,5	ø < 0,5	1 ²⁾	max. 10
Simulant – 95% ethanol (40°C, 10 days)	mg/dm ²	< 0,5	1,7	< 0,5	ø - ⁴⁾	3 ²⁾	max. 10
Simulant – isooctane (23°C, 2 days)	mg/dm ²	1,4	2,0	1,9	ø 1,8	3 ²⁾	max. 10
Determination of primary aromatic amines content	mg/kg	< 0,01				-	max. 0,01
Determination of specific migration of zinc into food simulant – 3% acetic acid, 60 cm ² /100 ml simulant, 60°C, 10 days							
- zinc	mg/kg	< 0,10				-	max. 25
Determination of specific migration of zinc into food simulant – 95% ethanol, 60 cm ² /100 ml of simulant, 50°C, 25 days							
- zinc	mg/kg	< 0,50				-	max. 25

Conditions for use of the Attest and associated information:

1. The Attest applies only to the sample tested by our laboratory.
2. The Attest remains in effect until production technology, initial materials and standards or corresponding regulations are changed; however, its validity will extend beyond the period of its effect.



ATTEST No. 472107457

Table III: **Determination of overall migration into food simulants; primary aromatic amines, specific migration of zinc,**
sample No. 472107457/3 – general purpose polystyrene SYNTHOS PS GP type SYNTHOS PS GP 154

Evaluated parameter	Unit	Value obtained ¹⁾	Uncertainty	Limit value ³⁾
Determination of overall migration into food simulants - 100 cm²/100 ml of simulant				
Simulant – 10% ethanol (40°C, 10 days)	mg/dm ²	0,9 < 0,5 < 0,7 ø - ⁴⁾	1 ²⁾	max. 10
Simulant – 3% acetic acid (40°C, 10 days)	mg/dm ²	1,2 1,4 1,9 ø 1,5	1 ²⁾	max. 10
Simulant – 20% ethanol (40°C, 10 days)	mg/dm ²	< 0,5 1,0 < 0,5 ø - ⁴⁾	1 ²⁾	max. 10
Simulant – 95% ethanol (40°C, 10 days)	mg/dm ²	1,0 1,6 0,6 ø 1,1	3 ²⁾	max. 10
Simulant – isooctane (23°C, 2 days)	mg/dm ²	< 0,5 0,7 1,3 ø - ⁴⁾	3 ²⁾	max. 10
Determination of primary aromatic amines content	mg/kg	< 0,01	-	max. 0,01
Determination of specific migration of zinc into food simulant – 3% acetic acid, 60 cm²/100 ml simulant, 60°C, 10 days				
- zinc	mg/kg	< 0,10	-	max. 25
Determination of specific migration of zinc into food simulant – 95% ethanol, 60 cm²/100 ml of simulant, 50°C, 25 days				
- zinc	mg/kg	< 0,50	-	max. 25

Table IV: **Determination of overall migration into food simulants; primary aromatic amines, specific migration of zinc,**
sample No. 472107457/4 – general purpose polystyrene SYNTHOS PS GP type SYNTHOS PS GP 171

Evaluated parameter	Unit	Value obtained ¹⁾	Uncertainty	Limit value ³⁾
Determination of overall migration into food simulants - 100 cm²/100 ml of simulant				
Simulant – 10% ethanol (40°C, 10 days)	mg/dm ²	0,5 0,7 0,5 ø 0,6	1 ²⁾	max. 10
Simulant – 3% acetic acid (40°C, 10 days)	mg/dm ²	1,7 1,6 1,8 ø 1,7	1 ²⁾	max. 10
Simulant – 20% ethanol (40°C, 10 days)	mg/dm ²	1,0 1,0 0,7 ø 0,9	1 ²⁾	max. 10
Simulant – 95% ethanol (40°C, 10 days)	mg/dm ²	0,5 0,6 < 0,5 ø - ⁴⁾	3 ²⁾	max. 10
Simulant – isooctane (23°C, 2 days)	mg/dm ²	1,2 < 0,5 1,2 ø - ⁴⁾	3 ²⁾	max. 10
Determination of primary aromatic amines content	mg/kg	< 0,01	-	max. 0,01
Determination of specific migration of zinc into food simulant – 3% acetic acid, 60 cm²/100 ml simulant, 60°C, 10 days				
- zinc	mg/kg	< 0,10	-	max. 25
Determination of specific migration of zinc into food simulant – 95% ethanol, 60 cm²/100 ml of simulant, 50°C, 25 days				
- zinc	mg/kg	< 0,50	-	max. 25

Conditions for use of the Attest and associated information:

1. The Attest applies only to the sample tested by our laboratory.
2. The Attest remains in effect until production technology, initial materials and standards or corresponding regulations are changed; however, its validity will extend beyond the period of its effect.



ATTEST No. 472107457

Table V: **Determination of overall migration into food simulants; primary aromatic amines, specific migration of zinc,**
sample No. 472107457/5 – general purpose polystyrene SYNTHOS PS GP type SYNTHOS PS GP 174

Evaluated parameter	Unit	Value obtained ¹⁾				Uncertainty	Limit value ³⁾
Determination of overall migration into food simulants - 100 cm ² /100 ml of simulant							
Simulant – 10% ethanol (40°C, 10 days)	mg/dm ²	1,2	1,3	1,1	ø 1,2	1 ²⁾	max. 10
Simulant – 3% acetic acid (40°C, 10 days)	mg/dm ²	2,0	1,5	1,0	ø 1,5	1 ²⁾	max. 10
Simulant – 20% ethanol (40°C, 10 days)	mg/dm ²	1,3	0,8	1,7	ø 1,3	1 ²⁾	max. 10
Simulant – 95% ethanol (40°C, 10 days)	mg/dm ²	< 0,5	0,6	< 0,5	ø - ⁴⁾	3 ²⁾	max. 10
Simulant – isooctane (23°C, 2 days)	mg/dm ²	1,3	< 0,5	0,8	ø - ⁴⁾	3 ²⁾	max. 10
Determination of primary aromatic amines content	mg/kg	< 0,01				-	max. 0,01
Determination of specific migration of zinc into food simulant – 3% acetic acid, 60 cm ² /100 ml simulant, 60°C, 10 days							
- zinc	mg/kg	< 0,10				-	max. 25
Determination of specific migration of zinc into food simulant – 95% ethanol, 60 cm ² /100 ml of simulant, 50°C, 25 days							
- zinc	mg/kg	< 0,50				-	max. 25

Notes to the tables I - V:

- ¹⁾ Symbol „<“ means LOD (limit of detection) of used analytical method
- ²⁾ Measurements uncertainty according to the ČSN EN 1186-1
- ³⁾ Limit value according to the Commission Regulation (EU) No. 10/2011
- ⁴⁾ From the measured values can not be determined average value

Conditions for use of the Attest and associated information:

1. The Attest applies only to the sample tested by our laboratory.
2. The Attest remains in effect until production technology, initial materials and standards or corresponding regulations are changed; however, its validity will extend beyond the period of its effect.



INSTITUT PRO TESTOVÁNÍ A CERTIFIKACI, a.s.
třída Tomáše Bati 299, 764 21 Zlín - Louky
TESTING LABORATORY - TESTING DIVISION

ATTEST No. 472107457

Samples description and identification:

The samples of polystyrene labeled by their trade mark SYNTHOS were taken for testing:

- general purpose polystyrene SYNTHOS PS GP type **Synthos PS GP 137**, clear, plate of size (2x120x120) mm, sample number **472107457/1**,
- general purpose polystyrene SYNTHOS PS GP type **Synthos PS GP 152** clear, plate of size (2x120x120) mm, sample number **472107457/2**,
- general purpose polystyrene SYNTHOS PS GP type **Synthos PS GP 154**, clear, plate of size (2x120x120) mm, sample number **472107457/3**,
- general purpose polystyrene SYNTHOS PS GP type **Synthos PS GP 171**, clear, plate of size (2x120x120) mm, sample number **472107457/4**,
- general purpose polystyrene SYNTHOS PS GP type **Synthos PS GP 174**, clear, plate of size (2x120x120) mm, sample number **472107457/5**.

Work requested:

Evaluation of hygienic parameters according to the Regulation (EU) No 10/2011 in the parameters – overall migration into food simulants A, B, C and substitute fatty food simulants; specific migration of zinc according to the Annex II, paragraph 1; content of the primary aromatic amines according to the Annex II, paragraph 2.

Evaluation of the results:

The assessed samples of the general purpose polystyrenes **SYNTHOS PS GP 137, SYNTHOS PS GP 152, SYNTHOS PS GP 154, SYNTHOS PS GP 171, SYNTHOS PS GP 174** are intended for contact with the foodstuffs.

The amount of substances released into the food simulants was determined according to ČSN EN 1186 Parts 1, 3 and 14. The quantity of the constituents released from the products into the food simulants did not exceed the limit down given in the Commission Regulation (EU) No 10/2011, i.e. 10 mg square decimetre (see the Accredited Laboratory Test Report No. 472107457 and the tables given on pages 2, 3 and 4 of this Attest). **Requirements of article 12 of Commission Regulation (EU) No. 10/2011 are met.**

The tests carried out showed that the assessed samples – general purpose polystyrenes **SYNTHOS PS GP 137, SYNTHOS PS GP 152, SYNTHOS PS GP 154, SYNTHOS PS GP 171, SYNTHOS PS GP 174** - do not release zinc in a quantity which can exceed its specific migration limits stated in the Annex II, paragraph 1, of the Commission Regulation (EU) No. 10/2011 (see Test report of accredited laboratory No. 472107457 and the tables on the pages 2, 3 and 4 of this Attest). **The requirements of Annex II, paragraph 1, of the Commission Regulation (EU) No. 10/2011 are met.**

The tests carried out showed that the assessed samples - general purpose polystyrenes **SYNTHOS PS GP 137, SYNTHOS PS GP 152, SYNTHOS PS GP 154, SYNTHOS PS GP 171, SYNTHOS PS GP 174** - do not release primary aromatic amines in a quantity which can exceed their specific migration limits listed in the Annex II, paragraph 2, of the Commission Regulation (EU) No. 10/2011, i.e. 0,01mg/kg (see Test report of accredited laboratory No. 472107457 and the tables on the pages 2, 3 and 4 of this Attest). **The requirements of Annex II, paragraph 2, of the Commission Regulation (EU) No. 10/2011 are met.**

Conditions for use of the Attest and associated information:

1. The Attest applies only to the sample tested by our laboratory.
2. The Attest remains in effect until production technology, initial materials and standards or corresponding regulations are changed; however, its validity will extend beyond the period of its effect.



INSTITUT PRO TESTOVÁNÍ A CERTIFIKACI, a.s.
třída Tomáše Bati 299, 764 21 Zlín - Louky
TESTING LABORATORY - TESTING DIVISION

ATTEST No. 472107457

Comments on and interpretation of the results by:

Dipl. Ing. Miroslav Rafaj, on August 6, 2014

Conclusion:

The comparison of obtained results of overall migration into food simulants, specific migration of zinc and primary aromatic amines with the limits and requirements of the Commission Regulation (EU) No. 10/2011 and evaluation of the conformity with these documents are stated on the pages No. 1 to 4 of this Attest.



Dipl. Ing. Věra Vilímková
Head of the Laboratory
of analytical chemistry and microbiology

Conditions for use of the Attest and associated information:

1. The Attest applies only to the sample tested by our laboratory.
2. The Attest remains in effect until production technology, initial materials and standards or corresponding regulations are changed; however, its validity will extend beyond the period of its effect.