

glassFORever A/S
Andkaervej 26
7100 Vejle

Denmark

Analysis report 1862996

Client: glassFORever A/S
Project manager: Mr. Hansen
Client project: Products in PC, Polycarbonate
Material: Polycarbonate
Colour: transparent
Scope of application: Filling with aqueous, acidic, alcoholic liquids and milk products
Sampling by: Client
Date of arrival: 08.11.2018
Start/end of analysis: 09.11.2018 - 07.12.2018
Scope of analysis: Overall migration according to EN 1186-1 (filling)
Specific migration of bisphenol A via HPLC based on DIN EN 13130-13

The measurement accuracy in the standards is being adhered to. The results exclusively refer to the objects of analysis stated in the report.
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We generally keep analyzed samples for two weeks, microbiological material is being destroyed right after the analysis.

Akkreditiertes Prüflabor nach DIN EN ISO 17025 · DAR-Reg.-Nr.: DAP-PA-2295.01

Arzneimittel, Lebensmittel, Kosmetika, Bedarfsgegenstände, Wasser, Boden, Luft, Medizinprodukte
Analytik, Entwicklung, Qualitätskontrolle, Beratung, Sachverständigengutachten, amtliche Gegenproben, Mikrobiologie, Arzneimittelzulassung, Abgrenzungsfragen AMG/LMBG

Amtsgericht München Nr. 84402, Geschäftsführer: Dr. Manfred Holz
Bankverbindung: Dresdner Bank AG (BLZ 500 800 00) Kto.-Nr. 928 398 500
Genossenschaftsbank Aubing eG (BLZ 701 694 64) Kto.-Nr. 69922
BIC: GENODEFIM07, IBAN: DE30 7016 9464 0000 0699 22

Analysis report: 1862996
 Client project: Products in PC, Polycarbonate
 200147 (PC)

11.12.2018

Overall migration:

Results:

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 3% acetic acid | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1.9 | | |
| Volume | mL | 250 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2d value | mg/kg | < l.o.q. | 2 | |
| 3d value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 50% Ethanol | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1.9 | | |
| Volume | mL | 250 | | |
| Time of treatment | h | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2nd value | mg/kg | < l.o.q. | 2 | |
| 3rd value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

l.o.q.: limit of quantification

Thereafter the migrate was analysed for specific substances.

Analysis report: 1862996
Client project: Products in PC, Polycarbonate
200147 (PC)

11.12.2018

specific migration (50% Ethanol):

| Substance | Unit | Result | SML | L.O.Q | Method |
|-------------|-------|--------|------|-------|--------------------------|
| Bisphenol A | mg/kg | 0,01 | 0.05 | 0.001 | HPLC-FLD DIN 13130-13 |

l.o.q.: limit of quantification
SML = Specific migration limit

Organoleptic test according DIN 10955:

Test method: extended triangle test
No. of panelist: 6
Test conditions: 2 h; 70°C
Food simulant: Water

Result:

Regarding the taste and odour no significant difference was determined between the samples (Probability < 95%).

Assessment

According to § 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuches (LFGB) and Article 3 of Regulation (EG) Nr. 1935/2004 Materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could bring about a deterioration in the organoleptic characteristics thereof.

According to 61. Mitteilung des BfR it is assumed that from an average mark of 3.0 there will be a deterioration of the organoleptic characteristics of the food.

The analysed sample meets the above-named requirements.

Regarding the mentioned testing conditions the overall migration limit of 10 mg/dm² according to Article 12 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the food simulants ethanol 50% and 3% acetic acid.

Regarding the mentioned test conditions the specific migration limit according to Article 11 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the testing agent ethanol 50%.

Grewe

D. Grewe
(state-qual. food chemist)

glassFORever A/S
Andkaervej 26
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Denmark

Analysis report 1862999

Client: glassFORever A/S
Project manager: Mr. Hansen
Client project: Products in PC, Polycarbonate Grey color
Material: Polycarbonate
Colour: grey
Scope of application: Filling with aqueous, acidic, alcoholic liquids
and milk products
Sampling by: Client
Date of arrival: 08.11.2018
Start/end of analysis: 09.11.2018 - 11.12.2018
Scope of analysis: Overall migration according to EN 1186-1 (filling)
Specific migrations

*external processing of order

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Arzneimittel, Lebensmittel, Kosmetika, Bedarfsgegenstände, Wasser, Boden, Luft, Medizinprodukte
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Abgrenzungsfragen AMG/LMBG

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BIC: GENODEFIM07, IBAN: DE30 7016 9464 0000 0699 22

Analysis report:

1862999

11.12.2018

Client project:

Products in PC, Polycarbonate Grey color
400110-G (PC grey)

Overall migration:

Results:

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 3% acetic acid | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 0,95 | | |
| Volume | mL | 100 | | |
| Time of treatment | h | 2 | | |
| Temperatur of treatment | °C | 70 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2d value | mg/kg | < l.o.q. | 2 | |
| 3d value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 50% Ethanol | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 0,95 | | |
| Volume | mL | 100 | | |
| Time of treatment | h | 2 | | |
| Temperatur of treatment | °C | 70 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2nd value | mg/kg | < l.o.q. | 2 | |
| 3rd value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

Thereafter the migrate was analysed for specific substances.

Analysis report:

1862999

11.12.2018

Client project:

Products in PC, Polycarbonate Grey color
400110-G (PC grey)

specific migration (50% Ethanol):

| Substance | Unit | Result | SML | L.O.Q | Method |
|--|-------|----------|------|-------|--------------------------|
| Bisphenol A | mg/kg | < l.o.q. | 0.05 | 0.005 | HPLC-FLD DIN 13130-13 |
| 2,2,4,4-Tetramethylcyclo- butane- 1,3-diol (TMCD) | mg/kg | < l.o.q. | 5 | 5 | GC/MS* |

specific migration (3% Acetic acid):

| Substance | Unit | Result | SML | L.O.Q | Method |
|-----------|-------|----------|-----|-------|--------|
| Aluminium | mg/kg | < l.o.q. | 1 | 0.01 | ICP-MS |
| Iron | mg/kg | < l.o.q. | 48 | 0.01 | ICP-MS |
| Barium | mg/kg | < l.o.q. | 1 | 0.01 | ICP-MS |

l.o.q.: limit of quantification

SML = Specific migration limit

Organoleptic test according DIN 10955:

Test method: extended triangle test

No. of panelist: 6

Test conditions: 2 h; 70°C

Food simulant: Water

Result:

Regarding the taste and odour no significant difference was determined between the samples (Probability < 95%).

Analysis report:

1862999

11.12.2018

Client project:

Products in PC, Polycarbonate Grey color
400110-G (PC grey)

Assessment

According to § 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuches (LFGB) and Article 3 of Regulation (EG) Nr. 1935/2004 Materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could bring about a deterioration in the organoleptic characteristics thereof.

According to 61. Mitteilung des BfR it is assumed that from an average mark of 3.0 there will be a deterioration of the organoleptic characteristics of the food.

The analysed sample meets the above-named requirements.

Regarding the mentioned testing conditions the overall migration limit of 10 mg/dm² according to Article 12 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the food simulants ethanol 50% and 3% acetic acid.

Regarding the mentioned test conditions the specific migration limit according to Article 11 Regulation (EU) Nr. 10/2011 in the current version is not exceeded.

Grewe

D. Grewe

(state-qual. food chemist)

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Denmark

Analysis report 1863000

Client: glassFORever A/S
Project manager: Mr. Hansen
Client project: Products in PC, Polycarbonate White color
Material: Polycarbonate
Colour: white
Scope of application: Filling with aqueous, acidic, alcoholic liquids
and milk products
Sampling by: Client
Date of arrival: 08.11.2018
Start/end of analysis: 09.11.2018 - 11.12.2018
Scope of analysis: Overall migration according to EN 1186-1 (filling)
Specific migrations

*external processing of order

The measurement accuracy in the standards is being adhered to. The results exclusively refer to the objects of analysis stated in the report.
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BIC: GENODEFIM07, IBAN: DE30 7016 9464 0000 0699 22

Analysis report:

1863000

11.12.2018

Client project:

Products in PC, Polycarbonate White color
200721-W (PC white)

Overall migration:

Results:

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 3% acetic acid | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 0,85 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2d value | mg/kg | < l.o.q. | 2 | |
| 3d value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 50% Ethanol | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 0,85 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2nd value | mg/kg | < l.o.q. | 2 | |
| 3rd value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

Thereafter the migrate was analysed for specific substances.

Analysis report: 1863000 11.12.2018
 Client project: Products in PC, Polycarbonate White color
 200721-W (PC white)

specific migration (50% Ethanol):

| Substance | Unit | Result | SML | L.O.Q | Method |
|--|-------|----------|------|-------|--------------------------|
| Bisphenol A | mg/kg | < l.o.q. | 0.05 | 0.005 | HPLC-FLD DIN 13130-13 |
| 2,2,4,4-Tetramethylcyclo- butane- 1,3-diol (TMCD) | mg/kg | < l.o.q. | 5 | 5 | GC/MS* |

specific migration (3% Acetic acid):

| Substance | Unit | Result | SML | L.O.Q | Method |
|-----------|-------|----------|-----|-------|--------|
| Aluminium | mg/kg | < l.o.q. | 1 | 0.01 | ICP-MS |
| Iron | mg/kg | < l.o.q. | 48 | 0.01 | ICP-MS |
| Barium | mg/kg | < l.o.q. | 1 | 0.01 | ICP-MS |

l.o.q.: limit of quantification
 SML = Specific migration limit

Organoleptic test according DIN 10955:

Test method: extended triangle test
 No. of panelist: 6
 Test conditions: 2 h; 70°C
 Food simulant: Water

Result:

Regarding the taste and odour no significant difference was determined between the samples (Probability < 95%).

Analysis report:

1863000

11.12.2018

Client project:

Products in PC, Polycarbonate White color
200721-W (PC white)

Assessment

According to § 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuches (LFGB) and Article 3 of Regulation (EG) Nr. 1935/2004 Materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could bring about a deterioration in the organoleptic characteristics thereof.

According to 61. Mitteilung des BfR it is assumed that from an average mark of 3.0 there will be a deterioration of the organoleptic characteristics of the food.

The analysed sample meets the above-named requirements.

Regarding the mentioned testing conditions the overall migration limit of 10 mg/dm² according to Article 12 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the food simulants ethanol 50% and 3% acetic acid.

Regarding the mentioned test conditions the specific migration limit according to Article 11 Regulation (EU) Nr. 10/2011 in the current version is not exceeded.

Grewe

D. Grewe

(state-qual. food chemist)

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Andkaervej 26
7100 Vejle

Denmark

Analysis report 1863001

Client: glassFORever A/S
Project manager: Mr. Hansen
Client project: Products in PC, Polycarbonate Lexan
Material: Polycarbonate
Colour: transparent
Scope of application: Filling with aqueous, acidic, alcoholic liquids and milk products
Sampling by: Client
Date of arrival: 08.11.2018
Start/end of analysis: 09.11.2018 - 13.12.2018
Scope of analysis: Overall migration according to EN 1186-1 (filling)
Specific migrations

*external processing of order

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Analysis report:

1863001

14.12.2018

Client project:

Products in PC, Polycarbonate Lexan
200101 (PC)

Overall migration:

Results:

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| Food simulant | | 3% acetic acid | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2d value | mg/kg | < l.o.q. | 2 | |
| 3d value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| Food simulant | | 50% Ethanol | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1 | | |
| Volume | mL | 100 | | |
| Time of treatment | h | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2nd value | mg/kg | < l.o.q. | 2 | |
| 3rd value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

Thereafter the migrate was analysed for specific substances.

Analysis report:

1863001

14.12.2018

Client project:

Products in PC, Polycarbonate Lexan
200101 (PC)

specific migration (50% Ethanol):

| Substance | Unit | Result | SML | L.O.Q | Method |
|---------------|-------|----------|------|-------|--------------------------|
| Bisphenol A | mg/kg | < l.o.q. | 0.05 | 0.005 | HPLC-FLD DIN 13130-13 |
| 4-Cumylphenol | mg/kg | < l.o.q. | 0.05 | 0.02 | HPLC-FLD DIN 13130-13 |

| Substance | Unit | Result | SML | L.O.Q | Method |
|---|-------|----------|-----|-------|----------------------|
| Carbonyl chloride (in final product) | mg/kg | < l.o.q. | 1 | 1 | DIN EN 13130- 17* |

l.o.q.: limit of quantification

SML = Specific migration limit

* external processing of orders

Organoleptic test according DIN 10955:

Test method: extended triangle test

No. of panelist: 6

Test conditions: 2 h; 70°C

Food simulant: Water

Result:

Regarding the taste and odour no significant difference was determined between the samples (Probability < 95%).

Analysis report:

1863001

14.12.2018

Client project:

Products in PC, Polycarbonate Lexan
200101 (PC)

Assessment

According to § 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuches (LFGB) and Article 3 of Regulation (EG) Nr. 1935/2004 Materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could bring about a deterioration in the organoleptic characteristics thereof.

According to 61. Mitteilung des BfR it is assumed that from an average mark of 3.0 there will be a deterioration of the organoleptic characteristics of the food.

The analysed sample meets the above-named requirements.

Regarding the mentioned testing conditions the overall migration limit of 10 mg/dm² according to Article 12 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the food simulants ethanol 50% and 3% acetic acid.

Regarding the mentioned test conditions the specific migration limits according to Article 11 Regulation (EU) Nr. 10/2011 in the current version are not exceeded.

Grewe

D. Grewe

(state-qual. food chemist)

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Andkaervej 26
7100 Vejle

Denmark

Analysis report 1863002

Client: glassFORever A/S
Project manager: Mr. Hansen
Client project: Products in PP, polypropylen
Material: Polycarbonate
Colour: White frosted
Scope of application: Filling with aqueous, acidic, alcoholic liquids and milk products
Sampling by: Client
Date of arrival: 08.11.2018
Start/end of analysis: 09.11.2018 - 18.12.2018
Scope of analysis: Overall migration according to EN 1186-1 (filling)
Specific migration

*external processing of order

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BIC: GENODEFIM07, IBAN: DE30 7016 9464 0000 0699 22

Analysis report: 1863002
 Client project: Products in PP, polypropylen
 200110-PP (PP)

18.12.2018

Overall migration:

Results:

| | Unit | Result | L.O.Q. | Method |
|--------------------------|--------------------------|--------------------|--------|-----------|
| Overall migration | | | | |
| Food simulant | | 3% acetic acid | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1,1 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/dm ² | < l.o.q. | 2 | EN 1186-9 |
| 2d value | mg/dm ² | < l.o.q. | 2 | |
| 3d value | mg/dm ² | < l.o.q. | 2 | |
| Average value | mg/dm² | < l.o.q. | | |

| | Unit | Result | L.O.Q. | Method |
|--------------------------|--------------------------|-----------------|--------|-----------|
| Overall migration | | | | |
| Food simulant | | 50% Ethanol | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1,1 | | |
| Volume | mL | 100 | | |
| Time of treatment | h | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/dm ² | < l.o.q. | 2 | EN 1186-9 |
| 2nd value | mg/dm ² | 2.2 | 2 | |
| 3rd value | mg/dm ² | 2.2 | 2 | |
| Average value | mg/dm² | < 2.2 | | |

Thereafter the migrate was analysed for specific substances.

Analysis report: 1863002
Client project: Products in PP, polypropylen
200110-PP (PP)

18.12.2018

specific migration (50% Ethanol):

| Substance | Unit | Result | SML | L.O.Q | Method |
|--------------------------|-------|----------|-----|-------|---------------------------|
| Substance (confidential) | mg/kg | < l.o.q. | 5.0 | 0.05 | HPLC-MS/MS DIN 13130-1 |

l.o.q.: limit of quantification
SML = Specific migration limit

Organoleptic test according DIN 10955:

Test method: extended triangle test
No. of panelist: 6
Test conditions: 2 h; 70°C
Food simulant: Water

Result:

Regarding the taste and odour no significant difference was determined between the samples (Probability < 95%).

Assessment

According to § 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuches (LFGB) and Article 3 of Regulation (EG) Nr. 1935/2004 Materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could bring about a deterioration in the organoleptic characteristics thereof.

According to 61. Mitteilung des BfR it is assumed that from an average mark of 3.0 there will be a deterioration of the organoleptic characteristics of the food.

The analysed sample meets the above-named requirements.

Regarding the mentioned testing conditions the overall migration limit of 10 mg/dm² according to Article 12 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the food simulants ethanol 50% and 3% acetic acid.

Regarding the mentioned test conditions the specific migration limit according to Article 11 Regulation (EU) Nr. 10/2011 in the current version is not exceeded.

Grewe

D. Grewe
(state-qual. food chemist)

glassFORever A/S
Andkaervej 26
7100 Vejle

Denmark

Analysis report 1862997

Client: glassFORever A/S
Project manager: Mr. Hansen
Client project: Products in SAN, styren-acrylonitril
Material: Styren-acrylonitril
Colour: transparent
Scope of application: Filling with aqueous, acidic, alcoholic liquids and milk products
Sampling by: Client
Date of arrival: 08.11.2018
Start/end of analysis: 09.11.2018 - 27.12.2018
Scope of analysis: Overall migration according to EN 1186-1 (filling)
Specific migration

*external processing of order

The measurement accuracy in the standards is being adhered to. The results exclusively refer to the objects of analysis stated in the report.
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We generally keep analyzed samples for two weeks, microbiological material is being destroyed right after the analysis.

Akkreditiertes Prüflabor nach DIN EN ISO 17025 · DAR-Reg.-Nr.: DAP-PA-2295.01

Arzneimittel, Lebensmittel, Kosmetika, Bedarfsgegenstände, Wasser, Boden, Luft, Medizinprodukte
Analytik, Entwicklung, Qualitätskontrolle, Beratung, Sachverständigengutachten, amtliche Gegenproben, Mikrobiologie, Arzneimittelzulassung, Abgrenzungsfragen AMG/LMBG

Amtsgericht München Nr. 84402, Geschäftsführer: Dr. Manfred Holz
Bankverbindung: Dresdner Bank AG (BLZ 500 800 00) Kto.-Nr. 928 398 500
Genossenschaftsbank Aubing eG (BLZ 701 694 64) Kto.-Nr. 69922
BIC: GENODEFIM07, IBAN: DE30 7016 9464 0000 0699 22

Analysis report:

1862997

28.12.2018

Client project:

Products in SAN, styren-acrylonitril
200132-SAN (SAN)

Overall migration:

Results:

| | Unit | Result | L.O.Q. | Method |
|--------------------------|--------------------------|--------------------|--------|-----------|
| Overall migration | | | | |
| Food simulant | | 3% acetic acid | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/dm ² | < l.o.q. | 2 | EN 1186-9 |
| 2d value | mg/dm ² | < l.o.q. | 2 | |
| 3d value | mg/dm ² | < l.o.q. | 2 | |
| Average value | mg/dm² | < l.o.q. | | |

| | Unit | Result | L.O.Q. | Method |
|--------------------------|--------------------------|--------------------|--------|-----------|
| Overall migration | | | | |
| Food simulant | | 50% Ethanol | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 1 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/dm ² | < l.o.q. | 2 | EN 1186-9 |
| 2nd value | mg/dm ² | < l.o.q. | 2 | |
| 3rd value | mg/dm ² | < l.o.q. | 2 | |
| Average value | mg/dm² | < l.o.q. | | |

Thereafter the migrate was analysed for specific substances.

Analysis report: 1862997
Client project: Products in SAN, styren-acrylonitril
200132-SAN (SAN)

28.12.2018

specific migration (3% Acetic acid):

| Substance | Unit | Result | SML | L.O.Q | Method |
|--------------|-------|----------|------|-------|--------|
| Acrylonitril | mg/kg | < l.o.q. | 0,01 | 0.01 | GC/MS* |

l.o.q.: limit of quantification
SML = Specific migration limit

Organoleptic test according DIN 10955:

Test method: extended triangle test
No. of panelist: 6
Test conditions: 2 h; 70°C
Food simulant: Water

Result:

Regarding the taste and odour no significant difference was determined between the samples (Probability < 95%).

Assessment

According to § 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuches (LFGB) and Article 3 of Regulation (EG) Nr. 1935/2004 Materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could bring about a deterioration in the organoleptic characteristics thereof.

According to 61. Mitteilung des BfR it is assumed that from an average mark of 3.0 there will be a deterioration of the organoleptic characteristics of the food.

The analysed sample meets the above-named requirements.

Regarding the mentioned testing conditions the overall migration limit of 10 mg/dm² according to Article 12 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the food simulants ethanol 50% and 3% acetic acid.

Regarding the mentioned test conditions the specific migration limit according to Article 11 Regulation (EU) Nr. 10/2011 in the current version is not exceeded.

Grewe

D. Grewe
(state-qual. food chemist)

glassFORever A/S
Andkaervej 26
7100 Vejle

Denmark

Analysis report 1862998

Client: glassFORever A/S
Project manager: Mr. Hansen
Client project: Products in Tritan, copolyester
Material: Polycarbonate
Colour: transparent
Scope of application: Filling with aqueous, acidic, alcoholic liquids and milk products
Sampling by: Client
Date of arrival: 08.11.2018
Start/end of analysis: 09.11.2018 - 11.12.2018
Scope of analysis: Overall migration according to EN 1186-1 (filling)
Specific migrations

*external processing of order

The measurement accuracy in the standards is being adhered to. The results exclusively refer to the objects of analysis stated in the report.
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Arzneimittel, Lebensmittel, Kosmetika, Bedarfsgegenstände, Wasser, Boden, Luft, Medizinprodukte
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BIC: GENODEFIM07, IBAN: DE30 7016 9464 0000 0699 22

Analysis report: 1862998
 Client project: Products in Tritan, copolyester
 200901 (Tritan)

13.12.2018

Overall migration:

Results:

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 3% acetic acid | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 0,9 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2d value | mg/kg | < l.o.q. | 2 | |
| 3d value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

| | Unit | Result | L.O.Q. | Method |
|--------------------------|-----------------|--------------------|--------|-----------|
| Overall migration | | | | |
| 3. Test | | | | |
| Food simulant | | 50% Ethanol | | EN 1186-9 |
| Testing method | | filling | | |
| Contact surface | dm ² | 0,9 | | |
| Volume | mL | 100 | | |
| Time of treatment | d | 10 | | |
| Temperatur of treatment | °C | 40 | | |
| 1st value | mg/kg | < l.o.q. | 2 | EN 1186-9 |
| 2nd value | mg/kg | < l.o.q. | 2 | |
| 3rd value | mg/kg | < l.o.q. | 2 | |
| Average value | mg/kg | < l.o.q. | | |

Thereafter the migrate was analysed for specific substances.

Analysis report: 1862998
Client project: Products in Tritan, copolyester
200901 (Tritan)

13.12.2018

specific migration (50% Ethanol):

| Substance | Unit | Result | SML | L.O.Q | Method |
|--|-------|----------|-----|-------|--------|
| 2,2,4,4-Tetramethylcyclo-butane- 1,3-diol (TMCD) | mg/kg | < l.o.q. | 5 | 5 | GC/MS* |

l.o.q.: limit of quantification

SML = Specific migration limit

Organoleptic test according DIN 10955:

Test method: extended triangle test
No. of panelist: 6
Test conditions: 2 h; 70°C
Food simulant: Water

Result:

Regarding the taste and odour no significant difference was determined between the samples (Probability < 95%).

Assessment

According to § 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuches (LFGB) and Article 3 of Regulation (EG) Nr. 1935/2004 Materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could bring about a deterioration in the organoleptic characteristics thereof.

According to 61. Mitteilung des BfR it is assumed that from an average mark of 3.0 there will be a deterioration of the organoleptic characteristics of the food.

The analysed sample meets the above-named requirements.

Regarding the mentioned testing conditions the overall migration limit of 10 mg/dm² according to Article 12 Regulation (EU) Nr. 10/2011 in the current version is not exceeded by the tested sample in the food simulants ethanol 50% and 3% acetic acid.

Regarding the mentioned test conditions the specific migration limit according to Article 11 Regulation (EU) Nr. 10/2011 in the current version is not exceeded.

Grewe

D. Grewe

(state-qual. food chemist)