



Test Report # 18A-004780-2 Date of Report Issue: November 27, 2018

Date of Sample Received: October 24, 2018 Pages: Page 1 of 10

CLIENT INFORMATION:

Company: Address:



SAMPLE INFORMATION:

Product Name: Hydrate leak proof lockable Steel bottle

Model/style No.: P432.63

Main Material:

Buyer: -Supplier: -

Country of Distribution: EU

Testing Period: 10/24/2018-11/26/2018

OVERALL RESULT:

PASS

Refer to page 2 for test result summary and appropriate notes.

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TEST RESULTS SUMMARY:

At the request of the client, the following tests were conducted:

| CONCLUSION | TEST(S) CONDUCTED | | |
|------------|---|--|--|
| PASS | Client's requirement, Bisphenol A content | | |
| PASS | German Product Safety Act (ProdSG) Article 21 (1) No. 3, Polycyclic Aromatic Hydrocarbon (PAH) | | |
| PASS | Regulation (EC) No 1935/2004 and Council of Europe Resolution CM Res(2013)9 on metals and alloys used in food contact materials and articles - Specific release of heavy metals | | |
| PASS | Regulation (EC) No 1935/2004, (EU) No 10/2011 -Sensorial examination odour and taste test | | |
| PASS | Regulation (EC) No 1935/2004, (EU) No 10/2011, its amendment (EU) 2016/1416 and Res AP(2004)5- Overall migration | | |



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DETAILED RESULTS:

Client's requirement, Bisphenol A content

Test method: Refer to US EPA 3550C:2007 & US EPA 8270D:2014 Analytical Method: Gas Chromatography-Mass Spectrometer

| Sample No.: | 1 | | | | | Client's limit |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|
| Test Item | Result (mg/kg) | Result (mg/kg) | Result (mg/kg) | Result (mg/kg) | Result (mg/kg) | (mg/kg) |
| Bisphenol A (BPA) | ND | | | | | Not Detected |
| Conclusion | PASS | | | | | |

Note:

mg/kg=milligram per kilogram
ND=Not Detected(Reporting limit = 1mg/kg)



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DETAILED RESULTS:

German Product Safety Act (ProdSG) Article 21 (1) No. 3, Polycyclic Aromatic Hydrocarbon (PAH)

Test Method: AfPS GS 2014:01

Analytical Method: Gas Chromatography with Mass Spectrometry

<u>Category 1: Materials, that are intended to be put in the mouth, or materials in toys with Intended and prolonged skin-Contact (Longer than 30 Seconds)</u>

| Specimen No. | | 6 | | | | Limit |
|--|----------|---------|---------|---------|---------|------------|
| Took It ama | CAS No. | Result | Result | Result | Result | (mg/kg) |
| Test Item | | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (1116/116/ |
| Benzo (a) pyrene | 50-32-8 | ND | | | | 0.2 |
| Benzo (e) pyrene | 192-97-2 | ND | | | | 0.2 |
| Benzo (a) anthracene | 56-55-3 | ND | | | | 0.2 |
| Benzo (b) fluoranthene | 205-99-2 | ND | | | | 0.2 |
| Benzo (j) fluoranthene | 205-82-3 | ND | | | | 0.2 |
| Benzo (k) fluoranthene | 207-08-9 | ND | | | | 0.2 |
| Chrysene | 218-01-9 | ND | | | | 0.2 |
| Dibenzo (a,h) anthracene | 53-70-3 | ND | | | | 0.2 |
| Benzo (g,h,i) perylene | 191-24-2 | ND | | | | 0.2 |
| Indeno (1,2,3-cd) | 193-39-5 | ND | | | | 0.2 |
| pyrene | | 110 | | | | 0.2 |
| Acenaphthylene | 208-96-8 | ND | | | | |
| Acenaphthene | 83-32-9 | ND | | | | |
| Fluorene | 86-73-7 | ND | | | | |
| Phenanthrene | 85-01-8 | 0.2 | | | | |
| Pyrene | 129-00-0 | ND | | | | |
| Anthracene | 120-12-7 | ND | | | | |
| Fluoranthene | 206-44-0 | ND | | | | |
| Sum of Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene | | 0.2 | | | | 1 |
| Naphthalene | 91-20-3 | 0.5 | | | | 1 |
| Sum of 18 PAH | | 0.7 | | | | 1 |
| Conclusion | | PASS | | | | |

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 0.2 mg/kg)

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DETAILED RESULTS:

Regulation (EC) No 1935/2004 and Council of Europe Resolution CM Res(2013)9 on metals and alloys used in food contact materials and articles - Specific release of heavy metals

Test method: Sample preparation in Artificial tap water at 70°C for 24 hours

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry / Inductively Coupled

Plasma-Mass Spectrometry

| Specimen No: | 2 | | | | | |
|------------------------|---------|---------|---|---------|---------------------------|--------|
| Test Item(s) | l limit | MDL | 1 st + 2 nd Migration | | 3 rd Migration | |
| | Unit | | Result | 7xSRL*2 | Result | SRL*1 |
| Aluminum (Al) | mg/kg | 0.5 | ND | 35 | ND | 5 |
| Antimony (Sb) | mg/kg | 0.01 | ND | 0.28 | ND | 0.04 |
| Chromium (Cr) | mg/kg | 0.1 | ND | 1.75 | ND | 0.25 |
| Cobalt (Co) | mg/kg | 0.01 | ND | 0.14 | ND | 0.02 |
| Copper (Cu) | mg/kg | 0.5 | ND | 28 | ND | 4 |
| Iron (Fe) | mg/kg | 5 | ND | 280 | ND | 40 |
| Magnesium(Mg) | mg/kg | 0.1 | ND | | ND | |
| Manganese (Mn) | mg/kg | 0.5 | ND | 12.6 | ND | 1.8 |
| Molybdenum (Mo) | mg/kg | 0.05 | ND | 0.84 | ND | 0.12 |
| Nickel (Ni) | mg/kg | 0.05 | ND | 0.98 | ND | 0.14 |
| Silver (Ag) | mg/kg | 0.05 | ND | 0.56 | ND | 0.08 |
| Tin ^{*3} (Sn) | mg/kg | 5 | ND | 700 | ND | 100 |
| Titanium(Ti) | mg/kg | 0.1 | ND | | ND | |
| Vanadium (V) | mg/kg | 0.005 | ND | 0.07 | ND | 0.01 |
| Zinc (Zn) | mg/kg | 0.5 | ND | 35 | ND | 5 |
| Arsenic (As) | mg/kg | 0.001 | ND | 0.014 | ND | 0.002 |
| Barium (Ba) | mg/kg | 0.1 | ND | 8.4 | ND | 1.2 |
| Beryllium (Be) | mg/kg | 0.005 | ND | 0.07 | ND | 0.01 |
| Cadmium (Cd) | mg/kg | 0.001 | ND | 0.035 | ND | 0.005 |
| Lead (Pb) | mg/kg | 0.005 | ND | 0.07 | ND | 0.01 |
| Lithium (Li) | mg/kg | 0.005 | ND | 0.336 | ND | 0.048 |
| Mercury (Hg) | mg/kg | 0.0005 | ND | 0.021 | ND | 0.003 |
| Thallium (TI) | mg/kg | 0.00005 | ND | 0.0007 | ND | 0.0001 |
| Conclusion | PASS | | | | | |

Note:

- (1) mg/kg =milligram per kilogram
- (2) SRL = Specific Release Limit
- (3) *1 Compliance is established on the result from the third migration test for repeated used articles.
- (4) *2 Meantime, the sum of the results of the first and second tests should not exceed 7 times the SR
- (5) *3 Except in field of application under Regulation (EC) No.1881/2006.(canned food container)

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DETAILED RESULTS:

Regulation (EC) No 1935/2004, (EU) No 10/2011 -Sensorial examination odour and taste test

Test Method: DIN 10955: 2004 Test condition: 70°C, 2 hours Test media: Distilled water

No. of panelist: 6

| Specimen No. 5 | | | | | Max.Permissible |
|---|--------|--------|--------|--------|-----------------|
| Test Item | Result | Result | Result | Result | Limit |
| Sensorial examination odour (Point scale) | 0 | | | | 2.5 |
| Sensorial examination taste (Point scale) | 0 | | | | 2.5 |
| Conclusion | PASS | | | | |

Scale evaluation:

- 0: No perceptible odour
- 1: Odour just perceptible (still difficult to define)

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- 2: Moderate odour
- 3: Moderately strong odour
- 4: Strong odour

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DETAILED RESULTS:

Regulation (EC) No 1935/2004, (EU) No 10/2011, its amendment (EU) 2016/1416 and Res AP(2004)5-Overall migration

Test method: EN1186-1:2002: for selection of conditions and test methods EN1186-3:2002: aqueous food simulants by total immersion

| Specimen No. | | 3 | 4 | | Maximum |
|----------------|-----------------|--------------------|--------------------|--------------------|-------------------------------|
| Simulant used | Test condition | Result (mg/dm²) | Result (mg/dm²) | Result (mg/dm²) | permissible Limit (mg/dm²) |
| 10% ethanol | 2 hours at 70°C | ND | ND | | 10 |
| 3% acetic acid | 2 hours at 70°C | ND | ND | | 10 |
| Conclusion | | PASS | PASS | | |

Note:

mg/dm² = milligram per square decimeter ND = Not Detected (Reporting limit = 3 mg/dm²)

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SPECIMEN DESCRIPTION:

| Specimen No. | Specimen Description | Location | |
|--------------|--|---|--|
| 1 | Black coating | Shell(hydrate leak proof lockable steel bottle) | |
| 2 | Silvery metal | Interior of black style(hydrate leak proof lockable steel bottle) | |
| 3 | Grey plastic | Lid of black style(hydrate leak proof lockable steel bottle) | |
| 4 | Translucent plastic | Sealing ring of black style(hydrate leak proof lockable steel bottle) | |
| 5 | Hydrate leak proof lockable steel bottle | Finished product | |
| 6 | Black coating | Shell(hydrate leak proof lockable steel bottle) | |



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SAMPLE PHOTO:







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SAMPLE PHOTO:





-End Report-