# Test Report No. GGN/H(FCM)/19/001269

# Dated 2019.10.23

**Sample Image (As Received)**

Component No. A




Laboratory:
TÜV SÜD South Asia Pvt. Ltd.
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South Asia

Choose certainty.
Add value.

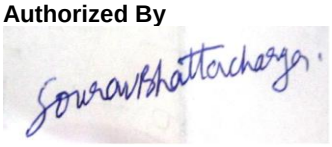
| | | |
|---|---|---|
| **Applicant / Company name** | : | LEETHA INDUSTRIES |
| **Address** | : | XXXIII/307, LEETHA INDUSTRIES,<br>Major Industrial Estate, South Kalamassery,<br>Ernakulam – 683104, Kerala (India) |
| **Contact person / Attention** | : | Don Mathews |
| **Tested sample** | : | Received on 2019.09.25 at 3:12 p.m. |
| **Test period** | : | 2019.10.01 to 2019.10.22 |
| **Sample description** | : | Paper Cups |
| **Material** | : | Paper |
| **Product type / End use** | : | Paper cups (Primary use: For drinking beverages like coffee, tea, and juices) |
| **Country of origin / destination** | : | India |
| **Objective(s) of examination** | : | Refer page no. 3 |

*Note: The submitted sample(s) is / are Not Drawn by the Laboratory*

**Remarks:**

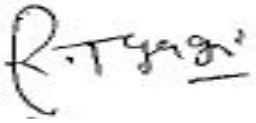
1. Sample(s) is / are tested as on-received basis.
2. Test(s) performed as requested by applicant.
3. (*1) Selection of test condition(s) for relevant test(s) was done based on the information related to the end use of the submitted product, as provided by applicant. As confirmed by applicant, the submitted product is intended for single / one-time use.
4. Conclusions of the tests, for which conclusions were supposed to be drawn, were drawn against / as per specification(s) specified by applicant.
5. The following tests were subcontracted to TÜV SÜD South Asia Pvt. Ltd., Ranipet (India):
(i) Analysis of “Polychlorinated biphenyls (PCBs) content”; (ii) “Bisphenol F (BPF)” content.
6. The following tests were subcontracted to TÜV SÜD China (Shanghai):
(i) “Bisphenol S (BPS)” content”; (ii) “Antimicrobial activity / Preserving effect.”

**Authorized By**



Sourav Bhattacharya
(Authorised Signatory)

**Authorized By**



Robin Kumar Tyagi
(Authorised Signatory)

**Please Contact:**
**For any technical issues: Anuradha Dhamija at Anuradha.Dhamija@tuv-sud.in**
**For any complaint: Krishna Deori at Krishna.Deori@tuv-sud.in**



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**Summary of Test Result(s):**

| S. No. | Test(s) | Conclusion |
|---|---|---|
| 1. | REACH SVHC (Analysis of substances of very high concern) | Pass |
| 2. | Extractable lead & cadmium as per BfR recommendation XXXVI (Paper and board for food contact) supplementing German LFGB section 31 (§) (para 1) of Food, Commodities and Feed Code (Food and Feed Code - LFGB) | Pass |
| 3.(a) | Pentachlorophenol (PCP) content as per German Chemical regulation / law (Chemikalien-Verbotsverordnung-ChemVerbotsV) | Pass |
| 3.(b) | Pentachlorophenol (PCP) content as per Council of Europe Resolution AP (2002) 1/Policy Statement on paper and board materials and articles intended to come into contact with foodstuffs | Pass |
| 4. | Polychlorinated biphenyls (PCBs) content as per BIS Eco-mark scheme / BIS ECOMARK Criteria for packaging material / package | Pass |
| 5. | Specific migration of / Extractable formaldehyde as per BfR recommendation XXXVI (Paper and board for food contact) supplementing German LFGB section 31 (§) (para 1) of Food, Commodities and Feed Code (Food and Feed Code - LFGB) (*1) | Pass |
| 6. | Heavy metals as per Packaging and packaging waste Directive 94/62/EC followed by latest amendment (EU) 2015/720 | Pass |
| 7. | Migration of certain elements as per EN 71-3:2019 (*2) | Pass |
| 8. | PFOA (Pentadecafluorooctanoic acid) | Refer Test Result(s) |
| 9. | PFOS (Perfluorooctane sulfonic acid and its derivatives) | Refer Test Result(s) |
| 10. | Specific migration of / Extractable primary aromatic amines as per BfR recommendation XXXVI (Paper and board for food contact) supplementing German LFGB section 31 (§) (para 1) of Food, Commodities and Feed Code (Food and Feed Code - LFGB) (*1) | Pass |
| 11. | Bisphenol A (BPA) content as per French Law No. 2012-1442 of December 24, 2012 | Pass |
| 12. | Bisphenol F (BPF) content | Refer Test Result(s) |
| 13. | Bisphenol S (BPS) content | Refer Test Result(s) |
| 14. | Antimicrobial activity / effect as per Council of Europe Resolution AP (2002) 1/Policy Statement on paper and board materials and articles intended to come into contact with foodstuffs | Pass |

(*1) Selection of test condition(s) was done based on the information related to the end use of the submitted product, as provided by applicant;

(*2) Conclusion was drawn as per / against this specification(s) / standard(s) based on applicant's request, although this specification(s) / standard(s) applies to chemical safety of toys.



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**Material list / List of materials (As confirmed by applicant)**

| Component No. | Component description | Material | Colour |
|---|---|---|---|
| A | Paper Cup (food contact part) | Paper | --- |

**Sampling plan (As requested by applicant)**

| S. No. | Test | Component No. |
|---|---|---|
| 1. | REACH SVHC (Analysis of substances of very high concern) | A |
| 2. | Extractable lead & cadmium | A |
| 3.(a) | Pentachlorophenol (PCP) content as per German Chemical regulation / law (Chemikalien-Verbotsverordnung-ChemVerbotsV) | A |
| 3.(b) | Pentachlorophenol (PCP) content as per Council of Europe Resolution AP (2002) 1/Policy Statement on paper and board materials and articles intended to come into contact with foodstuffs | A |
| 4. | Polychlorinated biphenyls (PCBs) content | A |
| 5. | Specific migration of / Extractable formaldehyde | A |
| 6. | Heavy metals as per Packaging and packaging waste Directive 94/62/EC followed by latest amendment (EU) 2015/720 | A |
| 7. | Migration of certain elements as per EN 71-3:2019 | A |
| 8. | PFOA (Pentadecafluorooctanoic acid) | A |
| 9. | PFOS (Perfluorooctane sulfonic acid and its derivatives) | A |
| 10. | Specific migration of / Extractable primary aromatic amines | A |
| 11. | Bisphenol A (BPA) content | A |
| 12. | Bisphenol F (BPF) content | A |
| 13. | Bisphenol S (BPS) content | A |
| 14. | Antimicrobial activity / effect | A |



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**REACH SVHC (Analysis of substances of very high concern)**

**Analysis of the 201 substances of very high concern (SVHC) on the Candidate List for authorization, concerning REACH Regulation (EC) No. 1907/2006 as published on the European Chemicals Agency (ECHA) website in October 2008, January 2010, March 2010, June 2010, December 2010, June 2011, December 2011, June 2012, December 2012, June 2013, December 2013, June 2014, December 2014, June 2015, December 2015, June 2016, Jan 2017, July 2017, Jan 2018, June 2018, January 2019, July 2019.**

**Analysis based on LC-MS, GC-MS, Headspace-GC-MS, UPLC, ICP-OES and UV-VIS.**

**Requirement Limits for all individual parameters: < 0.1%**

| S. No. | Substance Name | CAS Number | LOQ (%) | Result (%) | Conclusion |
|---|---|---|---|---|---|
| | | | | A | |
| 1 | Anthracene | 120-12-7 | 0.01 | < 0.01 | Pass |
| 2 | Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) | 85535-84-8 | 0.01 | < 0.01 | Pass |
| 3 | 4,4'- Diaminodiphenylmethane (MDA) | 101-77-9 | 0.01 | < 0.01 | Pass |
| 4 | Dibutyl phthalate (DBP) | 84-74-2 | 0.01 | < 0.01 | Pass |
| 5 | Sodium dichromate | 7789-12-0, 10588-01-9 | 0.01 | < 0.01 | Pass |
| 6 | Diarsenic pentaoxide | 1303-28-2 | 0.01 | < 0.01 | Pass |
| 7 | Triethyl arsenate | 15606-95-8 | 0.01 | < 0.01 | Pass |
| 8 | Bis(tributyltin)oxide (TBTO) | 56-35-9 | 0.01 | < 0.01 | Pass |
| 9 | Diarsenic trioxide | 1327-53-3 | 0.01 | < 0.01 | Pass |
| 10 | 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene) | 81-15-2 | 0.01 | < 0.01 | Pass |
| 11 | Bis (2-ethylhexyl) phthalate (DEHP) | 117-81-7 | 0.01 | < 0.01 | Pass |
| 12 | Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-hexabromocyclododecane | 25637-99-4, 3194-55-6 (134237-50-6) (134237-51-7) (134237-52-8) | 0.01 | < 0.01 | Pass |
| 13 | Benzyl butyl phthalate (BBP) | 85-68-7 | 0.01 | < 0.01 | Pass |
| 14 | Lead hydrogen arsenate | 7784-40-9 | 0.01 | < 0.01 | Pass |
| 15 | Anthracene oil, anthracene paste, anthracene fraction | 91995-17-4 | 0.01 | < 0.01 | Pass |



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| | | | | | |
|---|---|---|---|---|---|
| 16 | Pitch, coal tar, high temp. | 65996-93-2 | 0.01 | < 0.01 | Pass |
| 17 | Anthracene oil, anthracene paste | 90640-81-6 | 0.01 | < 0.01 | Pass |
| 18 | Lead chromate | 7758-97-6 | 0.01 | < 0.01 | Pass |
| 19 | Diisobutyl phthalate | 84-69-5 | 0.01 | < 0.01 | Pass |
| 20 | Tris(2-chloroethyl)phosphate | 115-96-8 | 0.01 | < 0.01 | Pass |
| 21 | Anthracene oil, anthracene-low | 90640-82-7 | 0.01 | < 0.01 | Pass |
| 22 | Anthracene oil, anthracene paste, anthracene fraction | 91995-15-2 | 0.01 | < 0.01 | Pass |
| 23 | 2,4-Dinitrotoluene | 121-14-2 | 0.01 | < 0.01 | Pass |
| 24 | Anthracene oil | 90640-80-5 | 0.01 | < 0.01 | Pass |
| 25 | Lead chromate molybdate sulphate red (C.I. Pigment Red 104) | 12656-85-8 | 0.01 | < 0.01 | Pass |
| 26 | Lead sulfochromate yellow (C.I. Pigment Yellow 34) | 1344-37-2 | 0.01 | < 0.01 | Pass |
| 27 | Acrylamide | 79-06-1 | 0.01 | < 0.01 | Pass |
| 28 | Potassium chromate | 7789-00-6 | 0.01 | < 0.01 | Pass |
| 29 | Disodium tetraborate, anhydrous | 1303-96-4, 1330-43-4, 12179-04-3 | 0.01 | < 0.01 | Pass |
| 30 | Sodium chromate | 7775-11-3 | 0.01 | < 0.01 | Pass |
| 31 | Boric acid | 10043-35-3, 11113-50-1 | 0.01 | < 0.01 | Pass |
| 32 | Ammonium dichromate | 7789-09-5 | 0.01 | < 0.01 | Pass |
| 33 | Tetraboron disodium heptaoxide, hydrate | 12267-73-1 | 0.01 | < 0.01 | Pass |
| 34 | Potassium dichromate | 7778-50-9 | 0.01 | < 0.01 | Pass |
| 35 | Trichloroethylene | 79-01-6 | 0.01 | < 0.01 | Pass |
| 36 | Cobalt(II) dinitrate* | 10141-05-6 | 0.01 | < 0.01 | Pass |
| 37 | Cobalt(II) carbonate* | 513-79-1 | 0.01 | < 0.01 | Pass |
| 38 | Chromium trioxide* | 1333-82-0 | 0.01 | < 0.01 | Pass |
| 39 | 2-Methoxyethanol | 109-86-4 | 0.01 | < 0.01 | Pass |
| 40 | Acids generated from chromium trioxide and their oligomers. Names of the acids and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid. | 7738-94-5, 13530-68-2 | 0.01 | < 0.01 | Pass |



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| | | | | | |
|---|---|---|---|---|---|
| 41 | 2-Ethoxyethanol | 110-80-5 | 0.01 | < 0.01 | Pass |
| 42 | Cobalt(II) sulphate* | 10124-43-3 | 0.01 | < 0.01 | Pass |
| 43 | Cobalt(II) diacetate* | 71-48-7 | 0.01 | < 0.01 | Pass |
| 44 | Hydrazine | 302-01-2, 7803-57-8 | 0.01 | < 0.01 | Pass |
| 45 | 2-Ethoxyethyl acetate | 111-15-9 | 0.01 | < 0.01 | Pass |
| 46 | 1,2,3-Trichloropropane | 96-18-4 | 0.01 | < 0.01 | Pass |
| 47 | 1-Methyl-2-pyrrolidone | 872-50-4 | 0.01 | < 0.01 | Pass |
| 48 | Strontium chromate | 7789-06-2 | 0.01 | < 0.01 | Pass |
| 49 | 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters | 68515-42-4 | 0.01 | < 0.01 | Pass |
| 50 | 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich | 71888-89-6 | 0.01 | < 0.01 | Pass |
| 51 | Cobalt dichloride | 7646-79-9 | 0.01 | < 0.01 | Pass |
| 52 | 2,2'-dichloro-4,4'-methylenedianiline | 101-14-4 | 0.01 | < 0.01 | Pass |
| 53 | Bis(2-methoxyethyl) ether | 111-96-6 | 0.01 | < 0.01 | Pass |
| 54 | Aluminosilicate Refractory Ceramic Fibres are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium and silicon are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm) c) alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content less or equal to 18% by weight(1) | - | 0.01 | < 0.01 | Pass |



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| | | | | | |
|---|---|---|---|---|---|
| 55 | Bis(2-methoxyethyl) phthalate | 117-82-8 | 0.01 | < 0.01 | Pass |
| 56 | Zirconia Aluminosilicate Refractory Ceramic Fibres are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium, silicon and zirconium are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm). c) alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content less or equal to 18% by weight(1) | - | 0.01 | < 0.01 | Pass |
| 57 | Trilead diarsenate | 3687-31-8 | 0.01 | < 0.01 | Pass |
| 58 | Lead styphnate | 15245-44-0 | 0.01 | < 0.01 | Pass |
| 59 | Formaldehyde, oligomeric reaction products with aniline | 25214-70-4 | 0.01 | < 0.01 | Pass |
| 60 | Potassium hydroxyoctaoxodizincate dichromate | 11103-86-9 | 0.01 | < 0.01 | Pass |
| 61 | Arsenic acid | 7778-39-4 | 0.01 | < 0.01 | Pass |
| 62 | Pentazinc chromate octahydroxide | 49663-84-5 | 0.01 | < 0.01 | Pass |
| 63 | 2-Methoxyaniline; o-Anisidine | 90-04-0 | 0.01 | < 0.01 | Pass |
| 64 | Dichromium tris(chromate) | 24613-89-6 | 0.01 | < 0.01 | Pass |
| 65 | Calcium arsenate | 7778-44-1 | 0.01 | < 0.01 | Pass |



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|---|---|---|---|---|---|
| 66 | 1,2-dichloroethane | 107-06-2 | 0.01 | < 0.01 | Pass |
| 67 | Lead dipicrate | 6477-64-1 | 0.01 | < 0.01 | Pass |
| 68 | Lead diazide, Lead azide | 13424-46-9 | 0.01 | < 0.01 | Pass |
| 69 | Phenolphthalein | 77-09-8 | 0.01 | < 0.01 | Pass |
| 70 | N,N-dimethylacetamide | 127-19-5 | 0.01 | < 0.01 | Pass |
| 71 | 4-(1,1,3,3-tetramethylbutyl)phenol | 140-66-9 | 0.01 | < 0.01 | Pass |
| 72 | 4,4'-bis(dimethylamino)benzophenone (Michler's ketone) | 90-94-8 | 0.01 | < 0.01 | Pass |
| 73 | 1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC) | 2451-62-9 | 0.01 | < 0.01 | Pass |
| 74 | [4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene ]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) *[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]* | 2580-56-5 | 0.01 | < 0.01 | Pass |
| 75 | 1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME) | 110-71-4 | 0.01 | < 0.01 | Pass |
| 76 | [4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) *[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]* | 548-62-9 | 0.01 | < 0.01 | Pass |
| 77 | Formamide | 75-12-7 | 0.01 | < 0.01 | Pass |
| 78 | Lead(II) bis(methanesulfonate) | 17570-76-2 | 0.01 | < 0.01 | Pass |
| 79 | 4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol *[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]* | 561-41-1 | 0.01 | < 0.01 | Pass |
| 80 | 1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme) | 112-49-2 | 0.01 | < 0.01 | Pass |
| 81 | Diboron trioxide* | 1303-86-2 | 0.01 | < 0.01 | Pass |



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| | | | | | |
|---|---|---|---|---|---|
| 82 | 1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC) | 59653-74-6 | 0.01 | < 0.01 | Pass |
| 83 | N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base) | 101-61-1 | 0.01 | < 0.01 | Pass |
| 84 | α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) *[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]* | 6786-83-0 | 0.01 | < 0.01 | Pass |
| 85 | Lead cyanamidate* | 20837-86-9 | 0.01 | < 0.01 | Pass |
| 86 | Sulfurous acid, lead salt, dibasic* | 62229-08-7 | 0.01 | < 0.01 | Pass |
| 87 | Diazene-1,2-dicarboxamide (C,C'-azodi(formamide)) | 123-77-3 | 0.01 | < 0.01 | Pass |
| 88 | Fatty acids, C16-18, lead salts | 91031-62-8 | 0.01 | < 0.01 | Pass |
| 89 | Diisopentylphthalate | 605-50-5 | 0.01 | < 0.01 | Pass |
| 90 | Biphenyl-4-ylamine | 92-67-1 | 0.01 | < 0.01 | Pass |
| 91 | Orange lead (lead tetroxide) | 1314-41-6 | 0.01 | < 0.01 | Pass |
| 92 | 4,4'-oxydianiline and its salts | 101-80-4 | 0.01 | < 0.01 | Pass |
| 93 | 1,2-Benzenedicarboxylic acid, dipentylester, branched and linear | 84777-06-0 | 0.01 | < 0.01 | Pass |
| 94 | o-aminoazotoluene | 97-56-3 | 0.01 | < 0.01 | Pass |
| 95 | Trilead dioxide phosphonate* | 12141-20-7 | 0.01 | < 0.01 | Pass |
| 96 | Methyloxirane (Propylene oxide) | 75-56-9 | 0.01 | < 0.01 | Pass |
| 97 | 4-methyl-m-phenylenediamine (toluene-2,4-diamine) | 95-80-7 | 0.01 | < 0.01 | Pass |
| 98 | Methoxyacetic acid | 625-45-6 | 0.01 | < 0.01 | Pass |
| 99 | 1-bromopropane (n-propyl bromide) | 106-94-5 | 0.01 | < 0.01 | Pass |
| 100 | Heptacosafluorotetradecanoic acid | 376-06-7 | 0.01 | < 0.01 | Pass |
| 101 | Tricosafluorododecanoic acid | 307-55-1 | 0.01 | < 0.01 | Pass |
| 102 | Pentacosafluorotridecanoic acid | 72629-94-8 | 0.01 | < 0.01 | Pass |
| 103 | Pentalead tetraoxide sulphate* | 12065-90-6 | 0.01 | < 0.01 | Pass |



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| | | | | | |
|---|---|---|---|---|---|
| 104 | Tetraethyllead* | 78-00-2 | 0.01 | < 0.01 | Pass |
| 105 | Dioxobis(stearato)trilead | 12578-12-0 | 0.01 | < 0.01 | Pass |
| 106 | N-pentyl-isopentylphthalate | 776297-69-9 | 0.01 | < 0.01 | Pass |
| 107 | Tetralead trioxide sulphate* | 12202-17-4 | 0.01 | < 0.01 | Pass |
| 108 | 1,2-Diethoxyethane | 629-14-1 | 0.01 | < 0.01 | Pass |
| 109 | Dinoseb (6-sec-butyl-2,4-dinitrophenol) | 88-85-7 | 0.01 | < 0.01 | Pass |
| 110 | N-methylacetamide | 79-16-3 | 0.01 | < 0.01 | Pass |
| 111 | Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE) | 1163-19-5 | 0.01 | < 0.01 | Pass |
| 112 | [Phthalato(2-)]dioxotrilead | 69011-06-9 | 0.01 | < 0.01 | Pass |
| 113 | Acetic acid, lead salt, basic | 51404-69-4 | 0.01 | < 0.01 | Pass |
| 114 | Lead titanium trioxide* | 12060-00-3 | 0.01 | < 0.01 | Pass |
| 115 | Lead oxide sulphate* | 12036-76-9 | 0.01 | < 0.01 | Pass |
| 116 | Dimethyl sulphate* | 77-78-1 | 0.01 | < 0.01 | Pass |
| 117 | Diethyl sulphate* | 64-67-5 | 0.01 | < 0.01 | Pass |
| 118 | 4,4'-methylenedi-o-toluidine | 838-88-0 | 0.01 | < 0.01 | Pass |
| 119 | 4-Nonylphenol, branched and linear *[substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]* | - | 0.01 | < 0.01 | Pass |
| 120 | 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated *[covering well-defined substances and UVCB substances, polymers and homologues]* | - | 0.01 | < 0.01 | Pass |
| 121 | N,N-dimethylformamide | 68-12-2 | 0.01 | < 0.01 | Pass |
| 122 | Furan | 110-00-9 | 0.01 | < 0.01 | Pass |
| 123 | Trilead bis(carbonate)dihydroxide* | 1319-46-6 | 0.01 | < 0.01 | Pass |



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|---|---|---|---|---|---|
| 124 | Silicic acid ($H_2Si_2O_5$), barium salt (1:1), lead-doped [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008] | 68784-75-8 | 0.01 | < 0.01 | Pass |
| 125 | 3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine | 143860-04-2 | 0.01 | < 0.01 | Pass |
| 126 | o-Toluidine | 95-53-4 | 0.01 | < 0.01 | Pass |
| 127 | Lead monoxide (lead oxide)* | 1317-36-8 | 0.01 | < 0.01 | Pass |
| 128 | Lead titanium zirconium oxide* | 12626-81-2 | 0.01 | < 0.01 | Pass |
| 129 | 4-Aminoazobenzene | 60-09-3 | 0.01 | < 0.01 | Pass |
| 130 | Silicic acid, lead salt* | 11120-22-2 | 0.01 | < 0.01 | Pass |
| 131 | Lead dinitrate* | 10099-74-8 | 0.01 | < 0.01 | Pass |
| 132 | Lead bis(tetrafluoroborate)* | 13814-96-5 | 0.01 | < 0.01 | Pass |
| 133 | Dibutyltin dichloride (DBTC) | 683-18-1 | 0.01 | < 0.01 | Pass |
| 134 | Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry] | 85-42-7, 13149-00-3, 14166-21-3 | 0.01 | < 0.01 | Pass |
| 135 | Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] *[The individual isomers [2], [3] and [4] (including their cis- and trans-stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]* | 25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9 | 0.01 | < 0.01 | Pass |



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| | | | | | |
|---|---|---|---|---|---|
| 136 | Henicosafluoroundecanoic acid | 2058-94-8 | 0.01 | < 0.01 | Pass |
| 137 | 6-methoxy-m-toluidine (p-cresidine) | 120-71-8 | 0.01 | < 0.01 | Pass |
| 138 | Pyrochlore, antimony lead yellow | 8012-00-8 | 0.01 | < 0.01 | Pass |
| 139 | Cadmium | 7440-43-9 | 0.01 | < 0.01 | Pass |
| 140 | Cadmium oxide* | 1306-19-0 | 0.01 | < 0.01 | Pass |
| 141 | Dipentyl phthalate (DPP) | 131-18-0 | 0.01 | < 0.01 | Pass |
| 142 | 4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof] | - | 0.01 | < 0.01 | Pass |
| 143 | Ammonium pentadecafluorooctanoate (APFO) | 3825-26-1 | 0.01 | < 0.01 | Pass |
| 144 | Pentadecafluorooctanoic acid (PFOA) | - | 0.01 | < 0.01 | Pass |
| 145 | Cadmium sulphide* | 1306-23-6 | 0.01 | < 0.01 | Pass |
| 146 | Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate)(C.I. Direct Red 28) | 573-58-0 | 0.01 | < 0.01 | Pass |
| 147 | Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38) | 1937-37-7 | 0.01 | < 0.01 | Pass |
| 148 | Dihexyl phthalate | 84-75-3 | 0.01 | < 0.01 | Pass |
| 149 | Imidazolidine-2-thione (2-imidazoline-2-thiol) | 96-45-7 | 0.01 | < 0.01 | Pass |
| 150 | Lead di(acetate)* | 301-04-2 | 0.01 | < 0.01 | Pass |
| 151 | Trixylyl phosphate* | 25155-23-1 | 0.01 | < 0.01 | Pass |
| 152 | 1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear | 68515-50-4 | 0.01 | < 0.01 | Pass |



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|---|---|---|---|---|---|
| 153 | Sodium perborate; perboric acid, sodium salt* | - | 0.01 | < 0.01 | Pass |
| 154 | Sodium peroxometaborate* | 4-4-7632 | 0.01 | < 0.01 | Pass |
| 155 | Cadmium chloride* | 10108-64-2 | 0.01 | < 0.01 | Pass |
| 156 | 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE) | 15571-58-1 | 0.01 | < 0.01 | Pass |
| 157 | Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE) | - | 0.01 | < 0.01 | Pass |
| 158 | Cadmium fluoride* | 7790-79-6 | 0.01 | < 0.01 | Pass |
| 159 | Cadmium sulphate* | 10124-36-4:31119-53-6 | 0.01 | < 0.01 | Pass |
| 160 | 2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) | 3846-71-7 | 0.01 | < 0.01 | Pass |
| 161 | 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328) | 25973-55-1 | 0.01 | < 0.01 | Pass |
| 162 | 1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate (EC No. 201-559-5) | 68515-51-5; 68648-93-1 | 0.01 | < 0.01 | Pass |
| 163 | 5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof] | - | 0.01 | < 0.01 | Pass |
| 164 | 1,3-propanesultone | 1120-71-4 | 0.01 | < 0.01 | Pass |
| 165 | 2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327) | 3864-99-1 | 0.01 | < 0.01 | Pass |
| 166 | 2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350) | 36437-37-3 | 0.01 | < 0.01 | |
| 167 | Nitrobenzene | 98-95-3 | 0.01 | < 0.01 | Pass |



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|---|---|---|---|---|---|
| 168 | Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptadecafluorononanoic acid and its sodium and ammonium salts | 375-95-1; 21049-39-8; 4149-60-4 | 0.01 | < 0.01 | Pass |
| 169 | Benzo(a)Pyrene | 50-32-8 | 0.01 | < 0.01 | Pass |
| 170 | 4,4'-isopropylidenediphenol (bisphenol A) | 80-05-7 | 0.01 | < 0.01 | Pass |
| 171 | p-(1,1-dimethylpropyl) phenol | 80-46-6 | 0.01 | < 0.01 | Pass |
| 172 | Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts | 3108-42-7;335-76-2;383-45-3 | 0.01 | < 0.01 | Pass |
| 173 | 4-heptylphenol, branched and linear [substances with a linear and / or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination therof] | - | 0.01 | < 0.01 | Pass |
| 174 | Perfluorohexane-1-sulphonic acid and its salts (PFHxS) | - | 0.01 | < 0.01 | Pass |
| 175 | Benz[a]anthracene | 56-55-3, 1718-53-2 | 0.01 | < 0.01 | Pass |
| 176 | Cadmium carbonate* | 513-78-0 | 0.01 | < 0.01 | Pass |
| 177 | Cadmium hydroxide* | 21041-95-2 | 0.01 | < 0.01 | Pass |
| 178 | Cadmium nitrate* | 10022-68-1, 10325-94-7 | 0.01 | < 0.01 | Pass |
| 179 | Chrysene | 218-01-9, 1719-03-5 | 0.01 | < 0.01 | Pass |
| 180 | Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) covering any of its individual anti- and syn-isomers or any combination thereof | - | 0.01 | < 0.01 | Pass |
| 181 | Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) with ≥0.1% w/w 4-heptylphenol, branched and linear (4-HPbl) | - | 0.01 | < 0.01 | Pass |



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| | | | | | |
|---|---|---|---|---|---|
| 182 | Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride) (TMA) | 552-30-7 | 0.01 | < 0.01 | Pass |
| 183 | Benzo[ghi]perylene | 191-24-2 | 0.01 | < 0.01 | Pass |
| 184 | Decamethylcyclopentasiloxane (D5) | 541-02-6 | 0.01 | < 0.01 | Pass |
| 185 | Dicyclohexyl phthalate | 84-61-7 | 0.01 | < 0.01 | Pass |
| 186 | Disodium octaborate* | 12008-41-2 | 0.01 | < 0.01 | Pass |
| 187 | Dodecamethylcyclohexasiloxane (D6) | 540-97-6 | 0.01 | < 0.01 | Pass |
| 188 | Ethylenediamine | 107-15-3 | 0.01 | < 0.01 | Pass |
| 189 | Lead* | 7439-92-1 | 0.01 | < 0.01 | Pass |
| 190 | Octamethylcyclotetrasiloxane (D4) | 556-67-2 | 0.01 | < 0.01 | Pass |
| 191 | Terphenyl, hydrogenated | 61788-32-7 | 0.01 | < 0.01 | Pass |
| 192 | 2,2-bis(4'-hydroxyphenyl)-4-methylpentane | 6807-17-6 | 0.01 | < 0.01 | Pass |
| 193 | Benzo[k]fluoranthene | 207-08-9 | 0.01 | < 0.01 | Pass |
| 194 | Fluoranthene | 206-44-0 | 0.01 | < 0.01 | Pass |
| 195 | Phenanthrene | 85-01-8 | 0.01 | < 0.01 | Pass |
| 196 | Pyrene | 129-00-0 | 0.01 | < 0.01 | Pass |
| 197 | 1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one | 15087-24-8 | 0.01 | < 0.01 | Pass |
| 198 | 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides (covering any of their individual isomers and combinations thereof) | - | 0.01 | < 0.01 | Pass |
| 199 | 2-methoxyethyl acetate | 110-49-6 | 0.01 | < 0.01 | Pass |
| 200 | Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP) | - | 0.01 | < 0.01 | Pass |
| 201 | 4-tert-butylphenols (PTBP) | 98-54-4 | 0.01 | < 0.01 | Pass |



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# Test Report No. GGN/H(FCM)/19/001269

# Dated 2019.10.23

**Note:**

LOQ = Limit of quantification. All LOQ are based on homogenous material.

LOQ = 0.01% is evaluated for element (i.e. cobalt, arsenic, lead, Cadmium, sodium, chromium, chromium (VI), silicon, aluminum, zirconium, boron, potassium, and molybdenum.

Bis(tributyltin)oxide (TBTO) is tested and calculated in term of Tributyl tin.

The substances are UVCB (substance of unknown or variable composition, complex reaction products or biological materials), which are identified by its main constituents.

Individual concentrations to the constituent of UVCB with an amount of < 0.01% were not considered by the calculation of the sum.

(1) The test result is based on microscopic and chemical evaluation.

* For the substances concentrations are calculated on the basis of total metal content (Pb, Cd, Co, Ti, Zr, Mo, Al, Cr, Ba, B, As, Ca, Zn, K, Sr).

By calculation, if detected, this material probably contains Boric acid (CAS: 10043-35-3/11113-50-1), Disodium tetraborate, anhydrous (CAS: 1330-43-4/12179-04-3/1303-96-4), or Tetraboron disodium heptaoxide hydrate (CAS: 12267-73-1). The calculation is based on the total boron content by ICP-OES.It suggests to check the respective recipe. If the theoretical content of the respective substance is >0.1% in the weight of whole article.

Calculated concentrations of cobalt(II) sulphate, cobalt(II) dinitrate, cobalt(II) carbonate, cobalt(II) diacetate are based on the total cobalt by ICP-OES.

Calculated concentrations of Sodium dichromate, potassium dichromate, chromium trioxide, chromic acid and dichromic acid are based on the identified chromium(VI) by UV-VIS Spectrophotometer.

The tested material(s) was analyzed for relevant SVHC substance(s) only as the additional risk for other SVHC substances is low in the tested material(s). The testing is focused on the possibility of contamination during production & material specific contamination of the product.



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# Test Report No. GGN/H(FCM)/19/001269

# Dated 2019.10.23

**Extractable heavy metals (lead & cadmium)**

Test Specification(s) / Regulation(s): BfR recommendation XXXVI (Paper and board for food contact) supplementing German LFGB section 31 (§) (para 1) of Food, Commodities and Feed Code (Food and Feed Code - LFGB);
Test method(s) adopted: Extraction as per EN 645 (cold water extract method) followed by analysis using ICP – MS;
Equipment(s) used: ICP-MS (Inductively Coupled Plasma – Mass Spectrometer).

| Test parameter | Result (mg/l) – Component No. A | Limit of quantification (mg/l) | Maximum permissible limit | Conclusion |
|---|---|---|---|---|
| Extractable lead (as Pb) | ND | 0.005 | 10 µg/l or 0.01 mg/l | Pass |
| Extractable cadmium (as Cd) | ND | 0.005 | 5 µg/l or 0.005 mg/l | Pass |
| **Overall conclusion** | | | | Pass |

Note: (1) "ND" denotes Not Detected or below limit of quantification; (2) "mg/l" denotes milligram per liter; (3) "µg/l" denotes microgram per liter.

**PCP (Pentachlorophenol) content**

Test Specification(s) / Regulation(s): German Chemical regulation / law (Chemikalien-Verbotsverordnung-ChemVerbotsV);
Test method(s) adopted: In-house method (GTP_Chem_CPS_25119B);
Equipment(s) used: GC – MS (Gas Chromatograph – Mass Spectrometer)

| Component No. | Result (mg/kg) | Limit of quantification (mg/kg) | Maximum permissible limit (mg/kg) | Conclusion |
|---|---|---|---|---|
| A | ND | 0.05 | 5.0 | Pass |

Note: (1) "ND" denotes Not Detected or below limit of quantification; (2) "mg/kg" denotes milligram per kilogram and is equivalent to ppm (parts per million).

**Pentachlorophenol (PCP) content**

Test Specification(s) / Regulation(s): Council of Europe Resolution AP (2002) 1/Policy Statement on paper and board materials and articles intended to come into contact with foodstuffs;

Test method(s) adopted: ISO 15320:2011;
Equipment(s) used: GC – MS (Gas Chromatograph – Mass Spectrometer).

| Component No. | Result (mg/kg) | Limit of quantification (mg/kg) | Maximum permissible limit (mg/kg) | Conclusion |
|---|---|---|---|---|
| **A** | ND | 0.05 | 0.15 | Pass |

Note: (1) "ND" denotes Not Detected or below limit of quantification; (2) "mg/kg" denotes milligram per kilogram and is equivalent to ppm (parts per million).



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# Test Report No. GGN/H(FCM)/19/001269

# Dated 2019.10.23

**Polychlorinated biphenyls (PCBs) content**

Test Specification(s) / Regulation(s): BIS Eco-mark scheme / BIS ECOMARK Criteria for packaging material / package;
Test method(s) adopted: Extraction as per BIS Eco-mark scheme / BIS ECOMARK Criteria for packaging material / package followed by analysis using GC – MS;
Equipment(s) used: GC – MS (Gas Chromatograph – Mass Spectrometer).

| Component No. | Result (mg/kg) | Limit of quantification (mg/kg) | Maximum Permissible Limit (mg/kg) | Conclusion |
|---|---|---|---|---|
| A | ND | 0.05 | 2.0 | Pass |
| (*3) For details of analytes, see table below. | | | | |
| Note: (1) "mg/kg" denotes milligram per kilogram, and is equivalent to ppm (parts per million); (2) "ND" denotes not detected or below limit of quantification. | | | | |

**PCBs analytes details**

| Polychlorinated biphenyls (Analytes) | CAS No. |
|---|---|
| 2-Chlobiphenyl | 2051-60-7 |
| 2,3-Dicholorobiphenyl | 16605-91-7 |
| 2,2',5-Trichlorobiphenyl | 37680—65-2 |
| 2,4',5- Trichlorobiphenyl | 16606-02-3 |
| 2,2',3,5'-Tetracholorobiphnyl | 41464-39-5 |
| 2,2',5,5'- Tetrachlorobiphenyl | 35693-99-3 |
| 2,3',4,4'- Tetrachlorobiphenyl | 32598-10-0 |
| 2,2',3,4,5'- Pentachlorobiphenyl | 38380-02-8 |
| 2,2',4,5,5'- Pentachlorobiphenyl | 37680-73-2 |
| 2,3,3,'4,'6- Pentachlorobiphenyl | 38380-03-9 |
| 2,2',3,4,4'5'-Hexachlorobiphenyl | 35065-28-2 |
| 2,2'3,4,5,5'- Hexachlorobiphenyl | 52712-04-6 |
| 2,2'3,5,5',6- Hexachlorobiphenyl | 52663-63-5 |
| 2,2'4,4',5,5'- Hexachlorobiphenyl | 35065-27-1 |
| 2,2',3,3',4,4',5- Heptachlorobiphenyl | 35065-30-6 |
| 2,2',3,4,4',5,5'- Heptachlorobiphenyl | 35065-29-3 |
| 2,2',3,4,4',5',6- Heptachlorobiphenyl | 52663-69-1 |
| 2,2'3,4',5,5',6- Heptachlorobiphenyl | 52663-68-0 |
| 2,2',3,3',4,4',5,5',6-Nonacholorobiphenyl | 40186-72-9 |



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# Test Report No. GGN/H(FCM)/19/001269

# Dated 2019.10.23

**Specific migration of / Extractable formaldehyde**

Test Specification(s) / Regulation(s): BfR recommendation XXXVI (Paper and board for food contact) supplementing German LFGB section 31 (§) (para 1) of Food, Commodities and Feed Code (Food and Feed Code - LFGB);
Test method(s) adopted: Hot water extraction as per EN 647 followed by analysis as per BS EN 1541:2001;
Equipment(s) used: Ultra-violet (UV) – Visible Spectrophotometer.

| Component No. | Result ($mg/dm^2$) | Limit of quantification ($mg/dm^2$) | Maximum permissible limit ($mg/dm^2$) | Conclusion |
|---|---|---|---|---|
| **A** | ND | 1.0 | 1.0 | Pass |

Note: (1) "mg/ $dm^2$" denotes milligram per square decimetre; (2) "ND" denotes not detected or below limit of quantification.

**Heavy metals as per Packaging Directive**

Test Specification(s) / Regulation(s): Packaging and packaging waste Directive 94/62/EC followed by latest amendment (EU) 2015/720;
Test method(s) adopted: (For Cadmium, Mercury, & Lead) In-house method (GTP_Chem_CPS_25134B) (Acid digestion followed by analysis using ICP – MS) / {For Cr (VI)} In-house method using UV (Ultra – Violet) – Visible Spectrophotometer;
Equipment(s) used: Inductively Coupled Plasma – Mass Spectrometer (ICP – MS) & UV (Ultra – Violet) – Visible Spectrophotometer.

| Heavy metal | Test Result(s) (ppm) – Component No. A | Limit of quantification (mg/kg) | Limit Max. (mg/kg) |
|---|---|---|---|
| Cadmium (Cd) | ND | 10 | - |
| Hexavalent chromium {Cr (VI)} | ND | 10 | - |
| Mercury (Hg) | ND | 10 | - |
| Lead (Pb) | ND | 10 | - |
| **Sum of heavy metals** | ND | - | 100 |

Note: (1) "ppm" denotes parts per million & is equivalent to mg/kg (milligram per kilogram); (2) "ND" denotes Not Detected or below limit of quantification.



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**Test in accordance with EN 71–3:2019 Safety of toys – Part 3: Migration of certain elements (*2)**
Equipment(s) used: -
(1) ICP-MS for all elements except Cr (III), Cr (VI) & Organic tin
(2) LC-ICP-MS for Cr (III) & Cr (VI)
(3) GC-MS for Organic tin

| Element | Result (mg/kg) – Component No. A | Limit of quantification (mg/kg) | Migration Limit for Category III (mg/kg) (*3) (See Note 1) |
|---|---|---|---|
| Aluminium (Al) | 52.39 | 0.14 | 70,000 |
| Antimony (Sb) | ND | 0.05 | 560 |
| Arsenic (As) | ND | 0.06 | 47 |
| Barium (Ba) | 0.86 | 0.08 | 18,750 |
| Boron (B) | 0.12 | 0.08 | 15,000 |
| Cadmium (Cd) | ND | 0.04 | 17 |
| Chromium (Cr) (VI) | ND | 0.05 | 0.053 **(*4)** |
| Chromium (Cr) (III) | ND | 0.2 | 460 |
| Cobalt (Co) | ND | 0.05 | 130 |
| Copper (Cu) | 0.35 | 0.02 | 7,700 |
| Lead (Pb) | 0.08 | 0.05 | 23 |
| Manganese (Mn) | 1.75 | 0.07 | 15,000 |
| Mercury (Hg) | ND | 0.02 | 94 |
| Nickel (Ni) | ND | 0.09 | 930 |
| Selenium (Se) | ND | 0.06 | 460 |
| Strontium (Sr) | 0.51 | 0.07 | 56,000 |
| Tin (Sn) | 1.12 | 0.05 | 1,80,000 |
| Zinc (Zn) | 1.13 | 0.2 | 46,000 |
| Organic tin | ND | 0.1 | 12 |
| **Conclusion** | C / Pass (*2) | ---- | ---- |

(*2) Conclusion was drawn as per / against this specification(s) / standard(s) based on applicant's request, although this specification(s) / standard(s) applies to chemical safety of toys.

Note: (1) (*3) The tested sample components fall / come under category III as per the test standard(s) followed;
(2) "mg/kg" denotes milligram per kilogram; (3) "ND" denotes Not Detected or below limit of quantification; (4) "ICP" denotes Inductively Coupled Plasma; (5) "MS" stands for Mass Spectrometer; (6) "GC" stands for Gas Chromatograph; (7) "LC" stands for Liquid Chromatograph; (8) "C" denotes Complied or Pass;
(9) **(*4)** This limit value of 0.053 mg/kg, as per amendment by Commission Directive (EU) 2018/725 is applicable from 18th November, 2019. For the current period of time, the limit value applicable is 0.2 mg/kg.



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# Test Report No. GGN/H(FCM)/19/001269

## Dated 2019.10.23

**PFOA (Pentadecafluorooctanoic acid)**

Test method(s) adopted: In-house method (GTP_Chem_CPS_25130B);
Equipment(s) used: LC – MS (Liquid Chromatograph – Mass Spectrometer).

| S. No. | Component No. | Test Result (mg/kg) | Limit of quantification (mg/kg) | Conclusion |
|---|---|---|---|---|
| 1. | A | ND | 0.01 | Refer Test Result(s) |

Note: (1) "mg/kg" denotes milligram per kilogram & is equivalent to ppm (parts per million); (2) "ND" denotes Not Detected or below limit of quantification.

**PFOS (Perfluorooctane sulfonic acid and its derivatives)**

Test method(s) adopted: In-house method (GTP_Chem_CPS_25130B);
Equipment(s) used: LC – MS (Liquid Chromatograph – Mass Spectrometer).

| S. No. | Component No. | Test Result (mg/kg) | Limit of quantification (mg/kg) | Conclusion |
|---|---|---|---|---|
| 1. | A | ND | 0.01 | Refer Test Result(s) |

Note: (1) "mg/kg" denotes milligram per kilogram & is equivalent to ppm (parts per million); (2) "ND" denotes Not Detected or below limit of quantification.

**Specific migration of / Extractable primary aromatic amines**

Test Specification(s) / Regulation(s): BfR recommendation XXXVI (Paper and board for food contact) supplementing German LFGB section 31 (§) (para 1) of Food, Commodities and Feed Code (Food and Feed Code - LFGB);
Test method(s) adopted: Hot water extraction as per EN 647 followed by analysis using UV (Ultra – Violet) – Visible Spectrophotometer;
Equipment(s) used: UV (Ultra – Violet) – Visible Spectrophotometer.

| Component No. | Test Result (mg/kg) | Limit of quantification (mg/kg) | Compliance Requirement/Limit Max. | Conclusion |
|---|---|---|---|---|
| A | ND | 0.01 | Sum of primary aromatic amines shall be less than 0.01 mg/kg | Pass |

Note: (1) "mg/kg" denotes milligram per kilogram & is equivalent to ppm (parts per million); (2) "ND" denotes Not Detected or below limit of quantification.



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# Test Report No. GGN/H(FCM)/19/001269

# Dated 2019.10.23

**Bisphenol A (BPA) content**

Test Specification(s) / Regulation(s): French Law No. 2012-1442 of December 24, 2012;
Test method(s) adopted: In-house method (GTP_Chem_CPS_25120C.2017);
Equipment(s) used: LC – MS (Liquid Chromatograph – Mass Spectrometer).

| S.No. | Component No. | Result (mg/kg) | Compliance Requirement / Limit Max | Conclusion |
|---|---|---|---|---|
| 1. | A | ND | Shall be absent | Pass |
| Limit of quantification: 0.1 mg/kg | | | | |
| Note: (1) "mg/kg" denotes milligram per kilogram & is equivalent to ppm (parts per million); (2) "ND" denotes Not Detected or below limit of quantification. | | | | |

**Bisphenol F (BPF) (CAS No.: 620-92-8) content**

Test method(s) / technique adopted: Solvent extraction followed by analyses using LC – MS;
Equipment(s) used: LC – MS (Liquid Chromatograph – Mass Spectrometer).

| S.No. | Component No. | Test Result (mg/kg) | Limit of quantification (mg/kg) | Conclusion |
|---|---|---|---|---|
| 1. | A | ND | 1.0 | Refer Test Result(s) |
| Note: (1) "mg/kg" denotes milligram per kilogram & is equivalent to ppm (parts per million); (2) "ND" denotes Not Detected or below limit of quantification. | | | | |

**Bisphenol S (BPS) (CAS No.: 80-09-1) content**

Test method(s) / technique adopted: In-house test method(s) (Solvent extraction followed by analyses using LC – MS/MS);
Equipment(s) used: LC – MS/MS (Liquid Chromatograph – Tandem Mass Spectrometry).

| S.No. | Component No. | Test Result (mg/kg) | Detection Limit (mg/kg) | Conclusion |
|---|---|---|---|---|
| 1. | A | ND | 0.01 | Refer Test Result(s) |
| Note: (1) "mg/kg" denotes milligram per kilogram, and is equivalent to ppm (parts per million); (2) "ND" denotes Not detected. | | | | |



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**Antimicrobial activity / effect**

Test method(s) adopted: With reference to / Based on EN 1104:2018 (Determination of the transfer of antimicrobial constituents);
Test organism(s) evaluated: Aspergillus niger ATCC 6275 & *Bacillus subtilis* ATCC 6633;
Component tested: Component No. A

| Test organism | Concentration of spores (Spores/ml) | Inhibition zone area | Compliance Requirement / Limit Max. | Conclusion |
|---|---|---|---|---|
| Aspergillus niger ATCC 6275 | $2.0 \times 10^5$ | No inhibition zone | See below | Pass |
| *Bacillus subtilis* ATCC 6633 | $1.5 \times 10^4$ | No inhibition zone | See below | Pass |

**Compliance Requirement / Limit Max.:** There shall be no release of substances which have an antimicrobial effect on foodstuffs.

Note: (1) "Spores/ml" denotes Spores per milliliter.

--- END OF THE TEST REPORT ---



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