

A still life photograph of a table setting. In the center is a large, oval-shaped plate with a pink and white checkered border, filled with various citrus fruits including grapefruit slices, whole grapefruit halves, and mandarin orange segments, garnished with fresh mint leaves and red flowers. To the left, a silver fork and knife are placed on a white napkin. Above the plate is a green glass filled with a light green liquid. In the top right corner, a yellow ceramic vase holds several lemons. The background is a light-colored table surface.

H&M GROUP CHEMICAL RESTRICTIONS 2026

Restricted substances list (rsl)

Food contact products

Product Compliance · Valid for all brands in the H&M Group

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General

H&M Group Chemical Restrictions consist of several parts regarding different product types; this document concerns Chemical Restrictions for Food Contact Products.

An introduction to and general information about the H&M Group Chemical Restrictions are available in a separate document: H&M Group Restricted Substance List (RSL) Introduction and Commitment - All Product Types, document ID 00432. Please read that document and refer to the examples provided there, before proceeding with the product specific restrictions.

Each limit specified in this document is valid for homogeneous parts of the concerned product if not otherwise stated. Test methods are specified when relevant in this document. In case of undated test method, the latest version is valid.

Definitions

| | |
|---|---|
| Concentration Limit | The substance must not be present in the product at concentrations above this limit. |
| Not Detected | The substance must not be present in the finished product at concentrations above the analytical reporting limit. |
| Usage ban | The substance must not be used in production and it must not be added to the product. ¹ |
| Organoleptic | Refers to any sensory property of a product, including smell, taste, color and feel. |
| Substances defined as hazardous due to intrinsic properties | Persistent, bioaccumulative and toxic (PBT), very persistent and very bioaccumulative (vPvB), carcinogenic, mutagenic and toxic for reproduction (CMR), endocrine disruptors (ED) or equivalent concern |

Abbreviations

| | |
|--------|---|
| CAS no | Chemical Abstracts Service number, an identification number for chemicals in this database. |
| CFR | Code of Federal Regulations |
| GMP | Good Manufacturing Practice |
| n.d. | Not Detected |
| PAA | Primary Aromatic Amines |
| ppm | Parts per million, which is the same as mg/kg. |

¹ Impurities at low concentrations of these substances may be accepted only if technically unavoidable due to e.g. raw materials, formation in the manufacturing process, storage or packaging.

| | |
|------------|---|
| Percentage | Percentage is weight by weight, % w/w |
| PFAS | Perfluoroalkyl and polyfluoroalkyl substances: Fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any hydrogen, chlorine, bromine or iodine atoms attached to it) |
| PFCs | Perfluorinated and polyfluorinated chemicals |
| REACH | Registration, Evaluation, Authorization and restriction of Chemicals |
| SML | Specific Migration Limit in food or in food simulants. |
| SML(T) | Total Specific Migration Limit in food or in food simulants. SML(T) is the maximum permitted amount of a given substance originating from the release of several given substances from a material or article into food or food simulants. |

Requirements – all Food Contact Materials

If a group of substances is marked with an asterisk* in the tables below, each included substance is specified in Appendix.

| Requirement/Restricted substance | Limit/Requirement |
|--|---|
| Europe; Food Contact Products Framework Regulation and GMP | All Food Contact products must comply with EU Framework Regulation concerning Food Contact Products no 1935/2004 ² and all regulations, directives and amendments under this framework regulation ³ . All Food Contact products must comply with Good Manufacturing Practice, Regulation 2023/2006 ⁴ . |
| USA; US legislation for food contact materials governed by the Food and Drug Administration (FDA) | All substances in Food Contact Products must be Generally Recognized As Safe (GRAS) and comply with the indirect additive database in Title 21 of the U.S Code of Federal Regulations (21 CFR) Parts 174, 175, 176, 177, 178. |
| China | All Food contact materials and articles must comply with GB4806.1 National Standard of Food Safety, General safety requirements of food contact materials and articles. Additives used shall comply with the provisions in GB 9685 National Food Safety Standard-Standard for the use of additives for food contact materials and articles. |
| South Korea | All Food Contact products must comply with South Korean Food Code Article 7 for standards and specifications for food utensils, containers and packages. |

² Regulation (EC) No 1935/2004 on materials and articles intended to come into contact with food

³ http://ec.europa.eu/food/food/chemicalsafety/foodcontact/index_en.htm

⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006R2023-20080417>

| | |
|---|--|
| Japan | All Food contact products must comply with the Japanese food safety regulations, based on Food safety basic law (2003) and Food Sanitation law (1947). All food contact products must be tested at an official MHLW registered laboratory ⁵ who will issue certificate of analysis showing compliance with the Food sanitation law. |
| Taiwan | All Food contact products must comply with the Food Sanitation Act and Taiwan's Sanitary Standard for Food Utensils, Containers and Packages. |
| Kazakhstan | All food contact products must comply with applicable GOST standards specified in this document. |
| Uruguay | All Food Contact products must comply with General criteria for food packaging and equipment in contact with food GMC Resolution number 03/92 and requirements in Decree 315/994. |
| Brazil | All Food Contact products must comply with General criteria for food packaging and equipment in contact with food RDC Resolution number 91/01. Brazilian Resolutions (RDCs) are harmonized with Mercosur Resolutions (GMC Resolutions). Brazilian Resolutions have a different numbering than these used in Mercosur. |
| Switzerland | All food contact products must comply with Ordinance on Materials and Articles (817.023.21) of Swiss Federal Department of Home Affairs (FDHA) Food Safety and Veterinary Office (FSVO). |
| Requirement | Limit |
| H&M Group Production and Documentation Requirements for Food Contact products ⁶ | Production must follow H&M Group Production and Documentation Requirements for Food Contact products which includes requirements for good manufacturing practices (GMP), testing of food contact products, test methods, documentation and declaration of compliance. |
| Substances of very high concern (SVHC) ⁷ | 1000 ppm, except if lower limit applies as per other parts of this document. Check the ECHA website for the updated list |
| Substances defined in REACH Article 57 ⁸ as hazardous due to the intrinsic properties: <ul style="list-style-type: none"> — Carcinogenic, Mutagenic or toxic to Reproduction (CMR) category 1A/1B, — Persistent, Bioaccumulative and | 1000 ppm, except if lower limit applies as per other parts of this document. |

⁵ A list of the official MHLW registered laboratories can be found at the following MHLW website:

<http://www.mhlw.go.jp/english/topics/importedfoods/1-10.html>

⁶ Download the document at H&M Group Supplier Portal

⁷ [Candidate List of substances of very high concern for Authorisation - ECHA](#)

⁸ [EUR-Lex - 02006R1907-20250901 - EN - EUR-Lex](#)

| | |
|---|---|
| <p>Toxic (PBT) or very Persistent and very Bioaccumulative (vPvB), — Causing probable serious effects to human health or the environment of an equivalent level of concern as those above (e.g. endocrine disrupters)</p> | |
| Sensory/ organoleptic properties | No change in sensory properties (smell and/or taste) of food. Shall be controlled with Sensory analysis. Not worse than Grade 2.5 |
| Restricted materials/substance | Limit |
| Polycarbonate (PC) Plastic | Usage ban |
| Polystyrene (PS) Plastic | Usage ban |
| Acrylonitrile butadiene styrene (ABS) | Usage ban |
| Acrylonitrile Styrene/Styrene Acrylonitrile (AS/SAN) | Usage ban |
| Styrene based thermoplastic rubber/elastomer (TPR & TPE) | Usage ban |
| Other Styrene based (co)polymers | Usage ban |
| Polyvinylchloride (PVC) | Usage ban |
| Recycled rubber | Usage ban |
| Recycled plastic | Usage ban ⁹ |
| Bisphenols* and their derivatives, including but not limited to Bisphenol A (BPA), Bisphenol S (BPS), Bisphenol F (BPF), Bisphenol B (BPB), Bisphenol AF (BPAF), Tetrabromobisphenol-A (TBBPA) and Phenolphthalein | Usage ban |
| Biocides of all kinds (e.g. wood preservatives, antifungi functions, in-can preservatives etc.) | Are not allowed to be used without approval by H&M Group ¹⁰ . |
| Polychlorinated biphenyls (PCB) | Usage ban |
| Azo dyes and pigments* | Usage ban |

⁹ Possible for certain markets with specific conditions. Contact Product Compliance Department for evaluation and approval.

¹⁰ Contact your local H&M Production Office

| | |
|--|-----------|
| Per- and poly-fluorinated chemicals (PFCs/PFASs)* | Usage ban |
| Phthalates* | Usage ban |
| Asbestos | Usage ban |
| <p>Nanomaterials</p> <p>“Nanomaterial” means a natural, incidental or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50 % or more of these particles in the number-based size distribution fulfil at least one of the following conditions:</p> <p>(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm;</p> <p>(b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;</p> <p>(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm¹¹</p> | Usage ban |

¹¹ European commission recommendation on the definition of nanomaterial ((2022/C 229/01), Official Journal of the European Union, 14.06.2022.

Requirements - based on material type

Ceramic, Glass & Enamel

| General Requirements for Ceramic, Glass, Enamel, Concrete, Soapstone and Marble | |
|---|-----------|
| Below substances are usage ban. They shouldn't be intentionally added to the products or used in production. Stated limits are contamination limit values. | |
| Restricted Materials/ Substances | Limit |
| Lead (Pb), total | ≤ 90 ppm |
| Cadmium (Cd), total | ≤ 40 ppm |
| Arsenic (As), total | ≤ 100 ppm |
| Mercury (Hg), total | ≤ 2.5 ppm |

| EU Ceramic | | |
|--|--|--|
| Restricted substance | Limit/Requirement | Test method |
| Category 1 Flatware Articles which cannot be filled and articles which can be filled where the internal depth ≤ 25 mm | | |
| Lead (Pb) | 0.7 mg/dm ² | EN 1388-1 and ISO 6486-1 |
| Cadmium (Cd) | 0.07 mg/dm ² | |
| Zinc (Zn) | 3 mg/article | EN 1388-1 |
| Barium (Ba) | 1 mg/article | |
| Antimony (Sb) | 1 mg/article | |
| Cobalt (Co) | 0.02 mg/kg | EN 1388-1 3 rd migration results |
| Aluminium (Al) | 1 mg/kg | |
| Arsenic (As) | 0.002 mg/kg | |
| Category 2 Articles that can be filled | | |
| Lead (Pb) | 0.5 mg/l | EN 1388-1 and ISO 6486-1 |
| Cadmium (Cd) | 0.2 mg/l | |
| Zinc (Zn) | 3.0 mg/article (internal volume ≤1L) or, 3.0 mg/l (internal volume > 1L) | EN 1388-1 |
| Barium (Ba) | 1.0 mg/article (internal volume ≤1L) or, 1.0 mg/l (internal volume > 1L) | |
| Antimony (Sb) | 1.0 mg/article (internal volume ≤1L) or, | |

| | | |
|---|--|--|
| | 1.0 mg/l (internal volume > 1L) | |
| Cobalt (Co) | 0.02 mg/kg | EN 1388-1 3 rd migration results |
| Aluminium (Al) | 1 mg/kg | |
| Arsenic (As) | 0.002 mg/kg | |
| Category 3 Cooking ware: packaging and storage vessels having a capacity > than 3L | | |
| Lead (Pb) | 0.5 mg/l | EN 1388-1 and ISO 6486-1 ISO 8391-1 (cookware) |
| Cadmium (Cd) | 0.1 mg/l (for storage ware > 3l) 0.05 mg/l (for cooking ware) | |
| Zinc (Zn) | 3.0 mg/article (internal volume ≤1L) or, 3.0 mg/l (internal volume > 1L) | EN 1388-1 |
| Barium (Ba) | 1.0 mg/article (internal volume ≤1L) or, 1.0 mg/l (internal volume > 1L) | |
| Antimony (Sb) | 1.0 mg/article (internal volume ≤1L) or, 1.0 mg/l (internal volume > 1L) | |
| Cobalt (Co) | 0.02 mg/l | |
| Aluminium (Al) | 1 mg/kg | EN 1388-1 3 rd migration results |
| Arsenic (As) | 0.002 mg/kg | |
| Drinking rim | | |
| Cadmium (Cd) | 0.2 (mg/article) and 0.07 mg/dm ² | EN 1388-1 and ISO 6486-1, specify the articles lip and rim surface area to calculate mg/dm ² (Danish Order on Food Contact Materials n. 681 of 25/05/2020) ¹² |
| Lead (Pb) | 2 (mg/article) and 0.8 mg/dm ² | |
| Cobalt (Co) | 0.05 mg/article | EN 1388-1/2 |
| Zinc (Zn) | 3.0 mg/article | |
| Barium (Ba) | 1.0 mg/article | |
| Antimony (Sb) | 1.0 mg/article | |

| EU Glass | | |
|----------------------|--------------------------------------|---|
| Restricted substance | Limit | Test method |
| Global migration | 8 mg/dm ² or, 50 mg/kg | Decreto Ministeriale del 21/3/1973, Capo V – Oggetti di Vetro |

¹² Specify the articles lip and rim surface area in test report to calculate mg/dm² (Danish Order on Food Contact Materials n. 681 of 25/05/2020) [Fødevarekontaktmaterialebekendtgørelsen \(retsinformation.dk\)](https://www.retsinformation.dk)

| Category 1 Flatware Articles which cannot be filled and articles which can be filled where the internal depth \leq 25 mm | | |
|---|---|---|
| Lead (Pb) | 0.8 mg/dm ² | ISO 6486-1 |
| Cadmium (Cd) | 0.07 mg/dm ² | |
| Cobalt (Co) | 0.02 mg/kg | EN 1388-2 3 rd migration results |
| Aluminium (Al) | 1 mg/kg | |
| Arsenic (As) | 0.002 mg/kg | |
| Category 2 Articles that can be filled | | |
| Lead (Pb) | 0.5 mg/l | ISO 7086-1 |
| Cadmium (Cd) | 0.2mg/l | |
| Cobalt (Co) | 0.02 mg/kg | EN 1388-2 3 rd migration results |
| Aluminium (Al) | 1 mg/kg | |
| Arsenic (As) | 0.002 mg/kg | |
| Category 3 Cooking ware; packaging and storage vessels having a capacity > than 3L | | |
| Lead (Pb) | 0.5 mg/l (for storage ware > 3l) 0.5 mg/l (for cooking ware) | ISO 6486-1 ISO 8391-1 (cookware) |
| Cadmium (Cd) | 0.1 mg/l(for storage ware > 3l) 0.05 mg/l(for cooking ware) | |
| Cobalt (Co) | 0.02 mg/l | EN 1388-2 3 rd migration results |
| Aluminium (Al) | 1 mg/kg | |
| Arsenic (As) | 0.002 mg/kg | |
| Drinking rim | | |
| Cadmium (Cd) | 0.2 (mg/article) and 0.07 mg/dm ² | ISO 7086-1, specify the articles lip and rim surface area to calculate mg/dm ² (Danish Order on Food Contact Materials n. 681 of 25/05/2020) ¹³ |
| Lead (Pb) | 2 (mg/article) and 0.8 mg/dm ² | |
| Cobalt (Co) | 0.05 mg/article | EN 1388-1/2 |
| Zinc (Zn) | 3.0 mg/article | |
| Barium (Ba) | 1.0 mg/article | |
| Antimony (Sb) | 1.0 mg/article | |

¹³ Specify the articles lip and rim surface area in test report to calculate mg/dm² (Danish Order on Food Contact Materials n. 681 of 25/05/2020) [Fødevarekontaktmaterialebekendtgørelsen \(retsinformation.dk\)](https://www.retsinformation.dk)

| EU Enamel | | |
|----------------------|-------------|---|
| Restricted substance | Limit | Test method |
| Arsenic (As) | 0.001mg/kg | Regeling van de Minister van Volksgezondheid, Welzijn van 14 maart 2014, kenmerk 328583-117560-VGP, Warenwetregeling verpakkingen en gebruiksartikelen. |
| Boron (B) | 1 mg/kg | |
| Chromium (Cr) | 0.1 mg/kg | |
| Cobalt (Co) | 0.02 mg/kg | |
| Mercury (Hg) | 0.005 mg/kg | |
| Rubidium (Rb) | 1 mg/kg | |
| Selenium (Se) | 0.01 mg/kg | |
| Strontium (Sr) | 1 mg/kg | |
| Aluminium (Al) | 1 mg/kg | ISO 4531 |
| Antimony (Sb) | 0.04 mg/kg | |
| Barium (Ba) | 1.2 mg/kg | |
| Cadmium | 0.005 mg/kg | |
| Copper (Cu) | 4 mg/kg | |
| Lithium (Li) | 0.48 mg/kg | |
| Lead (Pb) | 0.01 mg/kg | |
| Manganese (Mn) | 1,8 mg/kg | |
| Molybdenum (Mo) | 0.12 mg/kg | |
| Nickel (Ni) | 0.14 mg/kg | |
| Silver (Ag) | 0.08 mg/kg | |
| Vanadium (Vd) | 0.01 mg/kg | |
| Zinc (Zn) | 5 mg/kg | |

US

Ceramic & Enamel

U.S. FDA Code of Federal Regulations Title 21 (Food and Drugs) - 21 CFR 174.5 – General provisions applicable to indirect food additives.

FDA Compliance Policy Guides Manual section 545.400 (CPG 7117.06 for Cd) & section 545.450 (CPG 7117.07 for Pb), test method ASTM C 738-94 and for cookware AOAC Official Method 984.19, followed by ICP-MS.

California Proposition 65 lead and cadmium in ceramic tableware products

Guide to heavy metal limits from the Society of Glass & Ceramic Decorated Products (SGCDpro for lip and rim), test method ASTM C 927

| Category | Restricted substance/Limit | | | |
|--|----------------------------|---------|----------------|---------|
| | Cadmium (Cd) mg/l | | Lead (Pb) mg/l | |
| | US FDA | Prop 65 | US FDA | Prop 65 |
| Flatware (depth < 25mm) Plates, Saucers – internal depth as measured from the lowest point to the horizontal plane passing through the upper rim | 0.5 | 1.853 | 3.0 | 0.226 |
| Cups/mugs | 0.5 | 0.189 | 0.5 | 0.100 |
| Small Hollowware (< 1.1 liter) | 0.5 | 0.189 | 2.0 | 0.100 |
| Large Hollowware (≥ 1.1 Liter) | 0.25 | 0.049 | 1.0 | 0.100 |
| Pitchers (≥ 1.1 Liter) Vessels used for juices or other acid beverages at or below room temperature. Creamers, coffeepots, and teapots are not considered to be pitchers. Depending on capacity, creamers, coffeepots and teapots will be considered small or large hollowware | 0.5 | 0.049 | 0.5 | 0.100 |

| | | | | |
|--|------|--------|-----|--------|
| Cooking ware | 0.01 | - | 0.1 | - |
| Lip and Rim area of ceramic drinking vessels with exterior decorations within 20 mm of the rim | 0.4 | 0.4 | 4.0 | 0.5 |
| Exterior decoration | / | 1.0 µg | / | 1.0 µg |
| Enamel Coatings | | | | |
| Must comply with 21CFR 175.300 | | | | |

| <p>US Glass Must comply with California Proposition 65 lead and cadmium in glassware products</p> | | | | |
|---|----------------------------|---------|----------------|---------|
| Category | Restricted substance/Limit | | | |
| | Cadmium (Cd) mg/l | | Lead (Pb) mg/l | |
| | US FDA | Prop 65 | US FDA | Prop 65 |
| Lip and Rim area of glass drinking vessels with exterior decorations within 20 mm of the rim | 0.4 | 0.4 | 4.0 | 0.5 |
| Exterior decoration | / | 1.0 µg | / | 1.0 µg |

| <p>China Enamel, Ceramic and Glass Must comply with China's mandatory material GB Standards relating to Enamel, Ceramic and Glass Migration tests shall comply with the provisions of GB31604.1 and GB 5009.156 unless otherwise stated in respective material standard.</p> | | | | | |
|--|-------------------|--------------|---|-------------------|-----------------------------------|
| Requirement | Limit/Requirement | | | Material Standard | Test standards/ inspection method |
| Enamel ware | | | | | |
| | Non-cooking ware | Cooking ware | Storage ware ≥ 3L (mg/dm ²) | GB 4806.3 | |

| | | | | | | | | |
|--------------|--------------------------------|--------------------------|--------------------------------|-------------------------|---------------------|---------------------|---|------------|
| | Flatware (mg/dm ²) | Hollowware (<3L) (mg/L) | Flatware (mg/dm ²) | Hollowware (<3L) (mg/L) | | | Food Safety National Standards - Enamel ware | |
| Lead (Pb) | 0.8 | 0.8 | 0.1 | 0.4 | 0.1 | | | GB31604.34 |
| Cadmium (Cd) | 0.07 | 0.07 | 0.05 | 0.07 | 0.05 | | | GB31604.24 |
| Ceramic ware | | | | | | | | |
| | Flatware (mg/dm ²) | Storage ware ≥ 3L (mg/L) | Large hollowware (mg/L) | Small hollowware (mg/L) | Cup and mug (mg/L) | Cooking ware (mg/L) | GB 4806.4 Food Safety National Standards - Ceramic ware | |
| Lead (Pb) | 0.8 | 0.5 | 1.0 | 2.0 | 0.5 | 3.0 | | GB31604.34 |
| Cadmium (Cd) | 0.07 | 0.25 | 0.25 | 0.30 | 0.25 | 0.30 | | GB31604.24 |
| Glass ware | | | | | | | | |
| | Flatware (mg/dm ²) | Storage ware ≥ 3L (mg/L) | Large hollowware (mg/L) | Small hollowware (mg/L) | Cooking ware (mg/L) | Lip and rim (mg/L) | GB 4806.5 Food Safety National Standards - glassware | |
| Lead (Pb) | 0.8 | 0.5 | 0.75 | 1.5 | 0.5 | 4.0 | | GB31604.34 |
| Cadmium (Cd) | 0.07 | 0.25 | 0.25 | 0.5 | 0.05 | 0.4 | | GB31604.24 |

South Korea & Japan Ceramic and Pottery

KR: Ministry of Food and Drug Safety - Standards and Specifications for Food Utensils, Containers and Packaging, methods 2-1, 2-2 and 2-9

JP: Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336

| Category | Restricted substance/Limit | | |
|-------------------------|---------------------------------------|--------------------------------------|---|
| | Cadmium (Cd) mg/l | Lead (Pb) mg/l | Arsenic (As) mg/l |
| Flatware (depth ≤ 25mm) | 0.07 (mg/dm ²) JP only | 0.8 (mg/dm ²) JP only | N/A |
| Fillable article | 0.5 | 2.0 | 0.05 (as As ₂ O ₃) |

| | | | |
|--|------|-----|---|
| < 1.1 Liter | | | Limited to pottery |
| Fillable article 1.1 Liter ≤ capacity < 3 Liter | 0.25 | 1.0 | 0.05 (as As ₂ O ₃) Limited to pottery |
| Storage ≥ 3 Liter | 0.25 | 0.5 | 0.05 (as As ₂ O ₃) Limited to pottery |
| Cooking ware | 0.05 | 0.5 | 0.05 (as As ₂ O ₃) Limited to pottery |

South Korea & Japan Glass

KR: Ministry of Food and Drug Safety - Standards and Specifications for Food Utensils, Containers and Packaging, methods 2-1 and 2-2

JP: Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336

| Category | Restricted substance/Limit | |
|---|---------------------------------------|--------------------------------------|
| | Cadmium (Cd) mg/l | Lead (Pb) mg/l |
| Flatware (depth ≤ 25mm) | 0.07 (mg/dm ²) JP only | 0.8 (mg/dm ²) JP only |
| Fillable article < 600 ml | 0.5 | 1.5 |
| Fillable article 600 ml ≤ capacity < 3 Liter | 0.25 | 0.75 |
| Storage ≥ 3 Liter | 0.25 | 0.5 |
| Cooking ware | 0.05 | 0.5 |

South Korea Enamel

KR: Ministry of Food and Drug Safety - Standards and Specifications for Food Utensils, Containers and Packaging, methods 2-1, 2-2 and 2-9

| Category | Restricted substance/Limit | | |
|--|----------------------------|--------------------|------------------------|
| | Cadmium (Cd) µg/ml | Lead (Pb) µg/ml | Antimony (Sb) µg/ml |
| For samples whose depth is over 2.5 cm when liquid is filled | | | |

| Other than heat-cooking ware capacity < 3 Liter | | 0.07 | 0.8 | 0.1 | |
|---|--|------------------------------------|---------------------------------|------------------------|---|
| Heat cooking ware capacity < 3 Liter | | 0.07 | 0.4 | 0.1 | |
| Category | | Restricted substance/Limit | | | |
| | | Cadmium (Cd) µg/cm ² | Lead (Pb) µg/cm ² | Antimony (Sb) µg/ml | |
| For sample whose depth is less than 2.5 cm | | | | | |
| Utensils, containers and packages of porcelain enamel | Samples depth ≥ 2.5 cm, capacity ≥ 3 Liter | | 0.5 | 1 | 1 |
| | Samples depth < 2.5 cm | Other than cooking ware | 0.7 | 8 | 1 |
| | | Cooking ware | 0.5 | 1 | 1 |

| Japan Enamel | | | | | |
|--|----------------------------|--------------------|------------------------------------|---------------------------------|-----|
| JP: Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 | | | | | |
| Category | Restricted substance/Limit | | | | |
| | | | Cadmium (Cd) µg/cm ² | Lead (Pb) µg/cm ² | |
| Enameled | Samples depth < 2.5 cm | | Other than cooking ware | 0.7 | 8 |
| | | | Cooking ware | 0.5 | 1 |
| | Samples depth ≥ 2.5 cm | Capacity ≥ 3 Liter | | 0.5 | 1 |
| | | Capacity < 3 Liter | Other than cooking ware | 0.07 | 0.8 |
| | | | Cooking ware | 0.07 | 0.4 |

| Taiwan Ceramic, Glass & Enamel Taiwan Sanitation Standard for Food Utensils, Containers and Packages. | | |
|---|----------------------------|---------------------------|
| Category | Restricted substance/Limit | |
| | Cadmium (Cd) mg/l | Lead (Pb) mg/l |
| Flatware (depth ≤ 25mm) | 0.17 (mg/dm ²) | 1.7 (mg/dm ²) |
| Fillable article < 1.1 Liter (depth > 25mm) | 0.5 | 5 |
| Fillable article > 1.1 Liter (depth > 25mm) | 0.25 | 2.5 |

| Uruguay & Brazil Ceramic, Glass & Enamel GMC Res No 55/92 RDC Res. No 27/96 (test method; release of lead and cadmium) | | |
|--|--------------------------------------|------------------------|
| Category | Restricted substance/Limit | |
| | Cadmium (Cd) | Lead (Pb) |
| Flatware (depth < 25mm) | 0.07 mg/dm ² | 0.8 mg/dm ² |
| Fillable article | 0.3 mg/kg | 4 mg/kg |
| Fillable article > 3 Litre | 0.1 mg/kg | 1.3 mg/kg |
| Total migration | 50 mg / kg or 8 mg / dm ² | |

Concrete, Marble & Soapstone

| EU Concrete, Marble & Soapstone | | |
|------------------------------------|----------------------------|-------------|
| Restricted substance | Limit | Test method |
| Cadmium (Cd) | 0.07 (mg/dm ²) | |

| | | |
|----------------|---------------------------|--|
| Lead (Pb) | 0.8 (mg/dm ²) | Simulant: 4% acetic acid. Test conditions: 22°C for 24 hours |
| Zinc (Zn) | 3 mg/l | |
| Antimony (Sb) | 1 mg/l | |
| Barium (Ba) | 1 mg/l | |
| Aluminium (Al) | 1 mg/kg | |
| Cobalt (Co) | 0.02 mg/kg | |
| Arsenic (As) | 0.002 mg/kg | |

Metals and Alloys

| EU Metals and Alloys | | |
|--|---|--|
| Restricted substance | Limit | Test method |
| Sensory properties | No change in sensory properties (smell and/or taste) of food. Shall be controlled with Sensory analysis. Not worse than Grade 2.5. | DIN 10955/ ISO 13302 |
| Content of undesirable elements (Applicable to metals other than aluminum and stainless steel) | Lead ≤ 0.01% Cadmium ≤ 0.01% Arsenic ≤ 0.03% Cobalt ≤ 0.05% | EN 16711-1 |
| Specific release for metals and alloys components [mg/kg food] | | |
| Aluminium (Al) | 5 | Chapter 3, Annex I and II in Council of Europe Guide on metals and alloys used in food contact materials and articles, 2 nd edition |
| Antimony (Sb) | 0.04 | |
| Chromium (Cr) | 0.25 | |
| Cobalt (Co) | 0.02 | |
| Copper (Cu) | 4 | |
| Iron (Fe) | 40 | |
| Manganese (Mn) | 0.55 0.07 for infants and toddlers | |
| Molybdenum (Mo) | 0.12 | |
| Nickel (Ni) | 0.14 | |
| Silver (Ag) | 0.08 | |
| Tin (Sn) | 100 | |
| Vanadium (V) | 0.01 | |
| Zinc (Zn) | 5 | |
| Zirconium (Zr) | 2 | |
| Specific release for metals as contaminants and impurities [mg/kg food] | | |

| | | | |
|---|---|--|--------------------|
| Arsenic (As) | 0.002 | Chapter 3, Annex I and II in Council of Europe Guide on metals and alloys used in food contact materials and articles, 2 nd edition | |
| Barium (Ba) | 1.2 | | |
| Beryllium (Be) | 0.01 | | |
| Cadmium (Cd) | 0.005 | | |
| Lead (Pb) | 0.010 | | |
| Lithium (Li) | 0.048 | | |
| Mercury (Hg) | 0.003 | | |
| Thallium (Tl) | 0.0001 | | |
| Additional Requirements for Aluminum and Aluminum Alloys | | | |
| | Restricted substance & Limit | Test method | |
| Aluminum Composition | Al > 99% Fe + Si < 1% Ti ≤ 0.15% For each of the following elements: Cr, Zn, Cu, Mn, Mg, Ni, Sn ≤ 0.10% Each of the following elements: Pb, Tl, Be, and each of the impurities: ≤ 0.05% Cu: < 0.2% if Cr & Mn < 0.05% | French Order of 27 August 1987 EN 601 The use of uncoated items in contact with highly acidic foods is restricted. | |
| Aluminum Alloy Composition | Si ≤ 13.5% Sb ≤ 0.4% Sn ≤ 0.10% Mg ≤ 11% Cr ≤ 0.35% As, Ta, Be, Tl, Pb, and each of the other elements present: ≤ 0.05%, total ≤ 0.15%. Mn ≤ 4% Ti ≤ 0.3% Ni ≤ 3% Zr ≤ 0.3% Fe ≤ 2% Zn ≤ 0.25% Cu ≤ 0.6% Sr ≤ 0.2% | | |
| Additional requirements for organic coatings or varnishes on metal substrate | | | |
| | Restricted substance | Limit | Test method |
| Overall migration limit | 10 mg/dm ² 60 mg/kg for infants and young children | EN1186 | |
| Primary Aromatic Amines (PAA), migration | Sum of PAA: n.d. (a detection limit of 0.01 mg/kg) Individual PAA listed in REACH entry 43 to Appendix 8 of Annex XVII | Migration with food simulant followed by LC-MS/MS EN13130-1 | |

| | | |
|---|--|---|
| | (detection limit of 0.002 mg/kg) | |
| Polycyclic aromatic hydrocarbons (PAH), specific migration | n.d. (a detection limit of 0.01 mg/kg) | Migration with food simulant followed by GC-MS |
| Bisphenol A (BPA) and other bisphenols and bisphenol derivatives listed in Part 3 of Annex VI to Regulation (EC) No 1272/2008 due to their harmonised classification as category 1A or 1B 'mutagenic', 'carcinogenic', 'toxic to reproduction' ('CMR') or category 1 'endocrine disrupting ('ED') for human health' | n.d (detection limit: 0.001 mg/kg) | Extraction with organic solvent followed by instrumental analysis |
| Monomers and other starting substances, additives, polymer production aids etc. | Comply with composition and specific migration positive list in - Regulation (EU) No 10/2011 - Resolution ResAP (2004) 1 | Migration with food simulant followed by instrumental analysis |
| Additional requirements specific to Epoxy coating | | |
| NOGE | Usage ban | EN 13130 or EN 15136 |
| BFDGE | Usage ban | EN 13130 or EN 15136 |
| BADGE, BADGE.H ₂ O, BADGE.2H ₂ O | ≤9 mg/kg (sum) no free BPA, ensuring no detection of specific migration (detection limit 0.001 mg/kg) | EN 13130 or EN 15137 |
| BADGE.HCl, BADGE.2HCl, BADGE.H ₂ O.HCl | ≤1 mg/kg (sum) no free BPA, ensuring no detection of specific migration (detection limit 0.001 mg/kg) | |
| 1,4-Butanediol | ≤5 mg/kg | EN 13130 |
| Phenol | ≤3 mg/kg | EN 13130 |
| Additional requirements specific to Polyurethane (PU) | | |
| Isocyanates* | Not detected | ISO 10283 (modified) |
| Peroxide | Not detected | Ph. Eur. Method 2.5.5 |
| Dimethylformamide (DMF) | Usage ban | |
| Additional requirements for coloured organic coatings or varnishes on metal substrate | | |
| Restricted substance | Limit | Test method |
| Colorfastness to food simulants | No color transition | Resolution AP (89) 1 |

| Kazakhstan | | |
|---|------------------------|---------------|
| Utensils of copper-nickel alloy, German silver and brass with chrome and nickel coating | | |
| Restricted substance | Limit | Standard |
| Copper | 1 mg/dm ³ | GOST 24308-80 |
| Zinc | 1 mg/dm ³ | |
| Nickel | 0.1 mg/dm ³ | |

| China | | | |
|---|--|--|----------------------------------|
| Metal materials and articles | | | |
| Migration tests shall comply with the provisions of GB31604.1 and GB 5009.156 unless otherwise stated in Appendix A in the material standard. | | | |
| Requirement | Limit/Requirement | Material standard | Test standards/inspection method |
| Raw material requirement | <p>1. Food contact metal, metallic plating, solder shall be of good quality and not contaminated with poisonous or hazardous substances, and thus confirmed of their safety and integrity.</p> <p>2. The composition of metal substrate and plating should meet the claim.</p> <p>3. Stainless steel food containers and the main part of tools, machinery and apparatus for food production and management should be austenitic stainless steels, austenitic ferritic stainless steels, ferritic stainless steel; stainless steel tableware and the main parts of stainless steel drilling and grinding tools for food production machinery and apparatus, such as the main part of the mechanical equipment or martensite stainless steel can also be made of martensitic stainless steel materials.</p> | GB 4806.9 Food Safety National Standards - Metal materials and articles | |
| Materials for surface treatment of metals | Complies with GB 4806.1 | | |
| Substrate and plating, impurity elements | <p>Lead, Cadmium, Arsenic, Mercury, Antimony, Beryllium and Lithium shall not be used as alloy element.</p> <p>Al and Al alloys: As ≤ 0.01%,</p> | | |

| | | | |
|---------------------------------------|---|--|---|
| | sum of Pb, Cd, Hg \leq 0.01 % Other metals: As \leq 0.03% Pb \leq 0.01% Cd \leq 0.01% | | |
| Sensory Requirement | No changes in the extraction solvent. | | |
| Specific Release of Impurity Elements | As \leq 0.002 mg/kg (uncoated iron pots \leq 0.018 mg/kg) | | GB31604.49 3 migration test Fails if any one of the three tests exceeds the limits. |
| | Cd \leq 0.002 mg/kg | | |
| | Pb \leq 0.01 mg/kg | | |
| | Sb \leq 0.04 mg/kg | | |
| Specific Release of Alloy Elements | Al \leq 1 mg/kg (uncoated aluminum \leq 5 mg/kg) Cr \leq 0.25 mg/kg Co \leq 0.02 mg/kg Cu \leq 4 mg/kg Mn \leq 2 mg/kg Mo \leq 0.12 mg/kg Ni \leq 0.14 mg/kg Sn \leq 100 mg/kg, (tin-plated steel containers comply with GB 2762) Zn \leq 5 mg/kg | | |

South Korea, Japan & Taiwan; Metals and Alloys

| Restricted substance | Limit | Test method |
|--|-----------------|---|
| Lead in tin plating used for food contact surface, Material Specification | \leq 0.1% | KR: Ministry of Food and Drug Safety - Standards and Specifications for Food Utensils, Containers and Packaging, methods 2-1 and 2-10. JP: Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 TW: Methods of Test for Food Utensils, Containers and Packages- Test of Metal Alloy (the Direct Contact Surface Material with Food is Metal Alloy) (MOHWU0032.00) |
| Lead in materials used for food contact surface, Material Specification | \leq 0.1% | |
| Antimony in metals used for food contact surface, Material Specification | \leq 5.0% | |
| Food contact surface which are made of copper or copper alloy shall be properly treated with tin coating, silver coating or copper treatments to ensure hygiene and safety | | |
| Lead, specific migration | \leq 0.4 mg/l | KR: Migration of lead, cadmium, nickel, chromium VI |
| Cadmium, specific migration | \leq 0.1 mg/l | |

| | | |
|--|--|---|
| Nickel, specific migration | ≤ 0.1 mg/l | and arsenic. Ministry of Food and Drug Safety - Standards and Specifications for Food Utensils, Containers and Packaging, methods 2-1, 2-2, 2-54, 2-4 and 2-9. JP: Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 TW: Methods of Test for Food Utensils, Containers and Packages- Test of Metal Alloy (the Direct Contact Surface Material with Food is Metal Alloy) (MOHWU0032.00) |
| Chromium VI, specific migration | ≤ 0.1 mg/l | |
| Arsenic, specific migration | ≤ 0.2 mg/l (as As ₂ O ₃) | |
| Evaporation residue | <p>≤ 30 mg/l(90 mg/l*) (n-heptane as leaching solution) ≤ 30 mg/l* (other simulants as leaching solution) Only for metallic products coated with synthetic resin or rubber *Limit shall be ≤ 90 mg/l with n-heptane as leaching solution and paint film on metal is made of natural oil as main material and containing > 3% zinc oxide. *The chloroform soluble material shall be ≤ 30mg/l for the case when the non-volatile residue is > 30mg/l when using water as leaching solution</p> | <p>KR: Migration of; evaporation residue, formaldehyde, epichlorohydrin, bisphenol A (including phenol and p-tert-butylphenol), bisphenol A diglycidyl ether, bisphenol F diglycidyl ether, 4,4-methylenedianiline and zinc. Ministry of Food and Drug Safety - Standards and Specifications for Food Utensils, Containers and Packaging, methods 2-8, 2-27, 2-16, 2-45, 2-35, 2-44, 2-31 and 2-50 JP: Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 Taiwan method: Migration of Epichlorohydrin. Method of test for food utensils, containers and packages- test of metal cans.</p> |
| Formaldehyde, specific migration | <p>≤ 4.0 mg/l ND (Japan & TW) Only for metallic products coated with synthetic resin or rubber</p> | |
| Epichlorohydrin, specific migration | <p>≤ 0.5 mg/l Only for metallic products coated with synthetic resin or rubber</p> | |
| Sum of phenol, bisphenol A and p-tert-butylphenol, migration | <p>≤ 2.5 mg/l (South Korea) Only for metallic products coated with synthetic resin or rubber</p> | |
| Bisphenol A diglycidyl ether, Migration Specification (including bisphenol A diglycidyl ether dichloride and bisphenol A diglycidyl ether dihydrate) | <p>≤ 1.0 mg/l (South Korea) Only for metallic products coated with synthetic resin or rubber</p> | |

| | | |
|--|---|--|
| Bisphenol F diglycidyl ether, Migration Specification (including bisphenol F diglycidyl ether dichloride and bisphenol F diglycidyl ether dehydrate) | ≤ 1.0 mg/l (South Korea) Only for metallic products coated with synthetic resin or rubber | |
| 4,4-Methylenedianiline, specific migration | ≤ 0.01 mg/l (South Korea) Only for metallic products coated with synthetic resin or rubber | |
| Zinc, specific migration | ≤ 15 mg/l (South Korea) Only for metallic products coated with synthetic resin or rubber | |

| Uruguay & Brazil Metals & Stainless Steel | | |
|---|--|--|
| Restricted substance | Limit | Standard |
| Raw material | Must meet the specifications and stainless-steel grade in chapter 3 of GMC Res. no. 46/06 & RDC Res. no 854/24 | GMC Res. no. 46/06 as amended by GMC Res. no. 16/20 and GMC Res. no. 48/23 RDC Res. no 854/24 |
| Sum of impurities of Lead, Arsenic, Cadmium, Mercury and Antimony | 1% | |
| Individual limit of impurities | Lead ≤ 0.01% Cadmium ≤ 0.01% Arsenic ≤ 0.03% Mercury ≤ 0.01% | |
| Specific migration of contaminated metals | Arsenic ≤ 0.01 mg/kg Cadmium ≤ 0.01 mg/kg Lead ≤ 0.01 mg/kg Mercury ≤ 0.5 mg/kg Tin ≤ 150 mg/kg | GMC Res. no. 12/11 |
| Manufacturing aids | Must comply with the positive lists and restrictions in chapter 3 of GMC Res. no. 46/06 & RDC Res. no 854/24 | GMC Res. no. 46/06 as amended by GMC Res. no. 16/20 and GMC Res. no. 48/23 RDC Res. no 854/24 |
| Approved stainless steel composition check | Only approved stainless steel grades can be used for food contact applications | GMC Res. no. 46/06 as amended by GMC Res. no. 16/20 and GMC Res. no. 48/23 RDC Res. no 854/24 |

Stainless steel

| EU | | |
|----------------------|-------|-------------|
| Restricted substance | Limit | Test method |
| | | |

| | | |
|--|--|---|
| Stainless Steel Composition | Chromium \geq 13% Tantalum, Niobium, Zirconium \leq 1% each Molybdenum, Titanium, Aluminum, Copper \leq 4% each | French Order of 13 January 1976 |
| Specific migration for metals and alloys components (mg/kg food) | | |
| Aluminium (Al) | 5 | Chapter 3, Annex I and II in Council of Europe Guide on metals and alloys used in food contact materials and articles. Department of Biological Standardisation, OMCL Network & HealthCare (DBO) Consumer Health Protection RZ/PH/2013-06790L SBA/mfs Strasbourg, 18/11/2013: Italy: Specific migration of nickel, chromium and manganese For general use: 3% acetic acid (w/v) aqueous solution, 100°C, 30 min. (3 successive migrations and take the 3rd migration results.) For cooking, dining and cutting article: 3% acetic acid at 70°C for 30 mins on the 3rd contact (3 successive migrations and take the 3rd migration results.) For article in contact with water only: Water at 100°C for 30 mins on the 3rd contact (3 successive migrations and take the 3rd migration results.) |
| Antimony (Sb) | 0.04 | |
| Chromium (Cr) | 0.25 0.1 mg/kg (Italy) | |
| Cobalt (Co) | 0.02 | |
| Copper (Cu) | 4 | |
| Iron (Fe) | 40 | |
| Manganese (Mn) | 0.55 0.1 mg/kg (Italy) 0.07 for infants and toddlers | |
| Molybdenum (Mo) | 0.12 | |
| Nickel (Ni) | 0.14 0.1 mg/kg (Italy) | |
| Silver (Ag) | 0.08 | |
| Tin (Sn) | 100 | |
| Vanadium (V) | 0.01 | |
| Zinc (Zn) | 5 | |
| Zirconium (Zr) | 2 | |
| Specification migration for metals as contaminants and impurities (mg/kg food) | | |
| Arsenic (As) | 0.002 | Chapter 3, Annex I and II in Council of Europe Guide on metals and alloys used in food contact materials and articles. |
| Barium (Ba) | 1.2 | |
| Beryllium (Be) | 0.01 | |
| Cadmium (Cd) | 0.005 | |
| Lead (Pb) | 0.010 | |
| Lithium (Li) | 0.048 | |
| Mercury (Hg) | 0.003 | |
| Thallium (Tl) | 0.0001 | |
| Global migration | 8 mg/dm ² or 50 mg/kg (Italy) | Italian decree of Ministry of health of 21/03/1973 and its amendment, Italian decree of Ministry 21/12/2010. No 258 |
| Requirement | Limit/Requirement | |

| | |
|-----------------------|---|
| Stainless steel grade | Stainless steel shall be compliant and tested according to Italian decree of Ministry of health of 21/03/1973 and its amendments, Annex II, Section VI and Article 36 |
|-----------------------|---|

| Kazakhstan Stainless Steel | | |
|-------------------------------|------------------------|---------------|
| Restricted substance | Limit | Standard |
| Copper | 1.0 mg/dm ³ | GOST 17151-81 |
| Zinc | 1.0 mg/dm ³ | |
| Nickel | 0.1 mg/dm ³ | |
| Chrome | 0.1 mg/dm ³ | |

| US Stainless steel | |
|-----------------------|--|
| Requirement | Limit/Requirement |
| Stainless steel grade | Stainless steel used in food equipment shall be of a type in the AISI 200 series, AISI 300 series, or AISI 400 series. |

| Uruguay & Brazil Metals & Stainless Steel | | |
|---|---|---|
| Restricted substance | Limit | Standard |
| Raw material | Must meet the specifications and stainless-steel grade in chapter 3 of GMC Res. no. 46/06 & RDC Res. no. 854/24 | GMC Res. no. 46/06 as amended by GMC Res. no. 16/20 and GMC Res. no. 48/23 RDC Res. no. 854/24 |
| Sum of impurities of Lead, Arsenic, Cadmium, Mercury and Antimony | 1% | |
| Individual limit of impurities | Lead ≤ 0.01% Cadmium ≤ 0.01% Arsenic ≤ 0.03% Mercury ≤ 0.01% | |
| Specific migration of contaminated metals | Arsenic ≤ 0.01 mg/kg Cadmium ≤ 0.01 mg/kg Lead ≤ 0.01 mg/kg Mercury ≤ 0.5 mg/kg Tin ≤ 150 mg/kg | GMC Res. no. 12/11 |

| | | |
|--|--|--|
| Manufacturing aids | Must comply with the positive lists and restrictions in chapter 3 of GMC Res. no. 46/06 & RDC Res. no 854/24 | GMC Res. no. 46/06 as amended by GMC Res. no. 16/20 and GMC Res. no. 48/23 RDC Res. no 854/24 |
| Approved stainless steel composition check | Only approved stainless steel grades can be used for food contact applications | GMC Res. no. 46/06 as amended by GMC Res. no. 16/20 and GMC Res. no. 48/23 RDC Res. no 854/24 |

China Stainless steel

Migration tests shall comply with the provisions of GB31604.1 and GB 5009.156 unless otherwise stated in Annex A in the material standard.

| Requirement | Limit/Requirement | Material standard | Test standards/inspection method |
|---|--|--|----------------------------------|
| Raw material requirement | <ol style="list-style-type: none"> Food contact metal, metallic plating, solder shall be of good quality and not contaminated with poisonous or hazardous substances, and thus confirmed of their safety and integrity. The composition of metal substrate and plating should meet the claim. Stainless steel food containers and the main part of tools, machinery and apparatus for food production and management should be austenitic stainless steels, austenitic ferritic stainless steels, ferritic stainless steel; stainless steel tableware and the main parts of stainless steel drilling and grinding tools for food production machinery and apparatus, such as the main part of the mechanical equipment or martensite stainless steel can also be made of martensitic stainless steel materials. | GB 4806.9 Food Safety National Standards - Metal materials and articles | |
| Materials for surface treatment of metals | Complies with GB 4806.1 | | |
| Substrate and plating, impurity elements | <p>Lead, Cadmium, Arsenic, Mercury, Antimony, Beryllium and Lithium shall not be used as alloy element.</p> <p>As ≤ 0.01% Pb ≤ 0.01% Cd ≤ 0.01%</p> | | |

| | | | |
|---------------------------------------|---|--|---|
| Sensory Requirement | No changes in the extraction solvent. | | |
| Specific Release of Impurity Elements | As ≤ 0.002 mg/kg | | GB31604.49 3 rd migration |
| | Cd ≤ 0.002 mg/kg | | |
| | Pb ≤ 0.01 mg/kg | | |
| | Sb ≤ 0.04 mg/kg | | |
| Specific Release of Alloy Elements | Lead, Cadmium, Arsenic, Mercury, Antimony, Beryllium and Lithium shall not be used as alloy element. Al ≤ 1 mg/kg Cr ≤ 0.25 mg/kg Co ≤ 0.02 mg/kg Cu ≤ 4 mg/kg Mn ≤ 2 mg/kg Mo ≤ 0.12 mg/kg Ni ≤ 0.14 mg/kg Sn ≤ 100 mg/kg, Zn ≤ 5 mg/kg | | |
| Stainless steel kitchenware | Meet the specification in QB/T 2174 | | QB/T 2174 |

Paper, Board & Paper Napkins

| EU Paper, Board & Paper Napkins | | |
|------------------------------------|---|--|
| Restricted substance | Limit | Test method |
| Recycled paper | Permitted only with approval from Group Compliance | |
| Coated paper and board | Must also comply with Plastic requirements | |
| Printing inks | Must comply with German Ink Ordinance: (a) Only substances listed in Annex 14 positive list allowed in ink formulation; (b) Migration of substances must not exceed their Specific Migration Limits (SML) as defined. | Supplier declaration and/or migration testing with food simulant followed by instrumental analysis |
| Antimicrobial substances | The finished paper or paper board must not have any preserving effect on the foodstuffs with which they come into contact. | EN 1104 |
| Sensory properties | No change in the composition of the food or its organoleptic properties. | EN 1230-1 and -2 in combination with EN 10955 |
| Lead, specific migration | Not detected (< 0.01mg/kg) | EN 645 & EN 13130-1 |
| Cadmium, specific migration | ≤ 5 µg/L | |
| Mercury, specific migration | 0.003 mg/kg | |

| | | |
|---|---|---|
| Aluminum, specific migration | ≤ 1.0 mg/kg | |
| Pentachlorophenol (PCP) | ≤ 0.1 mg/kg | ISO 15320 Maximum permitted content in paper or board expressed as mg/kg |
| Dyes and colourants | No bleeding A value of 5 on the evaluation scale must be reached | Color fastness (determination of color fastness of dyed paper and board intended to come into contact with foodstuffs). DIN EN 646 |
| 4,4'-bis (dimethylamino)-benzophenone (Michler's ketone) | Not detected (< 0.01mg/kg) | EDQM Guideline for paper and board EN 15519 |
| Bisphenol A (BPA) and other bisphenols and bisphenol derivatives listed in Part 3 of Annex VI to Regulation (EC) No 1272/2008 due to their harmonised classification as category 1A or 1B 'mutagenic', 'carcinogenic', 'toxic to reproduction' ('CMR') or category 1 'endocrine disrupting ('ED') for human health' | n.d (detection limit: 0.001 mg/kg) valid for printed paper | Extraction with organic solvent followed by instrumental analysis |
| 1,3-dichloro-2-propanol (1,3-DCP), extractable | n.d. (< 2.0 µg/L) | EN 645 |
| 3-chloro-1,2-propanediol (3-MCPD), extractable | < 12.0 µg/L | |
| Sum of benzo(a) pyrene, benzo(a) anthracene, benzo(b)fluoranthene and chrysene | Not detected (sum, detection limit = 0.001 mg/kg for food contact paper and board not yet in contact with food) | EN 16619 CEN/TS 16621 |
| Sum of benzophenone, 2-methyl benzophenone, 3-methyl benzophenone and 4-methyl benzophenone | Sum: 0.6mg/kg Sum (2-methylbenzophenone+3-methyl benzophenone + 4-methyl benzophenone): 0.05mg/kg | EDQM Guideline for paper and board EN 15519 |
| CMR category 1A/1B Primary Aromatic Amines (PAA) | Not detected (0.002 mg/kg) | EN 17163 |
| Sum of all PAAs, migration | Not detected (0.01 mg/kg) | EN 17163 |
| Acrylamide, specific migration | 0.01 mg/kg | EN 13130-1 |
| Fluorescent Whitening Agents (FWAs) | No bleeding. A value of 5 on the evaluation scale must be reached | EN 648 |
| Additional NIAS requirements for recycled paper and board | | |
| Diisopropylphthalene (DIPN) | As low as technically achievable | CEPI Guideline EN 14719 |
| Diethylhexylphthalate (DEHP) | 0.6 mg/kg | EN 16453, SML |
| Dibutylphthalate (DBP) | 0.12 mg/kg | |
| Di-isobutyl Phthalate (DIBP) | 0.15 mg/kg | |

| | | |
|--|--|--|
| Sum of DBP, DIBP and DEHP | 0.6 mg/kg, calculated as DEHP equivalents using the equation DBP x 5 + DIBP x 4 + DEHP x 1 | |
| Polycyclic Aromatic Hydrocarbons (PAHs*) | 0.01 mg/kg | CEPI Guideline, SML |
| Polychlorinated Biphenyls (PCB) | 2 mg/kg | ISO 15318 Maximum permitted content in paper or board expressed as mg/kg |
| Bisphenol A, specific migration | As low as reasonably achievable (Not detected (< 0.01 mg/kg)) | CEN/TS 13130-13 |
| Bisphenol S, specific migration | 0.05 mg/kg | |

US Paper & Board

| Requirement | Limit/Requirement |
|--|-------------------|
| Paper and paperboard Components in contact with aqueous, fatty and dry foods | 21 CFR 176 |
| Use of Color Additives in Paper and Paperboard Intended for Use with Food | CPG Sec. 500.425 |

China Paper & paperboard

Migration test shall be in accordance with the requirements of GB31604.1 and GB5009.156 unless otherwise stated in material standard.

| Requirement | Limit/Requirement | Material Standard | Test standards/ inspection method |
|--------------------------|--|--|-----------------------------------|
| Raw material requirement | 1.The used food contact paper and paperboard material(s) and article(s) should not harmful to human health in normal and intended conditions of use. The fiber materials should be mainly base on plant fiber, any synthetic materials used should be listed in GB 4806.7 or relevant notice, and meet the specification. 2. The wax coating used on paper and paperboard materials(s) and article(s) should meet Food Safety National Standards. | GB 4806.8 Food Safety National Standards - Paper and paperboard | Synthetic fibres GB 4806.7 |

| | | | |
|--|--|--|---|
| Additives | The used additives shall be listed in GB 9685 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | | GB 9685 |
| Sensory Requirement | No peculiar odour Extraction solvent should be clear and no smell. | | GB 4806.8 |
| Lead (Pb) | ≤ 3.0 mg/kg | | Part I of GB 31604.34 or Part I of GB 31604.49 |
| Arsenic (As) | ≤ 1.0 mg/kg | | Part I of GB 31604.38 or Part I of GB 31604.49 |
| Formaldehyde | ≤ 1.0 mg/dm ² | | Prepare water extraction test solution according to Appendix A, then conduct determination in accordance with GB 31604.48 (migration test is not conducted) |
| Fluorescing substance – 254 nm & 365nm | Negative | | GB 31604.47 |
| Overall migration test (Not applicable for paper or paperboard coated with wax) | ≤ 10 mg/dm ² ≤ 60 mg/kg for infants and young children | | GB 31604.8 |
| Heavy metal (as Pb) content in 4 % acetic acid (60°C, 2hrs) (Only applicable for food contact paper and paperboard which can be in contact with water or foods with a free-water on the surface) | ≤ 1 mg/kg | | GB 31604.9 |
| 1,3-dichloro-2-propanol (1,3-DCP), extractable | n.d. (< 2.0 µg/L) | | GB 4806.8 Annex A 5.2/A 5.3 Annex C |
| 3-chloro-1,2-propanediol (3-MCPD), extractable | < 12.0 µg/L | | |
| Coliform group (/50 cm ²) | Not Detected | | GB 14934 |
| Salmonella (/50 cm ²) | Not Detected | | GB 14934 |
| Molds count (CFU/g) | 50 | | GB 4789.15 |

| South Korea Paper & Board | | |
|--|---|--|
| Restricted substance/Requirement | Limit/Requirement | Test method |
| Lead, Cadmium, Mercury and Hexavalent Chromium | 100 mg/kg or less (In total) | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (IV), method 2-1, 2-2, 2-3, 2-4. |
| Polychlorinated Biphenyls (PCBs), Material Specification | ≤ 5.0 mg/kg | Article 7 (IV) of food contact code, method 2-52. |
| Arsenic (As), specific migration | ≤ 0.1 mg/l (as As ₂ O ₃) | Article 7 (IV) of food contact code, methods 2-9, 2-1, 2-27 and 2-53 |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | |
| Formaldehyde, specific migration | ≤ 4.0 mg/l | |
| Fluorescence whitening agent | Negative result | |

| Taiwan Paper & Board | | |
|--|---|--|
| Restricted substance/Requirement | Limit/Requirement | Test method |
| Synthetic coloring agents (Colors materials, except transparent materials) | Synthetic coloring agents other than those listed in the Enforcement Regulation shall not be used. Excepting the cases where the colors are used in such a way that they will have no possibility of mixing with foods - Refer to Elution of coloring agent | Taiwan Sanitation Standard for Food Utensils, Containers and Packages. Methods of test for food utensils, containers and packages- test of plastic uncoated paper products |
| Fluorescent brightening agent | Negative | |
| Formaldehyde, specific migration | Negative | |
| Heavy metals (as Pb) | not more than 1 ppm | |
| Arsenic, specific migration | not more than 0.1 ppm (as As ₂ O ₃) | |
| Evaporation residue | not more than 30 ppm (Result over 30 ppm, | |

| | | |
|--|---|--|
| | chloroform-soluble extractives shall not more than 40ppm) | |
|--|---|--|

Wood and natural fiber

| EU | | |
|--|---|----------------------|
| Wood and natural fiber | | |
| Restricted substance/Requirement | Limit/Requirement | Test method |
| Wood uncoated & Bamboo (including cork) | | |
| Wood preservatives | Not allowed to be used without approval by H&M Group ¹⁴ | Self declaration |
| Sensory analysis | No change in sensory properties (smell or taste) of food ≤ 2.5 (Scale 0-4) | DIN 10955/ ISO 13302 |
| Formaldehyde, specific migration | 15 mg/kg | EN 13130-23 |
| Pentachlorophenol (PCP) | 0.1 mg/kg | 64 LFGB B82.02-8 |
| Trichlorophenol (TriCP) | n.d. (with a reporting limit of 0.1 mg/kg) | |
| Tetrachlorophenol (TeCP) | n.d. (with a reporting limit of 0.1 mg/kg) | |
| Mold | Mold 50 CFU/g | GB 4789.15 |
| Additional requirements for natural fibre (uncoated) (e.g. straw, rattan, banana leaves) | | |
| Antimicrobial requirement | No inhibition zone should be observed | EN 1104 |
| Additional requirements for Jute | | |
| Odor | No odor detected (sacks made of woven jute/polyolefin fabric) | EN 767 |
| Specifications | Standard specification for jute bags used in the packaging of food | IJO Standard 98/01 |
| Residual mineral oil | Not to exceed 0.15 percent by weight of finished fibers | 21 CFR 177.2800 |
| Additional requirements for organic coating on wood and natural fiber | | |
| Overall migration limit | 10 mg/dm ² 60 mg/kg for infants and young children | EN1186 |

¹⁴ Contact your local H&M PO office

| | | |
|---|--|---|
| Formaldehyde, specific migration | 15 mg/kg | Migration with food simulant followed EN 13130-23 |
| Primary Aromatic Amines (PAA), migration | Sum of PAA: n.d. (a detection limit of 0.01 mg/kg) Individual PAA listed in REACH entry 43 to Appendix 8 of Annex XVII (detection limit of 0.002 mg/kg) | Migration with food simulant followed by LC-MS/MS EN13130-1 |
| Bisphenol A (BPA) and other bisphenols and bisphenol derivatives listed in Part 3 of Annex VI to Regulation (EC) No 1272/2008 due to their harmonised classification as category 1A or 1B 'mutagenic', 'carcinogenic', 'toxic to reproduction' ('CMR') or category 1 'endocrine disrupting ('ED') for human health' | n.d (detection limit: 0.001 mg/kg) | Extraction with organic solvent followed by instrumental analysis |
| Color fastness | No color transition | EN 646 |
| Monomers or other starting substances, additives, polymer production aids etc. | Comply with composition and specific migration positive list in Annex I, Regulation (EU) No 10/2011 | Migration with food simulant followed by instrumental analysis |
| Metals and lanthanides | Comply with composition and specific migration in Annex II Regulation (EU) No 10/2011 | Migration with food simulant followed by ICP-MS |
| Aluminium | 1 mg/kg | Migration with food simulant followed by ICP-MS EN 13130-1 |
| Antimony | 0.04 mg/kg | |
| Arsenic | Not detectable (detection limit 0.01 mg/kg) | |
| Barium | 1 mg/kg | |
| Cadmium | n.d. (Limit of detection 0.002 mg/kg) | |
| Chromium | n.d. (detection limit 0.01 mg/kg) | |
| Cobalt | 0.05 mg/kg | |
| Copper | 5 mg/kg | |
| Iron | 48 mg/kg | |
| Lithium | 0.6 mg/kg | |
| Manganese | 0.6 mg/kg | |
| Mercury | n.d. (detection limit 0.01 mg/kg) | |
| Nickel | 0.02 mg/kg | |
| Lead | n.d. (detection limit 0.01 mg/kg) | |
| Zinc | 5 mg/kg | |

| China | | | |
|--|---|---|----------------------------------|
| Wood and Bamboo, including Cork | | | |
| Migration test shall be implemented according to requirements of GB 31604.1 and GB5009.156 | | | |
| Requirement | Requirement/Limit | Material standard | Test standard /inspection method |
| Additives | The used additives shall be listed in GB 9685 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | GB 4806.12 Food Safety National Standards – Wood and Bamboo, including Cork | GB 9685 |
| Sensory Requirement | Sensory: shall have normal colour, without burr, damages from insect (not applicable to cork), peculiar odour, mold and other contaminants. Migration solution: no precipitate, no smell, no abnormal color or other sensory deterioration | | GB 4806.12 Visual method |
| Overall migration test | ≤ 10 mg/dm ² ≤ 60 mg/kg for infant's products (applicable to products treated with coating, adhesive, printing ink) | | GB 31604.8 |
| Formaldehyde, specific migration | ≤ 15 mg/kg | | GB 31604.48 |
| Sulfur dioxide, specific migration | ≤ 10 mg/kg | | GB 4806.12 Annex A |
| Pentachlorophenol (PCP) and its salts, specific migration | ≤ 0.15 µg/kg (expressed as PCP) | | SN/T 2204 |
| o-phenylphenol(OPP), specific migration | ≤ 4.8 mg/kg | | GB 4806.12 Annex B |
| Thiabendazole, specific migration | ≤ 1.2 mg/kg | | |
| Imazalil, specific migration | ≤ 0.4 mg/kg | | |
| Biphenyl, specific migration | ≤ 0.6 mg/kg | | |

| South Korea | | |
|----------------------------------|-------------------|--------------|
| Wood & natural fiber | | |
| Restricted substance/Requirement | Limit/Requirement | Test methods |
| Wood (including bamboo) | | |

| | | |
|--|---|---|
| Arsenic (As), specific migration | ≤ 0.1 mg/l (as As ₂ O ₃) | Migration of arsenic, lead, sulfur dioxide, o-phenylphenol, Thiabendazole, Biphenyl and Imazalil from wood. Article 7 (VI) of food contact code, methods 2-9, 2-1, 2-55 and 2-56 |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | |
| Sulfur dioxide, specific migration | ≤ 12.8 mg/l | |
| o-Phenylphenol, specific migration | ≤ 7.3 mg/l | |
| Thiabendazole, specific migration | ≤ 1.8 mg/l | |
| Biphenyl, specific migration | ≤ 0.9 mg/l | |
| Imazalil, specific migration | ≤ 0.6 mg/l | |
| Starch | | |
| Lead, Cadmium, Mercury and Hexavalent Chromium | 100 mg/kg or less (in total) | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (IV), method 2-1, 2-2, 2-3, 2-4. |
| Arsenic (As), specific migration | ≤ 0.1 mg/l (as As ₂ O ₃) | Migration of arsenic, lead, potassium permanganate consumption, formaldehyde and fluorescence whitening agent from starch. Article 7 (VI) of food contact code, methods 2-9, 2-1, 2-7, 2-27 and 2-53. |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | |
| Potassium permanganate consumption | ≤ 10.0 mg/l | |
| Formaldehyde, specific migration | ≤ 4.0 mg/l | |
| Fluorescence whitening agent | Negative result | |

| Taiwan | | |
|---|---|---|
| Wood & natural fiber | | |
| Restricted substance/Requirement | Limit/Requirement | Test Methods |
| Fluorescent brightening agent, material specification | Negative | Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Arsenic (As), specific migration | not more than 0.1 ppm (as As ₂ O ₃) | |
| Heavy metals (as Pb) | not more than 1 ppm | |
| Formaldehyde, specific migration | Negative | |
| Evaporation residue | Not more than 30 ppm (Result over 30 ppm, chloroform-soluble extractives shall not more than 40ppm) | |

Textile products (natural and synthetic fibers)

| EU | | |
|---|---|--|
| Food contact products in textile material must also follow H&M Group Chemical restrictions (RSL) Textile products, Accessories, Footwear, Bags and Belts. | | |
| Restricted substance/Requirement | Limit/Requirement | Test method |
| Azo Dyes & Pigments* | 10 mg/kg per listed amine | EN ISO 14362-1 |
| Formaldehyde | 16 mg/kg | ISO 14184-1 |
| Pentachlorophenol content | 0.5 mg/kg | § 64 LFGB B 82.02-8:2001 modified |
| Overall migration limit ¹⁵ | 10 mg/dm ² 60 mg/kg for infants and young children | EN 1186 |
| Monomers or other starting substances, additives, polymer production aids etc. ¹⁵ | Comply with composition and specific migration positive list in Annex I, Regulation (EU) No 10/2011 | Migration with food simulant followed by instrumental analysis |
| Color fastness to foodstuff | No visible color migration to foodstuff. A value of 5 on the evaluation scale must be reached. | EN 646 |
| Odour | Grade 2 – not unpleasant | Smell test according to SNV 195 651 |
| Mold | Spores and mycelia of mold not detected. | Smell test SNV 195 651 Light microscope analysis for suspicious spots Staining with lactophenol blue followed by microscope analysis |

Polymer coatings and varnishes

| EU | |
|--|---|
| Polymer coatings and varnishes | |
| Coated material | Restriction |
| Organic coatings or varnishes on metal substrate | Must comply with Additional requirements for organic coatings or varnishes on metal substrate in section Metals and Alloys. |
| Varnishes and polymer coatings on wood and natural fiber | Must comply with Additional requirements for organic coating on wood and natural fiber in section Wood and natural fiber. |
| Plastic coating on paper and board | Must comply with chemical restrictions for Plastic |

¹⁵ For synthetic textile only

| Japan Polymer coatings | |
|---------------------------|---|
| Coated material | Restriction |
| Polymer coatings | Must comply with chemical restrictions for all Plastic and polymer coatings |

| Taiwan Polymer coatings on metal | | |
|-------------------------------------|--|--|
| Restricted substance | Limit | Standard |
| Phenol | < 5 ppm | Taiwan Sanitation Standard for Food Utensils, Containers and Packages. Metal alloy - the direct contact surface material with food is synthetic resins. |
| Formaldehyde | Negative | |
| Evaporation residue | < 30 ppm When the residue exceeds 30 ppm, the chloroformsoluble extracts shall not be more than 30 ppm. | |
| Epichlorohydrin monomer | < 0.5 ppm | |
| Other Coated material | Restriction | |
| Polymer coating on paper and board | Must comply with chemical restrictions for all plastic requirements and the requirements for the given polymer types for Taiwan, under Plastic chapter of this document. For the coating materials other than the polymer types listed in the plastic requirements, the migration test standard for the polymer coatings on metal as specified above shall apply. | |
| Polymer coating on wood | Must comply with chemical restrictions for all plastic requirements and the requirements for the given polymer types for Taiwan, under Plastic chapter of this document. For the coating materials other than the polymer types listed in the plastic requirements, the migration test standard for the polymer coatings on metal as specified above shall apply. | |

| China Paints and Coatings applicable for all materials Migration test shall be implemented according to requirements of GB 31604.1 and GB5009.156 | | | |
|---|-------------------|-------------------|----------------------------------|
| Requirement | Requirement/Limit | Material standard | Test standard /inspection method |
| | | | |

| | | | |
|---|---|--|---|
| Raw material requirement | The used basic raw materials should be listed in appendix A in GB 4806.10 or relevant notice, and comply with all specifications, including specific migration limits and other restrictions. | GB 4806.10 Food Safety National Standards - Painting and coating | |
| Additives | The used additives shall be listed in GB 9685 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | | GB 9685 |
| Sensory Requirement | The extraction solvent should be colorless, no smell and no sediment. (applicable for the coatings which are in direct contact with food) | | GB 4806.10 Visual method |
| Overall migration test - | $\leq 10 \text{ mg/dm}^2$ $\leq 60 \text{ mg/kg}$ for infant's products (applicable for the coatings which are in direct contact with food) | | Migration according to GB31604.1 and GB 5009.156, and then followed by GB 31604.8 |
| Potassium permanganate consumption | $\leq 10 \text{ mg/kg}$ (applicable for the coatings which are in direct contact with food) | | GB 31604.2 |
| Lead | $\leq 1 \text{ mg/kg}$ (applicable for the coatings which are in direct contact with food) | | GB 31604.9 |
| Sum of Primary Aromatic Amines (PAA), migration | n.d. (detection limit 0.01 mg/kg) | | GB31604.52 |
| Monomer migration test based on coating materials | Applicable monomers with SMLs or restrictions | | GB 31604.1 |
| Specific release of heavy metals (for coating on metal substrate) | As $\leq 0.002 \text{ mg/kg}$ Cd $\leq 0.002 \text{ mg/kg}$ Pb $\leq 0.01 \text{ mg/kg}$ Sb $\leq 0.04 \text{ mg/kg}$ Al $\leq 1 \text{ mg/kg}$ Cr $\leq 0.25 \text{ mg/kg}$ Co $\leq 0.02 \text{ mg/kg}$ Cu $\leq 4 \text{ mg/kg}$ Mn $\leq 2 \text{ mg/kg}$ Mo $\leq 0.12 \text{ mg/kg}$ Ni $\leq 0.14 \text{ mg/kg}$ Sn $\leq 100 \text{ mg/kg}$, (tin-plated steel containers comply with GB 2762) Zn $\leq 5 \text{ mg/kg}$ | GB 4806.9 | GB 4806.9 GB 31604.24 GB 31604.25 GB 31604.33 GB 31604.34 GB 31604.38 GB 31604.49 |

Adjuvant, Processing aids and Coatings

| US Adjuvant, Processing aids and Coatings | |
|---|-------------------|
| Restricted substance/Requirement | Limit/Requirement |
| Indirect food additives Adjuvants, production aids and sanitizers | 21 CFR 178 |
| Indirect food additives Adhesives and components of coatings | 21 CFR 175 |

| China Adhesives Migration test shall be implemented according to requirements of GB 31604.1 and GB5009.156 | | | |
|--|---|---|----------------------------------|
| Restricted substance/Requirement | Limit/Requirement | Material standard | Test standard /inspection method |
| Raw material requirement | The used ingredients for direct food contact adhesives shall be listed in GB 4806.15 Appendix A or relevant notices, and comply with all specifications, including specific migration limits and other restrictions. The used ingredients for indirect food contact adhesives shall be listed in GB 4806.15 Appendix A, B or relevant notices, and comply with all specifications, including specific migration limits and other restrictions. | GB 4806.15 Food Safety National Standards - Adhesives | |
| Additives | The used additives shall be listed in GB 9685 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | | GB 9685 |
| Sensory Requirement | Sensory: shall have normal colour, without odour, dirt, etc. Migration solution: shall have no colouration, turbidity, participation, odour, etc., that deteriorates the organoleptic characteristics. | | GB 4806.15 Visual method |
| Overall migration test | $\leq 10 \text{ mg/dm}^2$ $\leq 60 \text{ mg/kg}$ for infant's products | | GB 31604.8 |

| | | |
|---|--|---|
| | (applicable for the adhesives which are in direct contact with food) | |
| Potassium permanganate consumption | ≤ 10 mg/kg (applicable for the adhesives which are in direct contact with food) | GB 31604.2 Water, 60°C, 2 hours |
| Heavy metal (as lead) | ≤ 1 mg/kg (applicable for the adhesives which are in direct contact with food) | GB 31604.9 4% Acetic acid, 60°C, 2 hours |
| Sum of all Primary Aromatic Amines, migration | n.d. (detection limit = 0.01 mg/kg) applicable to adhesives that contain aromatic polyurethane, etc that might generate PAAs | GB 31604.52 |

Plastic

| <p>EU & Switzerland All Plastic The final product must comply with Regulation (EU) No 10/2011 and amendments. The final product must comply with Swiss Ordinance SR 817.023.21.</p> | | |
|--|--|--|
| Restricted substance | Limit | Test method |
| Sensory properties | No change in sensory properties (smell and/or taste) of food. Shall be controlled with Sensory analysis. Not worse than Grade 2.5. | DIN 10955/ ISO 13302 |
| Overall migration limit | 10 mg/dm ² 60 mg/kg for infants and young children | EN1186 |
| Monomers and other starting substances, additives, polymer production aids etc. | Comply with composition and specific migration positive list in Annex I, Regulation (EU) No 10/2011 and Annex 2, Swiss Ordinance SR 817.023.21 | Migration with food simulant followed by instrumental analysis |
| Metal and lanthanides | Comply with composition and specific migration in Annex II, Regulation (EU) No 10/2011 | Migration with food simulant followed by ICP-MS |
| Aluminium | 1 mg/kg | Migration with food simulant followed by ICP-MS EN 13130-1 |
| Antimony | 0.04 mg/kg | |
| Arsenic | n.d. (detection limit 0.01 mg/kg) | |
| Barium | 1 mg/kg | |
| Cadmium | n.d. (detection limit 0.002 mg/kg) | |

| | | |
|---|--|---|
| Chromium | n.d. (detection limit 0.01 mg/kg) | |
| Cobalt | 0.05 mg/kg | |
| Copper | 5 mg/kg | |
| Iron | 48 mg/kg | |
| Lithium | 0.6 mg/kg | |
| Manganese | 0.6 mg/kg | |
| Mercury | n.d. (detection limit 0.01 mg/kg) | |
| Nickel | 0.02 mg/kg | |
| Lead | n.d. (detection limit 0.01 mg/kg) | |
| Zinc | 5 mg/kg | |
| Primary Aromatic Amines (PAA), migration | Sum of PAA: n.d. (a detection limit of 0.01 mg/kg) Individual PAA listed in REACH entry 43 to Appendix 8 of Annex XVII (detection limit of 0.002 mg/kg) | Migration with food simulant followed by LC-MS/MS EN13130-1 |
| Bisphenol A (BPA) and other bisphenols and bisphenol derivatives listed in Part 3 of Annex VI to Regulation (EC) No 1272/2008 due to their harmonised classification as category 1A or 1B 'mutagenic', 'carcinogenic', 'toxic to reproduction' ('CMR') or category 1 'endocrine disrupting ('ED') for human health' | n.d (detection limit: 0.001 mg/kg) | Extraction with organic solvent followed by instrumental analysis |
| Additional requirement for colored plastics | | |
| Colour fastness | No transfer of colorants to food simulants is permitted | Resolution AP (89)1 Appendix III |
| Acetal Resins/Polyoxymethylene (POM) | | |
| Monomers: Formaldehyde, also as oligomeric trioxymethylene (trioxane) | | Compositional requirement |
| Comonomers: Ethylene oxide 1,4-Butanediol diglycidyl ether 1,4-Butanediol formal 1,3-Dioxolane | in total max. 6 % | Compositional requirement |
| Boron (B) | 0.008% | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Zinc (Zn) | 1% | Total metal content by microwave digestion with |

| | | |
|--|--|---|
| | | HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Flourine | 0.006 % | EN 14582/ASTM D7359 |
| Formaldehyde, SML(T) | 15 mg/kg expressed as formaldehyde | EN 13130-23 |
| 1,3,5-Trioxane, specific migration | 5 mg/kg | EN 13130-1 followed by GC-MS analysis |
| Ethylene oxide, total residue | 1 mg/kg in final product | EN 13130-22 |
| Ethylene oxide, specific migration | n.d. (detection limit: 0.01 mg/kg) | EN 13130-1 |
| 1,4-Butanediol diglycidyl ether, total residue | 1 mg/kg in final product expressed as epoxygroup | LC-MS analysis |
| 1,4-Butanediol diglycidyl ether, specific migration | n.d. (detection limit: 0.01 mg/kg) | EN 13130-1 followed by LC-MS analysis |
| 1,4-Butanediol formal | 0.05 mg/kg | EN 13130-1 followed by LC-MS analysis |
| 1,3-Dioxolane | 5 mg/kg | EN 13130-1 followed by GC-MS analysis |
| Acryl Resins | | |
| Volatile Organic matter (VOM) | 0.5% | Gravimetric Method (90°C, 24 hours) |
| Peroxide | Not detected | Ph. Eur. Method 2.5.5 |
| Polyamide (PA) e.g. Nylon | | |
| Caprolactam | 15 mg/kg | EN 13130-1 |
| PAA | < 0.01 mg/kg | EN 13130 |
| Hexamethylenediamine (PA6,6) | ≤ 2.4 mg/kg | EN 13130 |
| Apart from complying with EU Regulation 10/2011, including its amendments Polyamide resins must also comply with EU Regulation 284/2011. | | |
| Polyethylene (PE) | | |
| Chromium (Cr) | 10 ppm | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Vanadium (V) | 20 ppm | |
| Zirconium (Zr) | 100 ppm | |
| Hafnium (Hf) | 100 ppm | |
| 1-Octene | ≤ 15 mg/kg | EN 13130 |
| 1-Hexene | ≤ 3 mg/kg | EN 13130 |
| Polyethylene Terephthalate (PET) | | |
| Lead (Pb), total | 40 ppm as PbO | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Zinc (Zn), total | 80 ppm | |
| Antimony | 350 ppm | |
| Ethylene glycol | ≤ 30 mg/kg (expressed as ethylene glycol) | EN 13130 |
| Diethylene glycol | | |

| | | |
|---|---|---|
| Terephthalic acid | ≤ 7.5 mg/kg (expressed as terephthalic acid) | |
| Isophthalic acid | | |
| Acetaldehyde | ≤ 6 mg/kg | |
| Formaldehyde | ≤ 15 mg/kg | |
| Polypropylene (PP) | | |
| Chromium (Cr) | 10 ppm | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Vanadium (V) | 20 ppm | |
| Zirconium (Zr) | 100 ppm | |
| Hafnium (Hf) | 100 ppm | |
| 1-Octene | ≤ 15 mg/kg | EN 13130 |
| 1-Hexene | ≤ 3 mg/kg | EN 13130 |
| Polyurethane (PU) | | |
| Isocyanates* | Not detected | ISO 10283 (modified) |
| Peroxide | Not detected | Ph. Eur. Method 2.5.5 |
| Dimethylformamide (DMF) | Usage ban | |
| Thermoplastic Elastomer (TPE) | | |
| Formaldehyde, specific migration | 3 ppm (Aqueous simulants only) | EN 13130-23 |
| Zinc (Zn) | 1% | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Lead (Pb) | 0.001% | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Tritan Copolyester TX1001 | | |
| 2,2,4,4-tetramethylcyclobutane-1,3-diol (TMCD, CAS no. 3010-96-6), specific migration | 5 mg/kg *Only for repeated use articles for long term storage at room temperature or below and hotfill | Migration with food simulant followed by GC-MS |

| | | |
|--|----------|------------|
| Kazakhstan Plastic | | |
| Restricted substance | Limit | Standard |
| Polyethylene (PE) and Polypropylene (PP) | | GOST 50962 |
| Formaldehyde | 0.1 mg/l | |
| Polymethylmetacrylate (PMMA) | | |

| | | |
|---------------------------|-----------|--|
| Methyl metacrylate | 0.25 mg/l | |
| Polyamid 66 | | |
| Hexamethylene diamine | 0.5 mg/l | |
| Polyamide 6 | | |
| E-caprolaktam | 0.5 mg/l | |
| Polyethyleneterephthalate | | |
| Ethanal | 0.2 mg/l | |

| | |
|--|-----------------|
| US Plastic | |
| Restricted substance | Requirement |
| All Plastic | |
| All Plastics must comply with US regulation 21 CFR Part 177 on plastic materials and articles intended to come into contact with food. | |
| Nylon (Polyamides) | |
| Nylon resins which may be safely used to produce articles intended to come into contact with food | 21 CFR 177.1500 |
| Polyethylene (PE) | |
| Olefin polymers | 21 CFR 177.1520 |
| Polyethylene Terephthalate (PET) | |
| Polyethylene phthalate polymers | 21 CFR 177.1630 |
| Polyoxymethylene (POM) | |
| Polyoxymethylene copolymer | 21 CFR 177.2470 |
| Polypropylene (PP) | |
| Olefin polymers | 21 CFR 177.1520 |
| Polyurethane (PU) | |
| Polyurethane resins | 21 CFR 177.1680 |
| Tritan | |
| Tritan Copolyester TX1001 | FCN No. 1041 |

| China | | | |
|---|---|--|--|
| Plastic Materials and Products (including non-vulcanized thermoplastic elastomer material and articles) | | | |
| Migration test shall be implemented according to requirements of GB 31604.1 and GB5009.156 | | | |
| Requirement | | Material standard | Test method |
| Raw material requirement | The used food contact plastic resins shall be listed in GB 4806.7 Appendix A or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | GB 4806.7 Food Safety National Standards - Food contact plastic material and products | Migration tests acc to GB31604.1 and GB 5009.156. |
| Additive | The used additives shall be listed in GB 9685 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | | SML (T) and SML(T) group no. specified in Append B of GB 9685 apply |
| Sensory Requirement | No peculiar odour. Extraction solvent should be clear and no smell. | | GB 4806.7 |
| Overall migration test | $\leq 10 \text{ mg/dm}^2$ ($\leq 60 \text{ mg/kg}$ for article intended to be brought into contact with food for infants or young children) | | GB 31604.8 |
| Potassium permanganate consumption | $\leq 10 \text{ mg/kg}$ | | GB 31604.2 |
| Lead, specific migration | $\leq 1 \text{ mg/kg}$ | | GB 31604.9 |
| Decolorization (for colored material) | Negative | | GB 31604.7 |
| SM for certain substances [according to the material information provided (e.g. regulatory affairs products information data sheet, etc)] | Specific migration limit and other restrictions should meet the specification in Appendix A and relative notice. | | Migration according to GB31604.1 and GB 5009.156, and then followed by instrumental analysis |
| Sum of all Primary Aromatic Amines (PAA), migration | n.d. (detection limit = 0.01 mg/kg) applicable to plastic materials and articles containing aromatic isocyanates, azo colorants and other substances that may produce PAA. | | GB 31604.52 |
| Specific requirements for certain plastic type (not exhaustive) | | | |
| Polypropylene (PP) | | | |
| SM for certain substances [according to the material | The plastic resin used must be listed in Appendix A and relevant notice. | GB 4806.7 | Migration according to |

| | | | |
|---|--|---|--|
| information provided (e.g. regulatory affairs products information data sheet, etc)] | | | GB31604.1 and GB 5009.156, and then followed by instrumental analysis |
| Polyethylene (PE) | | | |
| SM for certain substances [according to the material information provided (e.g. regulatory affairs products information data sheet, etc)] | The plastic resin used must be listed in Appendix A and relevant notice. | GB 4806.7 | Migration according to GB31604.1 and GB 5009.156, and then followed by instrumental analysis |
| Polyoxymethylene (POM) | | | |
| SM for certain substances [according to the material information provided (e.g. regulatory affairs products information data sheet, etc)] | The plastic resin used must be listed in Appendix A and relevant notice. | GB 4806.7 | Migration according to GB31604.1 and GB 5009.156, and then followed by instrumental analysis |
| Tritan Copolyester TX1001 | | | |
| 2,2,4,4-tetramethylcyclobutane-1,3-diol (TMCD, CAS no. 3010-96-6), specific migration | *Only for use at temperatures not higher than 100°C | Polymer is listed in Appendix A (CAS No. 261716-94-3) | Migration according to GB31604.1 and GB 5009.156 and GB 31604.61 |

| | | |
|--|--------------------|--|
| South Korea | | |
| Plastic | | |
| Restricted substance | Requirement | Test method |
| All Plastic | | |
| Total lead, cadmium, mercury and chromium (VI) content, Material Specification | ≤ 100 mg/kg | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (VI), methods 2-1, 2-2, 2-3 and 2-4. |
| Acrylic Resin (Polymethyl methacrylate (PMMA)) | | |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | |

| | | |
|--|---|--|
| Potassium permanganate consumption | ≤ 10 mg/l | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (VI), methods 2-1, 2-7, 2-8 and 2-29. |
| Evaporation residue | ≤ 30 mg/l | |
| Methyl methacrylate, specific migration (Limited to polymer that contains ≥ 50% of methyl methacrylate) | ≤ 6.0 mg/l | |
| Polyamide | | |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (VI), methods 2-1, 2-8, 2-7, 2-30, 2-31 and 2-32. |
| Evaporation residue | ≤ 30 mg/l | |
| Potassium permanganate consumption | ≤ 10 mg/l | |
| Caprolactam, specific migration | ≤ 15 mg/l | |
| Primary Aromatic Amines (PAA), migration (Sum as aniline, 4,4'-methylenedianiline and 2,4-toluenediamine) | ≤ 0.01 mg/l | |
| Ethylenediamine, specific migration | ≤ 12 mg/l | |
| Hexamethylenediamine, specific migration | ≤ 2.4 mg/l | |
| Lauro lactam, specific migration | ≤ 5.0 mg/l | |
| Polyethylene (PE) and Polypropylene (PP) | | |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Migration of lead, potassium permanganate consumption, evaporation residue, 1-hexene and 1-octene. Article 7 (IV), methods 2-1, 2-7, 2-8 and 2-20. |
| Potassium permanganate consumption | ≤ 10 mg/l | |
| Evaporation residue | ≤ 150 mg/l (for use at temperatures ≤ 100°C and n-heptane as leaching solution) ≤ 30 mg/l (other simulants as leaching solution) | |
| 1-hexene, specific migration (only for PE) | ≤ 3 mg/l | |
| 1-octene, specific migration (only for PE) | ≤ 15 mg/l | |
| Polyurethane (PU) | | |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (IV), methods 2-1, 2-7, 2-8, 2-38 and 2-31. |
| Potassium permanganate consumption | ≤ 10 mg/l | |
| Evaporation residue | ≤ 30 mg/l | |
| Isocyanate, specific migration | ≤ 0.1 mg/l | |
| 4,4'-methylenedianiline, specific migration | ≤ 0.01 mg/l | |

| Polyethylene Terephthalate (PET) | | |
|---------------------------------------|-------------|---|
| Lead (Pb), specific migration | ≤ 1.0 mg/l | Ministry of Food and Drug Safety - Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (IV), methods 2-1, 2-7, 2-8, 2-10, 2-24 and 2-25. |
| Potassium permanganate consumption | ≤ 10 mg/l | |
| Evaporation residue | ≤ 30 mg/l | |
| Antimony (Sb), specific migration | ≤ 0.04 mg/l | |
| Germanium (Ge), specific migration | ≤ 0.1 mg/l | |
| Terephthalic acid, specific migration | ≤ 7.5 mg/l | |
| Isophthalic acid, specific migration | ≤ 5.0 mg/l | |
| Acetaldehyde, specific migration | ≤ 6.0 mg/l | |
| Polyacetal/Polyoxymethylene (POM) | | |
| Lead (Pb), specific migration | ≤ 1.0 mg/l | Korea Standards and Specifications for Utensils, Containers and Packaging for Food Products, Article 7 (IV), methods 2-1, 2-7, 2-8 and 2-27. |
| Potassium permanganate consumption | ≤ 10 mg/l | |
| Evaporation residue | ≤ 30 mg/l | |
| Formaldehyde, specific migration | ≤ 4.0 mg/l | |

| Japan Plastic | | |
|--|---|---|
| All Plastic and polymer coatings | | |
| The final product must comply with the composition requirements, the food type that may be in contact, the permitted temperature conditions, and applicable limitations in accordance with article 18 (3) in Food Sanitation Act No 233 of 1947, amendments and applicable tables. | | |
| Base material and monomers | Must meet the specification in positive list in Appendix 1 Table 1 and corresponding lists of monomers in Annexes 1 to 21 | |
| Additives | Must meet the specification in positive list in Appendix 1 Table 2 | |
| Restricted substance | Requirement | Test method |
| All Plastic | | |
| Elution of coloring agent | Not recognized | Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to Cabinet Office Notification 95/2025 |
| Overall migration | ≤ 0.1 mg/cm ² | |
| Lead, Cadmium | ≤ 100 µg/g each | |
| Heavy metal (as Pb) | ≤ 1 µg/ml | |
| Potassium permanganate consumption | ≤ 10 µg/ml | |
| Acrylic Resin (Polymethyl methacrylate (PMMA)) | | |

| | | |
|--|---|--|
| Evaporation residue | ≤ 30 µg/ml | Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 |
| Methyl methacrylate, specific migration | ≤ 15 µg/ml | |
| Synthetic resin made from formaldehyde | | |
| Formaldehyde, specific migration | Negative | Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 |
| Evaporation residue | ≤ 30 µg/ml | |
| Polyethylene (PE) and Polypropylene (PP) | | |
| Evaporation residue | ≤ 150 µg/ml (for use at temperatures ≤ 100°C and n-heptane as leaching solution) ≤ 30 µg/ml (other simulants as leaching solution) | Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 |
| Polyethylene Terephthalate (PET) | | |
| Evaporation residue | ≤ 30 µg/ml | Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 |
| Antimony (Sb), specific migration | ≤ 0.05 µg/ml | |
| Germanium (Ge), specific migration | ≤ 0.1 µg/ml | |
| Polyamide (PA) | | |
| Evaporation residue | ≤ 30 µg/ml | Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 |
| Caprolactam, specific migration | ≤ 15 µg/ml | |

| Taiwan Plastic | | |
|------------------------------------|---|---|
| Restricted substance | Requirement | Test method |
| All Plastic | | |
| Elution of coloring agent | Not recognized | Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Lead, Cadmium | ≤ 100 ppm | |
| Heavy metal (as Pb) | not more than 1 ppm | |
| Potassium permanganate consumption | not more than 10 ppm | |
| Phthalate Content | di-(2-ethylhexyl) phthalate (DEHP), di-n-butyl phthalate(DBP), Butylbenzyl phthalate(BBP), Di decyl phthalate(DIDP), | |

| | | |
|--|--|---|
| | Diisononyl phthalate(DINP), Dimethyl phthalate(DMP), Di-n-octyl phthalate(DNOP), Diethyl phthalate(DEP) each content $\leq 0.1\%$ | |
| Acrylic Resin (Polymethyl methacrylate (PMMA)) | | |
| Evaporation residue | ≤ 30 ppm | Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Methyl methacrylate, specific migration | ≤ 15 ppm | |
| Polyamide | | |
| Evaporation residue | ≤ 30 ppm | Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Caprolactam, specific migration | ≤ 15 ppm | |
| Polyethylene (PE) and Polypropylene (PP) | | |
| Evaporation residue | ≤ 150 ppm (for use at temperatures $\leq 100^{\circ}\text{C}$ and n-heptane as leaching solution) ≤ 30 ppm (other simulants as leaching solution) | Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Polyethylene Terephthalate (PET) | | |
| Evaporation residue | ≤ 30 ppm | Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Antimony (Sb), specific migration | ≤ 0.05 ppm | |
| Germanium (Ge), specific migration | ≤ 0.1 ppm | |

Natural rubber, synthetic rubber, silicone and elastomer

| EU Rubber | | |
|--|---|-----------------------------|
| Restricted substance/Requirement | Limit | Test method |
| Antimicrobial effect substances | Usage ban | |
| Overall migration limit | 10 mg/dm ² 60 mg/kg - for caps, seals, stoppers and similar closures - for infants and young children | EN1186, BfR recommendations |
| Polycyclic Aromatic Hydrocarbons (PAH)*, Content | < 0.2 ppm, each 10 listed PAH < 1 ppm, naphthalene | AfPS GS 2019:01 PAK |

| | | |
|---|---|---|
| | < 1 ppm sum of Anthracene, fluoranthene, phenanthrene, pyrene < 1 ppm, sum of 15 PAH | |
| Polycyclic Aromatic Hydrocarbons (PAH)*, specific migration | 10 µg/kg | EN 13130+GC/MS |
| Lead (Pb), total | For rubber: 0.003% For rubber with mouth contact: 0.001% | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Zinc (Zn), total | 1 % | Total metal content by microwave digestion with HNO ₃ /H ₂ O ₂ and determination with ICP/MS |
| Organotin Compounds* | 0.05 mg/kg | DIN 38407-13 |
| Formaldehyde, specific migration | 3 ppm (aqueous solution only) | EN 13130-23 |
| Hexamethylenetetramine, specific migration | SML(T) = 15 mg/kg as the sum of the migration of hexamethylenetetramine and formaldehyde | |
| N-nitrosamines, specific migration | 0.01ppm 1 µg/dm ² , sum release in elastomers | EN 12868 |
| N-nitrosable substances For rubber with mouth contact | 0.1 ppm | |
| Bisphenol A (BPA) and other bisphenols and bisphenol derivatives listed in Part 3 of Annex VI to Regulation (EC) No 1272/2008 due to their harmonised classification as category 1A or 1B 'mutagenic', 'carcinogenic', 'toxic to reproduction' ('CMR') or category 1 'endocrine disrupting ('ED') for human health' | n.d (detection limit: 0.001 mg/kg) | Extraction with organic solvent followed by instrumental analysis |
| Lead (Pb), migration | n.d. (detection limit of 0.01 mg/kg) | BfR recommendation XXI |
| Primary Aromatic Amines (PAA), migration | n.d (a detection limit of 0.01 mg/kg) n.d. PAAs listed in REACH entry 43 to Appendix 8 of Annex XVII : n.d. (detection limit of 0.002 mg/kg) | |
| Secondary aliphatic and cycloaliphatic amines, specific migration | 5 mg/dm ² | |
| Specific migration of metals | Barium: ≤ 1.2 mg/kg Copper: ≤ 4 mg/kg Aluminium: ≤ 1 mg/kg Zinc: ≤ 5 mg/kg | French Decree of 5 August 2020 |

| | | |
|--|-----------|--|
| Residual content of impurities (lead, cadmium, antimony, mercury and arsenic) in finished products | ≤ 1 mg/kg | |
| Peroxide residues | Absence | DGCCRf - 2004-64, European Pharmacopoeia, 2005 |
| Volatile Organic Matter (VOM) | < 0.5% | DGCCRf - 2004-64, French decree 25/11/92 |
| Aromatic Amines | ≤1 mg/kg | DGCCRf - 2004-64, EN 13130 |

China

Natural rubber, synthetic rubber materials and articles

Migration test shall be implemented according to requirements of GB 31604.1

| Requirement | | Material standard | Test method |
|--|--|---|---|
| Raw material requirement | The used natural rubber resin and synthetic rubber resin shall be listed in Appendix A of GB 4806.11 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. Vulcanized thermoplastic elastomer resin shall be listed in Appendix A of GB 4806.7 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | GB 4806.11 Food Safety National Standards – rubber materials and articles | |
| Additive | The used additives shall be listed in GB 9685 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | | GB 9685 |
| Sensory Requirement | No peculiar odor. Extraction solvent should be clear and no smell. | | GB 4806.11 |
| Overall migration test - distilled water, 4% acetic acid, 10% ethanol, 20% ethanol, 50% ethanol, 95% ethanol | ≤10 mg/dm ² or 60 mg/kg | | GB 31604.8 |
| Potassium permanganate titration in Distilled water (60°C, 2h) | ≤10 mg/kg | | GB 31604.2 3 rd migration |
| Heavy metal (as Pb) content in 4% acetic acid (60°C, 2h) | ≤1 mg/kg | | GB 31604.9 |

| | | | |
|---|--|--|-------------|
| Sum of all Primary Aromatic Amines (PAA), migration | n.d. (detection limit 0.01 mg/kg) applicable to rubber materials and articles containing for amine antioxidants, sulfenamide vulcanization accelerators, azo colorants and other substances that may produce PAAs. | | GB 31604.52 |
| N-nitrosamines, specific migration | 0.01 mg/kg | | GB 31604.62 |
| N-nitrosatable substances | 0.1 mg/kg only applicable to rubber materials and articles containing vulcanization accelerators and other substances that may produce N-nitrosamines and N-nitrosatable substances | | |

Uruguay & Brazil Elastomer including rubber

The final product must comply with the requirements in GMC Resolution no. 54/97 and RDC no. 123/01 and the composition requirements and the specific migration limit(s) in accordance with applicable resolutions and technical regulations below.

| Restricted substance | Limit | Standard |
|---|--|--|
| Positive lists of elastomeric polymers, crosslinking agents, additives etc. | Must meet the specific migration limits and composition limits in GMC Resolution no. 02/12 as amended by GMC Res No 19/21 RDC no. 56/12 amended by RDC no. 589/21 | Applicable standards in GMC Res. no. 28/99 RDC no. 123/01 |
| Global migration | 50 mg/ kg \geq 250 ml 8 mg/ dm ² < 250 ml | Applicable standard in GMC Res. no. 36/92 RDC no. 123/01 |
| Colorants and pigments in elastomer | Must comply with the requirements specified in, section 2 in Annex GMC Resolution no. 15/10 RDC no. 52/10 | GMC Res. no. 15/10 RDC no. 52/10 |

| US Rubber | |
|---|-----------------|
| All polymers must comply with US Regulation 21 CFR Part 177 – Indirect Food Additives: Polymers | |
| Restricted substance/Requirement | Limit |
| Rubber articles intended for repeated use | 21 CFR 177.2600 |
| Closures with sealing gaskets for food containers | 21 CFR 177.1210 |

| South Korea, Japan & Taiwan Rubber and silicone | | |
|---|---|---|
| Restricted substance/Requirement | Limit | Test method |
| Base material and monomers | Must meet the specification in positive list in Appendix 1 Table 1 and corresponding lists of monomers in Annexes 1 to 21 | Valid for silicone only, Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) and amendments |
| Additives | Must meet the specification in positive list in Appendix 1 Table 2 | |
| Elution of coloring agent | Not recognized Only for Japan & Taiwan | Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Total lead (Pb) content, Material Specification | ≤ 100 mg/kg (for non-pacifier) ≤ 10 mg/kg (for pacifier) | KR: Article 7 (IV) of food contact code, methods 2-1, 2-2, 2-49 and 2-39 Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to |
| Total cadmium (Cd) content, Material Specification | ≤ 100 mg/kg (for non-pacifier) ≤ 10 mg/kg (for pacifier) | |
| 2-Mercatoimidazoline, Material Specification (limited to rubber containing chlorine) | Not detected | |

| | | |
|---|---|--|
| 1,3-butadiene, Material Specification (limited to the rubber material that contain 50% or more of 1,3-butadiene) | ≤ 1.0 mg/kg | 2010 MHLW Notice No. 336 Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Lead (Pb), specific migration | ≤ 1.0 mg/kg | KR: Article 7 (IV) of food contact code, methods 2-1, 2-8, 2-26, 2-27, 2-50 and 2-51. Japan Specifications and Standards for Food, Food Additives, etc. (1959 MHW Notice No. 370) with Amendments up to 2010 MHLW Notice No. 336 Taiwan Sanitation Standard for Food Utensils, Containers and Packages |
| Evaporation residue | ≤ 60 mg/kg (for non-pacifier) ≤ 40 mg/kg (for pacifier) | |
| Phenol, specific migration | ≤ 5.0 mg/l | |
| Formaldehyde, specific migration | ≤ 4.0 mg/l Not detected (for Japan & Taiwan) | |
| Zinc (Zn), specific migration | ≤ 15 mg/kg (for non-pacifier) ≤ 1.0 mg/kg (for pacifier) | |
| N-nitrosamines, Migration Specification (Sum of N-nitrosodimethylamine, N-nitrosodiethylamine, N-nitrosodi-n-propyl amine, N-nitrosodi-n buthylamine, N-nitrosopiperidine, N-nitrosopyrrolidine, N-nitroso morpholine) | ≤ 0.01 mg/kg (for pacifier) | |
| N-nitrosatable substances, Migration Specification (Sum of N-nitrosodimethylamine, N-nitrosodiethylamine, N-nitrosodi-n-propyl amine, N-nitrosodi-n buthylamine, N-nitrosopiperidine, N-nitrosopyrrolidine, N-nitroso morpholine) | ≤ 0.1 mg/kg (for pacifier) | |
| Phthalates, content | Only For Taiwan di-(2-ethylhexyl) phthalate (DEHP), di-n-butyl phthalate(DBP), Butylbenzyl phthalate(BBP), Diisodecyl phthalate(DIDP), Diisononyl phthalate(DINP), Dimethyl phthalate(DMP), Di-n-octyl phthalate(DNOP), Diethyl phthalate(DEP) each content ≤ 0.1% | Taiwan Sanitation Standard for Food Utensils, Containers and Packages |

EU & Switzerland Silicone

| Restricted substance | Requirements |
|---|---|
| Monomers, additives and other starting substances | Must be listed in annex I in Spanish Royal Decree 847/2011 or in Annex I in EU Regulation (EU) No.10/2011 |

| | or EU Resolution AP (2004) 5 and Annexes 2 & 9 of Swiss Ordinance SR 817.023.21. | |
|---|---|---|
| Polymerization aids | Must comply with article 5 in Spanish Royal Decree 847/2011 and not be present in final product and Annexes 2 & 9 of Swiss Ordinance SR 817.023.21. | |
| Identity and purity of coloring matter | Must fulfill the criteria of identity and purity established in article 6 and Annex II of Royal Decree 847/2011 Article. | |
| Specific migration limits (SML) | Final product must fulfill SML in Annex I in Royal Decree 847/2011, Annexes III and V in Regulation (EU) No.10/2011 or EU Resolution Resolution AP(2004) 5. | |
| Restricted substance/Requirement | Limit | Test method |
| Overall migration limit | 10 mg/dm ² 60 mg/kg for infants and young children | EN1186 |
| Migration of colorants | > 95% transmission | DM 21/03/1973 |
| SML of Organotin (as Tin) | 0.1 mg/kg | Arrêté du 25 Novembre 1992 |
| Polycyclic Aromatic Hydrocarbons (PAH)*, Content | < 0.2 ppm, each 10 listed PAH < 1 ppm, naphthalene < 1 ppm sum of Anthracene, fluoranthene, phenanthrene, pyrene < 1 ppm, sum of 15 PAH | AfPS GS 2019:01 PAK |
| Polycyclic Aromatic Hydrocarbons (PAH)*, Specification Migration | 5 µg/kg | EN 13130+GC/MS |
| Bisphenol A (BPA) and other bisphenols and bisphenol derivatives listed in Part 3 of Annex VI to Regulation (EC) No 1272/2008 due to their harmonised classification as category 1A or 1B 'mutagenic', 'carcinogenic', 'toxic to reproduction' ('CMR') or category 1 'endocrine disrupting ('ED') for human health' | n.d (detection limit: 0.001 mg/kg) | Extraction with organic solvent followed by instrumental analysis |
| Peroxide | Not detected | Ph. Eur. Method 2.5.5 |
| Volatile Organic Matter (VOM) | 0.5% | French Decree 2007-766, French Arrete 25 Nov. 1992, 4h/200°C |
| Formaldehyde specific migration | 3 ppm (Aqueous simulants only) | EN 13130-23 |

US

Silicone

All polymers must comply with US Regulation 21 CFR Part 177 – Indirect Food Additives: Polymers

| Restricted substance/Requirement | Limit |
|----------------------------------|-------|
|----------------------------------|-------|

| | |
|---|-----------------|
| Rubber articles intended for repeated use | 21 CFR 177.2600 |
| Closures with sealing gaskets for food containers | 21 CFR 177.1210 |

| China Silicone Rubber | | | |
|---|---|---|--|
| Migration test shall be implemented according to requirements of GB 31604.1 | | | |
| Restricted substance/Requirement | Limit/Requirement | Material standard | Test method |
| Raw material requirement | The used basic polymer should be listed in appendix A or relevant notice, and meet the specification, including specific migration limits and other restrictions. | GB 4806.16 Food Safety National Standards – silicone rubber materials and articles | |
| Additive | The used additives shall be listed in GB 9685 or relevant notice and comply with all specifications, including specific migration limits and other restrictions. | | GB 9685 |
| Sensory Requirement | Sensory: shall have normal colour, without odour, dirt, etc. Migration solution: shall have no colouration, turbidity, participation, odour, etc., that deteriorates the organoleptic characteristics. | | GB 4806.16 Visual method |
| Overall migration test | $\leq 10 \text{ mg/dm}^2$ $\leq 60 \text{ mg/kg}$ for infant's products | | GB 31604.8 |
| Potassium permanganate consumption | $\leq 10 \text{ mg/kg}$ | | GB 31604.2 Distilled water (60°C, 2h) |
| Heavy metal (as Pb) content | $\leq 1 \text{ mg/kg}$ | | GB 31604.9 4% acetic acid (60°C, 2h) |
| Volatile substances | $\leq 0.5 \text{ g/100 g}$ | | GB 4806.16 Appendix B |

Waxes and paraffines

| Uruguay & Brazil Waxes and Paraffines | | |
|---|--|--------------------------------------|
| Restricted substance | Limit | Standard |
| Components for preparation of paraffin-based coatings | Must comply with restrictions and specification in the | GMC Res. no. 67/00 RDC no. 122/01 |

| | | |
|--|--|--|
| | positive list chapter 3 in GMC Res no. 67/00 and RDC no. 122/01. | |
|--|--|--|

Requirements - based on product type

| US California Proposition 65 | | | | |
|---|----------------------------|--|--|---|
| Category | Restricted substance/Limit | | | Method |
| | Arsenic (As) | Cadmium (Cd) | Lead (Pb) | |
| Shot Glass ¹⁶ | / | / | ≤ 90 ppm total content and all surfaces shall produce a result of ≤ 1.0 µg | EPA 3051A / EPA 3050B / EPA 3052 / NIOSH method 9100/ ASTM C 927/ ASTM C738 |
| Bowl (ceramic/glass) | / | / | Exterior decoration: ≤ 1 µg and ≤ 90 ppm and ≤ 0.99 ppm (corrected internal volume) Interior decoration: n.d. | |
| Salt and pepper shakers ¹⁷ – all accessible exterior substrates and surface coatings | / | / | ≤ 90 ppm total content and ≤ 1.0 µg | |
| Drinking glasses made with recycled glass (drinking glasses with exterior designs - made from recycled glass) | / | / | ≤ 90 ppm total content and all surfaces shall produce a result of ≤ 1.0 µg | |
| Plastic and Metallic Food and Beverage Container and Mug | / | Exterior decoration: ≤ 1.0 µg | Exterior decoration: ≤ 1.0 µg Lip and rim: n.d. Interior decoration: n.d. | ASTM F963 |
| Cookware, e.g ceramic or glass casserole dish with colored artwork or design (ceramic/glass) | / | / | Exterior decoration: ≤ 50 ppm total content and ≤ 1.0 µg Interior decoration: ≤ 0.99 ppm | |
| Halloween decor, costume and its accessory, including e.g. candy bowls | ≤ 25 ppm soluble content | ≤ 300 ppm total content-mouthable substrates and | ≤ 90 ppm total content – surface coatings and all substrates | |

^{16,17} Non-suspect materials, except leather, as defined by the Consumer Products Safety Commission in 16 CFR 1500.91 (d) and (e) will not be tested. [eCFR:: 16 CFR 1500.91 -- Determinations regarding lead content for certain materials or products under section 101 of the Consumer Product Safety Improvement Act.](#)

| | | | |
|---|---|--|---|
| | - all accessible substrates and surface coatings | surface coatings, ≤ 75 ppm soluble content- All other accessible substrates and surface coatings | |
| Category | Total Organic Flourine, PFOA | | Method |
| Children's lunch bag - made from textiles and coated material | ≤ 20 mg/kg of total organic fluorine PFAS: n.d. according to H&M RSL Textile products, Accessories, Footwear, Bags and Belts | | EN 14582/ ASTM D7359 EN ISO 23702-1/ EN 17681-1 |

Requirements - Child Care Articles

EU

Cutlery and Feeding Utensils

| Additional requirements for Metals / Stainless steel / Silicone/ Glass/ Ceramic/ Enamel/ Plastic & TPEs/ Wood | | |
|---|----------------------|----------------------|
| Restricted substance | Limit | Test method |
| Antimony (Sb) | 15 mg/kg | According to EN14372 |
| Arsenic (As) | 10 mg/kg | |
| Barium (Ba) | 100 mg/kg | |
| Cadmium (Cd) | 20 mg/kg | |
| Lead (Pb) | 25 mg/kg | |
| Chromium (Cr) | 10 mg/kg | |
| Mercury (Hg) | 10 mg/kg | |
| Selenium (Se) | 100 mg/kg | |
| Additional requirements specific to Plastic | | |
| Restricted substance | Limit | Test method |
| Di-isononyl phthalate (DINP) | < 0.1 % w/w in total | According to EN14372 |
| Di-(2-ethylhexyl) phthalate (DEHP) | | |
| Di-n-octyl phthalate (DNOP) | | |
| Di-iso-decyl phthalate (DIDP) | | |
| Butyl benzyl phthalate (BBP) | | |
| Di-butyl phthalate (DBP) | | |
| Additional requirements specific to Metals/ Stainless steel | | |
| Restricted substance | Limit | Test method |

| | | |
|--|--------------------------------|-------------|
| Nickel release | < 0.5 µg/cm ² /week | EN 1811 |
| Additional requirements specific to Wood | | |
| Restricted substance | Limit | Test method |
| Formaldehyde release | < 15 mg/kg | ISO 4614 |

Drinking Equipment

Plastic & Thermoplastic Elastomer (TPE), Rubber, Silicone

| General Requirements for Plastic & Thermoplastic Elastomer (TPE) / Rubber/ Silicone | | |
|---|--|---|
| Restricted substance | Limit | Test method |
| Aluminium (Al) | 6000 mg/kg | According to EN 14350 |
| Antimony (Sb) | 120 mg/kg | |
| Arsenic (As) | 10 mg/kg | |
| Barium (Ba) | 4000 mg/kg | |
| Boron (B) | 3200 mg/kg | |
| Cadmium (Cd) | 3.6 mg/kg | |
| Chromium (Cr III) | 100 mg/kg | |
| Chromium (Cr VI) | 0.002 mg/kg If the result is below the Limit of Quantification of EN 71-3, the sample is to be considered passed. | |
| Cobalt (Co) | 28 mg/kg | |
| Copper (Cu) | 1 660 mg/kg | |
| Lead (Pb) | 5.0 mg/kg | |
| Manganese (Mn) | 600 mg/kg | |
| Mercury (Hg) | 20 mg/kg | |
| Nickel (Ni) | 56 mg/kg | |
| Selenium (Se) | 100 mg/kg | |
| Strontium (Sr) | 12 000 mg/kg | |
| Tin (Sn) | 40 000 mg/kg | |
| Organic Tin | 2.5 mg/kg | |
| Zinc (Zn) | 10 000 mg/kg | |
| N-Nitrosamines release | 0.01 mg/kg | |
| N-Nitrosatables release | 0.1 mg/kg | |
| Additional requirements specific to Thermoplastic Elastomer (TPE) | | |
| Restricted substance | Limit | Test method |
| Formaldehyde, specific migration | 0.5 mg/l | EN 14350 |
| Primary Aromatic Amines (PAA), migration | Sum of PAA: n.d. (a detection limit of 0.01 mg/kg) Individual PAA listed in REACH entry 43 to Appendix 8 of Annex XVII : n.d. | EN 14350 Simulant: 3% acetic acid. Test conditions: 40°C for 24 hours, |

| | (detection limit of 0.002 mg/kg) | |
|---|---|--|
| Additional requirements specific to Rubber | | |
| Restricted substance | Limit | Test method |
| 2-mercaptobenzothiazole (MBT) | 8 mg/kg | EN 14350 |
| 2,6-bis(1,1-dimethylethyl)-4-methyl-phenol (BHT) | 0.42 mg/l | |
| 2,2'-methylenebis(4-ethyl-6-tert-butylphenol) (Cyanox 425) | 0.08 mg/l This limit is the SML(t) for the sum of Cyanox 425 and Antioxidant 2246 | |
| 2,2'-methylenebis(6-(1,1-dimethylethyl)-4-methyl-phenol) (Antioxidant 2246) | | |
| Butylated reaction product of p-cresol and dicyclopentadiene (Wingstay L) | 0.34 mg/l | |
| 2,4-bis(octylthiomethyl)-6-methylphenol (Irganox1520) | 0.34 mg/l This limit is the SML(t) for the sum of Irganox 1520 and Irganox 1726 | |
| 2,4-bis(dodecylthiomethyl)-6-methylphenol (Irganox 1726) | | |
| Formaldehyde, specific migration | 0.5 mg/l | |
| Primary Aromatic Amines (PAA), migration | Sum of PAA: n.d. (a detection limit of 0.01 mg/kg) Individual PAA listed in REACH entry 43 to Appendix 8 of Annex XVII : n.d. (detection limit of 0.002 mg/kg) | Simulant: 3% acetic acid. Test conditions: 40°C for 24 hours, According to EN 14350. BfR XXI/1-2 |
| Additional requirements specific to Silicone | | |
| Restricted substance | Limit | Test method |
| Volatile Compounds Content | < 0.5 % | EN 14350 |

Glass

| General requirements for Glass | | |
|--------------------------------|-------------------------|--|
| Restricted substance | Limit | Test method |
| Lead (Pb) | 10 µg/l of the simulant | EN ISO 17294-2 Simulant: 4% acetic acid. Test conditions: 22°C for 24 hours |
| Cadmium (Cd) | 3 µg/l of the simulant | |

US

| Children's products | | |
|-------------------------------------|-------|-------------|
| Restricted Materials/ Substances | Limit | Test Method |

| | | |
|--|--------------|---|
| Total cadmium (Cd) | ≤ 40 mg/kg | CPSC-CH-E1001-08.3 (Mod)/CPSC-CH-E1002-08.3 (Mod) |
| Total cadmium (Cd) in surface coating | ≤ 40 mg/kg | CPSC-CH-E1003-09.1 (Mod) |
| Ban of lead-containing paint and similar surface coatings | | 16 CFR Part 1303 |
| Total lead (Pb) | ≤ 90 mg/kg | |
| Children's products containing lead | | CPSIA – 15 U.S.C. § 1278a |
| Total lead (Pb) | ≤ 90 mg/kg | |
| Prohibition of children's toys and child care articles containing specified phthalates | | 16 CFR Part 1307.3 |
| di-(2-ethylhexyl) phthalate (DEHP) | ≤ 0.1%, each | |
| dibutyl phthalate (DBP) | | |
| benzyl butyl phthalate (BBP) | | |
| diisononyl phthalate (DINP) | | |
| diisobutyl phthalate (DIBP) | | |
| di-n-pentyl phthalate (DPENP) | | |
| di-n-hexyl phthalate (DHEXP) | | |
| dicyclohexyl phthalate (DCHP) | | |

Canada

| Restricted Materials/ Substances | Limit | Test Method |
|--|----------------------------------|--------------------------------|
| Infant Feeding Bottle Nipples | | |
| SOR/2016-180 | | |
| Limit of volatile N-nitrosamines | ≤ 0.01 mg/kg | by dichloromethane extraction |
| Surface Coating Materials | | |
| SOR/ 2016-193, SOR/ 2011-17, SOR/2022-122 | | |
| Total lead (Pb) | ≤ 90 mg/kg | |
| Total mercury (Hg) | ≤ 10 mg/kg | |
| any compound of Antimony (Sb) Arsenic (As) Cadmium (Cd) Selenium (Se) Barium (Ba) | ≤ 1000 mg/kg | ASTM F963/ EN 71-3/ ISO 8124-3 |
| Consumer Products Containing Lead | | |
| SOR/2018-83 | | |
| Total lead (Pb) | ≤ 90 mg/kg, each accessible part | |

Appendix: Restricted substances with CAS no

Not exhaustive list

| Restricted substance name | CAS No |
|------------------------------------|------------|
| Acrylamide | 79-06-1 |
| Aluminium (Al) | 7429-90-5 |
| 4-aminobiphenyl | 92-67-1 |
| Aniline hydrochloride | 142-04-1 |
| Antimony (Sb) | 7440-36-0 |
| Arsenic (As) | 7440-38-2 |
| Barium (Ba) | 7440-39-3 |
| Beryllium (Be) | 7440-41-7 |
| Biphenyl | 92-52-4 |
| Benzidine | 92-87-5 |
| β -naphthylamine | 91-59-8 |
| Boron (B) | 7440-42-8 |
| 1,3-Butadiene | 106-99-0 |
| Cadmium (Cd) | 7440-43-9 |
| Caprolactam | 105-60-2 |
| Cerium | 7440-45-1 |
| 3-Chloro-1,2-propanediol (3-MPCD) | 96-24-2 |
| Chromium (Cr) | 7440-47-3 |
| Chromium III (Cr ³⁺) | 16065-83-1 |
| Chromium VI (Cr ⁶⁺) | 18540-29-9 |
| Cobalt (Co) | 7440-48-4 |
| Copper (Cu) | 7440-50-8 |
| 1,3-Dichloro-2-propanol (1,3- DCP) | 96-23-1 |
| Diisobutyl phthalate (DIBP) | 84-69-5 |
| Diisopropylnaphthalene (DIPN) | 38640-62-9 |
| Dimethylformamide (DMF) | 68-12-2 |
| Epichlorohydrin | 106-89-8 |
| Ethylenediamine | 107-15-3 |
| Fluorine | 7782-41-4 |
| Formaldehyde | 50-00-0 |
| Gallium | 7440-55-3 |
| Germanium (Ge) | 7440-56-4 |
| Glyoxal | 107-22-2 |
| Hafnium (Hf) | 7440-58-6 |
| Hexamethylenediamine | 124-09-4 |

| | |
|---------------------------------|-----------------------|
| Hexamethylenetetramine | 100-97-0 |
| 1-Hexene | 592-41-6 |
| Hydroquinone | 123-31-9 |
| Imazalil | 35554-44-0 |
| Iron (Fe) | 7439-89-6 |
| Isophthalic acid | 121-91-5 |
| Lauro lactam | 947-04-6 |
| Lead (Pb) | 7439-92-1 |
| Lithium (Li) | 7439-93-2 |
| Manganese (Mn) | 7439-96-5 |
| 4,4-methylenedianiline | 101-77-9 |
| Methyl methacrylate | 80-62-6 |
| Melamine | 108-78-1 |
| Mercury (Hg) | 7439-97-6 |
| Molybdenum (Mo) | 7439-98-7 |
| N-ethylphenyl amine | 103-69-5 |
| Nickel (Ni) | 7440-02-0 |
| 1-Octene | 111-66-0 |
| o-phenylphenol | 90-43-7 |
| Pentachlorophenol (PCP) | 87-86-5 |
| Peroxide | 8007-30-5 / 7722-84-1 |
| Polychlorinated Biphenyls (PCB) | 1336-36-3 |
| Potassium permanganate | 7722-64-7 |
| Rubidium (Rb) | 7440-17-7 |
| Selenium (Se) | 7782-49-2 |
| Silver (Ag) | 7440-22-4 |
| Strontium (Sr) | 7440-24-6 |
| Styrene | 100-42-5 |
| Sulfur dioxide | 7446-09-5 |
| Terephthalic acid | 100-21-0 |
| Tin (Sn) | 7440-31-5 |
| Titanium (Ti) | 7440-32-6 |
| Thallium (Tl) | 7440-28-0 |
| Thiabendazole | 148-79-8 |
| Tris(2-hydroxyethylamine) | 102-71-6 |
| Vanadium (V) | 7440-62-2 |
| Zinc (Zn) | 7440-66-6 |
| Zirconium (Zr) | 7440-67-7 |

| Azo Dyes and Pigments | CAS No |
|---|----------|
| 4-aminodiphenyl | 92-67-1 |
| Benzidine | 92-87-5 |
| 4-Chloro-o-toluidine | 95-69-2 |
| 2-Naphthylamine | 91-59-8 |
| o-Aminoazotoluene | 97-56-3 |
| 2-Amino-4-nitrotoluene | 99-55-8 |
| 2,4-Diaminoanisole | 615-05-4 |
| 4,4'-Diaminodiphenylmethane | 101-77-9 |
| 3,3'-Dichlorobenzidine | 91-94-1 |
| 3,3'-Dimethoxybenzidine (o-Dianisidine) | 119-90-4 |
| 3,3'-Dimethylbenzidine (o-Tolidine) | 119-93-7 |
| 3,3'-Dimethyl-4,4'-diaminodiphenylmethane | 838-88-0 |
| p-Chloroaniline | 106-47-8 |
| p-Cresidine | 120-71-8 |
| 4,4'-Methylene-bis-(2-chloroaniline) | 101-14-4 |
| 4,4'-Oxydianiline | 101-80-4 |
| 4,4'-Thiodianiline | 139-65-1 |
| 2,4-Toluenediamine | 95-80-7 |
| o-Toluidine | 95-53-4 |
| 2,4,5-Trimethylaniline | 137-17-7 |
| o-Anisidine | 90-04-0 |
| p-Aminoazobenzene | 60-09-3 |
| 2,4-Xylidine | 95-68-1 |
| 2,6-Xylidine | 87-62-7 |

| Bisphenols (not exhaustive) | CAS No |
|--|------------|
| Bisphenol A (BPA) | 80-05-7 |
| Bisphenol F (BPF) | 620-92-8 |
| Bisphenol S (BPS) | 80-09-1 |
| Bisphenol B (BPB) | 77-40-7 |
| Bisphenol AF (BPAF) | 1478-61-1 |
| 2,2-bis(4'-hydroxyphenyl)-4-methylpentane (BisP-MIBK) | 6807-17-6 |
| Phenolphthalein | 77-09-8 |
| Tetrabromobisphenol-A (TBBPA) | 79-94-7 |
| BADGE [2,2-bis(4-hydroxyphenyl)propane bis(2,3-epoxypropyl) ether] | 1675-54-3 |
| BADGE.H ₂ O | 76002-91-0 |
| BADGE.2H ₂ O | 5581-32-8 |

| | |
|----------------------------|-------------|
| BADGE.HCl | 13836-48-1 |
| BADGE.2HCl | 4809-35-2 |
| BADGE.H ₂ O.HCl | 227947-06-0 |

| Isocyanates | CAS No |
|--|-----------|
| Diphenylmethane diisocyanate (MDI) | 101-68-8 |
| Hexamethylene diisocyanate (HMDI) | 822-06-0 |
| Isophorone diisocyanate (IPDI) | 4098-71-9 |
| Tetramethylxylene diisocyanate (TMXDI) | 2778-42-9 |
| 2,4-Toluene diisocyanate (2,4 TDI) | 584-84-9 |
| 2,6-Toluene diisocyanate (2,6 TDI) | 91-08-7 |

| N-Nitroamines | CAS No |
|---------------------------|----------|
| N-Nitrosodimethylamine | 62-75-9 |
| N-Nitrosodiethylamine | 55-18-5 |
| N-Nitrosodipropylamine | 621-64-7 |
| N-Nitrosodibutylamine | 924-16-3 |
| N-Nitrosopiperidine | 100-75-4 |
| N-Nitrosopyrrolidine | 930-55-2 |
| N-Nitrosomorpholine | 59-89-2 |
| N-Nitroso-N-methylaniline | 614-00-6 |
| N-Nitroso-N-ethylaniline | 612-64-6 |

| Organotin Compounds | CAS No |
|----------------------------------|-------------|
| Dibutyltin (DBT) | 1002-53-5 |
| Diocetyl tin (DOT) | - |
| Tributyltin (TBT) | 56573-85-4 |
| Tricyclohexyltin (TCyHT) | 6056-50-4 |
| Triocetyl tin (TOT) | 250252-89-2 |
| Triphenyltin (TPhT) | 668-34-8 |
| Tripropyltin (TPT) | - |
| Other tri-substituted organotins | Various |

| Phenolic Substances | CAS No |
|---------------------|---------|
| Phenolic Substances | Various |

| PFCs/ PFAS | CAS No |
|--|-------------|
| Perfluorobutane Sulfonate (PFBS) | 29420-49-3 |
| Perfluorohexane Sulfonate (PFHxS) | 3871-99-6 |
| Perfluoroheptane Sulfonate (PFHpS) | 375-92-8 |
| Perfluorooctane Sulfonate (PFOS) | 56773-42-3 |
| Perfluorodecane Sulfonate (PFDS) | 126105-34-8 |
| Perfluorooctane Sulfonamide (PFOSA) 1H,1H,2H,2H H4PFOS 6:2 | 754-91-6 |
| Perfluorobutane Acid (PFBA) | 375-22-4 |
| Perfluoropentane Acid (PFPA) | 2706-90-3 |
| Perfluorohexane Acid (PFHxA) | 307-24-4 |
| Perfluoroheptane Acid (PFHpA) | 375-85-9 |
| Perfluorooctanoic Acid (PFOA) | 335-67-1 |
| Perfluorononane Acid (PFNA) | 375-95-1 |
| Perfluorodecane Acid (PFDA) | 335-76-2 |
| Perfluoroundecanoic Acid (PFUnA) | 4234-23-5 |
| Perfluorododecanoic Acid (PFDoA) | 307-55-1 |
| Perfluorotridecanoic Acid (PFTrA) | 72629-94-8 |
| Perfluorotetradecanoic Acid (PFTeA) | 376-06-7 |
| Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7- DMOA) | 172155-07-6 |
| 7H-Dodecanefluoroheptane Acid (HPFHpA) | 1546-95-8 |
| 2H,2H-perfluorodecane Acid (H2PFDA) | - |
| 2H,2H,3H,3H-Perfluoroundecanoic Acid (H4PFUnA) | 34598-33-9 |
| 1H,1H,2H,2H-Perfluorooctylacrylate (6:2 FTA) | 17527-29-6 |
| 1H,1H,2H,2H-Perfluorodecylacrylate (8:2 FTA) | 27905-45-9 |
| 1H,1H,2H,2H-Perfluorododecylacrylate (10:2 FTA) | 17741-60-5 |
| 1H,1H,2H,2H-Perfluoro-1-hexanol (4:2 FTOH) | 2043-47-2 |
| 1H,1H,2H,2H-Perfluoro-1-oktanol (6:2 FTOH) | 647-42-7 |
| 1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH) | 678-39-7 |
| 1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH) | 865-86-1 |
| 2-(N-methylperfluoro-FASE 1 octanesulfonamido)-ethanol (MeFOSE) | 24448-09-7 |
| 2-(N-ethylperfluoro-1-octanesulfonamido)- ethanol (EtFOSE) | 1691-99-2 |
| N-methylperfluoro-1-octanesulfonamide (MeFOSA) | 31506-32-8 |
| N-ethylperfluoro-1-octanesulfonamide (EtFOSA) | 4151-50-2 |
| 1H,1H,2H,2H-Perfluorooctanesulphonic acid (H4PFOS 6-2) | 27619-97-2 |
| All other Perfluorinated or Polyfluorinated compounds (fully or partially fluorinated compounds) | Various |

| Polycyclic Aromatic Hydrocarbons (PAHs) | CAS No |
|---|----------|
| Acenaphthene | 83-32-9 |
| Acenaphthylene | 208-96-8 |
| Anthracene | 120-12-7 |
| Benzo[a]anthracene | 56-55-3 |
| Benzo[a]pyrene | 50-32-8 |
| Benzo[b]fluoranthene | 205-99-2 |
| Benzo[e]pyrene | 192-97-2 |
| Benzo[g,h,i]perylene | 191-24-2 |
| Benzo[j]fluoranthene | 205-82-3 |
| Benzo[k]fluoranthene | 207-08-9 |
| Chrysene | 218-01-9 |
| Dibenz[a,h]anthracene | 53-70-3 |
| Fluoranthene | 206-44-0 |
| Fluorene | 86-73-7 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 |
| Naphthalene | 91-20-3 |
| Phenanthrene | 85-01-8 |
| Pyrene | 129-00-0 |

| Phthalates | CAS No |
|-----------------------------------|------------|
| Di-iso-nonylphthalate (DINP) | 28553-12-0 |
| Di-n-octylphthalate (DNOP) | 117-84-0 |
| Di(2-ethylhexyl)-phthalate (DEHP) | 117-81-7 |
| Diisodecylphthalate (DIDP) | 26761-40-0 |
| Butylbenzylphthalate (BBP) | 85-68-7 |
| Dibutylphthalate (DBP) | 84-74-2 |
| Diisobutylphthalate (DIBP) | 84-69-5 |
| Di-n-hexylphthalate (DnHP) | 84-75-3 |
| Diethylphthalate (DEP) | 84-66-2 |
| Dimethylphthalate (DMP) | 131-11-3 |
| di-n-pentyl phthalate (DPENP) | 131-18-0 |
| dicyclohexyl phthalate (DCHP) | 84-61-7 |
| Bis(2-methoxyethyl) | 117-82-8 |
| Dinonyl phthalate (DNP) | 84-76-4 |
| Di-n-propyl phthalate (DPRP) | 131-16-8 |
| Di-cyclohexyl phthalate (DCHP) | 84-61-7 |
| Di-iso-octyl phthalate (DIOP) | 27554-26-3 |

| Primary Aromatic Amines (PAA) | CAS No |
|--|-----------|
| biphenyl-4-ylamine 4-aminobiphenyl xenylamine | 92-67-1 |
| benzidine | 92-87-5 |
| 4-chloro-o-toluidine | 95-69-2 |
| 2-naphthylamine | 91-59-8 |
| o-aminoazotoluene 4-amino-2',3-dimethylazobenzene 4-o-tolylazo-o-toluidine | 97-56-3 |
| 5-nitro-o-toluidine | 99-55-8 |
| 4-chloroaniline | 106-47-8 |
| 4-methoxy-m-phenylenediamine | 615-05-4 |
| 4,4'-methylenedianiline 4,4'-diaminodiphenylmethane | 101-77-9 |
| 3,3'-dichlorobenzidine 3,3'-dichlorobiphenyl-4,4'-ylenediamine | 91-94-1 |
| 3,3'-dimethoxybenzidine o-dianisidine | 119-90-4 |
| 3,3'-dimethylbenzidine 4,4'-bi-o-toluidine | 119-93-7 |
| 4,4'-methylenedi-o-toluidine | 838-88-0 |
| 6-methoxy-m-toluidine p-cresidine | 120-71-8 |
| 4,4'-methylene-bis-(2-chloro-aniline) 2,2'-dichloro-4,4'-methylene-dianiline | 101-14-4 |
| 4,4'-oxydianiline | 101-80-4 |
| 4,4'-thiodianiline | 139-65-1 |
| o-toluidine 2-aminotoluene | 95-53-4 |
| 4-methyl-m-phenylenediamine | 95-80-7 |
| 2,4,5-trimethylaniline | 137-17-7 |
| o-anisidine 2-methoxyaniline | 90-04-0 |
| 4-amino azobenzene | 60-09-3 |
| 2,6-Dimethylaniline | 87-62-7 |
| Aniline | 62-53-3 |
| 2,4-Dimethylaniline | 95-68-1 |
| m-Phenylenediamine | 108-45-2 |
| p-Phenylenediamine | 106-50-3 |
| 2,6-Toluenediamine | 823-40-5 |
| 1,5-Diaminenaphthalene | 2243-62-1 |

Version history information is available in the separate file *History and sources Food contact products*