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XXXVI/1. Cooking Papers, Hot Filter Papers and Filter Layers[1]

As of 01.07.2015

Preamble

This Recommendation applies to overall raw materials (section I), overall production aids (section II), and special raw materials and production aids (section III) used in the production process for paper, paperboard and board that comes into contact with foodstuffs. Moreover, in the paper production process substances are used to keep manufacturing devices clean and to protect them from corrosion. This Recommendation shall not apply for these substances. The manufacturer or distributor of the paper is responsible to comply to food regulations (especially Regulation (EU) No. 1935/2004) for these substances[2]. However, substances listed in this Recommendation subject to the above stated applications were listed before 2013. Substances that are used for manufacturing of paper raw materials listed in section I or substances that are used for formulation of active ingredients listed in section II and III (e.g. emulsifiers, solvents, set-up chemicals, stabilizer, pH modifiers) are not subject to this BfR-Recommendation. For their application requirements of article 3 of the Regulation (EU) No. 1935/2004 shall be used[2]. However, substances listed in this Recommendation subject to the above stated applications were listed before 2013. Preservatives that are used to prevent microbial spoilage of formulations and slimicides are still covered by this Recommendation. There are no objections to the use of papers for the purpose of hot extraction (e.g. boil-in-bag packagages, tea bags, hot filter papers) or the use of filter layers whose intended purpose involves them being subjected to extraction (filtration), as commodities in the sense of § 2, Para. 6, No 1 of the Food and Feed Code (Lebensmittel- und Futtermittelgesetzbuch), provided they are suitable for their intended purpose and comply with the following conditions:

I. Overall raw materials[3]

A. Fibrous materials:

1. Natural and synthetic fibres based on wood pulp[4] and cellulose derivates
2. Synthetic fibres made of
   a) plasticizer-free copolymer of vinyl chloride and vinyl acetate
   b) Polyethylene
   c) Polypropylene
   d) Polyester

   provided they comply with the prevailing requirements of food law.[5, 6]

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1 This Recommendation only applies to paper that comes into contact with aqueous foodstuffs.

2 For guidance on compliance of the manufacturer's responsibility the following guidelines and assessments of substances may be used exemplarily: other Recommendations of the BfR, assessments of the European Food Safety Authority or the Scientific Committee on Food (SCF), Regulation (EU) No. 10/2011, European rules on food additives and drinking water. Moreover, an assessment can be made by the manufacturer on his own responsibility.

3 Raw materials and production aids that are suitable for all applications of this Recommendation.

4 Compare DIN 6730 "Paper and board - Vocabulary ".

5 If other auxiliary agents, for example for fibre preparation, are necessary, they must be submitted for approval.

3. Cellulosic fibres, phosphorylated, carbamidated[7]

B. Auxiliary agents

1. Silicon dioxide
2. Silicates or mixed silicates of aluminium, calcium and magnesium, including kaolin and talcum (free from asbestos fibres)
3. Calcium sulfate
4. Titanium dioxide
5. Calcium and magnesium carbonate
6. Aluminium oxide
7. Aluminium chloride hydroxide

The substances listed above must comply with the purity requirements stipulated under No 3 of Recommendation LII "Fillers (extenders) for Commodities made of Plastic".

8. Activated carbon[8]
9. Tetrasodium iminodisuccinate, max. 0.17 %, based on the dry fibres weight.

II. Overall production aids[3]

A. Slimicides:

a) Enzymatic agents
Fructose polysaccharide (levan)-hydrolase, 12.5 mg dry substance per kg paper. No more than one unit of levanase activity per gram paper must be detectable.

b) Antimicrobially active substances
   1. Chlorine dioxide
   2. Hydrogen peroxide

   The following substances must not be detectable in the hot water extract[9] of the finished articles[10]:
   3. 1,2-Benzisothiazolin-3-one (detection limit of analysis method 10 µg/dm²)
   4. Mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one in the ratio of 3:1, max. 4 mg/kg (detection limit of analysis method 0.5 µg/dm² for the sum of the mentioned isothiazolinones)
   5. Ammonium bromide/sodium hypochlorite adduct, max. 0.02 % (active substance determined as chlorine), based on the dry fibre.
   6. 2-Bromo-2-nitropropane-1,3-diol, max. 0.003 %, based on the dry fibres weight.
   7. 2-Methyl-4-isothiazolin-3-one (detection limit of analysis method 1µg/dm²)

B. Paper-refining agents

1. Polyacrylamide, provided it contains no more than 0.1 % monomeric acrylamide, max. 0.015 %

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[6] Going beyond the requirements laid down in Recommendation III, in the manufacture of polyethylene, polyvinyl alcohol may also be used as a protective colloid. Viscosity of 4 % aqueous solution of the polyvinyl alcohol at 20 °C, min. 5 mPa·s.

[7] These fibres have ion exchanging properties. Substances added to foodstuffs by their use are subjected to the requirements of the food additives law.

[8] Purity requirements in accordance with the European Pharmacopoeia

[9] The hot water extract is produced in accordance with DIN EN 647, the cold water extract is produced in accordance with DIN EN 645.

[10] Methods for testing commodities (materials and articles) made of paper or paperboard are available under http://www.bfr.bund.de/de/methodensammlung_papier__karton_und_pappe-32620.html.

2. Copolymer of acrylamide and 2-(N,N,N-trimethyl ammonium)ethylmethacrylate, max. 0.1 %, provided it contains no more than 0.1 % residual acrylamide and no more than 0.5 % residual 2-(N,N,N-trimethyl ammonium)ethylmethacrylate
3. Copolymer of acrylamide and 2-(N,N,N-trimethyl ammonium)ethylacrylate, max. 0.1 %, provided it contains no more than 0.1 % residual acrylamide and no more than 0.5 % residual 2-(N,N,N-trimethyl ammonium)ethylacrylate
4. Cross-linked, cationic polyalkylene amines[11], i.e.
   a) Polyamine-epichlorohydrin resin, produced from epichlorohydrin and diaminopropyl methylamine
   b) Polyamide-epichlorohydrin resin, produced from epichlorohydrin and adipic acid, caprolactam, diethylenetriamine and/or ethylenediamine
   c) Polyamide-epichlorohydrin resin, produced from adipic acid, diethylenetriamine and epichlorohydrin or from a mixture of epichlorohydrin and ammonia
   d) Polyamide-polyamine-epichlorohydrin resin, produced from epichlorohydrin, adipic acid, dimethyl ester and diethylenetriamine
   e) Polyamide-epichlorohydrin resin, produced from epichlorohydrin, diethylenetriamine, adipic acid and ethyleneimine, max. 0.3 %
   f) Polyamide-epichlorohydrin resin, produced from adipic acid, diethylenetriamine and a mixture of epichlorohydrin and dimethylamine, max. 0.1 %
   g) Polyamide-epichlorohydrin resin, produced from diethylenetriamine, adipic acid, glutaric acid, succinic acid and epichlorohydrin, max. 4.0 %
   h) Polyamide-epichlorohydrin resin, produced from diethylenetriamine, triethylenetetramine, adipic acid and epichlorohydrin, max. 4.0 %

   Of the wet-strength agents named above (II B 4a) to h)), in total max. 4 %, based on dry fibre in the finished product, may be used.
5. Copolymer of vinyl formamide and vinyl amine, max. 1.0 %
6. Polyethyleneimine, modified with ethylene glycol and epichlorohydrin, max. 0.2 %[11]
7. Polyhexamethylene-1,6-diisocyanate, modified with ethylene glycol monomethyl ether, max. 1.2 %
8. Polyhexamethylene-1,6-diisocyanate, modified with ethylene glycol monomethyl ether and N,N-dimethylaminoethanol, max. 1.2 %
9. Galactomannan, max. 0.5 %
10. Copolymer of styrene, butylacrylate and methylmethacrylate, max. 5.0 %
11. Copolymer of acrylamide and acrylic acid, cross-linked with N-methylene-bis(acrylamide), max. 1.0 %
12. Melamine-formaldehyde resin, max. 3 %
    No more than 1 mg formaldehyde/dm² must be detectable in extract from finished product.
13. Polyethyleneimine, max. 0.05 %
14. Copolymer of acrylamide, 2-[(methacryloyloxy)ethyl]trimethyl ammonium chloride, N,N'-methylene-bis-acrylamide and itaconic acid, max. 1.0 %, based on the dry fibre.
15. Copolymer of acryamide, 2-[(methacryloyloxy)ethyl]trimethyl ammonium chloride, N,N'-methylene-bis-acrylamide, itaconic acid and glyoxal, max. 1.0 %, based on the dry fibre.
16. Copolymer of hexamethylenediamine and epichlorohydrin, max. 2.0 %
17. Copolymer of diethylenetriamine, adipic acid, 2-aminoethanol and epichlorohydrin[11], max. 0.1 %, based on the dry fibres weight
18. Copolymer of vinylformamide and acrylic acid, max. 1 %, based on the dry fibres weight

[11] Ethyleneimine must not be detectable in the resin (detection limit: 0.1 mg/kg).
1,3-Dichloro-2-propanol must not be detectable in aqueous extract from the finished product (detection limit: 2 µg/l). The transfer of 3-monochloro-1,2-propanediol into the water extract of the finished products must be as low as technically achievable, a limit of 12 µg/l must not be exceeded in any case.

19. Copolymer of vinylformamide, vinylamine and acrylic acid, max. 1 %, based on the dry fibres weight
20. Galactomannane phosphoric acid ester, max. 0.25 % based on dry fibres weight

C. Preservatives

Sorbic acid
Sorbic acid must only be used in amounts necessary to protect the raw materials and processing aids listed under I, II and III from deterioration and decay.

D. Dewatering accelerators

Lignosulfonic acid
Water-glass, stabilised with 0.42 % sodium tetraborate, based on the formulation.

E. Dispersing agents

Calcium stearate, max. 0.4 %

F. Defoamers

a) 2,4,7,9-tetramethyl-5-decyne-4,7-diol
b) 3,6-dimethyl-4-octyne-3,6-diol
c) 2,5,8,11-tetramethyl-6-dodecyne-5,8-diol
The transfer of these three substances from the final product (in)to foodstuff may not exceed 0.05 mg/kg foodstuff (sum of the three substances).
N,N'-ethylene-bis-stearamide
Linear primary alkan-1-oles/alken-1-oles with 8-26 carbon-units (fatty alcohols), also in emulsified form[12]

Requirements for the finished products

The cooking and hot-filter papers and filter pads must cause no inhibition zone[13]. Azo dyes after § 3, Annex 1, No 7 of the Commodities Regulation (Bedarfsgegenständeverordnung) must not be used[14].

III. Special raw materials and production aids

A. for cook-in-bag packages

1. Parchmentisation agents
   Sulfuric acid
2. Neutralising and precipitating agents
   a) Ammonia
   b) Sodium carbonate

[12] Max. 2 % paraffin and max. 2 % alkyl and alkyaryloxethylates and their esters with sulfuric acid (as emulsifiers) may be added to 20-25 % aqueous solution of this antifoam agent. The liquid paraffins must comply with the "Purity requirements for liquid paraffins" in the 155th Communication of Bundesgesundheitsblatt 25 (1982) 192)

[13] Determination of transfer of antimicrobial constituents after DIN EN 1104

[14] Detecting prohibited azo dyes after method B 82.02-2 in Official Collection of German Testing Methods (Amtliche Sammlung von Untersuchungsverfahren) after § 64 of the Food and Feed Code (Lebensmittel- und Futtermittelgesetzbuch (LFGB)).

c) Sodium hydrogen carbonate
d) Aluminium sulfate
e) Sodium aluminate

3. Binding agents
   Dispersion of vinylidene chloride/acrylic acid methyl ester copolymer, provided it complies with amended Recommendation XIV. "Plastics Dispersions", Part A, max. 15.0 %

B. For tea bags

Surface refining and coating agents[15]

1. Sodium salt of carboxymethyl cellulose, purity at least 98 %
2. Methyl cellulose
3. Hydroxyethyl cellulose
4. Xanthane

C. For hot filter papers and filter layers[16] for hot filtration

1. Special fibres
   inorganic fibres based on aluminium oxide
2. Precipitating agents
   a) Aluminium sulfate
   b) Sodium aluminate

Special requirements for III A - III C:

The total dry residue of the extract with hot water[10] must not exceed 10 mg/dm² resp. 10 mg/g for filter layers with a maximum total nitrogen content (determined after Kjeldahl) of 0.1 mg/dm² resp. 0.1 mg N/g for filter layers[17].

D. Filter layers[16] for cold filtration[9]

1. Special fibres
   a) Fibres based on aluminium oxide
   b) Carbon fibres
   c) Fibres, produced from simple or mixed silicates (e.g. glass fibres)
   d) Polyoxymethylene fibres according to Recommendation XXXIII
2. Precipitating agents
   a) Aluminium sulfate
   b) Sodium aluminate
3. Binding and wet-strength agents
   a) Polyethylene dispersion according to Recommendation XIV, max. 4.0 %
   b) Neutral resins based on abietic acid (colophony)/maleic acid/fumaric acid according to Recommendation XXXVI, max. 4.0 %
   c) Polyethyleneimine, max. 0.5 %
   d) Anionic polyacrylamide according to Recommendation XXXVI, max. 0.3 %

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[15] Provided the substances named comply with the general and special purity requirements of the Regulation on Food Additives (Zusatzstoff-Verkehrsverordnung).

[16] "Filter layers" refers to products with a thickness of 500 g/m² or more.

[17] Determination of total nitrogen should not be conducted immediately following paper production, but only after about 8 days or after the paper has been placed on the market. Since wet strengthening with cationic poly-alkylene amines is only complete after 8 days, it is possible that extract from paper tested within this period will have a total nitrogen content greater than 0.1 mg/dm².

Of the binding and wet-strength agents listed under D. 3., in total, max. 4.0 %, based on dry fibre in the finished product, may be used.

4. Special aids
   Polyvinyl polypyrrolidone

Special requirements for III D:

Total dry residue of the cold water extract[10] must not exceed 5 mg/g filter layer, with inorganic components of max. 3 mg/g. Total nitrogen content of the extract (determined after Kjeldahl) must not exceed 3 mg/g filter layer. Formaldehyde must not exceed 0.3 mg/g.