

NOTIFICATION OF THE MINISTRY OF PUBLIC HEALTH
(NO. 435), B.E. 2565 (2022)
ISSUED BY VIRTUE OF THE FOOD ACT, B.E. 2522 (1979)
RE: SPECIFICATION OF QUALITIES OR STANDARDS
OF FOOD PACKAGING MADE FROM PLASTIC*

Whereas it is expedient to revise the Notification of the Ministry of Public Health on specification of qualities or standards of packaging made from plastic;

By virtue of the provisions of section 5 paragraph one and section 6 (6) of the Food Act, B.E. 2522 (1979), the Minister of Public Health hereby issues the Notification as follows.

Clause 1. The Notification of the Ministry of Public Health (No. 295), B.E. 2548 (2005), Re: Specification of Qualities or Standards of Packaging Made from Plastic, dated 30th December B.E. 2548 (2005) shall be repealed.

Clause 2. In this Notification:

“packaging” means an article used for containing food, whether by putting or wrapping the food, or by any method, and shall also include a cap or a stopper;

“packaging made from plastic” means a packaging made from virgin plastic materials that has never been used, including recycled plastic materials;

“packaging made from recycled plastic” means a packaging made from recycled plastic materials that has been through any of the following recycling processes:

(1) primary recycling (pre-consumer scrap) which means the processing, within the factory, of plastic parts (offcuts) or plastic scraps left from the process of manufacturing food packaging to reuse them in the manufacturing, provided that such plastic parts or plastic scraps must never previously come into contact with food;

(2) secondary recycling (physical reprocessing or mechanical recycling) which means the processing of plastic packaging that had been used to contain food through a physical method, including a mechanical method, such as the process in which plastics are

* Published in the Government Gazette, Vol. 139, Special Issue 139 d, page 11, dated 17th June B.E. 2565 (2022)

grinded, washed and, possibly, applied with chemicals to improve their quality, and subsequently melted and extruded into plastic pellets for the purpose of using them to make packaging, provided that such processes must not alter the basic structure of the polymers;

(3) tertiary recycling (chemical reprocessing) which means the processing of plastic packaging that had been used to contain food to regenerate them into a form of starting materials through a chemical process.

Clause 3. Packaging made from plastic, *viz.*:

- (1) packaging made from single-piece plastic; or
- (2) packaging made from multi-layered plastic; or
- (3) packaging made from a multi-material multi-layer which consists of plastic layers; or
- (4) packaging made from other materials with plastic coating; or
- (5) packaging of which the plastic part comes into contact with food; or
- (6) packaging made from composite materials with plastic components.

Clause 4. Packaging made from plastic must possess the qualities or standards as follows:

- (1) being clean;
- (2) not contaminated by pathogenic microorganism;
- (3) not having toxic substances migrating to food in the quantity that is detrimental to health, except for the types and quantity of substances specified in the quality or standard requirements laid down in Annex 1 of this Notification;
- (4) when used to contain food, not having substances migrating into food to the extent that affects the food characteristics or food components in an unacceptable manner or the food has been deteriorated in terms of its sensory attributes;
- (5) in case of colored packaging, using food grade paints and not having any color migrating into the food;
- (6) in the case where patterns or texts are printed onto the packaging, using durable printing ink and not having any printing ink flaking off into the food.

Clause 5. In addition to possessing the qualities or standards under clause 4, packaging made from plastic must also comply with the qualities or standards laid down in Annex 1 of this Notification.

In case of a packaging made from plastic with a functional barrier, if it can be proven that such functional barrier can prevent the migration of substances from the material layer in front of the functional barrier into the food, such material layer shall be granted

exemption from conforming to the qualities or standards laid down in Annex 1 of this Notification and clause 8, as well as the submission of safety assessment under clause 7.

Clause 6. A packaging made from plastic which is used to contain milk or milk products must be polyethylene, ethylene 1-alkene copolymerized resin, polypropylene, polystyrene, or polyethylene terephthalate plastic.

The milk products in paragraph one are drinking yogurt, modified infant milk, flavored milk, and cream, but shall not include such milk or milk product in powder or dry form.

Clause 7. A packaging made from plastic other than the types specified in Annex 1 of this Notification must possess the qualities or standards under clause 4 (1), (2), (4), (5) and (6) and must not have toxic substances migrating in the quantity that is detrimental to health. In this regard, documents or evidence as well as a report on safety assessment from a safety assessment agency assigned by the Notification of the Food and Drug Administration shall be submitted.

The documents or evidence used for safety assessment are as follows:

- (1) type of plastic;
- (2) name and location of the plastic manufacturer;
- (3) name and location of the manufacturer who molds the packaging;
- (4) list of chemical substances, specification and quantity of chemical substances used in the preparation of plastic, e.g., monomers, reactants, additives or plastic production aids;
- (5) documents describing the plastic production process, e.g., the process and conditions for the preparation of polymerization;
- (6) list of chemical substances and specification and quantity of chemical substances used in the molding of the packaging, or materials used in the molding of the packaging;
- (7) documents describing the molding process of the packaging;
- (8) documents summarizing the information on qualifications or information pertaining to characteristics or use conditions of the packaging made from plastic, e.g., type of food to be packaged, maximum contact temperature, contact time;
- (9) list of Impurities and quantity of impurities, chemical by-products or residues from the plastic manufacturing process or packaging molding process;
- (10) result of the study on the migration of chemicals used in the preparation of plastic and chemicals used in the molding of the packaging, including impurities, chemical by-products or residues from the plastic manufacturing process or packaging molding process, as the case may be as per use conditions;

(11) information documents on safety and toxicology of chemicals used in the preparation of plastic and chemicals used in the molding of the packaging, including impurities, chemical by-products or residues from the plastic manufacturing process or packaging molding process, as the case may be;

(12) information documents or evidence pertaining to licensure, law, regulations or quality or standard requirements relating to the plastic used in the manufacturing or relating to the packaging made from plastic of the country of the manufacturer or reference country, together with the summary of the information on the regulatory system, law, regulations or quality or standard requirements so submitted;

(13) test reports on the quality or standard as per the law, regulations or quality or standard requirements of the country of the manufacturer or reference country under (12);

(14) other documents as may be necessary (if any).

Clause 8. A packaging made from recycled plastic of secondary recycling must also possess the qualities or standards as follows:

(1) a packaging made from recycled plastic of which raw material is food contact grade polyethylene terephthalate (PET);

(2) a packaging made from recycled plastic pellets or materials that has been through a process which is able to effectively remove contaminants, in respect of which a report on safety assessment results from a safety assessment agency assigned by the Notification of the Food and Drug Administration shall be submitted, or made from recycled plastic pellets or materials certified in accordance with industrial product standards.

In case of food produced domestically and contained in a packaging made from recycled plastic imported from a foreign country or imported food contained in a packaging made from recycled plastic, either the proceedings under (2) shall be complied or the documents, evidence or report on safety assessment from the relevant agency in the country of the manufacturer or a country with a credible safety assessment system shall be submitted to the safety assessment agency assigned by the Notification of the Food and Drug Administration.

Clause 9. In cases of a packaging made from recycled plastic of primary recycling or of tertiary recycling, the report on safety assessment results under clause 8 (2) is not required to be submitted.

Clause 10. A packaging made from plastic which had been used to contain or wrap fertilizers, toxic substances or any substance that may be detrimental to health shall not be used as a food packaging.

Clause 11. A packaging made from plastic which is manufactured to contain any other thing except for food or contains any image, artificial mark or statement that causes substantial misunderstanding with respect to the food contained in the packaging shall not be used as a food packaging.

Clause 12. A packaging made from virgin plastic which has never been used and has been in use prior to the entry into force of this Notification may continue to be used for no more than three years from the date this Notification comes into force.

Clause 13. A packaging made from plastic which possesses the qualities or standards laid down in Annex 2 of this Notification may continue to be used for no more than three years from the date this Notification comes into force.

Clause 14. This Notification shall come into force as from the day following the date of its publication in the Government Gazette.

Given on the 1st Day of June B.E. 2565 (2022)

Satit Pitutacha

Deputy Minister of Public Health Acting for
Minister of Public Health

Annex 1

of the Notification of The Ministry of Public Health (No. 435), B.E. 2565 (2022)

Issued by Virtue of the Food Act, B.E. 2522 (1979)

Re: Specification of Qualities or Standards of Food Packaging Made from Plastic

Table 1: Qualities or standards on overall migration limits

Packaging made from each type of plastic material must possess the overall migration limit as follows:

Type of Plastic	Overall Migration Limits for Each Type of Plastic (mg/dm ²)
1. Polyvinyl chloride	10
2. Polyethylene	10
3. Polypropylene	10
4. Polystyrene	10
5. Polyvinylidene chloride	10
6. Polyethylene terephthalate	10
7. Polycarbonate	10
8. Polyamide or nylon	10
9. Polyvinyl alcohol	10
10. Polymethyl methacrylate	10
11. Polymethyl pentene	10
12. Melamine-formaldehyde polymer	10
13. Plastic used to contain milk or milk product of which the side coming into contact with food is as follows:	
13.1 Polyethylene	10
13.2 Ethylene 1-alkene copolymerized resin	10
13.3 Polypropylene	10
13.4 Polystyrene	10
13.5 Polyethylene terephthalate	10

Table 2: Qualities or standards on migration limits of heavy metals

Packaging made from each type of plastic material, must be tested for the following 19 items of heavy metals:

Type of Plastic	Heavy Metal	Maximum Limits for Each Type of Plastic (mg/kg) ⁽¹⁾
1. Polyvinyl chloride	1. Lead (Pb)	Not Detected ⁽²⁾
2. Polyethylene	2. Aluminium	1
3. Polypropylene	3. Barium (Ba)	1
4. Polystyrene	4. Cobalt (Co)	0.05
5. Polyvinylidene chloride	5. Copper (Cu)	5
6. Polyethylene terephthalate	6. Iron (Fe)	48
7. Polycarbonate	7. Lithium	0.6
8. Polyamide or nylon	8. Manganese (Mn)	0.6
9. Polyvinyl alcohol	9. Nickel (Ni)	0.02
10. Polymethyl methacrylate	10. Zinc (Zn)	5
11. Polymethyl pentene	11. Antimony (Sb)	0.04
12. Melamine-formaldehyde polymer	12. Arsenic (As)	Not Detected ⁽²⁾
13. Plastic used to contain milk or milk product of which the side coming into contact with food is as follows:	13. Cadmium (Cd)	Not Detected ⁽⁴⁾
13.1 Polyethylene	14. Chromium (Cr)	Not Detected ⁽³⁾
13.2 Ethylene 1-alkene copolymerized resin	15. Mercury (Hg)	Not Detected ⁽²⁾
13.3 Polypropylene	16. Europium (Eu)	0.05 ⁽⁵⁾
13.4 Polystyrene	17. Gadolinium (Gd)	0.05 ⁽⁵⁾
13.5 Polyethylene terephthalate	18. Lanthanum (La)	0.05 ⁽⁵⁾
	19. Terbium (Tb)	0.05 ⁽⁵⁾

Remark:

⁽¹⁾ means mg/kg of food or food simulant

⁽²⁾ means not detected at the limit of detection (LOD) = 0.01 mg/kg

⁽³⁾ means not detected at the limit of detection (LOD) = 0.01 mg/kg as total chromium, except when there is information or documentary evidence on the use of chemicals in the production process that can verify that no hexavalent chromium (Cr(VI)) is used or the production process does not result in hexavalent chromium, in which case the overall migration limit of chromium shall not exceed 3.6 mg/kg

⁽⁴⁾ means not detected at the limit of detection (LOD) = 0.002 mg/kg

⁽⁵⁾ means the sum of lanthanides, europium, gadolinium, lanthanum and terbium must not exceed 0.05 mg/kg

Table 3: Qualities or standards on migration limits of primary aromatic amines (PAAs)

3.1 Packaging made from each type of plastic material with colored plastic or on which printing ink is used must be tested the migration of the following primary aromatic amines:

Type of Plastic	Primary Aromatic Amines ⁽¹⁾	Maximum Limit for Each Type of Plastic (mg/kg) ⁽²⁾
1. Polyvinyl chloride	The 22 types of azocolourant PPAs are as follows:	Not Detected ⁽³⁾
2. Polyethylene	(1) Biphenyl-4-ylamine or 4-aminobiphenyl xenylamine; CAS No. 92-67-1	[at the limit of detection (LOD) = 0.002 mg/kg]
3. Polypropylene	(2) Benzidine; CAS No. 92-87-5	
4. Polystyrene	(3) 4-chloro-o-toluidine; CAS No. 95-69-2	
5. Polyvinylidene chloride	(4) 2-naphthylamine; CAS No. 91-59-8	
6. Polyethylene terephthalate	(5) O-aminoazotoluene or 4-amino-2',3'-dimethylazobenzene or 4-o-tolylazo-o-toluidine; CAS No. 97-56-3	
7. Polycarbonate	(6) 5-nitro-o-toluidine; CAS No. 99-55-8	
8. Polyamide or nylon	(7) 4-chloroaniline; CAS No. 106-47-8	
9. Polyvinyl alcohol	(8) 4-methoxy-m-phenylenediamine;	
10. Polymethyl methacrylate	CAS No. 615-05-4	
11. Polymethyl pentene	(9) 4,4'-methylenedianiline or 4,4'-diaminodiphenylmethane; CAS No. 101-77-9	
12. Melamine-formaldehyde polymer	(10) 3,3'-dichlorobenzidine or 3,3'-dichlorobiphenyl-4,4'-ylenediamine; CAS No. 91-94-1	
13. Plastic used to contain milk or milk product of which the side coming into contact with food is as follows:		
13.1 Polyethylene		
13.2 Ethylene 1-alkene copolymerized resin		
13.3 Polypropylene		
13.4 Polystyrene		

Type of Plastic	Primary Aromatic Amines ⁽¹⁾	Maximum Limit for Each Type of Plastic (mg/kg) ⁽²⁾
13.5 Polyethylene terephthalate	(11) 3,3'-dimethoxybenzidine or o-dianisidine; CAS No. 119-90-4	
	(12) 3,3'-dimethylbenzidine or 4,4'-bi-o-toluidine; CAS No. 119-93-7	
	(13) 4,4'-methylenedi-o-toluidine; CAS No. 838-88-0	
	(14) 6-methoxy-m-toluidine p-cresidine; CAS No. 120-71-8	
	(15) 4,4'-methylene-bis-(2-chloro-aniline) or 2,2'- dichloro-4,4'-methylene-dianiline; CAS No. 101-14-4	
	(16) 4,4'-oxydianiline; CAS No. 101-80-4	
	(17) 4,4'-thiodianiline; CAS No. 139-65-1	
	(18) O-toluidine or 2-aminotoluene; CAS No. 95-53-4	
	(19) 4-methyl-m-phenylenediamine; CAS No. 95-80-7	
	(20) 2,4,5-trimethylaniline; CAS No. 137-17-7	
	(21) O-anisidine or 2-methoxyaniline; CAS No. 90-04-0	
	(22) 4-amino azobenzene; CAS No. 60-09-3	

Remark:

- ⁽¹⁾ means that the test may be conducted only for the substances used in the plastic manufacturing process, provided that there must be verifiable information or documentary evidence on the chemicals used in the manufacturing process
- ⁽²⁾ means mg/kg of food or food simulant
- ⁽³⁾ means that each type of primary aromatic amine is not detected at the limit of detection (LOD) = 0.002 mg/kg

3.2 Packaging made from each type of plastic material must be tested for the migration of the following primary aromatic amines must be conducted:

Type of Plastic	Primary Aromatic Amines ⁽¹⁾	Maximum Limit for Each Type of Plastic (mg/kg) ⁽²⁾
1. Polyvinyl chloride	1. 1,3 phenylenediamine; CAS No. 108-45-2	Not Detected ⁽³⁾
2. Polyethylene		[at the limit of detection (LOD) = 0.002
3. Polypropylene		mg/kg]
4. Polystyrene	2. 4,4'-methylenebis(3-chloro-2,6-diethylaniline); CAS No. 106246-33-7	0.05
5. Polyvinylidene chloride		
6. Polyethylene terephthalate	3. 4,4'-diaminodiphenyl sulphone; CAS No. 80-08-0	5
7. Polycarbonate		
8. Polyamide or nylon	4. 2-aminobenzamide; CAS No. 88-68-6	0.05
9. Polyvinyl alcohol	5. PPAs other than those specified in Table 3.1 and No. 1 to 4 in Table 3.2	The sum of such PPAs must not exceed 0.01 mg/kg
10. Polymethyl methacrylate		[at the limit of detection (LOD)
11. Polymethyl pentene		= 0.002 mg/kg]
12. Melamine-formaldehyde polymer		
13. Plastic used to contain milk or milk product of which the side coming into contact with food is as follows:		
13.1 Polyethylene		
13.2 Ethylene 1-alkene copolymerized resin		
13.3 Polypropylene		
13.4 Polystyrene		
13.5 Polyethylene terephthalate		

Remark:

⁽¹⁾ means that with respect to substances under No. 1 to 4, the test may be conducted only for the substances used in the plastic manufacturing process, provided that there must be verifiable information or documentary evidence on the chemicals used in the manufacturing process

⁽²⁾ means mg/kg of food or food simulant

Table 4: Qualities or standards on specific migration limits for certain plastic packaging

4.1 Polyvinyl chloride		
No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
1.	Vinyl chloride; CAS No. 75-01-4	Not Detected [at the limit of detection (LOD) = 0.01 mg/kg]
4.2 Polyvinylidene chloride		
No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
1.	Vinylidene chloride; CAS No. 75-35-4	Not Detected [at the limit of detection (LOD) = 0.01 mg/kg]
4.3 Polycarbonate		
No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
1.	Bisphenol A (BPA) or 2,2-bis(4-hydroxyphenyl) propane; CAS No. 80-05-7	0.05
2.	P-tert-butylphenol or 4-tert-butylphenol; CAS No. 98-54-4	0.05
3.	Phenol; CAS No.108-95-2	3
4.4 Polyamide or nylon		
No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
1.	Caprolactam; CAS No. 105-60-2	15 (expressed as caprolactam)
4.5 Polymethyl methacrylate		
No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
1.	Methyl methacrylate; CAS No. 80-62-6	6 (expressed as methacrylic acid)

4.6 Melamine-formaldehyde polymer

No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
1.	Phenol; CAS 108-95-2	3
2.	Formaldehyde; CAS No. 50-00-0	15 (expressed as formaldehyde)
3.	Melamine or 2,4,6-triamino-1,3,5-triazine; CAS No. 108-78-1	2.5

4.7 Polyethylene terephthalate

No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
1.	Acetaldehyde; CAS No. 75-07-0	6 (expressed as acetaldehyde)
2.	Bicyclo[2.2.1]hept-2-ene or 2-norbornene or norbornene; CAS No. 498-66-8	0.05
3.	4,4' bis(2-benzoxazolyl) stilbene; CAS No. 1533-45-5	0.05
4.	1,4-butanediol; CAS No. 110-63-4	5 (expressed as 1,4-butanediol)
5.	Diethylene glycol; CAS No. 111-46-6	30 (expressed as ethylene glycol)
6.	Dimethyl isophthalate or isophthalic acid, dimethyl ester; CAS No. 1459-93-4	0.05
7.	Dilauryl-3,3'-thiodipropionate or thiodipropionic acid, didodecyl ester; CAS No. 123-28-4	The sum of this group of substances and their oxidation products shall not exceed 5 This group of substances consists of 3 types, i.e.: 1) Thiodipropionic acid didodecyl ester (CAS No. 123-28-4) 2) Thiodipropionic acid, dioctadecyl ester (CAS No. 693-36-7) 3) Thiodipropionic acid, ditetradecyl ester (CAS No. 16545-54-3)

No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
8.	Dimethyl 2,6-naphthalene dicarboxylic acid or 2,6-naphthalene dicarboxylic acid, dimethyl ester; CAS No. 840-65-3	0.05
9.	Dimyristyl-3,3'-thiodipropionate or thiodipropionic acid, ditetradecyl ester; CAS No. 16545-54-3	<p>The sum of this group of substances and their oxidation products shall not exceed 5</p> <p>This group of substances consists of 3 types, i.e.:</p> <ol style="list-style-type: none"> 1) Thiodipropionic acid didodecyl ester (CAS No. 123-28-4) 2) Thiodipropionic acid, dioctadecyl ester (CAS No. 693-36-7) 3) Thiodipropionic acid, ditetradecyl ester (CAS No. 16545-54-3)
10.	Distearyl-3,3'-thiodipropionate or thiodipropionic acid, diotadecyl ester; CAS No. 693-36-7	<p>The sum of this group of substances and their oxidation products shall not exceed 5</p> <p>This group of substances consists of 3 types, i.e.:</p> <ol style="list-style-type: none"> 1) Thiodipropionic acid didodecyl ester (CAS No. 123-28-4) 2) Thiodipropionic acid, dioctadecyl ester (CAS No. 693-36-7) 3) Thiodipropionic acid, ditetradecyl ester (CAS No. 16545-54-3)
11.	2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol; CAS No. 147315-50-2	0.05
12.	Ethylene glycol; CAS No. 107-21-1	30 (expressed as ethylene glycol)
13.	Ethyl acrylate or acrylic acid, ethyl ester; CAS No. 140-88-5	6 (expressed as acrylic acid)
14.	Formaldehyde; CAS No. 50-00-0	15 (expressed as formaldehyde)
15.	Isophthalic acid; CAS No. 121-91-5	5 (expressed as isophthalic acid)

No.	Item	Maximum Limit to Migrate into Food (mg/kg) ⁽¹⁾
16.	2-methyl-4-isothiazolin-3-one; CAS No. 2682-20-4	0.5
17.	Methacrylic acid, methyl ester or methyl methacrylate; CAS No. 80-62-6	6 (expressed as methacrylic acid)
18.	Neopentyl glycol or 2,2-dimethyl- 1,3-propanediol; CAS No. 126-30-7	0.05
19.	2,6-naphthalene dicarboxylic acid; CAS No. 1141-38-4	5
20.	1,1,1-trimethylolpropane or 2-ethyl-2-(hydroxymethyl)-1,3- propanediol; CAS No. 77-99-6	6
21.	Sodium sulfite; CAS No. 7757-83-7	10 (expressed as SO ₂ (sulfur dioxide))
22.	Trimellitic anhydride; CAS No. 552-30-7	5 (expressed as trimellitic acid)
23.	2,4,6-triamino-1,3,5-triazine or melamine; CAS No. 108-78-1	2.5
24.	Terephthalic acid; CAS No. 100-21-0	7.5 (expressed as terephthalic acid)
25.	Terephthalic acid dichloride; CAS No. 100-20-9	7.5 (expressed as terephthalic acid)
26.	N-methylolacrylamide; CAS No. 924-42-5	Not Detected [at the limit of detection (LOD) = 0.01 mg/kg]
27.	Methacrylamide; CAS No. 79-39-0	Not Detected [at the limit of detection (LOD) = 0.01 mg/kg]
28.	Titanium nitride, nanoparticles; CAS No. -	No migration detected

Remark:

⁽¹⁾ means mg/kg of food or food simulant

⁽²⁾ means that the test may be conducted only for the substances used in the plastic manufacturing process, provided that there must be verifiable information or documentary evidence on the chemicals used in the manufacturing process

Annex 2

of the Notification of The Ministry of Public Health (No. 435), B.E. 2565 (2022)

Issued by Virtue the Food Act, B.E. 2522 (1979)

Re: Specification of Qualities or Standards of Food Packaging Made from Plastic

Table 1: Qualities or standards of plastic packaging

Detail	Maximum Limit (mg/kg)												Plastic Type Used to Contain Milk or Milk Product of Which Food Contact Side Is Plastic in the Type of			
	Polyvinyl chloride	Polyethylene Polypropylene	Polystyrene	Polyvinylidene chloride	Polyethylene terephthalate	Polycarbonate	Polyamide or nylon	Polyvinyl alcohol	Polymethyl methacrylate	Polymethyl pentene	Melamine-formaldehyde polymer					
												Polyethylene or ethylene 1-alkene copolymerized resin	Polypropylene	Polystyrene	Polyethylene terephthalat	
(1) Lead	100	100	100	100	100	100	100	100	100	100	100	-	-	-	100	
(2) Heavy metal (calculated as lead)	-	-	-	-	-	-	-	-	-	-	-	20	20	20	-	
(3) Barium	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	
(4) Dibutyltin compound	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(5) Cresyl phosphate	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(6) Vinyl chloride monomer	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(7) Volatile substance: toluene, ethylbenzene, isopropylbenzene, n-propylbenzene and styrene	-	-	5,000 2,000*	-	-	-	-	-	-	-	-	-	-	1,500	-	
(8) Vinylidene chloride	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	
(9) Arsenic	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	
(10) n-Hexane extractable substance	-	-	-	-	-	-	-	-	-	-	-	26,000	55,000	-	-	
(11) substance soluble in xylene	-	-	-	-	-	-	-	-	-	-	-	113,000	300,000	-	-	
(12) Bisphenol A (including phenol and p-t-butylphenol)	-	-	-	-	-	500	-	-	-	-	-	-	-	-	-	
(13) diphenyl carbonate	-	-	-	-	-	500	-	-	-	-	-	-	-	-	-	
(14) Amines (triethylamine and tributylamine)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	
(15) Cadmium	100	100	100	100	100	100	100	100	100	100	100	-	-	-	100	

Remark: - No analysis is required for such item

* In case of use at temperature higher than 100 degrees Celsius; Styrene must not exceed 1,000 milligrams per 1 kilogram, and ethylbenzene must not exceed 1,000 milligrams per 1 kilogram

Table 2: Qualities or standards on migration of plastic packaging

Detail	Plastic Type												Maximum Limit (mg/dm ³)			
	Polyvinyl chloride	Polyethylene Polypropylene	Polystyrene	Polyvinylidene chloride	Polyethylene terephthalate	Polycarbonate	Polyamide or nylon	Polyvinyl alcohol	Polymethyl methacrylate	Polymethyl pentene	Melamine-formaldehyde polymer**	Plastic Type Used to Contain Milk or Milk Product of Which Food Contact Side Is Plastic in the Type of				
												Polyethylene or ethylene 1-alkene copolymerized resin	Polypropylene	Polystyrene	Polyethylene terephthalat	
(1) Phenol	-	-	-	-	-	-	-	-	-	-	Not Detected	-	-	-	-	
(2) Formaldehyde	-	-	-	-	-	-	-	-	-	-	Not Detected	-	-	-	-	
(3) Antimony	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	0.025	
(4) Germanium	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	0.05	
(5) Heavy metal (calculated as lead)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
(6) Potassium permanganate used in the reaction	10	10	10	10	10	10	10	10	10	10	10	5	5	5	5	
(7) Residues evaporable in water (in case of food of which pH value exceeds 5)	30	30	30	30	30	30	30	30	30	30	-	-	-	-	-	
(8) Residues from substances evaporable in 4% acetic acid (in case of food of which pH value does not exceed 5)	30	30	30	30	30	30	30	30	30	30	30	15	15	15	15	
(9) Residues from substances evaporable in 20% alcohol (in case of alcoholic food)	30	30	30	30	30	30	30	30	30	30	-	-	-	-	-	
(10) Residues from substances evaporable in n-heptane (in case of fats, oils or fatty food)	150	150 30*	24 0	30	30	30	30	30	30	120	-	75 ***	-	-	-	
(11) Bisphenol A (phenol and p-t-butylphenol) extracted by water (in case of food of which pH value exceeds 5)	-	-	-	-	-	2.5	-	-	-	-	-	-	-	-	-	
(12) Bisphenol A (phenol and p-t-butylphenol) extracted by 4% acetic acid (in case of food of which pH value does not exceed 5)	-	-	-	-	-	2.5	-	-	-	-	-	-	-	-	-	
(13) Bisphenol A (phenol and p-t-butylphenol) extracted by 20% alcohol (in case of alcoholic food)	-	-	-	-	-	2.5	-	-	-	-	-	-	-	-	-	
(14) Bisphenol A (phenol and p-t-butylphenol) extracted by n-heptane (in case of fats, oils or fatty food)	-	-	-	-	-	2.5	-	-	-	-	-	-	-	-	-	

Detail	Plastic Type	Maximum Limit (mg/dm ³)											Plastic Type Used to Contain Milk or Milk Product of Which Food Contact Side Is Plastic in the Type of			
		Polyvinyl chloride	Polyethylene Polypropylene	Polystyrene	Polyvinylidene chloride	Polyethylene terephthalate	Polycarbonate	Polyamide or nylon	Polyvinyl alcohol	Polymethyl methacrylate	Polymethyl pentene	Melamine-formaldehyde polymer**	Polyethylene or ethylene 1-alkene copolymerized resin	Polypropylene	Polystyrene	Polyethylene terephthalat
(15) Caprolactam	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-
(16) Methacrylate	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-

- Remark:
- No analysis is required for such item
 - * In case of use at temperature higher than 100 degrees Celsius
 - ** In case of use at temperature higher than 100 degrees Celsius, the analysis shall be conducted at 95 degrees Celsius for 30 minutes
 - *** For milk and a milk product which is cream