NATIONAL STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准

GB 4806.6-2016

National Food Safety Standard
Food Contact Plastic Resin

食品安全国家标准
食品接触用塑料树脂

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Contents

Foreword

This standard supersedes "Hygienic Standard for Polyvinyl Chloride Resin Used as Food Container and Packaging Material" (GB 4803-1994), "Hygienic Standard for Polyethylene Resin Used as Food Packaging Material" (GB 9691-1988), "Hygienic Standard for Polystyrene Resin Used as Food Packaging Material" (GB 9692-1988), "Hygienic Standard for Polypropyrene Resin Used as Food Packaging Material" (GB 9693-1988), "Hygienic Standard for Polyethylene Terephthalate Resin Used as Food Containers and Packaging Materials" (GB 13114-1991), "Hygienic Standard for Polycarbonate Resin Used as Food Containers and Packaging Materials" (GB 13116-1991), "Hygienic Standard of Vinylidene Chloride-Vinyl Chloride Copolymer Resins for Food Containers and Packaging Material" (GB 15204-1994), Resin part of "Hygienic Standard for Unsaturated Polyester Resin and Glass Fiber Reinforced Plastics Used as Food Containers and Packaging Materials" (GB 13115-1991) and "Hygienic Standard of Nylon 6 Resins for Food Packaging Material" (GB 16331-1996) and "Announcement on Publishing the List of 107 Resins Available for Food Package Materials such as polytetramethylene adipamide (Announcement No.23 [2011] of the former Ministry of Health) with regard to plastic resin.

Compared with the above standards and announcement, the main changes in this standard are as follows:

- The standard name is modified as "National Standard of Food Safety - Food Contact Plastic Resin";
- The scope is modified;
- Terms and definitions are added;
- Basic requirements are added;
- Raw material requirements are added;
- Physical and chemical indexes are modified;
- General requirements for migration test are added;
- Label identification requirements are added;
- Appendix A is added.

National Food Safety Standard

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1 Scope

This standard is applicable to manufacture the resin and its blend for food contact plastic materials and products, including unvulcanized thermoplastic elastomer resin and its blend.

2 Terms and Definitions

2.1 Resin

Macromolecular substance synthetized by monomer with low relative molecular mass and other initiators through addition polymerization, condensation polymerization and microbial fermentation polymerization and the natural macromolecular substance through chemical modification, which is also known as polymer.

2.2 Resin blend

Solid polymer material blended by two or more kinds of polymers with same or different chemical structure and physical state through physical and/or chemical method, which is uniform and continuous in macro-level and also known as polymer blend or polymer alloy, each kind of polymer may be regarded as the main structure component or phase of resin material and its product.

3 Basic Requirements

Food contact plastic resin shall meet the requirements of GB 4806.1.

4 Technical Requirements

4.1 Raw material requirements

4.1.1 The raw material for producing food contact plastic resin shall be able to ensure that it will not harm the human health under the normal or intended use condition.

4.1.2 The allowable resins shall meet the requirements of Appendix A and relevant announcement.

4.2 Sensory requirements

Sensory requirements shall meet those specified in Table 1.

Table 1 Sensory Requirements

Item	Requirements
Sensory inspection	Normal color and luster, and free from abnormal odor and foreign matters.
Soak solution	The soak solution obtained from migration test shall be free from sensory deterioration such as coloration, turbidity, precipitation and abnormal odor.

4.3 Physical and chemical indexes

The physical and chemical indexes of monomer and other initiators, such as specific migration limit, total specific migration limit and maximum residue quantity shall meet the requirements of Appendix A and relevant announcement.

4.4 Additives

Additives shall meet the requirements of GB 9685 and relevant announcements.

5 Others

5.1 Migration test

Migration test shall be implemented according to the requirements of GB 31604.1 and GB 5009.156.

5.2 Label identification

5.2.1 Label identification shall meet the requirements of GB 4806.1, besides, the resin name shall be indicated in label, instructions or accompanied documents according to the requirements of Appendix A in GB 4806.6-2016, as for polymer blends, the names of all resins shall be indicated.

5.2.2 It shall be ensured that the safety information is transmitted in each link of supply chain, ensuring that the relevant information of harmful substances affecting the food safety is traceable.

Appendix A

Allowable Plastic Resins with Their Using Requirements

A.1 Table A.1 specifies the allowable plastic resins with their using requirements.

A.2 For the purpose of this standard, total specific migration limit [SML (*T*)] and SML (*T*) group No. specified in Appendix B of GB 9685-2016 apply.

Table A.1 Allowable Plastic Resins with Their Using Requirements

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
1	(3R)-3-hydroxybutyrate, copolymer with 4-hydroxybutyrate	125495-90-1	Poly(3HB-co-4HB); P(3, 4HB)		5 (calculated in 1,4-butanediol)	30	The produced plastic materials or products shall not contact the food containing ethanol, the usage temperature shall not be higher than 100℃
2	1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]propane - tetrafluoroethene	26655-00-5	PFA	0.05 (tetrafluoroethylene: SML)			
3	1,12-dodecanedioic acid, polymer with 1,6-hexanediamine (polyhexamethylene dodecanamide, polyamide 612)	26098-55-5	PA	2.4 (1,6-hexanediamine: SML)			
4	Polymer of DDS,TPS,BD	61778-68-5	PBT	5 (1,4-butanediol: SML)	7.5 (terephthalic acid)	28	
5	1,1-dichloroethene, polymer with methyl acrylate	25038-72-6	PVDC	ND (1,1-dichloroethene, DL=0.01mg/kg: SML) or 5 (1,1-dichloroethene: QM)	6 (calculated in propenoic acid)	22	
6	1,3,5-trioxane - 1,3-dioxolane	24969-26-4; 24969-25-3	POM	5 (trioxymethylene: SML); 5 (1,3-dioxolane: SML); 1 [1,4-bis (2,3-epoxyropoxy)butane, calculated in epoxide group: QM]			Usage temperature shall not be higher than 121℃
7	1,4-benzenedicarboxylic acid, polymer with 1,3-propanediol	26590-75-0	PTT	0.05 (1,3-propanediol: SML)	7.5 (1,4-benzenedicarboxyli	28	

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
					c acid)		
8	1,3-dioxepane, polymer with 1,3,5-trioxane	25214-85-1	POM	5 (trioxymethylene: SML); 0.05mg/6dm^2 (1,3-dioxepane: QM)	15 (calculated in formaldehyde)	15	Usage temperature shall not be higher than 121℃
9	1,4-Benzendicarboxylic acid, polymer with 1,6-hexanediamine and hexanedioic acid (polyamide 66T)	25776-72-1	PA	2.4 (1,6-hexanediamine: SML)	7.5 (1,4-benzenedicarboxylic acid)	28	
10	2,3,6-trimethylphenol - 2,6-dimethylphenol	58295-79-7	PPE	0.05 (2,6-dimethylphenol: SML)			
11	3,3,4,4,5,5,6,6,6-nonafluoro-1-hexene, copolymer with ethylene and tetrafluoroethylene	68258-85-5	ETFE	0.05 (tetrafluoroethylene: SML)			
12	4-chlorophthalic anhydride, polymer with 1,3-phenylenediamine, 4-chlorophthalic anhydride, phthalic anhydride and 4,4′-isopropylidene diphenol (bisphenol A)	536741-00-1	PEI		0.6 [4,4′-isopropylidene diphenol (bisphenol A): SML]; ND (1,3-benzenediamine, DL=0.01mg/kg: SML); 0.05 (4-chlorophthalic anhydride, calculated in 4-chlorophthalic acid: SML); 0.05 (calculated in 3-chlorophthalic acid: SML)		Shall not be used to produce food contact materials or their products special for infants
13	3-chlorophthalic anhydride, polymer	911701-92-3	PEI	0.6 [4,4′-isopropylidene			Shall not be used to produce

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
	with m-phenylene diamine, 4-chlorophthalic anhydride and 4,4′-(1-tetramethylbutyl acetal) bisphenol, with 4 (1-methyl-1-phenethyl) phenol (p-cumylphenol) as end capping reagent			diphenol (bisphenol A): SML]; ND (1,3-benzenediamine, DL =0.01mg/kg: SML); 0.05 (4-chlorophthalic anhydride, calculated in 4-chlorophthalic acid: SML); 0.05 (3-chlorophthalic anhydride, calculated in 3-chlorophthalic acid: SML); 0.05 [4-(1-methyl-1-phenethyl) phenol (p-cumylphenol): SML]			food contact materials or their products special for infants
14	4,4'-(4,4'-isopropylidenediphenoxy)bis-(phthalic anhydride), polymer with 4,4'-sulfonyl dianiline	77699-82-2	PEI	0.05 (calculated in 4,4'-(4,4'-isopropylidenediphenoxy)bis-(phthalic anhydride): SML); 5 (calculated in 4,4'-sulfonyl dianiline: SML)			
15	4,4′-difluorodiphenyl methyl ketone, polymer with hydroquinone	29658-26-2	PEEK	0.05 (4,4′-difluorodiphenyl methyl ketone: SML); 0.6 (hydroquinone: SML)			
16	4,4'-isopropylidene diphenol (bisphenol A), polymer with (chloromethyl)oxirane, polymer with methacrylic acid, maleic anhydride and toluene diisocyanate	-	Bisphenol A epoxy resin	ND [4,4'-isopropylidene diphenol (bisphenol A), polymer with (chloromethyl)oxirane, DL=0.01mg/kg: SML]; 0.6	30 (calculated maleic anhydride), 6 (calculated in methacrylic acid)	3; 23	Shall not be used to produce food contact materials or their products special for infants

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
				[4,4'-isopropylidene diphenol (bisphenol A): SML]; 1[4,4'-isopropylidene diphenol (bisphenol A), polymer with (chloromethyl)oxirane: QM] 1 [toluene diisocyanate (mixture of 2,4-toluene diisocyanate and 2,6-toluene diisocyanate) QM]			
17	Isopropylidene diphenol (bisphenol A), polymer with 1,1'-sulfonyl-bis(4-chlorobenzene)	25154-01-2	PSU	0.6 [4,4-isopropylidene diphenol (bisphenol A): SML]; 0.05 [1,1'-sulfonyl-bis(4-chlorobenzene) SML]			Usage temperature shall not be higher than 121℃. It shall not be used to produce food contact materials or their products special for infants
18	4,4′-isopropylidene diphenol (bisphenol A), polymer with carbonic dichloride or diphenyl carbonate	-	PC	0.6 [4,4′-isopropylidene diphenol (bisphenol A): SML]; 0.05 (free phenol, distilled water backflow, 6h: SML)			Shall not be used to produce food contact materials or their products special for infants. The produced materials or products shall not contact the foods with ethanol content higher than 20%. See Note 1 for other requirements.
19	4,4′-biphenol, polymer with 1,1-sulfonyl bis(4-chlorobenzene)	25608-64-4; 258398-0	PPSU	6 (4,4′-biphenol: SML); 0.05 [1,1-sulfonyl			

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
				bis(4-chlorobenzene): SML]			
20	4-methyl-1-pentene, polymer with ethylene	25213-96-1	PMP	0.05 (4-methyl-1-pentene: SML)			
21	5,5'-[(1-methylethylidene)bis(4,1-phenyleneoxy)bis phthalic anhydride, polymer with 1,3-benzenediamine	61128-46-9	PEI	0.6 (4,4′-isopropylidene diphenol (bisphenol A): SML); ND (1,3-benzenediamine, DL=0.01mg/kg: SML)			Shall not be used to produce food contact materials or their products special for infants
22	Poly(4-hydroxybenzoic acid-co-6-hydroxy-2-naphthoic acid)	70679-92-4	LCP	0.05 (6-hydroxy-2-naphthalenecarboxylic acid: SML); 6 (4,4'-dioxydiphenyl: SML); 0.05 [*N*-(4-hydroxyphenyl) acetamide: SML]			Shall not be used for contacting the foods with ethanol content larger than 8% or the solid foods containing grease in surface
23	Styrene homopolymer and butadiene copolymer	-	PS	ND (butadiene, DL=0.01mg/kg; SML) or 1 (butadiene: QM); 0.3% (ethylbenzene: QM); 0.5% (styrene: QM)			See Note 2
24	Styrene, polymer with the following monomers: 2-methyl-1,3-butadiene and butadiene	25038-32-8; 9003-55-8	PS	ND (2-methyl-1,3-butadiene, DL=0.01mg/kg: SML); 1 (2-methyl-1,3-butadiene: QM); ND (butadiene, DL=0.01mg/kg: SML) or 1 (butadiene: QM)			

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
25	Acrylonitrile-styrene copolymer	9003-54-7	AS	ND (acrylonitrile, DL=0.01mg/kg: SML)			
26	Acrylonitrile-butadiene-styrene	-	ABS	ND (acrylonitrile, DL=0.01mg/kg: SML); ND (butadiene: DL=0.01mg/kg: SML) or 1 (butadiene: QM)			
27	Butyl acrylate, polymer with butyl methacrylate, methylpropenoic acid-2-(dimethylamino) ethyl ester and methyl methyacrylate	127573-73-3	PMMA	0.02 (calculated in methylpropenoic acid (dimethylamino) ethyl ester: SML)	6 (calculated in propenoic acid); 6 (calculated in methylpropenoic acid)	22; 23	
28	Methyl acrylate, polymer with butadiene and acrylonitrile	27012-62-0	PAN	ND (acrylonitrile, DL=0.01mg/kg: SML); ND (butadiene: DL=0.01mg/kg: SML) or 1 (butadiene: QM)	6 (calculated in propenoic acid)	22	
29	Propylene, polymer with one or more kinds of the following monomers : maleic anhydride, ethylene, 1-butene and other α-olefin, 5-ethylidene-2-norbornene may be contained for serving as modified monomer, among which, the propylene accounts for the maximum mass fraction)	25895-47-0; 29160-13-2; 9010-79-1	PP	0.05 (5-ethylidene-2-norbornene: SML)	30 (calculated in maleic acid)	3	Where the migration testing method for 5-ethylidene-2-norbornene is unavailable, 0.05mg/6dm^2 (QM) may be adopted as its limit value. The ratio of food area contacting with the plastic materials and their products containing 5-ethylidene-2-norbornene to

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
							the food mass shall not be higher than 2dm^2/kg
30	Methyl acrylate, polymer with 1,1-dichloroethene and acrylonitrile	24968-80-7	PVDC	ND (1,1-dichloroethylene, DL=0.01mg/kg: SML) or 5 (1,1-dichloroethylene: QM); ND (acrylonitrile, DL=0.01mg/kg: SML)	6 (calculated in propenoic acid)	22	
31	Unsaturated polyester resin	-	UP	0.2% (resin template, styrene: QM)			
32	Polymer of terephthalic acid, 1,4-butanediol, fumaric acid, glycol, hexanedioic acid, graft copolymer with styrene-succinic acid-methyl ester polymer	-	Modified PBT		30 (calculated in ethanediol); 7.5 (calculated in terephthalic acid); 5 (calculated in 1.4-butanediol)	2; 28; 30	Shall only be used for contacting foods containing grease
33	Dimethyl terephthalate, polymer with 1,4-butanediol, sebacic acid and hexamethylene diisocyanate	-	PBT (biodegradable resin)	1 (hexamethylene diisocyanate, calculated in isocyanato: QM)	7.5 (calculated in terephthalic acid); 5 (calculated in 1,4-butanediol)	28; 30	Usage temperature shall not be higher than 100℃
34	Dimethyl terephthalate, polymer with 1,4-butanediol, adipic acid and hexamethylene diisocyanate	-	PBT (biodegradable resin)	1 (hexamethylene diisocyanate, calculated in isocyanato: QM)	7.5 (calculated in terephthalic acid); 5 (calculated in 1,4-butanediol)	28; 30	Usage temperature shall not be higher than 100℃
35	Dimethyl terephthalate, polymer with	261716-94-3	Modified PCT	5			Usage temperature shall not

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
	1,4-cyclohexanedimethanol and 2,2,4,4-tetramethyl-1,3-cyclobutanediol			(2,2,4,4-tetramethyl-1,3-cyclobutanediol: SML)			be higher than 100℃
36	Dimethyl terephthalate, polymer with 2,2,4 (or 2,4,4)-trimethyl-1,6-hexanediamine	9069-93-6; 26246-77-5	PA	5mg/6dm^2 (penicillamine: QM)			
37	Dimethyl terephthalate polymer with 1,3-propanediol	36619-23-5	PTT	0.05 (1,3-propanediol: SML)	7.5 (calculated in terephthalic acid)	28	Usage temperature shall not be higher than 100℃
38	Dimethyl terephthalate, polymer with 1,4-butanediol, methyl oxirane and ethylene oxide (polyester elastomer)	64811-37-6	TPC-ET	0.9g/dm^2 (dimethyl terephthalate, polymer with 1,4-butanediol, methyl oxirane and ethylene oxide: QM) ; 1 (ethylene oxide: QM); ND (ethylene oxide, SML, DL=0.01mg/kg); 1 (methyl oxirane: QM)	5 (calculated in 1,4-butanediol)	30	
39	Dimethyl terephthalate polymer with 1,4-butanediol; terephthalic acid polymer with 1,4-butanediol	30965-26-5; 26062-94-2	PBT		7.5 (calculated in terephthalic acid); 5 (calculated in 1,4-butanediol)	28; 30	Usage temperature shall not be higher than 121℃
40	1,4-benzenedicarboxylic acid, dimethyl ester, polymer with 1,4-butanediol and alpha-hydro-omega-hydroxypoly (oxy-1,4-butanediyl) (polyester elastomer)	9078-71-1	TPC-ET	0.6 (tetrahydrofuran: SML); 5 (calculated in the sum of trimellitic acid and trimellitic anhydride: QM)	7.5 (calculated in terephthalic acid); 5 (calculated in 1,4-butanediol)	28; 30	Shall not be used for contacting foods with ethanol content larger than 8%; usage temperature shall not be higher than 66℃

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
41	1,4-benzenedicarboxylic acid, dimethyl ester, polymer with 1,4-butanediol and alpha-hydro-omega-hydroxypoly (oxy-1,4-butanediyl)	9078-71-1	Modified PBT thermoplastic elastomer (TPE)	0.05 (tetrahydrofuran: SML)	5 (calculated in 1,4-butanediol)	30	Only used for contacting dry solid foods when used as polyester elastomer
42	1,4-benzenedicarboxylic acid polymer with [1,1'-biphenyl]-4,4'-diol, 4-hydroxy benzoic acid, 6-hydroxy-2-naphthalenecarboxylic acid and N-(4-hydroxyphen-yl) acetamide	147310-94-9	LCP	0.05 (6-hydroxy-2-naphthalenecarboxylic acid: SML); 6 (4,4'-dioxydiphenyl: SML); 0.05 [*N*-(4-hydroxyphenyl) acetamide: SML]	7.5 (calculated in terephthalic acid)	28	Shall not be used for contacting the foods with ethanol content larger than 8% or the solid foods containing grease in surface
43	Polymer of terephthalic acid and 1,6-hexanediamine (1:1), polymer with caprolactam	51025-80-0	PA	2.4 (1,6-hexanediamine: SML)	15 (calculated in caprolactam); 7.5 (calculated in terephthalic acid)	4; 28	
44	P-tert-butylphenol-terminated poly-(carbonic acid-4,4'-isopropylidene diphenyl ester)	103598-77-2	PC	0.6 [4,4'-isopropylidene diphenol (bisphenol A): SML]; 0.05 (p-tert-butylphenol: SML); 1 (carbonic dichloride: QM)			Shall not be used to produce food contact materials or their products special for infants
45	Polyethylene terephthalate copolymer modified by diethylene glycol-isophthalic acid; dimethyl terephthalate or terephthalic acid and ethanediol, polymer with the following materials: dimethyl isophthalate,	25038-59-9; 25052-77-1; 24938-04-3; 27027-87-8	PET	0.04 (calculated in stibium: SML)	30 (calculated in ethanediol); 5 (calculated in isophthalic acid); 7.5 (calculated in terephthalic acid)	2; 27; 28	

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
	isophthalic acid and diethylene glycol						
46	Dimethyl trans-1,4-cyclohexanediarboxylate, polymer with 1,4-cyclohexanedimethanol	219566-57-1	PCCD				
47	Cyclohexanone, polymer with formaldehyde	25054-06-2	POM		15 (calculated in formaldehyde)	15	
48	Adipic acid, polymer with hexanediamine (polyamide 66)	32131-17-2	PA	2.4 (1,6-hexanediamine: SML)			
49	Adipic acid, polymer with 1,4-butanediol, hexamethylene diisocyanate, 1,6-hexandiol and 2,2-dimethyl-1,3-propanediol (<2%)	29891-05-2	PUR	0.05 (2,2-dimethyl-1,3-propanediol: SML); 0.05 (1,6-hexandiol: SML); 1 (hexamethylene diisocyanate, calculated in isocyanato: QM)	5 (calculated in 1,4-butanediol)	30	Usage temperature shall not be higher than 200℃
50	Adipic acid, polymer with 1,4-butanediol and hexamethylene diisocyanate	28476-49-5	PUR	1 (hexamethylene diisocyanate, calculated in isocyanato: QM)	5 (calculated in 1,4-butanediol)	30	Usage temperature shall not be higher than 200℃
51	Adipic acid, polymer with caprolactam, 1,6-hexanediamine and 4,4'-methylenebis(cyclohexanamin)	25053-13-8	PA	2.4 (1,6-hexanediamine: SML); 0.05 (4,4'-methylene bis[cyclohexanamine]: SML)	15 (calculated in caprolactam)	4	
52	Adipic acid, polymer with meta xylylene diamine	25718-70-1	PA	0.05 (meta xylylene diamine: SML)			
53	Hexanedioic acid, polymer with	24993-04-2	PA	2.4 (1.6-hexanediamine: SML)	15 (calculated in	4	

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
	hexahydro-2H-azepin-2-one and 1,6-hexanediamine				caprolactam)		
54	Methylpropenoic acid (dimethylamino) ethyl ester, polymer with methyl methyacrylate	26222-42-4	PMMA	0.02 [methylpropenoic acid (dimethylamino) ethyl ester: SML]	6 (calculated in methylpropenoic acid)	23	
55	Methylpropenoic acid, copolymer with ethyl acrylate and methyl methyacrylate	25133-97-5	PMMA		6 (calculated in propenoic acid); 6 (calculated in methylpropenoic acid)	22; 23	
56	Butyl methacrylate, polymer with methyl methyacrylate and hydroxyethyl methacrylate propyl ester	67874-31-1	PMMA		6 (calculated in methylpropenoic acid)	23	
57	Butyl methacrylate, polymer with hydroxyethyl methacrylate, methyl methyacrylate and methacrylamide	394249-05-9	PMMA	ND (methacrylamide, DL=0.01mg/kg: SML)	6 (calculated in methylpropenoic acid)	23	
58	Butyl methacrylate, polymer with ethylene, methyl methyacrylate and propylene	127104-68-1	PMMA		6 (calculated in methylpropenoic acid)	23	
59	Methyl methyacrylate, polymer with styrene and maleic anhydride	26809-51-8	PMMA		30 (calculated in maleic acid); 6 (calculated in methylpropenoic acid)	3; 23	
60	Copolymer of methyl methyacrylate and ethyl acrylate	9010-88-2	PMMA		6 (calculated in propenoic acid); 6 (calculated in	22; 23	

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
					methylpropenoic acid)		
61	Methyl methyacrylate, copolymer with butadiene, styrene and acrylonitrile	9010-94-0	ABS	ND (acrylonitrile, DL=0.01mg/kg: SML); ND (butadiene, DL=0.01mg/kg: SML) or 1 (butadiene: QM)	6 (calculated in methylpropenoic acid)	23	
62	Polymer of ethyl methacrylate and methyl acrylate	26572-20-3	PMMA		6 (calculated in propenoic acid); 6 (calculated in methylpropenoic acid)	22; 23	
63	Methylpropenoic acid, polymer with butyl methacrylate and methyl methyacrylate	28262-63-7	PMMA		6 (calculated in methylpropenoic acid)	23	
64	Polymer of methylpropenoic acid and methyl methyacrylate	25608-33-7	PMMA		6 (calculated in methylpropenoic acid)	23	
65	Methylpropenoic acid, polymer with methyl methyacrylate and methyl acrylate	26936-24-3	PAAM		6 (calculated in propenoic acid); 6 (calculated in methylpropenoic acid)	22; 23	
66	Dimethyl isophthalate, polymer with 1,4-butanediol, terephthalic acid and poly(1,4-butanediol)	9086-55-9	PBT		7.5 (calculated in terephthalic acid); 5 (calculated in 1,4-butanediol)	28; 30	Usage temperature shall not be higher than 121℃
67	Dimethyl isophthalate, polymer (polyester elastomer) with 1,4-butanediol,	9086-55-9	TPC-ET	0.6 (tetrahydrofuran: SML)	7.5 (calculated in terephthalic acid); 5	28; 30	Only used for the dry solid food without grease on its

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
	terephthalic acid and poly(1,4-butanediol)				(calculated in 1,4-butanediol)		surface
68	Isophthalic acid, polymer with terephthalic acid and 1,6-hexanediamine	25750-23-6	PA	2.4 (1,6-hexylenediamine: SML)	5 (calculated in isophthalic acid); 7.5 (calculated in terephthalic acid)	27; 28	
69	1,3-benzenedicarbonyl dichloride, polymer with 1,4-benzenedicarbonyl dichloride, 1,3-benzenediol, carbonic dichloride, 4,4'-isopropylidene diphenol (bisphenol A) and 4-(1-methyl-1-phenylethyl)phenyl ester	235420-85-6	PC	0.6 [4,4'-isopropylidene diphenol (bisphenol A) SML]; 0.05[4-(1-methyl-1-phenethyl) phenol (p-cumylphenol): SML]; 2.4 (resorcinol: SML); (carbonic dichloride: QM)	5 (calculated in isophthalic acid); 7.5 (calculated in terephthalic acid)	27; 28	Shall not be used to produce food contact materials or their products special for infants
70	1,3-benzenedicarbonyl dichloride, polymer with 1,4-benzenedicarbonyl dichloride, carbonic dichloride and 4,4'-isopropylidene diphenol (bisphenol A)	71519-80-7	PC	0.6 [4,4'-isopropylidene diphenol (bisphenol A) SML];1 (carbonic dichloride: QM)	5 (calculated in isophthalic acid); 7.5 (calculated in terephthalic acid)	27; 28	Shall not be used to produce food contact materials or their products special for infants
71	1,3-Benzenedicarbonyl dichloride, polymer with 1,4-benzenedicarbonyl dichloride, carbonic dichloride, 4,4-isopropylidene diphenol (bisphenol A), 4-(1-methyl-1 phenethyl) phenol (p-cumylphenol) and bis 4-(1-methyl-1-phenylethyl)phenyl ester	114096-64-9	PC	0.6 [4,4'-isopropylidene diphenol (bisphenol A):SML]; 0.05 [4- (1-methyl-1-phenethyl) phenol (p-cumylphenol): SML]; 1 (carbonic dichloride: QM)	5 (calculated in isophthalic acid); 7.5 (calculated in terephthalic acid)	27; 28	Shall not be used to produce food contact materials or their products special for infants
72	Poly(1,4-phenylene sulfide); Polyphenylene sulfide	26125-40-6; 25212-74-2	PPS	12 (1,4-dichlorobenzene: SML)			Usage temperature shall not be higher than 121℃
73	Poly(1-butene)	9003-28-5	PB-1				

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
74	Polypropylene (noblen)	-	PP				See Note 3
75	Butane-1,4-diol - butanedioic acid (1:1)	25777-14-4	PBS and PBSU		5 (calculated in 1,4-butanediol)	30	Usage temperature shall not be higher than 100℃
76	Polybutylene terephthalate; Poly(oxy-1,4-butanediyloxycarbonyl-1,4-phenylenecarbonyl)	24968-12-5	PBT		7.5 (calculated in terephthalic acid); 5 (calculated in 1,4-butanediol)	28; 30	
77	Segmented copolymer of polybutylene terephthalate-polytetrahydrofuran glycol, polymer with maleic anhydride	1224447-95-3	PBT	0.6 (tetrahydrofuran:SML)	30 (calculated in maleic anhydride); 5 (calculated in 1,4-butanediol)	3; 30	Usage temperature shall not be higher than 121℃
78	Poly(butylene adipate terephthalate)	55231-08-8	PBAT		7.5 (calculated in terephthalic acid); 5 (calculated in 1,4-butanediol)	28; 30	Usage temperature shall not be higher than 100℃ and it shall not be used for frozen foods or chilled foods
79	Poly(ethylene terephthalate)	-	PET	0.04 (calculated in stibium: SML)	30 (calculated in glycol); 7.5 (calculated in terephthalic acid)	2; 28	See Note 4
80	Polytetramethylene adipamide (polyamide 46)	50327-22-5; 50327-77-0	PA				
81	Polycaprolactam (polyamide 6)	25308-54-4	PA		15 (calculated in caprolactam)	4	
82	Polymethyl methacrylate	9011-14-7	PMMA		6 (calculated in methylpropenoic acid)	23	
83	Polyformaldehyde	25231-38-3;	POM		15 (calculated in	15	Usage temperature shall not be

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
		9002-81-7			formaldehyde)		higher than 121℃
84	Polyvinyl choride	-	PVC	ND (vinyl chloride, DL=0.01 mg/kg: SML) or 1 (vinyl chloride: QM); ND (1,2-dichloroethane DL=0.01mg/kg: SML) or 5 (1,2-dichloroethane: QM)			
85	Fluorinated ethylene-propylene resin; Tetrafluoroethylene-hexafluoropropylene copolymer	25067-11-2	FEP	0.05 (tetrafluoroethylene: SML); 0.01 (hexafluoropropylene: SML)			
86	Polylactic acid	9051-89-2	PLA				Usage temperature shall not be higher than 100℃
87	Polytetrafluoro-Ethylene (zedeflon)	9002-84-0	PTFE	0.05 (tetrafluoroethylene: SML)			Usage temperature shall not be higher than 250℃
88	Polyamide 12	25038-74-8	PA	5 (laurolactam: SML)			
89	Polyamide 610	9008-66-6; 9011-52-3; 6422-99-7	PA	2.4 (1,6-hexanediamine:SML)			
90	Poly-oxidized (2,6-dimethyl-1,4-phenylene) resin	25134-01-4	PPE	0.05 (2,6-dimethylphenol:SML)			
91	Polyethylene (sudex)	-	PE				See Note 5
92	Vinyl chloride-vinylidene chloride copolymer	9011-06-7	PVDC	ND (1,1-dichloroethene, DL=0.01mg/kg: SML) or 5			

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
				(1,1-dichloroethene: QM); ND (vinyl chloride, DL=0.01mg/kg: SML) or 1 (vinyl chloride: QM)			
93	Hydrogenated aromatic petroleum hydrocarbon resin	88526-47-0	Hydrogenated petroleum hydrocarbon resin				It is made of dialkene and alkene of aliphatic, alicyclic and/or monocyclic aromatic based alkene in petroleum fraction with boiling range not higher than 220℃ and distillate monomer through catalysis or thermal polymerization and distillation, hydrogen fuelling and other technology. Property: where the temperature is higher than 120℃, the viscosity >3Pa s; softening temperature >95℃; bromine value <40; the color of methylbenzene solution containing 50% this material shall be <11(Gardner); the residual quantity of aromatic monomer ≤50mg/kg

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
94	Melamine formaldehyde resin	-	MF	2.5 (melamine: SML)	15 (calculated in formaldehyde)	15	Where it's used to produce the plastic materials or their products for contacting food for infants, the specific migration limit of melamine shall be 1mg/kg; the produced materials or products shall not be used by microwave heating
95	Carbonic dichloride, polymer with 4,4'-cyclohexylidene bis[2-methylphenol], 4,4'isopropylidene diphenol (bisphenol A) and bis[4-(1-methyl-1-phenylethyl)phenyl] ester	411234-34-9	PC	0.6 [4,4'-isopropylidene diphenol (bisphenol A): SML]; 1 (carbonic dichloride: QM)			Shall not be used to produce food contact materials or their products special for infants
96	Pentafluoroethyl trifluorovinyl ether, polymer with tetrafluoroethylene	31784-04-0	PFA	0.05 (tetrafluoroethylene: SML)			
97	Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene); 4,4'-sulfonyl diphenol (bisphenol S), polymer with 1,1'-sulfonylbis[4-chlorobenzene]	25667-42-9; 25608-63-3	0.05[4,4'-sulfonyl diphenol (bisphenol S): SML]; 0.05(4,4'-dichlorodiphenyl sulfone: SML)				

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
98	Ethenol, homopolymer (polyvinyl alcohol)	9002-89-5	PVA or PVOH	12 (vinyl acetate: SML)			It is only used for contacting the foods with low contents of grease and dry solid foods, and the usage temperature shall not be higher than 100℃
99	Ethylene-vinyl acetate copolymer	24937-78-8	EVA	12 (vinyl acetate: SML)			
100	Ethylene-vinyl alcohol copolymer	26221-27-2	EVOH	12 (vinyl acetate: SML)			Shall not be used for contacting the foods with ethanol content higher than 8%
101	Ethylene, polymer with one or more kinds of the following monomers: 1-butene; propylene; 5-ethylidene-2-norbornene; methylpropenoic acid; 1-hexene; propenoic acid; 2-propenoic acid, 2-methyl-, 2-oxiranylmethyl ester; 1-octene; vinyl acetate; carbon monoxide; maleic anhydride; isobutyl acrylate; methyl acrylate; butyl acrylate; ethyl acrylate; zinc acetate; sodium hydroxide; potassium hydroxide, among which ethylene accounts for the maximum mass fraction	25038-36-2; 25053-53-6; 25087-34-7; 25103-74-6; 25213-02-9; 25608-26-8; 25702-94-7; 25750-82-7; 25750-84-9; 24937-78-8; 25895-46-9; 26061-90-5; 26221-73-8; 26337-35-9;	PE	3 (hexene: SML); 15 (octene: SML); 12 (vinyl acetate: SML); 25 (zinc acetate, calculated in zinc: SML); 0.05 (5-ethylidene-2-norbornene,SML); 0.02mg/6 dm^2 (2-propenoic acid, 2-methyl-, oxiranylmethyl ester: QM)	30 (calculated in maleic anhydride); 6 (calculated in propenoic acid); 6 (calculated in methylpropenoic acid)	3; 22; 23	Where the migration testing method of 5-ethylidene-2-norbornene is unavailable, 0.05mg/6dm^2 (QM) may be adopted as its limit value. The ratio of food area contacting with the plastic materials and their products containing 5-ethylidene-2-norbornene to the food mass shall not be higher than 2dm^2/kg

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
		26375-31-5; 26376-80-7; 28064-24-6; 28208-80-2; 28516-43-0; 31069-12-2; 106177-14-4; 37433-35-5; 52255-42-2; 60785-11-7; 61843-70-7; 61843-71-8; 63625-36-5; 107137-84-8; 64652-60-4; 86286-09-1; 10838893-8;85023-55-8; 85244-45-7; 114571-44-7; 88450-35-5; 9006-26-2; 106343-08-2 9010-77-9; 9010-79-1;					

No.	English name	CAS No.	General class name	SML/QM mg/kg	SML(*T*) mg/kg	SML(*T*) Group No.	Other requirements
		9010-86-0; 9019-29-8; 93228-27-4					
102	3-(4-hydroxyl-3-metoxybenzene) propyl terminated polydimethyl siloxane and silicone resin, polymer with 4,4'-isopropylidene diphenol (bisphenol A), carbonic dichloride and 4-(1-methyl-1-phenethyl) phenol	202483-49-6	PC	0.6 [4,4'-isopropylidene diphenol (bisphenol A) SML]; 1 (carbonic dichloride: QM)			Shall not be used to produce food contact materials or their products special for infants

Notes:

1: Water extract (return, 6h)≤ 15mg/L; 20% ethanol extract (return, 6h)≤ 15mg/L; 4% acetic acid extract (return, 6h)≤ 15mg/L; n-hexane extract (return, 6h)≤ 15mg/L; potassium permanganate consumption (water, return, 6h)≤ 10mg/L; heavy metal (calculated in Pb)(4% acetic acid, return, 6h)≤ 1.0mg/L.

2: Loss on drying (100℃, 3h) ≤ 0.2%; volatile substance ≤1.0%; n-hexane extract (return, 2h) ≤1.5%.

3: N-hexane extract (return, 2h) ≤2%.

4: Water extract (return, 0.5h) ≤0.5%; 65% ethanol extract (return, 2h) ≤0.5%; 4% acetic acid extract (return, 0.5h) ≤0.5%; n-hexane extract (return, 1h) ≤0.5%; plumbum (4% acetic acid, return 0.5h) ≤1mg/kg.

5: Loss on drying (100℃, 2h) ≤ 0.15%; residue on ignition ≤0.20%; n-hexane extract (return, 2h) ≤2.00%.