

Standards for Apparatus and Container Packages made of Synthetic Resins

1. General Standards

Test Type	Materials test		Elution test			
	Test item	Standards	Test item	Leaching solution	Leaching conditions	Standards
Synthetic resin in general	Cadmium, Lead	Not more than 100 ppm	Heavy Metal	4% acetic acid	60°C, 30min. *1	Not more than 1 ppm
			Quality of potassium permanganate (except for synthetic resin made of formaldehyde)	Water		Not more than 10 ppm

2. Specific Standards

Test Type	Materials test		Elution test			
	Test item	Standards	Test item	Leaching solution	Leaching conditions	Standards
Synthetic resin made of formaldehyde			Phenol *5	Water	60°C, 30min. *1	Not more than 5 ppm
			Formaldehyde	Water		Not determined
			Evaporation residue *3*4	4% acetic acid		Not more than 30 ppm
Polyvinyl chloride	Dibutyl tin compounds	Not more than 50 ppm	Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 150 ppm
	Cresol phosphate	Not more than 1,000 ppm		20% ethanol	60°C, 30min.	Not more than 30 ppm
	Vinyl chloride	Not more than 1 ppm		Water	60°C, 30min. *1	
		4% acetic acid				
Polyethylene and Polypropylene			Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 30 ppm Not more than 150 ppm for a sample used at the temperature of 100°C or less
				20% ethanol	60°C, 30min.	Not more than 30 ppm
				Water	60°C, 30min. *1	
				4% acetic acid		
Polystyrene	Volatile substance *2	Not more than 5,000 ppm	Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 240 ppm
Polystyrene foam (Limited to that using hot water)	Volatile substance *2	Not more than 2,000 ppm		20% ethanol	60°C, 30min.	Not more than 30 ppm
	Styrene	Not more than 1,000 ppm		Water	60°C, 30min. *1	
	Ethylbenzene	Not more than 1,000 ppm		4% acetic acid		

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	Test item	Standards	Test item	Leaching solution	Leaching conditions	Standards
Polyvinylidene chloride	Barium	Not more than 100 ppm	Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 30 ppm
				20% ethanol	60°C, 30min.	
	Vinylidene chloride	Not more than 6 ppm		Water	60°C, 30min. *1	
				4% acetic acid		
Polyethylene terephthalate			Antimony	4% acetic acid	60°C, 30min. *1	Not more than 0.05 ppm
			Germanium	4% acetic acid	60°C, 30min. *1	Not more than 0.1 ppm
			Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 30 ppm
				20% ethanol	60°C, 30min.	
				Water	60°C, 30min. *1	
4% acetic acid						
Polymethyl methacrylate			Methyl methacrylate	20% ethanol	60°C, 30min.	Not more than 15 ppm
			Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 30 ppm
				20% ethanol	60°C, 30min.	
				Water	60°C, 30min. *1	
4% acetic acid						
Nylon			ϵ -Caprolactam	20% ethanol	60°C, 30min.	Not more than 15 ppm
			Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 30 ppm
				20% ethanol	60°C, 30min.	
				Water	60°C, 30min. *1	
4% acetic acid						
Polymethyl pentene			Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 120 ppm
				20% ethanol	60°C, 30min.	Not more than 30 ppm
				Water	60°C, 30min. *1	
				4% acetic acid		

Type	Test	Materials test		Elution test		
		Test item	Standards	Test item	Leaching solution	Leaching conditions
Polycarbonate	Bisphenol A (including phenol and <i>p-t</i> -butylphenol)	Not more than 500 ppm	Bisphenol A *3 (including phenol and <i>p-t</i> -butylphenol)	n-heptan	25°C, 1hr.	Not more than 2.5 ppm
				20% ethanol	60°C, 30min.	
				Water	60°C, 30min. *1	
				4% acetic acid		
	Diphenylcarbonate	Not more than 500 ppm	Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 30 ppm
	Amines (triethylamine and tributylamine)	Not more than 1 ppm		20% ethanol	60°C, 30min.	
Water				60°C, 30min. *1		
			4% acetic acid			
Polyvinyl alcohol			Evaporation residue *3*4	n-heptan	25°C, 1hr.	Not more than 30 ppm
				20% ethanol	60°C, 30min.	
				Water	60°C, 30min. *1	
				4% acetic acid		

*1 95°C for 30 minutes when used at the temperature exceeding 100°C.

*2 A total of styrene, toluene, ethylbenzene, isopropylbenzene, and n-propylbenzene.

*3 The below solvent is used as leaching solution in container-packages for the below food, respectively.

Food		Leaching solution
Fats and oils and fatty foods		n-heptan
Alcoholic bevarages		20% ethanol
Foods except for fats and oil and fatty foods and alcoholic bevarages	pH value exceed 5.	Water
	pH value is 5 or less	4% acetic acid

*4 4% acetic acid is used as leaching solution in apparatus.

*5 in the apparatus and containers/packages made of phenol resin, melamine resin or urea resin as main components