

Appendix table 3. Materials requirements for dairy products

Item and raw materials	Material test item and passing standard	Migration test			Passing standard for special tests
		Solvent	Migration condition	Item and passing standard	
Containers and packages made of polyethylene or polyethylene-processed paper for dairy products ⁽¹⁾ , exclude cream and butter ⁽²⁾	n-Hexane extract: Not more than 2.6%. Xylene soluble: Not more than 11.3%. Arsenic: Not more than 2 ppm (as As ₂ O ₃) Heavy metals: Not more than 20 ppm (as Pb)	Water	60°C for 30 min	Consumption of potassium permanganate: Not more than 5 ppm.	Breaking force test: Not lower than 2.0 kgf/cm ² for those containing not more than 300 mL food contents. (Not lower than 4.0 kgf/cm ² for those which can be preserved under room temperature.) Not lower than 5.0 kgf/cm ² for those containing more than 300 mL (including 300 mL) food contents. (Not lower than 8.0 kgf/cm ² for those which can be preserved under room temperature.) Sealing strength test: Shall not have damage or gas leakage. Pin-hole test: No methyl blue spot shall be found on the filter paper. Materials for the containers or packages of products which can be preserved under room temperature, shall be impermeable to both light and gas.
		4% Acetic acid	60°C for 30 min	Residues after evaporation: Not more than 15 ppm. Heavy metals: Not more than 1 ppm (as Pb)	
Containers and packages made of polyethylene or polyethylene-processed paper for cream and butter ⁽²⁾	n-Hexane extract: Not more than 2.6%. Xylene soluble: Not more than 11.3%. Arsenic: Not more than 2 ppm (as As ₂ O ₃) Heavy metals: Not more than 20 ppm (as Pb)	Water	60°C for 30 min	Consumption of potassium permanganate: Not more than 5 ppm.	Breaking force test: The same as those for dairy products. Sealing strength test: The same as those for dairy products. Pin-hole test: The same as those for dairy products.
		4% Acetic acid	60°C for 30 min	Heavy metals: Not more than 1 ppm (as Pb)	
		n-Heptane	25°C for 1 hour	Residues after evaporation: Not more than 15 ppm.	
Glass bottles for dairy products ⁽¹⁾	Shall meet the requirements for glass bottles under the category of Appendix table 1 as described above, and shall be transparent.				

Metal cans for dairy products ⁽¹⁾	The surface in direct contact with food is plastic: Arsenic: Not more than 2 ppm (as As ₂ O ₃) Cadmium: Not more than 100 ppm. Lead: Not more than 100 ppm.	Water	60°C for 30 min	The surface in direct contact with food is plastic: Consumption of potassium permanganate: Not more than 5 ppm. Phenol: Negative. Formaldehyde: Negative.	
	If the surface in direct contact with food is polyvinyl chloride, it shall additionally meet the following requirements: Dibutyltin: Not more than 50 ppm (as dibutyltin dichloride) Cresyl phosphate: Not more than 1000 ppm. Vinyl chloride monomer: Not more than 1 ppm.	4% Acetic acid	60°C for 30 min	Arsenic: Not more than 0.1 ppm (as As ₂ O ₃) Heavy metals: Not more than 1 ppm (as Pb) The surface in direct contact with food is plastic: Residues after evaporation: not more than 15 ppm.	
Containers and packages made of polyethylene-processed paper for fermented milk, lactic acid bacteria beverages, and milk-containing beverages (sealed with plastic-processed aluminum foil) .	Shall meet the same requirements as those for containers and packages made of polyethylene for dairy products.				Sealing strength test: The same as those for dairy products. Pin-hole test: The same as those for dairy products. Breaking force test: Not lower than 5.0 kgf/cm ² .

Containers and packages made of polystyrene for fermented milk, lactic acid bacteria beverages, and milk-containing beverages (sealed with plastic-processed aluminum foil) .	Volatile compounds (the sum of styrene, toluene, ethyl benzene, isopropyl-benzene, and n-propyl benzene): Not more than 1500 ppm. Arsenic: Not more than 2 ppm (As ₂ O ₃) Heavy metals: Not more than 20 ppm (as Pb)	Water	60°C for 30 min	Consumption of potassium permanganate: Not more than 5 ppm.	Sealing strength test: The same as those for dairy products. Pin-hole test: The same as those for dairy products. Thrusting strength test: Not lower than 1.0 kgf/cm ² .
		4% Acetic acid	60°C for 30 min	Residues after evaporation: Not more than 15 ppm. Heavy metals: Not more than 1 ppm (as Pb)	
Composite containers and packages for fermented milk, lactic acid bacteria beverages, and milk-containing beverages ⁽³⁾	Metals parts shall meet the requirements as Appendix table 1 for “Metal alloy”. Synthetic resin, synthetic-resin-processed paper, and synthetic-resin-processed aluminum foil shall meet the requirements set for the respective materials as described before.				
Plastic processed aluminum foil as a part of the aluminum caps of containers and packages.	The surface in direct contact with food is plastic: Arsenic: Not more than 2 ppm (as As ₂ O ₃) Cadmium: Not more than 100 ppm. Lead: Not more	Water	60°C for 30 min	Consumption of potassium permanganate: Not more than 5 ppm. Phenol: Negatives. Formaldehyde: Negatives.	Breaking force test: Not lower than 2.0 kgf/cm ² .

	<p>than 100 ppm. If the surface in direct contact with food is polyvinyl chloride, it shall additionally meet the following requirements:</p> <p>Dibutyltin: Not more than 50 ppm (as dibutyltin dichloride)</p> <p>Cresyl phosphate: Not more than 1000 ppm.</p> <p>Vinyl chloride monomer: Not more than 1 ppm.</p>	4% Acetic acid	60°C for 30 min	<p>Residues after evaporation: Not more than 15 ppm.</p> <p>Heavy metals: Not more than 1 ppm (as Pb)</p>	
Metals cans for milk powers ⁽⁴⁾	<p>1.The metal cans shall meet the requirements set for metal cans for dairy products.</p> <p>2.Only polyethylene (PE) or poly (ethylene terephthalate) (PET) synthetic resins are permitted for use at sealing portion. These two synthetic resins shall meet the respective requirements as stated above.</p>				
Containers and packages made of multi-layer synthetic resin for milk powder ⁽⁴⁾ - For those using polyethylene as the material of the inner side which is in direct contact with food contents.	Same as the requirements for polyethylene containers and packages for dairy products.	Water	60°C for 30 min	Consumption of potassium permanganate: Not more than 5 ppm.	<p>Breaking force test: Not lower than 2.0 kgf/cm² for those containing less than 300 mL food contents, and not lower than 5.0 kgf/cm² for those containing more than 300 mL food contents. (In the latter case if there is outer package and the inner and the outer packages together have a breaking force of not lower than 10.0 kgf/cm², the breaking force of the inner package shall not be lower than 2.0 kgf/cm².)</p> <p>Sealing strength test: Shall not have damage or leakage.</p>
		4% Acetic acid	60°C for 30 min	Heavy metals: Not more than 1 ppm (as Pb)	
		n-Heptane	25% for 1 hour.	Residues after evaporation: Not more than 15 ppm.	
Containers and packages made of multi-layer synthetic resin for milk	<p>Cadmium: Not more than 100 ppm.</p> <p>Lead: not more than 100 ppm.</p>	Water	60°C for 30 min	Consumption of potassium permanganate: Not more than 5 ppm.	<p>Breaking force test: The same as above.</p> <p>Sealing strength test: The same as above.</p>

powders ⁽⁴⁾ - For those using poly(ethylene-terephthalate) as the material of the inner side which is in direct contact with food contents.		4% Acetic acid	60°C for 30 min	Heavy metals: Not more than 1 ppm (as Pb) Antimony: Not more than 0.025 ppm. Germanium: Not more than 0.05 ppm.
		n-Heptane	25% for 1 hour.	Residues after evaporation: Not more than 15 ppm.

- (1) The dairy products include fresh milk, partially skimmed milk, skimmed milk, flavored milk, fermented milk, lactic acid bacteria beverages, milk-containing beverages, cream and butter.
- (2) Containers and packages made of polyethylene-processed paper are referred only to those in which the portion directly in contact with food contents is polyethylene.
- (3) Composite containers and packages are those made of two or more materials of synthetic resin, synthetic-resin-processed paper, synthetic-resin-processed aluminum foil or metals.
- (4) The milk powders include whole fat milk powder, partially skimmed milk powder, skimmed milk powder, and formulated milk powder.
- (5) Sweetened or unsweetened condensed whole fat milk and sweetened or unsweetened condensed skim milk for sale shall be packed in tightly sealable metal cans. Whole fat milk powder, skim milk powder, sweetened milk powder and formulated milk powder shall use packaging materials impervious to light, air and moisture or be filled in tightly sealable metal cans.