

ECLA EUROPEAN CLASSIFICATION

A23C DAIRY PRODUCTS, e.g. MILK, BUTTER, CHEESE; MILK OR CHEESE SUBSTITUTES; MAKING THEREOF (obtaining protein compositions for foodstuffs, [N: e.g. from milk], [A23J1/00](#); preparation of peptides, e.g. of proteins, in general [C07K1/00](#)) [[C9409](#)]

Note

This subclass covers:

- the chemical aspects of making dairy products
- the apparatus used for performing techniques provided for therein, e.g. for concentration, evaporation, drying, preservation, or sterilisation, unless such apparatus is specifically provided for in another subclass, e.g. [A01J](#) for treatment of milk or cream for manufacture of butter or cheese.

Guide heading: General dairy technology

A23C1/00 Concentration, evaporation or drying (products obtained thereby [A23C9/00](#); making butter powder [A23C15/14](#), cheese powder [A23C19/086](#); evaporating in general [B01D1/00](#))

- A23C1/01 . Drying in thin layers
- A23C1/03 . . on drums or rollers
- A23C1/04 . by spraying into a gas stream
- A23C1/04B . . [N: by simultaneously or separately spraying of two different liquid products other than water or steam; by separate addition of additives other than milk products or lactose in the spray-dryer] [[C9409](#)]
- A23C1/05 . . combined with agglomeration [N: granulation or coating] [[C9711](#)]
- A23C1/06 . Concentration by freezing out the water
- A23C1/08 . . Freeze-drying
- A23C1/10 . Foam drying ([A23C1/04](#), [A23C1/08](#) take precedence)
- A23C1/12 . Concentration by evaporation
- A23C1/14 . combined with other treatment ([A23C3/00](#), [A23C9/00](#) take precedence)
- A23C1/16 . . using additives

A23C3/00 Preservation of milk or milk preparations (of cream [A23C13/08](#); of butter [A23C15/18](#); of cheese [A23C19/097](#))

- A23C3/00B . [N: Storing or packaging in a vacuum or in inert or sterile gaseous atmosphere (impregnation with inert gases [A23C9/152D](#))]

- A23C3/02 . by heating ([A23C3/07](#) takes precedence)
- A23C3/023 . . in packages
- A23C3/027 . . . progressively transported through the apparatus
- A23C3/03 . . the materials being loose unpacked
- A23C3/03B . . . [N: Apparatus through which the material is transported non progressively; Temperature-maintaining holding tanks or vats with discontinuous filling or discharge]
- A23C3/033 . . . and progressively transported through the apparatus
- A23C3/033B [N: in contact with multiple heating plates]
- A23C3/033D [N: the milk being heated by electrical or mechanical means, e.g. by friction]
- A23C3/033E [N: the milk flowing through with indirect heat exchange, containing rotating elements, e.g. for improving the heat exchange]
- A23C3/037 in direct contact with the heating medium, e.g. steam
- A23C3/037B [N: by pulverisation of the milk, including free falling film]

- A23C3/04 . by freezing or cooling
- A23C3/04B . . [N: Freezing in loose unpacked form] [N0001]
- A23C3/05 . . in packages
- A23C3/05B . . . [N: Freezing in packages] [N0001]

- A23C3/07 . by irradiation, e.g. by microwaves; [N: by sonic or ultrasonic waves] [C9611]
- A23C3/07B . . [N: by sonic or ultrasonic waves] [N9611]
- A23C3/07E . . [N: by ultraviolet or infrared radiation] [N9611]

- A23C3/08 . by addition of preservatives (addition of micro-organisms or enzymes [A23C9/12](#), of other substances [A23C9/152](#))
- A23C3/08B . . [N: Inorganic compounds, e.g. lactoperoxidase - H2O2 systems]

A23C7/00 Other dairy technology

- A23C7/02 . Chemical cleaning of dairy apparatus (cleaning in general [B08B](#), e.g. [B08B3/08](#)); Use of sterilisation methods therefor (sterilisation methods per se [A61L](#))
- A23C7/04 . Removing unwanted substances [N: other than lactose or milk proteins] from milk (by filtering [A01J9/02](#), [A01J11/06](#))
- A23C7/04B . . [N: using chemicals in liquid or solid state, e.g. flocculating, adsorbing or extracting agents ([A23C9/146](#) and [A23C9/148](#) take precedence)]
- A23C7/04C . . [N: by centrifugation without using chemicals, e.g. bactofugation; re-use of bactofugate]

Guide heading: Dairy products; Processes specially adapted therefor

- A23C9/00 Milk preparations; Milk powder or milk powder preparations** ([21/06](#) takes precedence; preservation [A23C3/00](#); chocolate milk [A23G1/00](#); ice-cream, mixtures for preparation of ice-cream [A23G9/00](#); puddings, dry powder puddings [A23L1/187](#))
- A23C9/00B . [N: Condensed milk; Sugared condensed milk ([A23C1/06](#) and [A23C1/12](#) take

precedence)]

- A23C9/12 . Fermented milk preparations; Treatment using micro-organisms or enzymes (whey preparations [A23C21/00](#))
- A23C9/12B . . [N: Addition of, or treatment with, enzymes or micro-organisms other than lactobacteriaceae]
- A23C9/12B2 . . . [N: Lactose hydrolysing enzymes, e.g. lactase, beta-galactosidase] [C9409]
- A23C9/12B3 . . . [N: Proteolytic or milk coagulating enzymes, e.g. trypsin]
- A23C9/12B4 . . . [N: Oxidation or reduction enzymes, e.g. peroxidase, catalase, dehydrogenase]
- A23C9/12B6 . . . [N: Other enzymes]
- A23C9/12D . . [N: Apparatus for preparing or treating fermented milk products]
- A23C9/12D2 . . . [N: for making stirred yoghurt; Apparatus with agitating or stirring means; Continuous bulk fermentation, heating or cooling, i.e. continuous inlet and outlet flow of yoghurt]
- A23C9/12D4 . . . [N: for making set yoghurt in containers without stirring, agitation or transport of the yoghurt or the containers during incubation, heating or cooling; Domestic yoghurt apparatus without agitating means]
- A23C9/123 . . using only micro-organisms of the genus lactobacteriaceae; Yoghurt ([A23C9/13](#) takes precedence)
- A23C9/123B . . . [N: in powdered, granulated or dried solid form]
- A23C9/123D . . . [N: characterised by using a Lactobacillus sp. other than Lactobacillus Bulgaricus, including Bifidobacterium sp.]
- A23C9/123E . . . [N: using Leuconostoc, Pediococcus or Streptococcus sp. other than Streptococcus Thermophilus; Artificial sour buttermilk in general ([A23C9/123D](#) and [A23C17/02](#) take precedence)]
- A23C9/123H . . . [N: using specific L. bulgaricus or S. thermophilus micro-organisms; using entrapped or encapsulated yoghurt bacteria; Physical or chemical treatment of L. bulgaricus or S. thermophilus cultures; Fermentation only with L. bulgaricus or only with S. thermophilus]
- A23C9/127 . . using micro-organisms of the genus lactobacteriaceae and other micro-organisms or enzymes e.g. kefir, koumiss ([A23C9/13](#) takes precedence)
- A23C9/127B . . . [N: using only lactobacteriaceae for fermentation in combination with enzyme treatment of the milk product; using enzyme treated milk products for fermentation with lactobacteriaceae] [N9409]
- A23C9/13 . . using additives
- A23C9/13B . . . [N: Milk products or derivatives; Fruit or vegetable juices; Sugars, sugar alcohols, sweeteners; Oligosaccharides; Organic acids or salts thereof or acidifying agents; Flavours, dyes or pigments; Inert or aerosol gases; Carbonation methods] [C9711]
- A23C9/13D . . . [N: Non-milk proteins or fats; Seeds, pulses, cereals or soja; Fatty acids, phospholipids, mono- or diglycerides or derivatives therefrom; Egg products]
- A23C9/13E . . . [N: Inorganic compounds; Minerals, including organic salts thereof, oligo-elements; Amino-acids, peptides, protein-hydrolysates or derivatives; Nucleic acids or derivatives; Yeast extract or autolysate; Vitamins; Antibiotics; Bacteriocins] [C9711]
- A23C9/133 . . . Fruit or vegetables
- A23C9/137 . . . Thickening substances
- A23C9/14 . in which the chemical composition of the milk is modified by non-chemical treatment

[Note

[C0408]When classifying in this group, classification is also made in group [B01D15/08](#) insofar as subject matter of general interest relating to chromatography is concerned]

- A23C9/142 . . . by dialysis, reverse osmosis or ultrafiltration ([A23C9/144](#) takes precedence)
- A23C9/142B [N: by ultrafiltration, microfiltration or diafiltration of milk, e.g. for separating protein and lactose; Treatment of the UF permeate]
- A23C9/142C [N: by ultrafiltration, microfiltration or diafiltration of whey, e.g. treatment of the UF permeate]
- A23C9/142D [N: by dialysis, reverse osmosis or hyperfiltration, e.g. for concentrating or desalting]
- A23C9/144 . . . by electrical means, e.g. electrodialysis
- A23C9/146 . . . by ion-exchange
- A23C9/146B [N: Chromatographic separation of protein or lactose fraction; Adsorption of protein or lactose fraction followed by elution]
- A23C9/148 . . . by molecular sieve or gel filtration [N: or chromatographic treatment ([A23C9/146B](#) takes precedence)]

- A23C9/15 . . . Reconstituted or recombined milk products containing neither non-milk fat nor non-milk proteins (containing thickening substances [A23C9/154](#); mixtures of whey, with milk products or milk components [A23C21/06](#))
- A23C9/15B [N: Spreads, semi-solid products]
- A23C9/15D [N: Dissolving or reconstituting milk powder; Reconstitution of milk concentrate with water; Standardisation of fat content of milk] [C9409]
- A23C9/15E [N: containing isolated milk or whey proteins, caseinates or cheese; Enrichment of milk products with milk proteins in isolated or concentrated form, e.g. ultrafiltration retentate]
- A23C9/15F [N: Enrichment or recombination of milk (excepted whey) with milk fat, cream of butter without using isolated or concentrated milk proteins]

- A23C9/152 . . . containing additives (fermented milk preparations containing additives [A23C9/13](#))
- A23C9/152B [N: Inorganic additives, e.g. minerals, trace elements; Chlorination or fluoridation of milk; Organic salts or complexes of metals other than sodium or potassium; Calcium enrichment of milk] [C9409]
- A23C9/152D [N: Inert gases, noble gases, oxygen, aerosol gases; Processes for foaming] [C9409]
- A23C9/152E [N: Amino acids; Peptides; Protein hydrolysates; Nucleic acids; Derivatives thereof]
- A23C9/152F [N: Fatty acids; Mono- or diglycerides; Petroleum jelly; Paraffine; Phospholipids; Derivatives thereof]

- A23C9/154 . . . containing thickening substances, eggs or cereal preparations; Milk gels
- A23C9/154B [N: Acidified milk products containing thickening agents or acidified milk gels, e.g. acidified by fruit juices (fermentation [A23C9/12](#))]
- A23C9/154D [N: Non-acidified gels, e.g. custards, creams, desserts, puddings, shakes or foams, containing eggs or thickening or gelling agents other than sugar; Milk products containing natural or microbial polysaccharides, e.g. cellulose or cellulose derivatives; Milk products containing nutrient fibres] [C9711]
- A23C9/154D2 [N: in powdered, granulated or dried solid form]
- A23C9/154H [N: Non-dried milk gels, creams or semi-solid products obtained by heating milk with a sugar without using gums, e.g. milk jam]

- A23C9/156 . . Flavoured milk preparations; [N: Addition of fruits, vegetables, sugars, sugar alcohols, sweeteners] ([A23C9/154](#) takes precedence)
- A23C9/156B . . . [N: Acidified milk products, e.g. milk flavoured with fruit juices ([A23C9/154B](#) takes precedence; fermentation [A23C9/12](#))]
- A23C9/158 . . containing vitamins or antibiotics
- A23C9/158B . . . [N: Antibiotics; Bacteriocins; Fungicides from micro-organisms] [C9409]
- A23C9/16 . Agglomerating or granulating milk powder; Making instant milk powder; Products obtained thereby ([A23C1/05](#), [A23C9/18](#) take precedence)
- A23C9/18 . Milk in dried and compressed or semi-solid form
- A23C9/20 . Dietetic milk products not covered by groups [A23C9/12](#) to [A23C9/18](#)
- A23C9/20B . . [N: containing bifidus-active substances, e.g. lactulose; containing oligosaccharides] [C9711]
- A23C9/20C . . [N: Colostrum; Human milk]

- A23C11/00** **Milk substitutes, e.g. coffee whitener compositions** (cheese substitutes [A23C20/00](#); butter substitutes [A23D](#); cream substitutes [A23L1/19](#))

- A23C11/02 . containing at least one non-milk component as source of fats or proteins ([A23C19/055](#), [A23C21/04](#) take precedence)
- A23C11/04 . . containing non-milk fats but no non-milk proteins ([A23C11/08](#), [A23C11/10](#) take precedence)
- A23C11/04B . . . [N: obtained by mixing the non-fat components in powdered form with the fats or by dry mixing of the components] [C9711]
- A23C11/06 . . containing non-milk proteins ([A23C11/08](#), [A23C11/10](#) take precedence)
- A23C11/06E . . . [N: Microbial proteins, inactivated yeast or animal proteins]
- A23C11/08 . . containing caseinates but no other milk proteins nor milk fats
- A23C11/10 . . containing or not lactose but no other milk components as source of fats, carbohydrates or proteins, e.g. soy milk
- A23C11/10B . . . [N: containing only proteins from pulses, oilseeds or nuts, e.g. soy or nut milk]
- A23C11/10B2 [N: Addition of, or treatment with, micro-organisms ([A23C20/02B](#) and [A23L1/211M](#) take precedence)]

- A23C13/00** **Cream; Cream preparations; Making thereof** (coffee whitener compositions [A23C11/00](#); cream substitutes [A23L1/19](#))

- A23C13/08 . Preservation
- A23C13/08B . . [N: Freezing; Subsequent melting]
- A23C13/10 . . by addition of preservatives ([A23C13/14](#), [A23C13/16](#) take precedence)

- A23C13/12 . Cream preparations ([ice-cream A23G9/00](#))
- A23C13/12B . . [N: in powdered, granulated or solid form]
- A23C13/14 . . containing milk products or [N: non-fat] milk components
- A23C13/16 . . containing, or treated with, micro-organisms, enzymes, or antibiotics; Sour cream
- A23C13/16B . . . [N: Making sour cream by chemical or physical means only]

- A23C15/00** **Butter; Butter preparations; Making thereof** ([butter substitutes A23D](#))
- A23C15/02 . Making thereof
- A23C15/04 . . from butter oil or anhydrous butter
- A23C15/06 . . Treating cream [N: or milk] prior to phase inversion
- A23C15/06B . . . [N: Addition of a treatment with micro-organisms or enzymes; Addition of cultured milk products]
- A23C15/12 . Butter preparations
- A23C15/12B . . [N: Addition of micro-organisms or cultured milk products; Addition of enzymes; Addition of starter cultures other than destillates]
- A23C15/12F . . [N: Butter containing a minority of vegetable oils; Enrichment of butter with fatty acids] [N9711]
- A23C15/14 . . Butter powder; Butter oil, i.e. melted butter, e.g. ghee; [N: Anhydrous butter]
- A23C15/14B . . . [N: Removal of steroids, e.g. cholesterol or free acids; Fractionation of anhydrous milkfat by extraction with solvents other than solvent crystallisation or with supercritical gases or by distillation]
- A23C15/16 . . Butter having reduced fat content
- A23C15/16B . . . [N: prepared by addition of microorganisms; Cultured spreads] [N9711]
- A23C15/18 . Preservation
- A23C15/20 . . by addition of preservatives [N: or antioxidants] [C9711]
- A23C17/00** **Buttermilk; Buttermilk preparations** ([A23C9/14](#) takes precedence; preservation [A23C3/00](#))
- A23C17/02 . containing, or treated with, micro-organisms or enzymes
- A23C19/00** **Cheese; Cheese preparations; Making thereof** ([cheese substitutes A23C20/00](#); casein [A23J1/20](#))
- A23C19/02 . Making cheese curd
- A23C19/024 . . using continuous procedure
- A23C19/024B . . . [N: with immobilized enzymes or micro-organisms]
- A23C19/028 . . without substantial whey separation from coagulated milk
- A23C19/028B . . . [N: by dialysis or ultrafiltration]
- A23C19/032 . . characterised by the use of specific micro-organisms, or enzymes of microbial origin
- A23C19/032A . . . [N: Propionic acid bacteria]
- A23C19/032B . . . [N: using only lactic acid bacteria, e.g. *Pediococcus* and *Leuconostoc* species; Bifidobacteria; Microbial starters in general (using moulds [A23C19/068B](#))] [C9510]
- A23C19/032C . . . [N: using yeasts, alone or in combination with lactic acid bacteria or with fungi, without using other bacteria]
- A23C19/032D . . . [N: Rennet produced by fermentation e.g. microbial rennet; Rennet produced by genetic engineering] [C9711]

- A23C19/032E . . . [N: Enzymes other than milk clotting enzymes, e.g. lipase, beta-galactosidase]
- A23C19/04 . . characterised by the use of specific enzymes of vegetable or animal origin
([A23C19/032](#) takes precedence)
- A23C19/04B . . . [N: Proteolytic or milk clotting enzymes from plants or vegetables, e.g. papain, ficin, bromelain]
- A23C19/04E . . . [N: Enzymes other than proteolytic enzymes or milk clotting enzymes, e.g. lipase, lysosyme]
- A23C19/045 . . Coagulation of milk without rennet or rennet substitutes [N: followed by whey separation]
- A23C19/045D . . . [N: Coagulation by direct acidification without fermentation of the milk, e.g. by chemical or physical means] [N9711]
- A23C19/05 . . Treating milk before coagulation; Separating whey from curd ([19/097](#), [N: [A23C19/045](#)] take precedence) [C9711]
- A23C19/05B . . . [N: Acidifying by combination of acid fermentation and of chemical or physical means]
- A23C19/05D . . . [N: Acidifying only by chemical or physical means]
- A23C19/05E . . . [N: Enrichment of milk with whey, whey components, substances recovered from separated whey, isolated or concentrated proteins from milk]
- A23C19/05H . . . [N: using additives other than acidifying agents, NaCl, CaCl₂, dairy products, proteins, fats, enzymes or micro-organisms]
- A23C19/055 . . Addition of non-milk fats or non-milk proteins, [N: polyol fatty acid polyesters or mineral oils]

- A23C19/06 . Treating cheese curd after whey separation; Products obtained thereby ([A23C19/097](#) takes precedence)
- A23C19/06B . . [N: Addition of, or treatment with, micro-organisms ([A23C19/068B](#) takes precedence)]
- A23C19/06B2 . . . [N: using only lactic acid bacteria, e.g. pediococcus, leconostoc or bifidus sp., or propionic acid bacteria; Treatment with non-specified acidifying bacterial cultures]
- A23C19/06E . . [N: Addition of, or treatment with, enzymes or cell-free extracts of micro-organisms]
- A23C19/064 . . Salting
- A23C19/068 . . Particular types of cheese
- A23C19/068B . . . [N: Mould-ripened or bacterial surface ripened cheeses]
- A23C19/068D . . . [N: Soft uncured Italian cheeses, e.g. Mozzarella, Ricotta, Pasta filata cheese; Other similar stretched cheeses] [C9510]
- A23C19/068E . . . [N: Cheese from whey, e.g. mysost]
- A23C19/068H . . . [N: Hard cheese or semi-hard cheese with or without eyes ([A23C19/072](#) takes precedence)]
- A23C19/072 . . . Cheddar type [N: or similar hard cheeses without eyes]
- A23C19/076 . . . Soft unripened cheese, e.g. cottage or cream cheese
- A23C19/076B [N: Addition to the curd of additives other than acidifying agents, dairy products, proteins except gelatine, fats, enzymes, micro-organisms, NaCl, CaCl₂ or KCl; Foamed fresh cheese products]
- A23C19/08 . . . Process cheese preparations; Making thereof, e.g. melting, emulsifying, sterilizing
- A23C19/08B [N: Surface melting]
- A23C19/082 Adding substances to the curd before or during melting; Melting salts

- A23C19/084 Treating the curd, or adding substances thereto, after melting ([adding non-milk components A23C19/093](#))
- A23C19/086 . . Cheese powder; Dried cheese preparations
- A23C19/09 . . Other cheese preparations; Mixtures of cheese with other foodstuffs ([preservation A23C19/097](#))
- A23C19/09A . . . [N: Liquid cheese products, e.g. beverages, sauces] [N9510]
- A23C19/09B . . . [N: Sliced cheese; Multilayered or stuffed cheese; Cheese loaves]
- A23C19/09C . . . [N: Fried, baked or roasted cheese products, e.g. cheese cakes; Foamed cheese products, e.g. soufflès; Expanded cheese in solid form]
- A23C19/09D . . . [N: Addition, to cheese or curd, of whey, whey components, substances recovered from separated whey, isolated or concentrated proteins from milk]
- A23C19/09E . . . [N: Addition, to cheese or curd, of minerals, including organic salts thereof, trace elements, amino acids, peptides, protein hydrolysates, nucleic acids, yeast extracts or autolysate, vitamins or derivatives of these compounds] [C0203]
- A23C19/09F . . . [N: Addition, to cheese or curd, of colours, synthetic flavours or artificial sweeteners, including sugar alcohols]
- A23C19/093 . . . Addition of non-milk fats or non-milk proteins, [N: polyol fatty acid polyesters or mineral oils]

- A23C19/097 . Preservation
- A23C19/097B . . [N: Pasteurisation; Sterilisation; Hot packaging] [C9711]
- A23C19/097C . . [N: Freezing; Treating cheese in frozen state; Thawing of frozen cheese]
- A23C19/10 . . Addition of preservatives [N: ([enzymes or micro-organisms, see A23C19/032, A23C19/04, A23C19/06B and A23C19/06E](#))]
- A23C19/10B . . . [N: Inorganic compounds; Inert or noble gases; Carbon dioxide] [C9409]
- A23C19/11 . . . of antibiotics [N: or bacteriocins] [C9409]

- A23C19/14 . Treating cheese after having reached its definite form, e.g. ripening, smoking ([preservation A23C19/097](#))
- A23C19/16 . . Covering the cheese surface, e.g. with paraffin wax
- A23C19/16B . . . [N: with a non-edible liquid or semi-liquid coating, e.g. wax, polymer dispersions ([in combination with an edible coating A23C19/16](#))]
- A23C19/16C . . . [N: with non-edible preformed foils, films or bandages]

- A23C20/00** **Cheese substitutes** ([A23C19/055, A23C19/093](#) take precedence)

- A23C20/00B . [N: mainly containing proteins from pulses or oilseeds, e.g. soy curd, tofu]
- A23C20/02 . containing neither milk components, nor caseinate, nor lactose, as sources of fats, proteins or carbohydrates
- A23C20/02B . . [N: mainly containing proteins from pulses or oilseeds, e.g. soy curd, tofu]

- A23C21/00** **Whey; Whey preparations** ([A23C1/00, A23C3/00, A23C9/14](#) take precedence)

- A23C21/02 . containing, or treated with, micro-organisms or enzymes
- A23C21/02B . . [N: Lactose hydrolysing enzymes, e.g. lactase, B-galactosidase]

- A23C21/02D . . [N: containing, or treated only with, lactic acid producing bacteria, bifidobacteria or propionic acid bacteria]
- A23C21/04 . containing non-milk components as source of fats or proteins
- A23C21/06 . Mixtures of whey with milk products or milk components
- A23C21/08 . containing other organic additives, e.g. vegetable or animal products
- A23C21/10 . containing inorganic additives
- A23C23/00** **Other dairy products [N9505]**