A23C - DAIRY PRODUCTS, e.g. MILK, BUTTER, CHEESE; MILK OR CHEESE SUBSTITUTES; MAKING THEREOF (obtaining protein compositions for foodstuffs, {e.g. from milk} , A23J 1/00; preparation of peptides, e.g. of proteins, in general C07K 1/00)

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.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

General dairy technology

1/00 Concentration, evaporation or drying (products obtained thereby A23C 9/00; making butter powder A23C 15/14, cheese powder A23C 19/086; evaporating in general B01D 1/00)
1/01 . Drying in thin layers
1/03 . on drums or rollers
1/04 . by spraying into a gas stream
1/045 . [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]
1/05 . combined with agglomeration [granulation or coating]
1/06 . Concentration by freezing out the water
1/08 . Freeze-drying
1/10 . Foam drying (A23C 1/04, A23C 1/08 take precedence)
1/12 . Concentration by evaporation
1/14 . combined with other treatment (A23C 3/00, A23C 9/00 take precedence)
1/16 . using additives
3/00 Preservation of milk or milk preparations (of cream A23C 13/08; of butter A23C 15/18; of cheese A23C 19/097)
3/005 . [Storing or packaging in a vacuum or in inert or sterile gaseous atmosphere (impregnation with inert gases A23C 9/1524)]
3/02 . by heating (A23C 3/07 takes precedence)
3/023 . in packages
3/027 . progressively transported through the apparatus
3/03 . the materials being loose unpacked
3/031 . . . [Apparatus through which the material is transported non progressively; Temperature-maintaining holding tanks or vats with discontinuous filling or discharge]
3/033 . . . and progressively transported through the apparatus
3/0332 . . . [in contact with multiple heating plates]
3/0335 . . . [the milk being heated by electrical or mechanical means, e.g. by friction]
3/0337 . . . [the milk flowing through with indirect heat exchange, containing rotating elements, e.g. for improving the heat exchange]
3/037 . . . in direct contact with the heating medium, e.g. steam
3/0375 . . . [by pulverisation of the milk, including free falling film]
3/04 . by freezing or cooling
3/045 . [Freezing in loose unpacked form]
3/05 . . in packages
3/055 . . [Freezing in packages]
3/07 . by irradiation, e.g. by microwaves {; by sonic or ultrasonic waves}
3/073 . . . [by sonic or ultrasonic waves]
3/076 . . . [by ultraviolet or infrared radiation]
3/08 . by addition of preservatives (additions of microorganisms or enzymes A23C 9/12, of other substances A23C 9/152)
3/085 . . . [Inorganic compounds, e.g. lactoperoxidase - H₂O₂ systems]
7/00 Other dairy technology
7/02 . Chemical cleaning of dairy apparatus (cleaning in general B08B, e.g. B08B 3/08); Use of sterilisation methods therefor (sterilisation methods per se A01L)
General dairy technology

9/04 . Removing unwanted substances [other than lactose or milk proteins] from milk (by filtering A01J 9/02, A01J 11/06)

9/043 . [using chemicals in liquid or solid state, e.g. flocculating, adsorbing or extracting agents (A23C 9/146 and A23C 9/148 take precedence)]

9/046 . [by centrifugation without using chemicals, e.g. bactofugation; re-use of bactofugate]

Dairy products: Processes specially adapted therefor

9/00 Milk preparations; Milk powder or milk powder preparations (A23C 21/06 takes precedence; preservation A23C 3/00; chocolate milk A23G 1/00; ice-cream or mixtures for preparation of ice-cream A23G 9/00; puddings or dry powder puddings A23L 9/10)

9/005 . [Condensed milk; Sugared condensed milk (A23C 1/06 and A23C 1/12 take precedence)]

9/12 Fermented milk preparations; Treatment using microorganisms or enzymes (whey preparations A23C 21/00)

9/1203 . [Addition of, or treatment with, enzymes or microorganisms other than lactobacteriaceae]

9/1206 . [Lactose hydrolysing enzymes, e.g. lactase, beta-galactosidase]

9/1209 . [Proteolytic or milk coagulating enzymes, e.g. trypsin]

9/1213 . [Oxidation or reduction enzymes, e.g. peroxidase, catalase, dehydrogenase]

9/1216 . [Other enzymes]

9/122 . [Apparatus for preparing or treating fermented milk products]

9/1223 . [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]

9/1226 . [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]

9/123 . [using only microorganisms of the genus lactobacteriaceae; Yoghurt (A23C 9/13 takes precedence)]

9/1232 . [in powdered, granulated or dried solid form]

9/1234 . [characterised by using a Lactobacillus sp. other than Lactobacillus Bulgaricus, including Bifidobacterium sp.]

9/1236 . [using Lactobacillus, Pediococcus or Streptococcus sp. other than Streptococcus Thermophilus; Artificial sour buttermilk in general (A23C 9/1234 and A23C 17/02 take precedence)]

9/1238 . [using specific L. bulgaricus or S. thermophilus microorganisms; 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]

9/127 . [using microorganisms of the genus lactobacteriaceae and other microorganisms or enzymes, e.g. kefir, koumiss (A23C 9/13 takes precedence)]

9/1275 . [using only lactobacteriaceae for fermentation in combination with enzyme treatment of the milk product; using enzyme treated milk products for fermentation with lactobacteriaceae]

9/13 . [using additives]

9/1307 . [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]

9/1315 . [Non-milk proteins or fats; Seeds, pulses, cereals or soja; Fatty acids, phospholipids, mono- or diglycerides or derivatives therefrom; Egg products]

9/1322 . [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]

9/133 . [Fruit or vegetables]

9/137 . [Thickening substances]

9/14 . [in which the chemical composition of the milk is modified by non-chemical treatment]

NOTE: When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned

9/142 . [by dialysis, reverse osmosis or ultrafiltration (A23C 9/144 takes precedence)]

9/1422 . [by ultrafiltration, microfiltration or diafiltration of milk, e.g. for separating protein and lactose; Treatment of the UF permeate]

9/1425 . [by ultrafiltration, microfiltration or diafiltration of whey, e.g. treatment of the UF permeate]

9/1427 . [by dialysis, reverse osmosis or hyperfiltration, e.g. for concentrating or desalting]

9/144 . [by electrical means, e.g. electrodialysis]

9/146 . [by ion-exchange]

9/1465 . [Chromatographic separation of protein or lactose fraction; Adsorption of protein or lactose fraction followed by elution]

9/148 . [by molecular sieve or gel filtration (or chromatographic treatment (A23C 9/1465 takes precedence))]

9/15 . [Reconstituted or recombined milk products containing neither non-milk fat nor non-milk proteins (containing thickening substances A23C 9/154; mixtures of whey, with milk products or milk components A23C 21/06)]

9/1504 . [Spreads, semi-solid products]

9/1508 . [Dissolving or reconstituting milk powder; Reconstitution of milk concentrate with water; Standardisation of fat content of milk]

9/1512 . [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]
Dairy products; Processes specially adapted therefor

10/065 . . . [Microbial proteins, inactivated yeast or animal proteins]
11/08 . . . containing caseinates but no other milk proteins nor milk fats
11/10 . . . containing or not lactose but no other milk components as source of fats, carbohydrates or proteins, e.g. soy milk
11/103 . . . [containing only proteins from pulses, oilseeds or nuts, e.g. soy or nut milk]
11/116 . . . [Addition of, or treatment with, microorganisms (A23C 20/025 and A23L 11/37 take precedence)]

13/00 Cream; Cream preparations (ice-cream A23G 9/00); Making thereof (coffee whitener compositions A23C 11/00; cream substitutes A23L 9/20)
13/08 . . . Preservation
13/085 . . . [Freezing; Subsequent melting]
13/10 . . . by addition of preservatives (A23C 13/14, A23C 13/16 take precedence)
13/12 . . . Cream preparations (ice-cream A23G 9/00)
13/125 . . . [in powdered, granulated or solid form]
13/14 . . . containing milk products or [non-fat] milk components
13/16 . . . containing, or treated with, microorganisms, enzymes, or antibiotics; Sour cream
13/165 . . . [Making sour cream by chemical or physical means only]

15/00 Butter; Butter preparations; Making thereof (butter substitutes A23D)
15/02 . . . Making thereof
15/04 . . . from butter oil or anhydrous butter
15/06 . . . Treating cream [or milk] prior to phase inversion
15/065 . . . [Addition of a treatment with microorganisms or enzymes; Addition of cultured milk products]
15/12 . . . Butter preparations
15/123 . . . [Addition of microorganisms or cultured milk products; Addition of enzymes; Addition of starter cultures other than distillates]
15/126 . . . [Butter containing a minority of vegetable oils; Enrichment of butter with fatty acids]
15/14 . . . Butter powder; Butter oil, i.e. melted butter, e.g. ghee; Anhydrous butter
15/145 . . . [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]
15/16 . . . Butter having reduced fat content
15/165 . . . [prepared by addition of microorganisms; Cultured spreads]
15/18 . . . Preservation
15/20 . . . by addition of preservatives [or antioxidants]

17/00 Buttermilk; Buttermilk preparations (A23C 9/14 takes precedence; preservation A23C 3/00)
17/02 . . . containing, or treated with, microorganisms or enzymes

19/00 Cheese; Cheese preparations; Making thereof (cheese substitutes A23C 20/00; casein A23J 1/20)
19/02 . . . Making cheese curd
19/024 . . . using continuous procedure
Dairy products; Processes specially adapted therefor

19/0245 . . . with immobilized enzymes or microorganisms
19/028 . . . without substantial whey separation from coagulated milk
19/0285 . . . by dialysis or ultrafiltration
19/032 . . . characterised by the use of specific microorganisms, or enzymes of microbial origin
19/0321 . . . Propionic acid bacteria
19/0323 . . . using only lactic acid bacteria, e.g. Pediococcus and Leuconostoc species; Bifidobacteria; Microbial starters in general (using moulds A23C 19/0682)
19/0325 . . . using yeasts, alone or in combination with lactic acid bacteria or with fungi, without using other bacteria
19/0326 . . . Rennet produced by fermentation, e.g. microbial rennet; Rennet produced by genetic engineering
19/0328 . . . Enzymes other than milk clotting enzymes, e.g. lipase, beta-galactosidase
19/04 . . . characterised by the use of specific enzymes of vegetable or animal origin (A23C 19/0976 takes precedence)
19/041 . . . Proteolytic or milk clotting enzymes from plants or vegetables, e.g. papain, ficin, bromelain
19/043 . . . Enzymes other than proteolytic enzymes or milk clotting enzymes, e.g. lipase, lysozyme
19/045 . . . Coagulation of milk without rennet or rennet substitutes (followed by whey separation)
19/0455 . . . Coagulation by direct acidification without fermentation of the milk, e.g. by chemical or physical means
19/05 . . . Treating milk before coagulation; Separating whey from curd (A23C 19/097, A23C 19/045 take precedence)
19/051 . . . Acidifying by combination of acid fermentation and of chemical or physical means
19/052 . . . Acidifying only by chemical or physical means
19/053 . . . Enrichment of milk with whey, whey components, substances recovered from separated whey, isolated or concentrated proteins from milk
19/054 . . . using additives other than acidifying agents, NaCl, CaCl₂, dairy products, proteins, fats, enzymes or microorganisms
19/055 . . . Addition of non-milk fats or non-milk proteins, polyol fatty acid esters or polyol esters of milk
19/06 . . . Treating cheese curd after whey separation; Products obtained thereby (A23C 19/097 takes precedence)
19/061 . . . Addition of, or treatment with, microorganisms (A23C 19/0682 takes precedence)
19/062 . . . using only lactic acid bacteria, e.g. Pediococcus, Leuconostoc or Bifidus sp., or propionic acid bacteria; Treatment with non-specified acidifying bacterial cultures
19/063 . . . Addition of, or treatment with, enzymes or cell-free extracts of microorganisms
19/064 . . . Salting
19/068 . . . Particular types of cheese
19/0682 . . . mould-ripened or bacterial surface ripened cheeses
19/0684 . . . Soft uncured Italian cheeses, e.g. Mozarella, Ricotta, Pasta filata cheese; Other similar stretched cheeses
19/0686 . . . Cheese from whey, e.g. myost
19/0688 . . . Hard cheese or semi-hard cheese with or without eyes (A23C 19/072 takes precedence)
19/072 . . . Cheddar type (or similar hard cheeses without eyes)
19/076 . . . Soft unripened cheese, e.g. cottage or cream cheese
19/0765 . . . Addition to the curd of additives other than acidifying agents, dairy products, proteins except gelatine, fats, enzymes, microorganisms, NaCl, CaCl₂ or KCl; Foamed fresh cheese products
19/08 . . . Process cheese preparations; Making thereof, e.g. melting, emulsifying, sterilizing
19/081 . . . Surface melting
19/082 . . . Adding substances to the curd before or during melting; Melting salts
19/084 . . . Treating the curd, or adding substances thereto, after melting (adding non-milk components A23C 19/093)
19/086 . . . Cheese powder; Dried cheese preparations
19/09 . . . Other cheese preparations; Mixtures of cheese with other foodstuffs (preservation A23C 19/097)
19/0904 . . . [Liquid cheese products, e.g. beverages, sauces]
19/0908 . . . [Sliced cheese; Multilayered or stuffed cheese; Cheese loaves]
19/0912 . . . [Fried, baked or roasted cheese products, e.g. cheese cakes; Foamed cheese products, e.g. soufflés; Expanded cheese in solid form]
19/0917 . . . [Addition, to cheese or curd, of whey, whey components, substances recovered from separated whey, isolated or concentrated proteins from milk]
19/0921 . . . [Addition, to cheese or curd, of minerals, including organic salts thereof, trace elements, amino acids, peptides, protein hydrolysates, nucleic acids, yeast extracts or autolysates, vitamins or derivatives of these compounds]
19/0925 . . . [Addition, to cheese or curd, of colours, synthetic flavours or artificial sweeteners, including sugar alcohols]
19/093 . . . Addition of non-milk fats or non-milk proteins, polyol fatty acid esters or polyol esters of milk
19/097 . . . Preservation
19/0973 . . . Pasteurisation; Sterilisation; Hot packaging
19/0976 . . . Freezing; Thawing of frozen cheese
19/10 . . . Addition of preservatives [enzymes or microorganisms, see A23C 19/032, A23C 19/04, A23C 19/061 and A23C 19/063]
19/105 . . . Inorganic compounds; Inert or noble gases; Carbon dioxide
19/11 . . . of antibiotics [or bacteriocins]
19/14 . . . Treating cheese after having reached its definite form, e.g. ripening, smoking (preservation A23C 19/097)
19/16 . . . Covering the cheese surface, e.g. with paraffin wax
Dairy products; Processes specially adapted therefor

19/163 . . . [with a non-edible liquid or semi-liquid coating, e.g. wax, polymer dispersions (in combination with an edible coating A23C 19/16)]

19/166 . . . [with non-edible preformed foils, films or bandages]

20/00 Cheese substitutes (A23C 19/055, A23C 19/093 take precedence)

20/005 . . . [mainly containing proteins from pulses or oilseeds, e.g. soy curd, tofu]

20/02 . containing neither milk components, nor caseinate, nor lactose, as sources of fats, proteins or carbohydrates

20/025 . . . [mainly containing proteins from pulses or oilseeds, e.g. soy curd, tofu]

21/00 Whey; Whey preparations (A23C 1/00, A23C 3/00, A23C 9/14 take precedence)

21/02 . containing, or treated with, microorganisms or enzymes

21/023 . . . [Lactose hydrolysing enzymes, e.g. lactase, B-galactosidase]

21/026 . . . [containing, or treated only with, lactic acid producing bacteria, bifidobacteria or propionic acid bacteria]

21/04 . containing non-milk components as source of fats or proteins

21/06 . Mixtures of whey with milk products or milk components

21/08 . containing other organic additives, e.g. vegetable or animal products

21/10 . containing inorganic additives

23/00 Other dairy products

2200/00 Special features

2210/00 Physical treatment of dairy products

2210/05 . Conventional drying followed by fluidised bed drying; Fluidised bed drying at the bottom of a spray-drier

2210/10 . General processes or apparatus not classified in A23C 30375 for direct contact of a falling film of liquid with steam

2210/15 . High pressure treatment

2210/20 . Treatment using membranes, including sterile filtration

2210/202 . . . Treatment of milk with a membrane before or after fermentation of the milk, e.g. UF of diafiltration

2210/204 . . . Use of a membrane during fermentation of milk

2210/206 . . . Membrane filtration of a permeate obtained by ultrafiltration, nanofiltration or microfiltration

2210/208 . . . Removal of bacteria by membrane filtration; Sterile filtration of milk products

2210/25 . Separating and blending

2210/252 . . . Separating a milk product in at least two fractions followed by treatment of at least one of the fractions and remixing at least part of the two fractions

2210/254 . . . Cream is separated from milk, one of the fractions is treated and at least part of the cream is remixed with the milk

2210/256 . . . Removal or separation of bacteria, or a fraction containing bacteria, by centrifugation; Bactofugation

2210/258 . . . Separation or recuperation of fats or lipids from whey or whey products

2210/30 . Whipping, foaming, frothing or aerating dairy products

2210/40 . Microencapsulation; Encapsulation of particles

2220/00 Biochemical treatment

2220/10 . Enzymatic treatment

2220/102 . . . Enzymatic treatment in diffusion reactors, e.g. membrane reactors, without immobilisation of the enzyme

2220/104 . . . Enzymatic treatment with immobilised enzymes

2220/106 . . . Enzymatic treatment with enzymes in microgranules or soluble matrices; Entrapment of enzymes or making enzyme aggregates for delayed solubility; Complexation of enzymes

2220/20 . Treatment with microorganisms

2220/202 . . . Genetic engineering of microorganisms used in dairy technology

2220/204 . . . Use of bacteria which are encapsulated, entrapped or immobilised; Fermentation with these bacteria

2220/206 . . . Slime forming bacteria; Exopolysaccharide or thickener producing bacteria, ropy cultures, so-called filament strains

2220/208 . . . Fermentation of skim milk or milk and its addition in a small quantity to unfermented skim milk or milk, e.g. cheese milk; Addition of yoghurt to cheese milk

2230/00 Aspects relating to animal feed or genotype

2230/05 . Milk or milk products from transgenic animals

2230/10 . Animal milk with modified composition due to a specific feed

2230/15 . Animal milk with modified composition due to manipulation of the animal, e.g. animal milk comprising antibodies, selection of animals having specific genotypes

2240/00 Use or particular additives or ingredients

2240/05 . Milk products enriched with milk fat globule membrane

2240/10 . Dairy products containing sterols or sterol derivatives

2240/15 . Use of plant extracts, including purified and isolated derivatives thereof, as ingredient in dairy products

2240/20 . Inert gas treatment, using, e.g. noble gases or CO₂, including CO₂ liberated by chemical reaction; Carbonation of milk products

2250/00 Particular aspects related to cheese

2250/05 . Emulsifying cheese

2250/052 . . . Emulsifying cheese below melting or pasteurisation temperature, e.g. below about 60 degrees

2250/054 . . . Emulsifying cheese without melting or emulsifying salts, e.g. citrates or (poly-) phosphates or alkali metal (bi-) carboxates or sodium or calcium salts of organic acids

2250/10 . Cheese characterised by a specific form

2250/15 . Shredded non-dried cheese

2250/20 . Compacting shredded or ground cheese other than curd or small cheese pieces without melting
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2250/25 . Cheese with fat content lower than 0.5%, including cheese from skim milk, i.e. no addition of fats
2250/30 . Blue veined cheeses, e.g. Roquefort, Gorgonzola, Stilton
2250/35 . Smoking of cheese or curd; Smoked cheeses; Smoking of milk components before conversion to cheese
2250/40 . Breaded cheese products, e.g. coating with a batter mix or other adhesive material followed by breading with crumbs or other particulate coating
2250/45 . Cheese from buttermilk

2260/00 Particular aspects or types of dairy products
2260/05 . Concentrated yoghurt products, e.g. labneh, yoghurt cheese, non-dried non-frozen solid or semi-solid yoghurt products other than spreads; Strained yoghurt; Removal of whey from yoghurt
2260/10 . Spreadable dairy products
2260/102 . Spreadable fermented dairy product; Dairy spreads prepared by fermentation or containing microorganisms; Cultured spreads; Dairy spreads containing fermented milk products
2260/104 . Water-continuous butterlike spreads; spreads from cream prepared without phase inversion
2260/15 . Frozen dairy products
2260/152 . Frozen fermented milk products, e.g. frozen yoghurt or yoghurt ice cream; Frozen milk products containing living microorganisms
2260/154 . Frozen non-fermented milk products
2260/20 . Dry foaming beverage creamer or whitener, e.g. gas injected or containing carbonation or foaming agents, for causing foaming when reconstituted
2260/25 . Dairy compositions providing for tooth protective effects, e.g. anticariogenic effects

2270/00 Aspects relating to packaging
2270/05 . Gelled or liquid milk product, e.g. yoghurt, cottage cheese or pudding being one of the separate layers of a multilayered soft or liquid food product
2270/10 . Dairy products filled into pressurised containers with dispensing means for atomisation or foaming
2270/15 . Separate packaging or storing of foodstuffs or ingredients to be mixed prior to use or serving, e.g. storing into separate compartments of a single container or into separate containers