CPC  COOPERATIVE PATENT CLASSIFICATION

A  HUMAN NECESSITIES

FOODSTUFFS; TOBACCO

A23  FOODS OR FOODSTUFFS; THEIR TREATMENT, NOT COVERED BY OTHER CLASSES

(A NOTE omitted)

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}
3/076  .  .  [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 A61L)
Dairy products: Processes specially adapted therefor

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

9/005 . . . (Condensed milk; Sugared condensed milk \( \text{A23C 1/06} \) and \( \text{A23C 1/12} \) take precedence)

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

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 \( \text{A23C 9/13} \) 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 Leuconostoc, Pediococcus or Streptococcus sp. other than Streptococcus Thermophilus; Artificial sour buttermilk in general \( \text{A23C 9/1234} \) and \( \text{A23C 17/02} \) 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 \( \text{A23C 9/13} \) 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 \( \text{B01D 15/08} \) insofar as subject matter of general interest relating to chromatography is concerned

9/142 . . . by dialysis, reverse osmosis or ultrafiltration \( \text{A23C 9/144} \) 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 \( \text{or chromatographic treatment \( \text{A23C 9/1465} \) takes precedence)\}

9/15 . . . (Reconstituted or recombined milk products containing neither non-milk fat nor non-milk proteins \( \text{A23C 9/154} \); mixtures of whey, with milk products or milk components \( \text{A23C 21/06})\)

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
A23C

9/1516 . . [Enrichment or recombination of milk (excepted whey) with milk fat, cream of butter without using isolated or concentrated milk proteins]
9/152 . . containing additives (fermented milk preparations containing additives A23C 9/13)
9/1522 . . [Inorganic additives, e.g. minerals, trace elements; Chlorination or fluoridation of milk; Organic salts or complexes of metals other than natrium or kalium; Calcium enrichment of milk]
9/1524 . . [Inert gases, noble gases, oxygen, aerosol gases; Processes for foaming]
9/1526 . . [Amino acids; Peptides; Protein hydrolysates; Nucleic acids; Derivatives thereof]
9/1528 . . [Fatty acids; Mono- or diglycerides; Petroleum jelly; Paraffine; Phospholipids; Derivatives thereof]
9/154 . . containing thickening substances, eggs or cereal preparations; Milk gels
9/1542 . . [Acidified milk products containing thickening agents or acidified milk gels, e.g. acidified by fruit juices (fermentation A23C 9/12)]
9/1544 . . [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]
9/1546 . . . . [in powdered, granulated or dried solid form]
9/1548 . . . . [Non-dried milk gels, creams or semi-solid products obtained by heating milk with a sugar without using gums, e.g. milk jam]
9/156 . . Flavoured milk preparations; [Addition of fruits, vegetables, sugars, sugar alcohols, sweeteners] (A23C 9/154 takes precedence)
9/1565 . . . . [Acidified milk products, e.g. milk flavoured with fruit juices (A23C 9/1542 takes precedence; fermentation A23C 9/12)]
9/158 . . containing vitamins or antibiotics
9/1585 . . . . [Antibiotics; Bacteriocins; Fungicides from microorganisms]
9/16 . . Agglomerating or granulating milk powder; Making instant milk powder; Products obtained thereby (A23C 1/05, A23C 9/18 take precedence)
9/18 . . Milk in dried and compressed or semi-solid form
9/20 . . Dietetic milk products not covered by groups A23C 9/12 - A23C 9/18
9/203 . . . . [containing bifidus-active substances, e.g. lactulose; containing oligosaccharides]
9/206 . . . . [Colostrum; Human milk]

11/00 Milk substitutes, e.g. coffee whiterener compositions (cheese substitutes A23C 20/00; butter substitutes A23D; cream substitutes A23L 9/20)
11/02 . . containing at least one non-milk component as source of fats or proteins (A23C 19/055, A23C 21/034 take precedence)
11/04 . . containing non-milk fats but no non-milk proteins (A23C 11/08, A23C 11/10 take precedence)
11/045 . . . . [obtained by mixing the non-fat components in powdered form with the fats or by dry mixing of the components]
11/06 . . containing non-milk proteins (A23C 11/08, A23C 11/10 take precedence)
11/065 . . . . [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]
11/106 . . . . [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 whiterener 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 19/032 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 polysters or mineral oils)
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

19/0628 . . . [Mould-ripened or bacterial surface ripened cheeses]
19/0684 . . . [Soft uncured Italian cheeses, e.g. Mozzarella, Ricotta, Pasta filata cheese; Other similar stretched cheeses]
19/0686 . . . [Cheese from whey, e.g. myosot]
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. soufflées; 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 hydrolysatess, nucleic acids, yeast extracts or autolysate, 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 polysters or mineral oils)
19/097 . . . Preservation
19/0973 . . . [Pasteurisation; Sterilisation; Hot packaging]
19/0976 . . . [Freezing; Treating cheese in frozen state; 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

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Dairy products; Processes specially adapted therefor

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 thicker 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-) carbonates 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
. Cheese with fat content lower than 0.5%, including cheese from skim milk, i.e. no addition of fats

. Blue veined cheeses, e.g. Roquefort, Gorgonzola, Stilton

. Smoking of cheese or curd; Smoked cheeses; Smoking of milk components before conversion to cheese

. Breadcrsed cheese products, e.g. coating with a batter mix or other adhesive material followed by breading with crumbs or other particulate coating

. Cheese from buttermilk

**2260/00** Particular aspects or types of dairy products

. 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

. Spreadable dairy products

. Spreadable fermented dairy product; Dairy spreads prepared by fermentation or containing microorganisms; Cultured spreads; Dairy spreads containing fermented milk products

. Water-continuous butterlike spreads; spreads from cream prepared without phase inversion

. Frozen dairy products

. Frozen fermented milk products, e.g. frozen yoghurt or yoghurt ice cream; Frozen milk products containing living microorganisms

. Frozen non-fermented milk products

. Dry foaming beverage creamer or whitener, e.g. gas injected or containing carbonation or foaming agents, for causing foaming when reconstituted

. Dairy compositions providing for tooth protective effects, e.g. anticariogenic effects

**2270/00** Aspects relating to packaging

. 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

. Dairy products filled into pressurised containers with dispensing means for atomisation or foaming

. 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