

**CPC****COOPERATIVE PATENT CLASSIFICATION****A23B**

**PRESERVING, e.g. BY CANNING, MEAT, FISH, EGGS, FRUIT, VEGETABLES, EDIBLE SEEDS; CHEMICAL RIPENING OF FRUIT OR VEGETABLES; THE PRESERVED, RIPENED, OR CANNED PRODUCTS** (preserving foodstuffs in general [A23L 3/00](#); preserving in general [A61L](#); applying food preservatives in packages [B65D 81/28](#))

**A23B 4/00**

**General methods for preserving meat, sausages, fish or fish products**

## A23B 4/002

- . {Preservation in association with shaping ([A23B 4/0053](#), [A23B 4/01](#), [A23B 4/062](#) and [A23B 4/066](#) take precedence)}

## A23B 4/005

- . Preserving by heating

## A23B 4/0053

- .. {with gas or liquids, with or without shaping, e.g. in form of powder, granules or flakes}

**NOTE**

The heating means for the gas or liquid are not classified

## A23B 4/0056

- ... {with packages, or with shaping in the form of blocks or portions}

## A23B 4/01

- .. by irradiation or electric treatment {with or without shaping, e.g. in form of powder, granules or flakes}

## A23B 4/012

- ... {with packages, or with shaping in the form of blocks or portions}

## A23B 4/015

- . Preserving by irradiation or electric treatment without heating effect

## A23B 4/02

- . Preserving by means of inorganic salts ([apparatus therefor](#) [A23B 4/26](#), [A23B 4/32](#))

## A23B 4/021

- .. {with apparatus adapted for gaseous preserving agents}

## A23B 4/023

- .. by kitchen salt or mixtures thereof with inorganic or organic compounds

## A23B 4/0235

- ... {with organic compounds or biochemical products}

## A23B 4/027

- .. by inorganic salts other than kitchen salt, or mixtures thereof with organic compounds, e.g. biochemical compounds

## A23B 4/03

- . Drying; Subsequent reconstitution {(drying apparatus in general [F26B](#))}

## A23B 4/031

- .. {Apparatus for drying ([A23B 4/037](#) takes precedence)}

## A23B 4/033

- .. with addition of chemicals ([A23B 4/037](#) takes precedence)

## A23B 4/037

- .. Freeze-drying, {i.e. cryodesiccation, lyophilisation; Apparatus therefor}

## A23B 4/044

- . Smoking; Smoking devices

## A23B 4/048

- .. with addition of chemicals other than natural smoke

## A23B 4/052

- .. Smoke generators; {Smoking apparatus ([A23B 4/056](#) takes precedence)}

## A23B 4/0523

- ... {Smoke generators using wood-pyrolysis or wood-friction}

## A23B 4/0526

- ... {Smoke generators or smoking apparatus using liquid smoke in gaseous or liquid form}

## A23B 4/056

- .. Smoking combined with irradiation or electric treatment, e.g. electrostatic smoking; {Apparatus therefor}

## A23B 4/06

- . Freezing; Subsequent thawing; Cooling

- A23B 4/062 .. {the materials being transported through or in the apparatus with or without shaping, e.g. in the form of powder, granules or flakes ([moving on the spot only A23B 4/066](#))}
- A23B 4/064 ... {with packages or with shaping in the form of blocks or portions}
- A23B 4/066 .. {the materials not being transported through or in the apparatus with or without shaping, e.g. in the form of powder, granules or flakes}
- A23B 4/068 ... {with packages or with shaping in the form of blocks or portions}
- A23B 4/07 .. Thawing subsequent to freezing
- A23B 4/08 .. with addition of chemicals {or [treatment with chemicals](#)} before or during cooling, {e.g. in the form of an ice coating or frozen block}
- A23B 4/09 ... with direct contact between the food and the chemical, e.g. liquid N<sub>2</sub>, at cryogenic temperature
- A23B 4/10 . Coating with a protective layer; Compositions or apparatus therefor {(A23B 4/08 takes precedence)}
- A23B 4/12 . Preserving with acids; Acid fermentation
- A23B 4/14 . Preserving with chemicals not covered by groups [A23B 4/02](#) or [A23B 4/12](#)
- A23B 4/16 .. in the form of gases, e.g. fumigation; Compositions or apparatus therefor
- A23B 4/18 .. in the form of liquids or solids ([apparatus therefor A23B 4/26, A23B 4/32](#))
- A23B 4/20 ... Organic compounds; Micro-organisms; Enzymes ([acid fermentation A23B 4/12](#))
- A23B 4/22 .... Micro-organisms; Enzymes; {Antibiotics}
- A23B 4/24 ... Inorganic compounds
- A23B 4/26 . Apparatus for preserving using liquids; {Methods therefor}
- A23B 4/28 .. by injection of liquids
- A23B 4/285 ... {with inorganic salts}
- A23B 4/30 .. by spraying of liquids
- A23B 4/305 ... {with inorganic salts}
- A23B 4/32 . Apparatus for preserving using solids
- A23B 4/325 .. {with inorganic salts}
  
- A23B 5/00** **Preservation of eggs or egg products** ([preserving dough or bakery products A21D](#))
- A23B 5/005 . Preserving by heating
- A23B 5/0052 .. {in the shell}
- A23B 5/0055 .. {without the shell}
- A23B 5/0057 ... {with packages}
- A23B 5/01 .. by irradiation or electric treatment
- A23B 5/015 . Preserving by irradiation or electric treatment without heating effect
- A23B 5/02 . Drying; Subsequent reconstitution
- A23B 5/022 .. {Drying with use of gas or vacuum}
- A23B 5/025 .. {Drying} with addition of chemicals ([A23B 5/03, A23B 5/035 take precedence](#))
- A23B 5/0255 ... {Drying with use of liquids, e.g. by extraction}
- A23B 5/03 .. Freeze-drying, {i.e. cryodesiccation, lyophilisation; Apparatus therefor}

- A23B 5/035 .. Spray-drying
- A23B 5/04 . Freezing; Subsequent thawing; Cooling
- A23B 5/041 .. {Freezing or cooling without shell ([A23B 5/05](#) takes precedence)}
- A23B 5/043 ... {with packages}
- A23B 5/045 .. Thawing subsequent to freezing
- A23B 5/05 .. {Freezing or cooling} with addition of chemicals
- A23B 5/055 ... with direct contact between the food and the chemical, e.g. liquid nitrogen, at cryogenic temperature
- A23B 5/06 . Coating eggs with a protective layer; Compositions or apparatus therefor
- A23B 5/065 .. {Apparatus for coating}
- A23B 5/08 . Preserving with chemicals
- A23B 5/10 .. in the form of gases, e.g. fumigation; Compositions or apparatus therefor
- A23B 5/12 .. in the form of liquids or solids
- A23B 5/14 ... Organic compounds; Micro-organisms; Enzymes
- A23B 5/16 .... Micro-organisms; Enzymes
- A23B 5/18 ... Inorganic compounds
- A23B 5/20 ... Apparatus for preserving using liquids
- A23B 5/22 ... Apparatus for preserving using solids
- A23B 7/00** **Preservation or chemical ripening of fruit or vegetables**
- A23B 7/005 . Preserving by heating
- A23B 7/0053 .. {by direct or indirect contact with heating gases or liquids}
- A23B 7/0056 ... {with packages}
- A23B 7/01 .. by irradiation or electric treatment
- A23B 7/012 ... {with packages}
- A23B 7/015 . Preserving by irradiation or electric treatment without heating effect
- A23B 7/02 . Dehydrating; Subsequent reconstitution ([dried cooked potatoes A23L 1/216](#))
- A23B 7/0205 .. {by contact of the material with fluids, e.g. drying gas or extracting liquids}
- A23B 7/021 .. {Foam drying}
- A23B 7/0215 .. {Post-treatment of dried fruits or vegetables}
- A23B 7/022 .. with addition of chemicals {before or during drying, e.g. semi-moist products} ([A23B 7/024](#) to [A23B 7/028](#) take precedence)
- A23B 7/024 .. Freeze-drying, {i.e. cryodesiccation or lyophilisation}
- A23B 7/026 .. Spray-drying
- A23B 7/028 .. Thin layer-, drum- or roller-drying {or by contact with a hot surface}
- A23B 7/03 .. Drying raw potatoes
- A23B 7/04 . Freezing; Subsequent thawing; Cooling
- A23B 7/0408 .. {the material being transported through or in the apparatus with or without shaping, e.g. in the form of powder, granules or flakes ([A23B 7/05](#) takes precedence; moving on the spot only [A23B 7/0425](#))}
- A23B 7/0416 ... {with packages or with shaping in the form of blocks or portions}

- A23B 7/0425 . . {the material not being transported through or in the apparatus, with or without shaping, e.g. in the form of powder, granules or flakes ([A23B 7/05 takes precedence](#))}
- A23B 7/0433 . . . {with packages or with shaping in the form of blocks or portions}
- A23B 7/0441 . . {Treatment other than blanching preparatory to freezing}
- A23B 7/045 . . Thawing subsequent to freezing
- A23B 7/05 . . with addition of chemicals {or treatment with chemicals other than cryogenics, before or during cooling, e.g. in the form of an ice coating or frozen block}
- A23B 7/055 . . . with direct contact between the food and the chemical, e.g. liquid nitrogen, at cryogenic temperature
- A23B 7/06 . Blanching ([machines therefor A23N 12/00](#))
- A23B 7/08 . Preserving with sugars ([marmalade, jam, fruit jellies A23L 1/06](#))
- A23B 7/085 . . {in a solution of sugar}
- A23B 7/10 . Preserving with acids; Acid fermentation
- A23B 7/105 . . {Leaf vegetables, e.g. sauerkraut}
- A23B 7/12 . . Apparatus for compressing sauerkraut
- A23B 7/14 . Preserving or ripening with chemicals not covered by groups [A23B 7/08](#) or [A23B 7/10](#)
- A23B 7/144 . . in the form of gases, e.g. fumigation; Compositions or apparatus therefor {(cooling without control of atmosphere composition [A23B 7/04](#))}
- A23B 7/148 . . . in a controlled atmosphere, e.g. partial vacuum, comprising only CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> or H<sub>2</sub>O
- A23B 7/152 . . . in a controlled atmosphere comprising other gases in addition to CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> or H<sub>2</sub>O; {Elimination of such other gases}
- A23B 7/153 . . in the form of liquids or solids
- A23B 7/154 . . . Organic compounds; Micro-organisms; Enzymes ([acid fermentation A23B 7/10](#))
- A23B 7/155 . . . . Micro-organisms; Enzymes; {Antibiotics}
- A23B 7/157 . . . Inorganic compounds
- A23B 7/158 . . . Apparatus for preserving using liquids
- A23B 7/159 . . . Apparatus for preserving using solids
- A23B 7/16 . Coating with a protective layer; Compositions or apparatus therefor ([A23B 7/08 takes precedence](#))

**A23B 9/00****Preservation of edible seeds, e.g. cereals**

- A23B 9/005 . {Processes or apparatus using pressure variation or mechanical force, e.g. shock, acceleration, shear stress, contortion}
- A23B 9/02 . Preserving by heating
- A23B 9/025 . . {with use of gases}
- A23B 9/04 . . by irradiation or electric treatment
- A23B 9/06 . Preserving by irradiation or electric treatment without heating effect
- A23B 9/08 . Drying; Subsequent reconstitution
- A23B 9/10 . Freezing; Subsequent thawing; Cooling
- A23B 9/12 . . Thawing subsequent to freezing

- A23B 9/14 . Coating with a protective layer; Compositions or apparatus therefor
- A23B 9/16 . Preserving with chemicals
- A23B 9/18 . . in the form of gases, e.g. fumigation; Compositions or apparatus therefor
- A23B 9/20 . . . in a controlled atmosphere, e.g. partial vacuum, comprising only CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> or H<sub>2</sub>O
- A23B 9/22 . . . in a controlled atmosphere comprising other gases in addition to CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> or H<sub>2</sub>O
- A23B 9/24 . . in the form of liquids or solids
- A23B 9/26 . . . Organic compounds; Micro-organisms; Enzymes
- A23B 9/28 . . . . Micro-organisms; Enzymes; {Antibiotics}
- A23B 9/30 . . . Inorganic compounds
- A23B 9/32 . . . Apparatus for preserving using liquids
- A23B 9/34 . . . Apparatus for preserving using solids