

# Cheese spread

Agricultural processing brochure



South African farmers facing current economic realities are searching for new options to maintain or expand their businesses. One of the many opportunities to grow markets, turnover and profits is by adding value to farm produce. Options need to be selected carefully based on sound information and knowledge of the opportunities presenting themselves, taking into account the strengths and weaknesses of individual farms.

## Introduction:

### Product group: Dairy products

Dairy milk is one of the most versatile products available to the processor. Processing options include fermenting, concentrating, drying, freezing and many more methods of preservation. Processed dairy products are divided into five groups:

- Concentrated dairy products
- Cultured dairy products
- Frozen dairy products
- Liquid dairy products
- Powdered dairy products



Cheese spread has a *high moisture content* compared to other cheeses.



### Product description:

#### Cheese spread

Cheese spread is categorised as a cultured dairy product. Cheese spread is a blend of hard cheese varieties with added emulsifying salts to control pH, bind calcium to ensure that protein effectively stabilises the fat and to extend the shelf-life of the final heat processed product. Hard-pressed cheeses varying in age from a few days to 1 year are used as the starting material.

Cheese spread has a high moisture content ( $\pm 55\%$ ) compared to other cheeses, and a pH of 5,7-6,3.

Cheese spread is manufactured by grinding, mixing, melting and emulsifying cheese along with added ingredients. A heat treatment of at least 30 seconds at 70°C is necessary to stabilise the product.

Cheese spread may also contain added foodstuffs and flavours and is classified according to the additions made and the fat content.

- *High fat cheese spread*: has a minimum fat in dry matter content of 60% and a minimum dry matter content of 44%.
- *Full fat cheese spread*, also be named full cream cheese spread, has a minimum fat in dry matter content of 45%, a

maximum dry matter content of 60% and a minimum dry matter content of 39%.

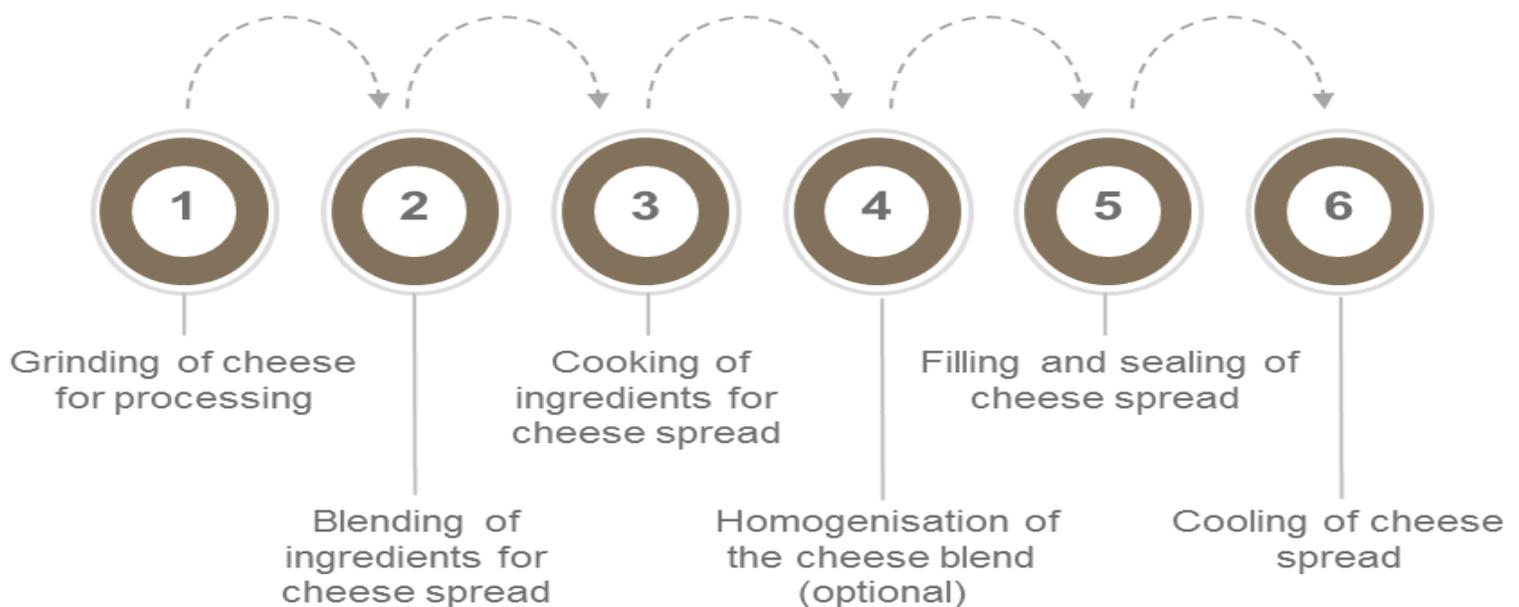
- *Medium fat cheese spread*, also named medium cream cheese spread, has a minimum fat in dry matter content of 25%, a maximum dry matter content of 45% and a minimum dry matter content of 31%.
- *Low fat cheese spread*: has a minimum fat in dry matter content of 10%, a maximum dry matter content of 25% and a minimum dry matter content of 30%.
- *Fat-free cheese spread*, also named skim(med) cheese spread, has a maximum dry matter content of 10 % and a minimum dry matter content of 29 %.



## Process description

- 1. Grinding of cheese for processing:** Hard-pressed cheeses of varying ages are used as the starting material. The selected variety of cheese is fed into the grinder and ground into flakes. The flaked cheese is then milled between rollers to a fine and uniform texture.
- 2. Blending of ingredients for cheese spread:** The ground and milled cheese mixture is blended in ribbon or paddle blenders to obtain a uniform mixture. Skim milk powder (2 - 12%) is added to improve the spreadability and stability of the cheese. The powder is dispersed in water before addition to the cheese to prevent lump formation. Whey powder or whey proteins (2 - 6%) are added to ensure a long shelf life of the cheese when stored at high temperatures.

## Process overview



Previously processed cheese can also be added to shorten the texture of the spread. Butter, butter oil, cream and flavourings can also be added at this stage.

Permitted additives are added to and mixed with the ground cheese mixture. Additives include:

- emulsifiers (citrates, phosphates, polyphosphates or a mixture thereof);
- colourants
- salts
- flavourings (e.g. biltong, bacon, cheddar etc.)

Enough water is added to the mixture to yield a final product with a moisture content of approximately 55 %.



**3. Cooking of ingredients for cheese spread:** The cheese-and-additive blend is heated to melt and blend all ingredients. Heating also reduces the microbial load of the mixture, thus enhancing the shelf life of the final product. A minimum processing time of 30 seconds at 74 °C is required to prevent fermentation of the finished product during storage.

**4. Homogenisation of the cheese blend (optional):** Homogenisation is the process where the fat globules in the cheese spread are reduced in size and finely distributed to reduce fat separation, thus stabilising the product. The hot cheese mixture may be homogenised immediately after leaving the cooker. The homogenisation equipment consists of a high-pressure positive pump that forces the mixture through a narrow gap in a specially designed valve. The high pressure on the inlet side causes the fat globule to break up. Homogenisation can be considered as a special method of emulsification.

**5. Filling and sealing of cheese spread:** The cheese spread is hot-filled at cooking temperatures into suitable containers such as glass bottles. Small and medium processors will hand fill and seal the containers while large-scale processors make use of automatic fillers with injection nozzles. The containers are hermetically sealed.

**Fast facts:** Moisture content: **55 %** Rapid cooling temperature: **4 °C**

**6. Cooling of cheese spread:**

The packaged cheese spread should be cooled as rapidly as possible to ensure the best spreading properties. Rapid cooling is accomplished by passing the bottles through a cooling or misting tunnel. The product must be stored at temperatures between 4 - 5 °C.

**Labelling of cheese**

All the cheese spread containers are pre-labelled or labelled after they are filled and sealed.

Labelling in South Africa is controlled by legislation. Anyone who wants to use the information provided in this document must familiarise him/herself with all the applicable laws that apply to the producing, processing, manufacturing and storage of the products referred to in this document.

Please also refer to the disclaimer on the last page.

**Other processing options – Cultured dairy products:**

Listed below are other processing options not covered in this report, but available from Eskom.

- **Cheddar cheese** is defined as the product obtained from coagulated milk from which the whey has been removed. The coagulum or curd has undergone ripening to a greater or lesser extent. Cheddar is classified as a high fat, hard cheese.

- **Feta** is a pickled cheese with a clean, acidic salty taste. It is packaged in a brine solution to prevent drying out and to preserve the cheese.
- **Cottage cheese** is the product obtained from coagulating milk. It is a soft, not matured cheese and contains about 80% moisture.
- **Cultured (sour) cream** is the product obtained from cream that has been inoculated with a starter culture to allow for the development of lactic acid and flavour compounds under controlled conditions
- **Gouda** is a close textured, mild cheese. It is classified as semi-hard.
- **Cultured buttermilk** is the product obtained from milk that has been inoculated with a starter culture to produce a viscous liquid with a mild lactic flavour. It is consumed as a refreshing drink or used as an ingredient in various baked products.
- **Drinking yoghurt** is essentially stirred yoghurt with a lower solids content and broken coagulum. It may be pasteurised and/or aseptically packaged to extend the keeping quality.
- **Kefir** is a smooth, viscous, fermented dairy drink with a fresh acidic taste and contains lactic acid, alcohol ( $\pm 1\%$ ) and gas (carbon dioxide).
- **Long life, set dessert** is a cultured dairy product similar to yoghurt that has undergone a heat process to extend the keeping quality. Set long life dessert is fermented in the final retail container and has a gel-like consistency. It may or may not be flavoured.
- **Long life, stirred dessert** is a cultured dairy product similar to yoghurt that has undergone a heat treatment to extend the keeping quality. Stirred long life dessert is produced in large batches prior to packaging in the final retail container.
- **Maas (cultured milk)** is manufactured by inoculating pasteurised milk with a specific bacterial culture. The end product has a firm texture, no gas bubbles and no separation of whey from the coagulum. It has pleasant sour taste with a slight bite/prickliness on the tongue.
- **Processed cheese** is made from a variety of natural cheeses that are ground and blended together with emulsifying agents. Various other additives may also be added. The mixture is heated and packaged in laminated films.
- **Ricotta** is a cheese prepared from whey. Ricotta is a low fat, soft cheese with a maximum fat in dry matter content of 10% and a minimum dry matter of 20%.
- **Set yoghurt** is prepared from high or full fat pasteurised milk inoculated with a specific starter culture. Fermentation takes place in the final retail container under controlled conditions. The yoghurt has a firm, gel-like consistency and a clean surface is apparent when the yoghurt is cut.
- **Stirred yoghurt** is a fermented milk product with a thick, smooth consistency and may or may not be flavoured. It is incubated in tanks, stirred, flavoured and cooled before packaging.



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- Understanding their electrical systems and processes  
Investigating the latest technology and process developments, including electric infrared heating and drying systems
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- Optimising energy use patterns in order to grow businesses and industries

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## Literature sources

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