

Heerenveen, April 10<sup>th</sup> 2020

**Technical background regarding the microbiological safety of our fat spreads with shelf life extended from 6 to 12 months.**

This concerns the Covid-19 related incidental relabeling of product.

The microbiological shelf life of the Royal Smilde Foods fat spreads is guaranteed by ensuring that microorganisms are not present in our raw materials and by creating products that do not allow such microorganisms to grow or even survive over time.

1. Avoiding initial presence of microorganism.

The raw materials that we use are heat treated. Oils and fats are heated for several hours > 150°C at our supplier's refinery, all holding a GFSI certified HACCP system. Oils and fats have a water content of < 0.5 (Aw-value), a level that does not allow microorganisms to grow.

The non-fat soluble ingredients are dissolved in water and heated > 75°C before being added to the product mix.

As such there are very low levels of microorganisms present at the end of the production process.

2. Avoiding microbiological growth or survival.

Microbiological flora needs water to be present to survive or multiply. To ensure microbiological growth does not occur we manage the water in our products carefully. This is done via two important steps:

- A. The available water is distributed in very small particles (< 25 micron) and is encapsulated in fat. This water distribution of small particles, isolated from each other, is kept stable using emulsifiers. The result of this is that if microorganism were present, they would remain in their small water particle with only a very limited amount of water to survive before they die. During product and process design we aim for the smallest possible water particle and measure this frequently before putting a product into production.
- B. The available water is made very hostile for microorganism to survive by creating a low pH (pH < 4,7), adding preservatives and salt.


Royal Smilde produces products very similar to those produced for the UK for export all over the world..These products all have a shelf life of 12 months on the pack and are monitored well beyond this date. From this monitoring we see no evidence that noticeable microbiological growth has taken place. Typical values after 12 months are:

TVC	< 100 cfu
Enterobacteriaceae	< 10 cfu
Yeast & Molds	< 10 cfu
Staph. Aureus	< 10 cfu
Listeria	absent
Salmonella	absent

The Food Science department of Purdue University of Indiana (USA) published a paper confirming proof that fat spreads are so hostile for microorganism that when 1000 cfu (colony forming unit) of the potential relevant pathogens Listeria, Staph aureus and E coli are injected in a fat spread, they reduce rapidly towards zero. Salmonella would reduce in a slower pace. This was tested in storage conditions ranging from 5 – 21°C. The full report is available for you upon request.

**Based on the above mentioned details Royal Smilde Foods assures the food safety of her products for an additional 6 months.**

Royal Smilde Foods



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