

# LOW-SO SALT REPLACER™

## FROM MALABAR

Health Canada has established the Sodium Working Group, looking at ways to reduce the amount of sodium in processed foods, with the end goal of reducing the individual sodium consumption. Sodium, however, is hard to replace – its characteristic salty flavour, its anti-microbial effects on water activity and its use as an emulsifier are very important to processors and consumers too.



*Low-So Salt Replacer™* is a modified potassium chloride that may be a solution for your processing, allowing you to produce low-sodium products that are delicious, with the potential for even higher yields.



### Understanding the `Salt` flavour:

It is the cation portion of the salt (the sodium portion in sodium chloride, the potassium portion in potassium chloride) that gives salt its 'salty' taste. Sodium chloride (otherwise known as table salt) is a very small molecule, resulting in more cations being present when in solution, so its salty perception is difficult to replace. Potassium chloride has a very similar 'molecular weight' to sodium chloride and will give the next-best salty perception. However, unmodified potassium chloride can also add a bitter or metallic note that can be less than appealing.

*Low-So Salt Replacer™* is a modified potassium chloride salt, and the result of a patent-pending technology that combines a proprietary blend of modified potassium chloride and rice flour. It is the only potassium chloride in the market place utilizing a modified crystal structure. This modification changes only the flavour, so that it tastes more like salt, without the metallic and bitter notes commonly associated with potassium chloride.



## Laboratory Testing – Sensory Attributes & Functionality

Numerous sensory testing has been completed including tests with the following foods:

1. French Fries – Tested by Food Perspectives in Minneapolis, the results confirmed feasibility for 42% reduction in Sodium content of fries without any negative impact on taste. Overall liking and flavour scores were the same for the fries with sodium chloride compared to the fries mixed with the **Low-So Salt Replacer™**.
2. Ham – Tested by the sensory lab at the University of Nebraska, results confirmed feasibility for 25% reduction in sodium content for deli ham slices without any negative impact on flavour.



In addition, tests for functionality have been completed, including:

1. Testing of marinated chicken breasts, with target salt levels of 1% (using either sodium chloride or the **Low-So Salt Replacer™**) and phosphate added at a level of 0.3%, then baked for 20 minutes at 350°F, results showed an increase in yield when the **Low-So Salt Replacer™** was used.
2. Additional testing at the University of Minnesota was conducted to look at water activity levels of sodium chloride compared to the **Low-So Salt Replacer™**. Results confirmed that the **Low-So Salt Replacer™**, when blended 50/50 with sodium chloride (table salt), resulted in water activity that is similar to or better than that of Salt (NaCl).

**Low-So Salt Replacer™** can be used to reformulate low-sodium products where traditional salts (NaCl) add functionality to your application (e.g. meats, cheese, and bakery). The modified potassium chloride of **Low-So Salt Replacer™** is also very similar in ionic strength to sodium chloride, and functions as well or better with the benefit of added yield. It's worth remembering that the functional attributes of salts cannot be replaced with salt-free options like flavours, MSG, spices or yeast extracts.



## Salt in Cheese Processing

Salt also plays a key role in cheese processing, as sodium chloride functions to pull the whey out of the curd and aids in dehydration of the cheese. The ionic activity of sodium chloride will draw moisture and whey out of the cheese, giving cheese a firmer texture, lowering the water content and also increasing the ionic strength of the cheese, increasing its shelf-life. (With lower water activity the water will not be as accessible to microbial growth and will reduce the onset of potential pathogens.) **Low-So Salt Replacer™**, with ionic strength similar to sodium chloride, provides the best alternative to reduce sodium content without compromising functionality.

In summary, reducing sodium content in food products is challenging, but there are solutions. **Low-So Salt Replacer™** provides both flavour and functional properties that are the most similar to sodium chloride.