Salt (sodium chloride) plays an important role in the composition of sauces and dressings. Simply cutting back on the amount of salt in products to reduce their sodium content is not always an option, and can negatively influence taste, product quality and stability. It can result in unwanted side effects, such as increased bacterial spoilage and reduced texture.

Leveraging the benefits of fermentation, Corbion Purac offers non-sodium based solutions that meet your specific needs in flavor and product stability. PuraQ® Arome NA4 and Purasal® HiPure P Plus can help you achieve up to 30% sodium reduction in sauces and dressings.

Managing flavor impact
Salt is the cornerstone of flavor profiles in sauces and dressings and reducing it can undermine flavor intensity. The fermentation-based PuraQ® Arome NA4 fits best with savory flavor profiles, enhancing savory flavors and ‘saltiness’, while reducing the product’s sodium content (Figure 1).

Maintaining product stability
PuraQ® Arome NA4 and PURASAL HiPure P Plus compensate for any increase in water activity due to salt reduction. Low water activity is an important hurdle in maintaining microbiological stability. Replacing salt with either of Corbion Purac’s solutions helps maintain product stability in reduced-sodium products.

Figure 1
Control water activity

Removing sodium chloride (NaCl) increases water activity (Figure 2) creating microbiological instability. The control with 0.9% w/w NaCl has a water activity (aw) of 0.936, while the reduced salt sample (0.67% NaCl) has an aw of 0.947. Corbion Purac products effectively lower water activity. Due to high fat content of mayonnaise, just 0.65% w/w PURASAL HiPure P Plus reduces the aw back to 0.936. PURASAL HiPure P Plus is not bitter like the majority of potassium salts and has a mostly neutral flavor profile, which softens the flavor of commonly used acids, such as vinegar.

Savory building block

As shown in Figure 1, salt is important for maintenance of overall flavor. With its savory flavor profile and its ability to boost salty taste, PuraQ® Arome NA4 acts as a building block to restore desired taste profile. And at 0.85% w/w gives a similar reduction in aw as PURASAL HiPure P Plus.

Trained sensory panelists compared full-salt, 30%* reduced sodium and 30% reduced sodium cheese sauce containing PuraQ Verdad NA4 for salty flavor. While the full-salt cheese sauce scored the highest, the product containing PuraQ Arome NA4 rated significantly higher for salty taste than the sodium reduced control (Figure 3).

* Total sodium level reduced from 570mg Na/100g of sauce to 400mg Na/100g of sauce.

PuraQ Arome NA4 also enhances the umami flavor, as illustrated in Figure 4. 3% w/w PuraQ Arome NA4 was added to a non-sodium reduced chicken broth containing 0.22 g of sodium/100 ml of product. This indicates that PuraQ Arome NA4 is a useful tool in promoting the savory flavors of spice mixes, in addition to salt in sodium reduced products.

<table>
<thead>
<tr>
<th>Product</th>
<th>Benefits</th>
<th>Recommended dosage</th>
<th>Labeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>PuraQ® Arome NA4</td>
<td>Savory building block, Lower water activity, Saltiness</td>
<td>0.5-3.0 %/w/w</td>
<td>Natural flavor</td>
</tr>
<tr>
<td>PURASAL® HiPure P Plus</td>
<td>Shelf life control, Lowers water activity, No negative flavor impact</td>
<td>0.5-2.5 %/w/w</td>
<td>Potassium lactate (E326)</td>
</tr>
</tbody>
</table>

Interested in our solutions? Go to corbion.com/sodiumreduction

With over 80 years of fermentation expertise and the use of natural raw materials to produce exceptional food and beverage ingredients, Corbion Purac has a wealth of expertise in the world of biobased food ingredients. Corbion is the global market leader in lactic acid, lactic acid derivatives and lactides, and a leading company in functional blends containing enzymes, emulsifiers, minerals and vitamins. Corbion operates 10 production plants, in the USA, the Netherlands, Spain, Brazil and Thailand, and markets its products through a worldwide network of sales offices and distributors.