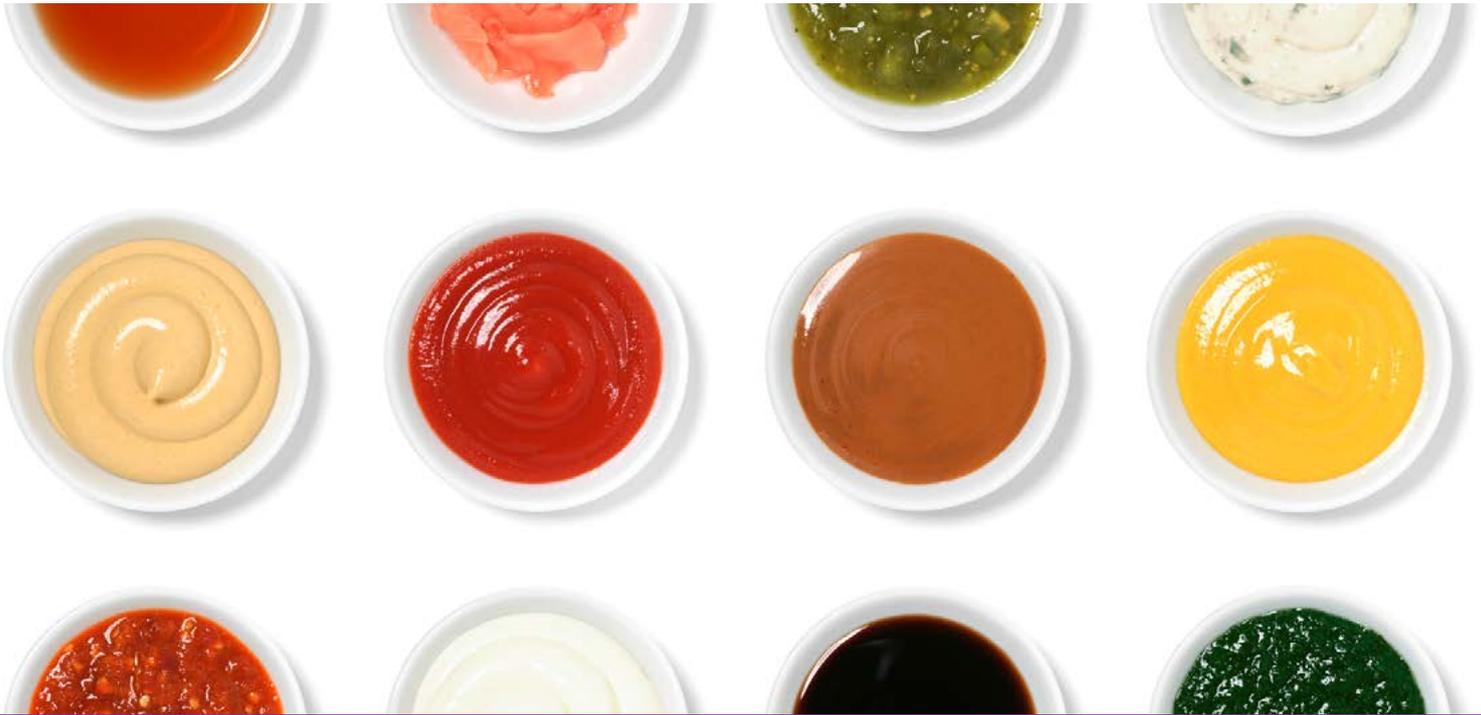


Sodium reduction in Sauces and Dressings

Balanced solutions from Corbion



- Achieve up to 30% salt reduction
- Manage flavor impact
- Maintain product stability

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 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's solutions helps maintain product stability in sodium-reduced products.

Build-up of typical savory profile

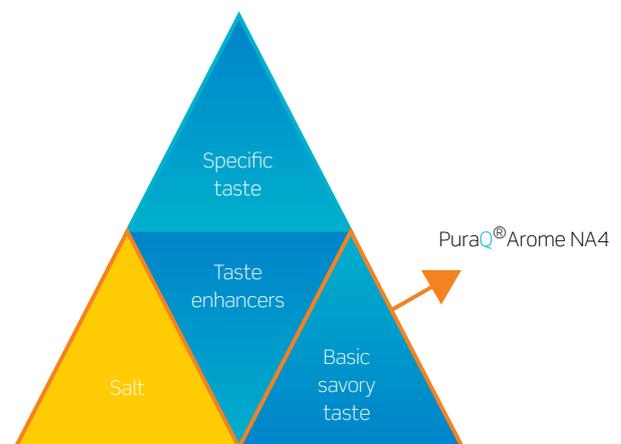


Figure 1

Sodium reduction in Sauces and Dressings

Balanced solutions from Corbion



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 products effectively lower water activity. Due to the 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 Arome 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.

Water activity of mayonnaise

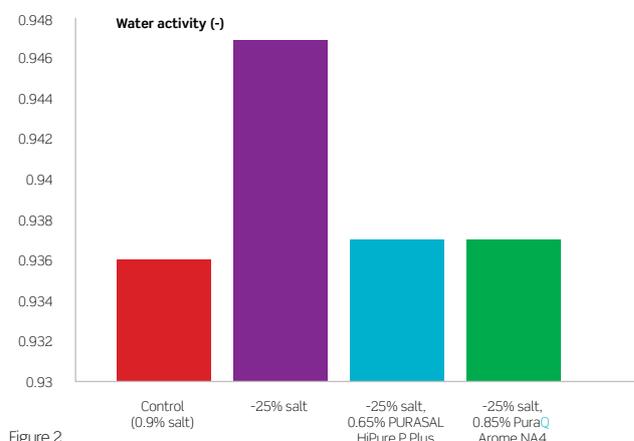


Figure 2

Perceived saltiness in cheese sauce

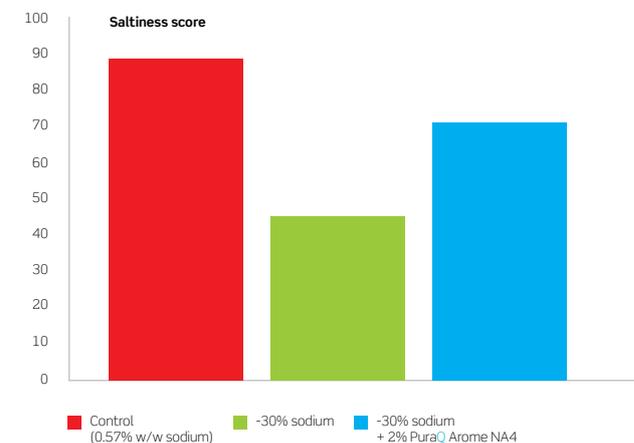


Figure 3

PuraQ Arome NA4 in chicken broth

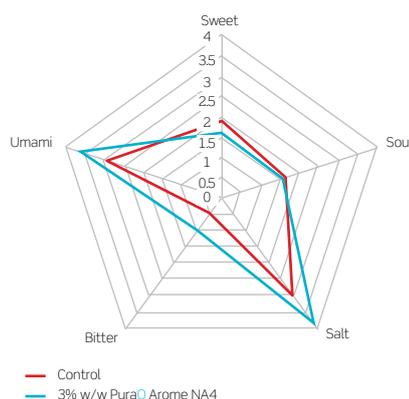


Figure 4

Product	Benefits	Recommended dosage	Labeling
PuraQ® Arome NA4	Savory building block Lower water activity Saltiness	0.5-3.0 %w/w	Natural flavor
PURASAL® HiPure P Plus	Shelf life control Lowers water activity No negative flavor impact	0.5-2.5 %w/w	Potassium lactate

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

@CorbionFood

Corbion creates innovative ingredient solutions for leading food manufacturers around the world. Our expertise inspires customers to craft foods that start flavorful, stay fresh and remain safe, from date of production to date of consumption. Using sustainable solutions that deliver real, consumer-focused value, we work side-by-side with customers, helping them grow and create delicious food that capture peoples' palates and earn their trust. At Corbion our priorities as consumers shape the solutions we create, and as a result, feel confidence and pride in serving our own families and friends the products we help make possible.

© Copyright 2018 Corbion. All rights reserved. No part of this publication may be copied, downloaded, reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopied, recorded or otherwise, without permission of the publisher. No representation or warranty is made as to the truth or accuracy of any data, information or opinions contained herein or as to their suitability for any purpose, condition or application. None of the data, information or opinions herein may be relied upon for any purpose or reason. Corbion disclaims any liability, damages, losses or other consequences suffered or incurred in connection with the use of the data, information or opinions contained herein. In addition, nothing contained herein shall be construed as a recommendation to use any products in conflict with existing patents covering any material or its use.

