

Global presence

● Corbion Headquarters ● Corbion Production Location ● Corbion Sales Office ● Corbion Innovation Center



www.corbion.com/contact

Corbion in Food

Corbion inspires manufacturers to craft foods that start flavorful, stay fresh and remain safe from production to consumption. Using sustainable solutions, we work side-by-side and empower customers to grow and create delicious foods, that consumers love and can safely enjoy with friends and family, just as we enjoy with ours.

Corbion: designed by science, powered by nature, and delivered through dedication.

Corbion is the global market leader in lactic acid, lactic acid derivatives, and a leading company in emulsifiers, functional enzyme blends, minerals, vitamins and algae ingredients. We develop sustainable ingredient solutions to improve the quality of life for people today and for future generations. For over 100 years, we have been uncompromising in our commitment to safety, quality, innovation and performance. Drawing on our deep application and product knowledge, we work side-by-side with customers to make our cutting edge technologies work for them. Our solutions help differentiate products in markets such as food, home & personal care, animal nutrition, pharmaceuticals, medical devices, and bioplastics. In 2016, Corbion generated annual sales of € 911.3 million and had a workforce of 1,684 FTE. Corbion is listed on Euronext Amsterdam.

For more information: www.corbion.com

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

 @CorbionFood

Beverages

REFRESHING IDEAS BY CORBION



corbion.com/beverages

Facing challenges in perfecting your beverages?

Combining an innovative range of products with specially developed tools to ensure precise application, Corbion can guide you every step of the way in beverage development. As a company built on the strong foundations of Purac and Caravan Ingredients, our broad portfolio of beverage solutions offers refreshing new options for perfecting your beverages. We offer highly effective products to enhance acidification, boost flavor, fortify and preserve beverages, and mask off flavors. We can even predict the impact of modifying your product. Let us help you develop the most tasty, stable and healthy beverages. Partnering with us can bring fresh ideas to the table. Tap into our expertise and save significantly on your own R&D.

Acidification is applied in most non-alcoholic beverages for pH regulation and for flavor purposes. The choice of acidulant - or combination of acidulants - can inevitably impact the overall quality of the final product. Corbion offers natural innovative solutions that enable producers to acidify and improve flavor and mouthfeel in beverages.

Acidification and flavor improvement

The challenges when creating low calorie beverages can include minimizing off flavors or unpleasant, bitter aftertastes and altered mouthfeel. Our product, PURAC® FIT Plus, successfully masks off flavors of intensive sweeteners, such as Aspartame and Stevia (Figure 1). PURAC FIT Plus also brings a new flavor experience and a potential cost-saving - the addition level of flavors and artificial sweeteners can be reduced by up to 15%. It provides a mild, sour flavor, improves shelf life and decreases precipitation scaling, compared to other acidifiers. PURAC FIT Plus is the perfect building block for true beverage innovation, whether used by itself, or in combination with other ingredients.

Improving mouthfeel when reducing sugars

Sugar reduction results in a lack of sweetness, flavor and mouthfeel. As a result reformulation is needed when developing a 'reduced calorie' drink. When decreasing the amount of sugar in beverages, a loss of mouthfeel (body) occurs either through direct removal of sugar or by reduction of juice-solid content. The proven range of Corbion potassium salts is a great biobased substitute to restore mouthfeel of beverages, without using hydrocolloids. Corbion's mineral salt, PURASAL® HiPure P Plus provides a thicker/fuller mouthfeel to a beverage. Test results show that the addition of 0.5% PURASAL® HiPure P Plus to a beverage with 0% sugar can provide a mouthfeel that is comparable to 5% sugar (Figure 2).

PURAC FIT Plus

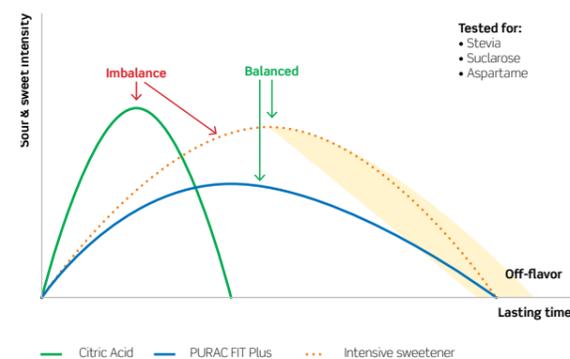


Figure 1: The long-lasting, mildly-sour taste of PURAC FIT Plus masks and balances the long-lasting, sweet taste and off-notes of HIS.

Improve mouthfeel with PURASAL HiPure P Plus

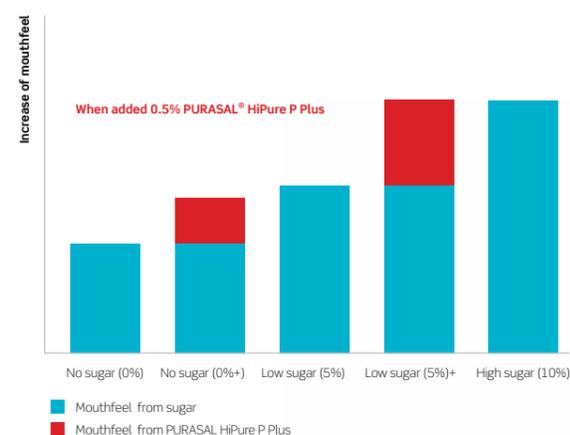


Figure 2



Shelf life extension: Alicyclobacillus control

Alicyclobacillus spores, until recently an unsolved problem for juice-based beverage producers, can be controlled with PURAC FIT Plus. PURAC FIT Plus inhibits vegetative cells of *Alicyclobacillus* as well as the germination of the spores of *Alicyclobacillus*.

Fortification

Consumer awareness of the importance of a healthy diet increases and the industry is responding by developing more functional foods that are labeled with scientifically sound health claims. Producers of beverages have a unique opportunity to harness these trends and help meet consumers' dietary needs in a convenient way by adding soluble minerals or customized premixes to their beverages. Alongside this, Corbion offers a range of special formulation tools to help perfect product development.

Supporting tools for R&D

Adding functional ingredients into beverages can be particularly challenging; sensory problems and solubility issues are common. And how do you decrease the precipitation scaling during heat treatment? To overcome these challenges you need to work with Corbion. We have developed unique tools that enable you to predict the stability of your beverage when minerals and vitamins are added to fortify the formula. By using this unique range of tools, we can help reduce your R&D time by up to 85%, increase speed to market and avoid sediment issues, either in production, or in the end-product. Contact us and find out how you can gain access to our online tools - The Corbion Beverage Fortification Calculator and Mineral Calculator.

PURAC® FIT Plus

- pH regulation
- Taste optimization
- Improves mouthfeel
- Reduced precipitation-scaling

PURACAL®, PURAMEX®, PURASAL® and GLUCONAL®

- ▶ Mineral fortification
- ▶ Excellent solubility
- ▶ Neutral taste
- ▶ High bioavailability
- ▶ Improves mouthfeel

Issue	Problem	Solution
Taste	Acidification	PURAC® FIT Plus, PURAC FCC
	Too acidic	Replace part of the acidification system with PURAC® FIT Plus
	High intensity sweeteners	PURAC® FIT Plus
Nutrition	Flavor profile is dull	PURAC® FIT Plus
	Nutritional profile	PURACAL® (Ca), PURAMEX® (Mg, Zn), GLUCONAL® (Ca, Mg, Zn)
Mouthfeel	Taste impact	Add a neutral tasting mineral such as lactate or gluconate.
	Precipitation scaling	Change acidifier (e.g. citric acid forms calcium citrate if soluble calcium is available.), Select a highly soluble calcium source.
Mouthfeel	Restore mouthfeel	PURASAL® HiPure P Plus
Shelf life	<i>Alicyclobacillus</i> in juice-based beverages	PURAC® FIT Plus