

Calcium fortification of beverages

Making a strong impact on health



High solubility



High bioavailability



Neutral taste

The global intake of calcium is still deficient. Research indicates that many of us can benefit from adding more calcium to our diets. Evidence of the wide-ranging importance of calcium is growing and is widely accepted by health authorities across the globe (e.g. the International Osteoporosis Foundation). Food producers are developing an increasing range of calcium fortified products in response to this, often clearly positioning these with health claims.

One of the most important and widely recognized benefits of calcium is in bone health. Consumers are increasingly aware of the need to keep their bones healthy to avoid the impact of serious bone conditions, such as osteoporosis. Beverages are proving a perfect medium for calcium fortification. However, adding functional ingredients into beverages can be challenging, and choosing the right calcium source is important to ensure minimal impact on taste, mouthfeel and stability of the beverage.

PURACAL

Corbion offers the PURACAL® product line to help producers perfect their beverages. The PURACAL product line offers highly soluble calcium sources, ideal for the fortification of beverages. The products have a neutral flavor, are highly bioavailable, and have a minimal impact on application and process.

High solubility

PURACAL products offer a high solubility - more than 100% RDI calcium per 100 ml, as shown in Figure 1. PURACAL XPro is a particularly soluble calcium source. It is particularly suitable for producing syrups, fruit concentrates and clear beverages with a high calcium content.

Solubility, mg calcium soluble in 100 ml (water 25°C / 77°F)

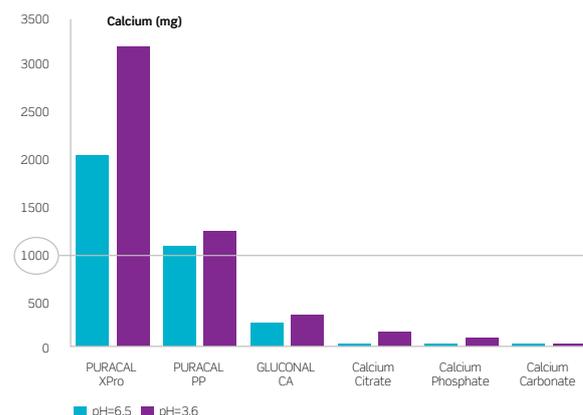


Figure 1

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Taste impact of added calcium sources

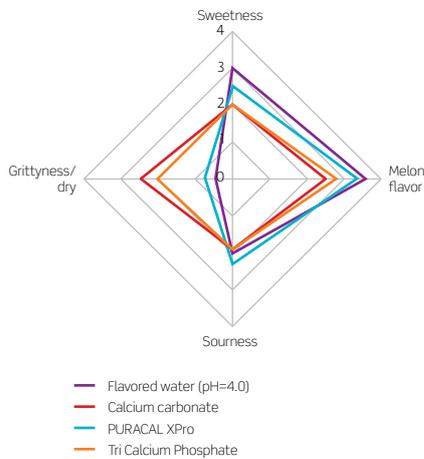


Figure 2

Neutral flavor

PURACAL products have a neutral flavor. This is especially important for application in mild-flavored beverages, such as enhanced waters and sport drinks. The taste impact of various calcium salts has been tested in flavored water. As shown in Figure 2, the taste impact of PURACAL XPro is minimal, compared to other calcium sources.

Short dissolution time

Dissolution time is an important element determining processing time. All PURACAL products dissolve very quickly. These excellent dissolution rates are a big advantage when processing at low manufacturing temperatures, and if blending in-line.

Effect of diet on calcium bioavailability with calcium lactate as calcium source

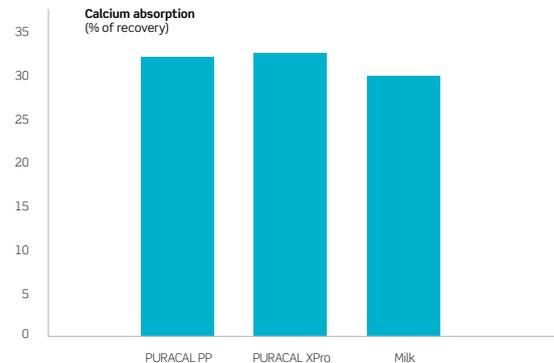


Figure 3

*products supplied by PURAC
Source: TNO Nutrition and Food Research Institute, (Brink et al., 2003)

High bioavailability

The bioavailability of calcium from a typical European breakfast was tested by a leading European research institute. The results (shown in Figure 3) prove that PURACAL products are highly bioavailable; PURACAL calcium is as effectively absorbed as calcium from milk.

Stability in beverages

All PURACAL products are highly stable. PURACAL XPro is a calcium source that has minimal interaction with other beverage ingredients, resulting in highly stable beverages with a long shelf life.

Corbion can support you in developing the perfect calcium fortified beverage. Using over 80 years of experience in lactic acids and lactates, as well as our specially developed formulation tools, we are the right partner to work with.

Application	PURACAL® PP	PURACAL® XPro	PURACAL® QStable
% Ca	14	13	25
Special features	Food grade calcium lactate	Optimized for solubility, neutral flavor	Optimized for stability high protein beverages, at neutral pH
Citrus beverages & nectars	✓		
Clear juice beverages		✓	
Near waters		✓	
Syrups & concentrates		✓	
Powder drinks		✓	
Yoghurt	✓		
Acidified dairy/protein beverages	✓		
Dairy/protein beverages, neutral pH			✓

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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.

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