

Acidification

Balanced solutions from Corbion



-  Balanced flavor management
-  Perfect balance between low pH and mild taste
-  Effective pH regulation
-  Improved microbiological stability

Acidification has been used to preserve foods for centuries and brings a specific taste to food products. With their great taste, traditional, acidified food products, such as pickles, sauces, dressings, fresh cheese and yogurt, remain a consistent favorite with consumers.

Mild flavor

Each organic acid has a very different influence on taste when used as an acidulant. For instance the flavor profiles of acetic and citric acid are sharp, whereas lactic acid has a mildly acidic taste as well as a long-lasting flavor profile (see [Figure 1](#)).

PURAC® lactic acid is perfect for enhancing flavors, such as tomato, green herbs, pepper and dairy. Using lactic acid, or a lactic acid blend, provides a perfect balance between low pH, mild taste and effective anti-microbial activity.

Sour intensity

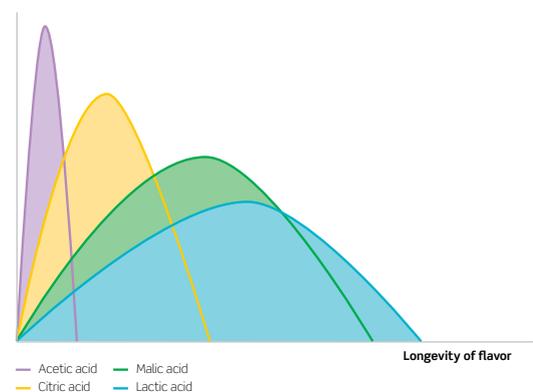


Figure 1

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Highly efficient

The specific pH influence and sourness of organic acids can be explained by the acid's pKa value. In short, the pKa is the pH at which 50% of the acid is undissociated and 50% is dissociated. Typically an acid with a low pKa (<4.0) is a better acid for regulating pH. Lactic acid has a lower pKa value than acetic acid (a pKa of 3.86 compared to a pKa 4.76) and is, therefore, a stronger acidifier.

Figure 2 demonstrates the dissociation curves of lactic- and acetic acids. Figure 3 illustrates acidulation in a dressing made with either lactic acid or acetic acid. Taking into account the difference in pKa values, more acetic acid than lactic acid is needed to decrease the pH of the dressing to 3.2. Based on 100% acid, 0.4%w/w of acetic acid was required to drop the pH to 3.2 whereas only 0.12% w/w of lactic acid was sufficient to lower the pH to 3.2. Thus, our PURAC portfolio enables the manufacturer to balance taste (acidity) and pH.

Microbiological stability

Corbion's portfolio is designed to incorporate optimal hurdles to make food shelf-stable and safe. PURAC has important antimicrobial properties, as well as effective acidulant properties. PURAC and PURASAL (sodium lactate/potassium lactate), are effective against a wide variety of bacteria, including *Listeria monocytogenes* and *Pseudomonas*. Its pathway of action complements that of other organic acids, which are effective against yeasts and molds. Blending PURAC or PURASAL with other acids can therefore enhance overall microbial efficacy and boost flavor, counteracting the sharpness of the other acids. The *Opti.Form* portfolio contains optimized blends with lactates and acetates, specifically designed for pathogen control in food products.

Acid dissociation

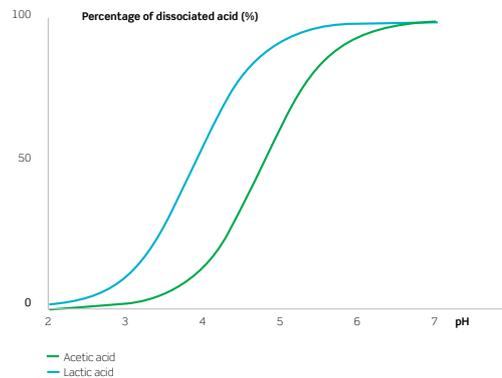


Figure 2

Acidulation of a dressing

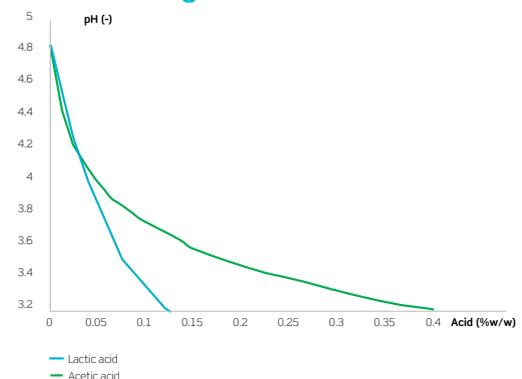


Figure 3

Product description	Purac product	pH (10%)	Benefit
Lactic acid	PURAC® FCC	<3	Available in different concentrations to meet your need for pH regulation, while providing a mild acidic flavor
Lactates and buffers	PURAC® BF	3 to 3.7	Buffered lactic acid solutions for pH regulation at a low pH
	PURASAL®	5.5 to 7.5	Sodium/potassium lactate solution for pH regulation at a medium to high pH
Lactic acid blends	PURAC® CL	2.0 to 2.6	Blend with citric acid for a sharper flavor
	PURAC® CLM	2.0 to 2.6	Blend with citric and malic acid for a long-lasting sharp flavor
	<i>Opti.Form</i> ®	5.0 to 7.0	Blends with acetic acid for pH regulation at pH above 5.0 with a mild acid taste

Interested in our solutions? [Go to corbion.com/acidification](https://www.corbion.com/acidification)

@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.

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