



Specialties

Functional Acids

Jungbunzlauer



Functional Acids

Functional modification – advanced tools

Jungbunzlauer's experience has led to an outstanding range of products to satisfy customer needs for sophisticated functional ingredients and additives.

Citric acid is a naturally occurring fruit acid and the most important organic acid for pharmaceutical, food and technical applications. It provides excellent properties as an acidulant, pH control agent and supports crystallization processes. But for some usages it needs more than these functionalities.

Unique surface modification techniques and adding high-quality materials to the core product lead to an exceptional range of modified citrics and a fine-tuning of the desired functionality for customer applications.



Why do we modify the properties?

In certain applications some of the standard product properties of citric acid are not adequate.

A modification of the surface provides outstanding technological benefits during manufacturing, storage, use and consumption of the products.

Coating the core material with suitable transparent shell materials changes the physical properties of the encapsulated product. This prevents undesired reactions with other ingredients as well as protection against moisture without losing its original function.

Besides surface treatment, blending with efficient additives helps to keep powdered citric acid free flowing.

Both modifications have an important influence on the functionality of the final product. However, with an additive content that ranges from approx. 1.5% to 4% the desired main properties of the acid like taste, chelating of metals or set retarding are still fully present.



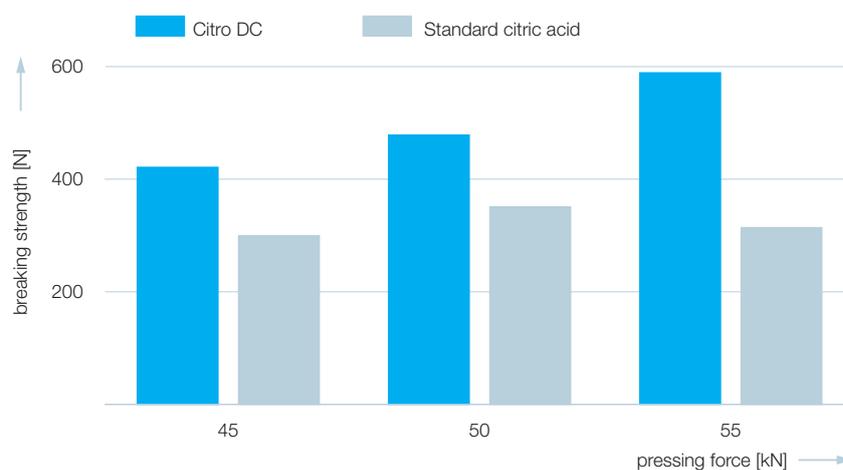
Functional Acids

Citro DC

Citro DC is a direct compressible type of citric acid coated with a thin layer of maltodextrin. This functionality avoids time and energy consuming pre-processing steps before compaction. Furthermore a lower pressing force allows achieving the same hardness and therefore enables increasing processing speed while deficient products are minimized.

Citro DC combines high tablet stability with fast solubility in water and is therefore mainly used in effervescent tablets.

Breaking strength of effervescent tablets



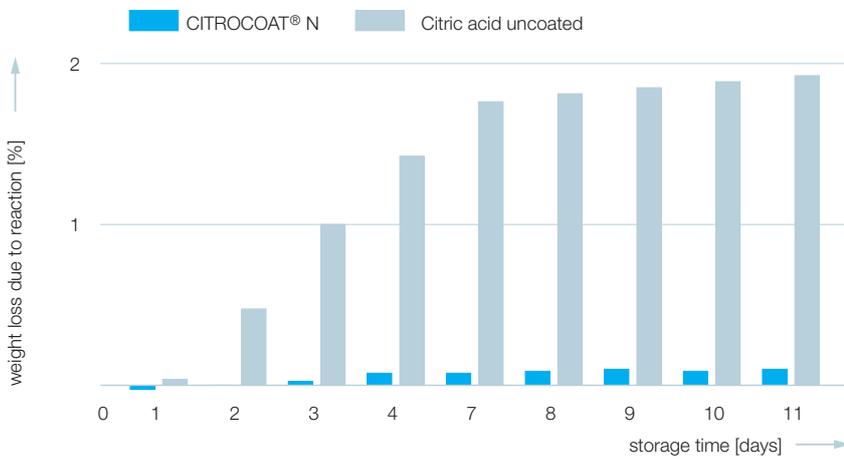
Citro DC shows superior tablet hardness and increased pressing force leads to harder tablets

CITROCOAT® N

CITROCOAT® N is comprised of citric acid as the core material, with a layer of a citrate as shell material. In crystalline form, it is less hygroscopic and less reactive with other ingredients compared to regular citric acid. This provides an exceptional stability during storage, however solubility behavior is unchanged.

CITROCOAT® N is a stable, homogeneous material, which increases the shelf life of the end product. It is used in all applications, where stickiness during processing or premature reactions with other ingredients in the dry blend (e.g. sodium bicarbonate) should be prevented.

Storage stability of effervescent tablets in a stress test



Citric acid S40

Citric acid S40 is a very fine pulverized powder, blended with a slight amount of anti-caking agent silicon dioxide (SiO₂), which displays a high ability to absorb spurs of humidity. The main advantage of citric acid S40 is its free flowing ability over a long period combined with easier handling compared to regular citric acid powders.

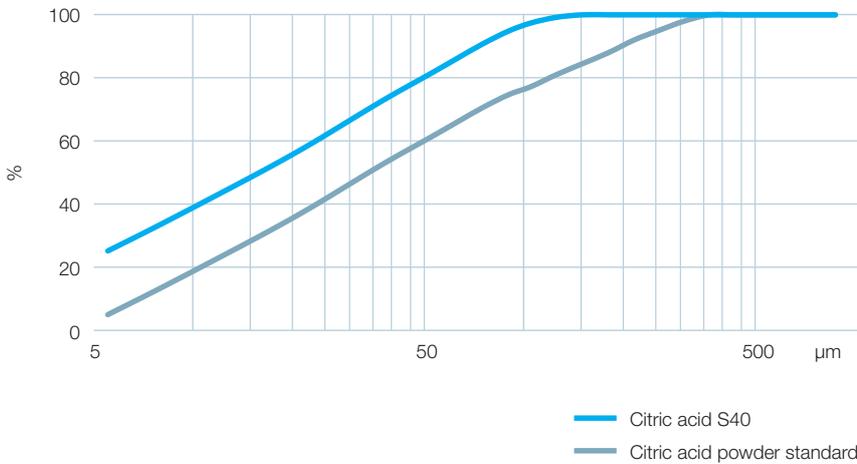
Even low amounts of 0.05 to 0.2% citric acid S40 (calculated on dry substance) improve the rheological properties of concrete. Due to optimum dispersion and wetting of the components the freshly made concrete and/or gypsum is easily workable, free of cracks, resistant to water and frost with increased mechanical strength. It advances the wetting of the iron reinforcement and reduces bleeding up substantially.

Commercial available citric acid powder is usually twice as coarse compared to citric acid S40.



Laser Particle Size Distribution

Citric acid S40 vs. citric acid powder standard



Standard Grain Size Specification for Citric Acid S40:

on 425µm	(mesh 40)	max. 0.1%
through 180µm	(mesh 80)	min. 90%



Main applications for all functional acids:

- In pharmaceutical applications (e.g. effervescent tablets) to improve compaction
- For food applications (e.g. effervescent blends, instant drinks, sweets) to enhance shelf life
- In personal care products (e.g. bath bombs, dental cleaners) to set new trends
- To produce storage stable detergents (e.g. laundry powders and tabs, dish washing tabs and cleaners)
- For construction industry (e.g. concrete, cement, gypsum) to optimise process properties

The information contained herein has been compiled carefully to the best of our knowledge. We do not accept any responsibility or liability for the information given in respect to described product. Our product has to be applied under full and own responsibility of the user, especially in respect to any patent rights of other and any law or government regulation.



Jungbunzlauer Group

Jungbunzlauer is represented in all major markets. Our global network of sales companies and distributors covers more than 130 countries.



From nature to ingredients®

Jungbunzlauer is one of the world's leading producers of biodegradable ingredients of natural origin. The Swiss-based, international company's roots date back to 1867. Today, Jungbunzlauer specialises in citric acid, xanthan gum, gluconates, lactics, specialties, special salts and sweeteners for the food, beverage, pharmaceutical and cosmetic industry as well as for various other industrial applications.

Jungbunzlauer's products are manufactured utilising fermentation technology, a natural process. All its products can be used, transported and disposed of in a secure and ecologically safe way. The Group operates manufacturing plants in Austria, Canada, France and Germany.

A worldwide network of sales companies and distributors with a thorough understanding of target markets and client requirements underlie Jungbunzlauer's high level of market and customer proximity. Committed to its rigorous quality standards, Jungbunzlauer guarantees for the excellence and sustainability of its products and services.

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