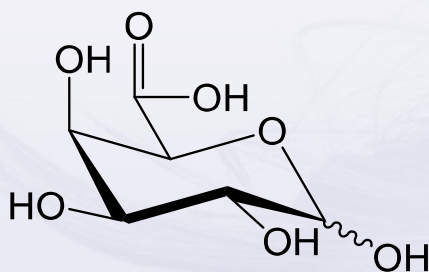


## Galacturonic acid & Galactaric acid

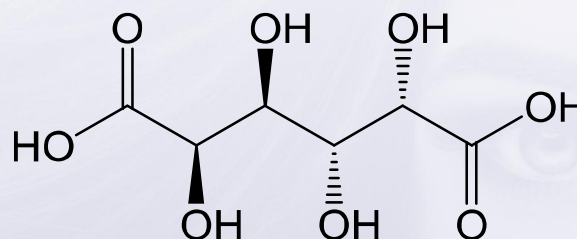
### Origin

Betawell<sup>®</sup> organic acids are nature-derived C-6 molecules that Cosun extracts from its sugar beet pulp, a residual stream of the sugar production process. Sugar beet pulp contains large amounts of galacturonic acid, that can be oxidized towards galactaric acid.

There is a growing need for more plant-based ingredients in personal care formulations. Betawell<sup>®</sup> organic acids support this trend. Thanks to its origin and production process, both organic acids have a 100% renewable carbon content. The molecular structures of the Betawell<sup>®</sup> organic acids are shown below.



D-galacturonic acid



D-galactaric acid

### D-galactaric acid

The vast majority of commercially available galactaric acid is based on animal-derived resources, for example galactose. Cosun Biobased Products aims to be one of the first suppliers of plant-based galactaric acid. Currently it is already being sold as a multifunctional ingredient with the following functional properties:

- Sequesters and chelates oxidation promoters such as heavy metals & ions, and can be a natural alternative to EDTA;
- Natural buffering agent for pH range control (pH 5);
- Keratolytic and moisturizing properties.

### Areas of application:

Both organic acids are known for their excellent compatibility with the human skin. Therefore, they are suitable for leave-on products. Thanks to a unique set of properties, galacturonic and galactaric acid can for example be used in the following skin care applications:

#### Skin protection



#### Anti-pollution



#### Anti-aging



# Security of supply



## Products

Betawell® organic acids are produced in Cosun's multifunctional pilot facility in the Netherlands. Samples are available on request with the following specifications:

INCI name	Purity (wt %)	Appearance	Solubility in water (20°C)
Galacturonic acid	> 99 %	White powder	Highly soluble
Galactaric acid	> 99 %	White powder	Slightly soluble

## New applications

Betawell® organic acids and derivatives can potentially serve more applications next to the personal care market. Both molecules entail functional groups, which can be modified for the production of:

- Non-ionic and anionic surfactants;
- Chemical building blocks for the chemical industry.

## Sourcing

Royal Cosun is a Dutch agricultural cooperative, specialized in processing of agricultural materials for food and non-food markets. Suiker Unie, part of Royal Cosun, provides the raw materials for our Betawell® organic acids. Cosun has been processing these raw materials for over 100 years. Cosun Biobased Products can therefore rely on security of supply of its feedstocks.

## Contact

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## For more information

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