





Nature, refined

Citribel is the only genuinely circular producer of citric acid, citrates, and other high-value co-products through natural surface fermentation of sugar molasses.

Essentially circular

Sugar molasses, the sidestreams from sugar refineries, make up the primary raw material for our unique natural production process. The molasses serve as the breeding ground for our Citribel fungus. The fungus creates citric acid and mycelium in the fermentation process. Citrates and other components are produced during further downstream processing. We recycle and upcycle our resources in a myriad of ways, generating a multitude of high-quality circular components.

Expertly crafted

There's more to our products than meets the eye. As a result of our proprietary fermentation and refinery processes, we achieve products with distinctive crystallographic and physicochemical properties. It is hard to overstate the amount of expertise, dedication, and organization it takes to finetune this living ecosystem of interconnected processes and streams.

Custom(er)-made

Not only are we constantly improving our processes and products, breakthrough applications for our citric acid, citrates, and other co-products surface day by day. We handle every question or request thoroughly, swiftly, and with a smile. The customer service team, the product management and sales team are at your service, from the first meeting to delivery and after-care.



Crystal-clear solutions

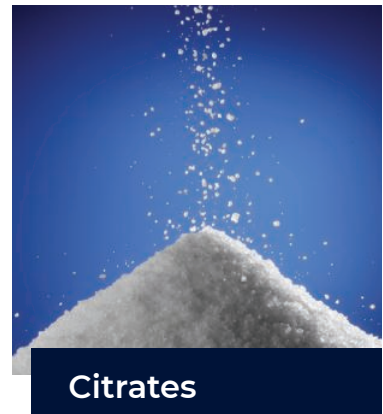
As a result of our unique production process, we achieve high-quality products with distinctive properties. In addition, we've taken our deep technical expertise to the next level by introducing fresh ideas and opening up new opportunities. Our goal is to help companies and brands understand our products' multiple possibilities and promising applications.



Citric Acid



Mycelium



Citrates



Low K Vinasse



Potassium
Calcium Salt



Gypsum

Citric Acid

Citric acid is an organic, odorless, and colorless crystalline substance. It occurs naturally in plants and fruits, leaves, roots, and milk. Also, our bodies produce citric acid because it helps our cells to better absorb minerals. We could go on and on about the valuable properties of citric acid, so we've listed the main ones. Citric acid is hailed as an organic preservative and taste enhancer for food and beverages. Citric acid makes your medical tablets fizz when you drop them in a glass of water, and it serves as a natural alternative to phosphates in washing agents. But there's more. Much more. In recent years, companies, brands, and engaged world citizens keep on discovering new uses for citric acid in biological and natural applications. We are thrilled to support these findings and to help develop new solutions.

We produce our citric acid either in its dry form, without water ("anhydrous") or in a form containing one water molecule ("monohydrate"). Depending on their specific needs, we offer our customers several types of granulations, powders, or solutions, with a wide variety of packaging and logistic services.

Product	Product Code	Packaging	Compendia Certification
Citric Acid Anhydrous			
Citric Acid Anhydrous Medium Granular 1200	04 82951	25kg, 1000kg	USP, FCC, Ph. Eur, JP, JECFA, OU, H
Citric Acid Anhydrous Fine Granular 51N	04 32938	25kg, 1000kg	USP, FCC, Ph. Eur, JP, JECFA, OU, H
Citric Acid Anhydrous Fine Granular 700	04 83087	25kg, 1000kg	USP, FCC, Ph. Eur, JP, JECFA, OU, H
Citric Acid Anhydrous Fine Granular 16/40	04 32962	25kg, 1000kg	USP, FCC, Ph. Eur, JP, JECFA, OU, H
Citric Acid Anhydrous Powder	04 32717	25kg	USP, FCC, Ph. Eur, JP, JECFA, OU, H
Citric Acid Monohydrate			
Citric Acid Monohydrate Granular	04 32768	25kg, 1000kg	USP, FCC, Ph. Eur, JP, OU, H
Citric Acid Monohydrate Fine Granular	04 32776	25kg	USP, FCC, Ph. Eur, JP, OU, H
Citric Acid Solutions			
50% solution	04 33020	Full tank load, IBC	USP, FCC, Ph. Eur, JP, JECFA, OU, H

Citrates

We produce two citrates: trisodium citrate dihydrate ("TSC") and monosodium citrate anhydrous ("MSC"). The white, granular crystals are natural, odorless substances. Both have a pleasant, salty, and slightly tart taste. TSC and MSC are widely used in foods, beverages, and various technical applications such as buffering and sequestering or coagulant and emulsifying agents.

Product	Product Code	Packaging	Compendia Certification
Trisodium Citrate Dihydrate			
Trisodium Citrate Dihydrate Granular	04 12503	25kg, 1000kg	USP, FCC, Ph. Eur, JP, JECFA, OU, H
Trisodium Citrate Dihydrate Fine Granular	04 12325	25kg, 1000kg	USP, FCC, Ph. Eur, JP, JECFA, OU, H
Monosodium Citrate Anhydrous			
Monosodium Citrate Anhydrous Granular	04 12570	25kg	DAC, JECFA, OU, H
Monosodium Citrate Anhydrous Powder	04 12562	25kg	DAC, JECFA, OU, H



Mycelium

During the surface fermentation process, our fungus grows long fibers. The fibers form a spongy substance called mycelium: a protein-rich structure with various natural components and distinct functional properties. The bulk of our volume (six soccer fields per day) is sold to the feed industry under its brand name Citrocell®. Also, we have perfected the harvesting, drying, and milling of our wet mycelium, generating a unique, easy-to-use powder for a wide variety of applications.

Low K Vinasse

At the end of our downstream process, the remaining organic part of the molasses is concentrated and supplied as an interesting vinasse, low in potassium content. Low K Vinasse is mainly sold to the feed industry under the brand name Citrocol ®. Also, it is the subject of new applications or natural product ideas on a very regular basis.

Potassium Calcium Salt

Our specific production process generates a substantial volume of potassium calcium salt. Many farmers in our region and beyond value the substance as a fertilizer. The potassium calcium salt is supplied under the brand name Syngenite®.

Gypsum

One of the co-products generated in our specific production process is gypsum. The powder is applied in dental and medical applications, building materials, and agriculture. It is supplied under its brand name Citrogips ®.

What makes our products stand out



How can we help?

Our goal is to help companies and brands understand our products' multiple possibilities and promising applications. We handle every question or request thoroughly, swiftly, and with a smile. The customer service team, the product management team and sales team are at your service, from the first meeting to delivery and after-care.



Something is growing here...

The Citribel production processes form a complex ecosystem of interconnected stages and streams. Working with a living fungus is both a challenge and a blessing: every cycle offers the opportunity to improve and do better. Extensive data and continuous live monitoring ensure consistent production and product quality.

The fermentation process

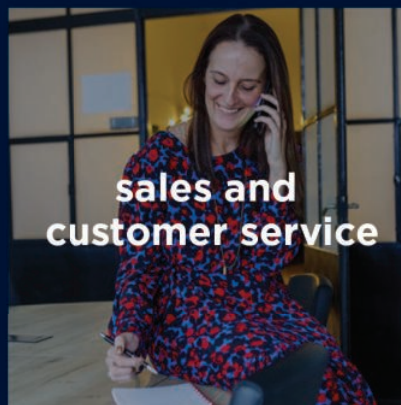
Sugar molasses, the main sidestreams from sugar refineries, make up the primary raw material for our unique production process. The molasses serve as the breeding ground for our Citribel fungus. During the fermentation process, the fungus grows long fibers, called mycelium, and transforms the sugar into liquid citric acid. In 184 fermentation chambers, we track and adapt a whole range of parameters (such as temperature, humidity, surface tension, etc.). After a couple of days, the majority of the sugar is transformed, and the mycelium is ready. The liquid blend of water and citric acid is carefully separated from the mycelium. Next step: downstream processing!

Downstream processing

The liquid citric acid stream branches into a complex range of processes that reconnect, interconnect and influence one another at different stages. In the course of the separation, purification, crystallization, and drying processes, we produce potassium calcium salt, citrates, vinasse and gypsum materials.

With the help from our experts

It is hard to overstate the amount of expertise, dedication, and organization it takes to finetune this living ecosystem.





Closing the circle

We find ourselves at the hallmark of a global transition towards sustainability and circularity. Our products and processes derive from nature, and we commit ourselves to the bigger picture. It is our duty and privilege to continuously contribute to the health and wellbeing of our people and planet.



Safety

Our colleagues, partners, and visitors must be safe on our site. Many factors come into play: the detailed maintenance and reliability of our installations, meticulous respect for operating procedures, continuous focus on safety behavior, and active avoidance of complacency. These elements make Citribel a safe place to be, work, visit, and live.

Circularity

Citribel carries circularity in its core. We are the only citric acid producer globally using sugar molasses, a side product from the sugar industry, as its primary raw material. Our unique production processes lead to a high-end portfolio of inherently circular products, whereby we unceasingly look for further recycling and upcycling opportunities. We strive to contribute to a cleaner, better, more sustainable world by reducing our water and energy use. Minimizing carbon emissions, avoiding other waste streams, and many more projects and ideas will continue to define our success.

Energy

Since the beginning of 2021, a brand new cogeneration plant is up-and-running. The installation produces energy and steam, and recycles the heat used in the fermentation and refinery processes. Any excessive energy flows into the regular power grid. We continue to evaluate and improve all of our processes and installations, in order to keep reducing our carbon emissions.

Community

Citribel is proud to be part of a strong community. Generations of local and not-so-local people have contributed to the company, and we value their dedication. We're grateful for the co-operation between our company and the city of Tienen and the neighborhood. We systemically support Red Cross blood donations, poverty reduction initiatives, litter clean-up actions, and student internships.



Water

Water is an essential resource to produce citric acid. To minimize the impact on our local community and environment, we lower our general use of water wherever we can. In addition, by recycling our discharge water and using our biological wastewater treatment system, we continuously strive to preserve the natural water ecosystem in all its aspects.

Employee wellbeing

We strive to offer our colleagues a comfortable place to work and live. Therefore, we encourage our colleagues to purchase an electric bike, play darts with co-workers, enjoy a yoga session or a group walk, participate in table tennis and table soccer tournaments, and many other initiatives.



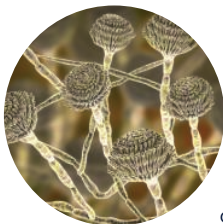
Strong past, strong future

We go way back. To 1919, to be exact. Upon the solid foundation of the past, we build for the future. We balance thoughtful decision-making and bold curiosity, because we need to push boundaries and have some fun along the way.

**“To develop and produce
circular bio-products and
their applications, based on
surface fermentation.”**

– THAT’S OUR PURPOSE

Our History



1919

Based on these first results, "Les Produits Organiques de Tirlemont" (P.O.T.) was founded in 1919. A small first fermentation chamber was filled and seeded with spores. Unfortunately, the citric acid yields were lower than expected, but many improvements were made in the next few years.



1929

In 1929, Belgian know-how in fermentation was combined with Italian know-how in refining citric acid. A Belgian-Italian joint venture was established: "La Citrique Belge".

Today, the combination of both areas of expertise still forms the backbone of our high-quality products and applications.



1977

between 1977 and 2016, under the leadership and expertise of various subsequent owners, such as F. Hoffman La Roche, DSM and Adcuram, various capital increases and strong investments in

production capacity were made. From an early stage, wastewater treatment was considered important and various investments were made to improve Citrique Belge's wastewater cycle. Also, the high volumes and wide variety of valuable co-products became more and more important.



2022

With circularity and sustainability at its historical core, Citrique Belge develops into Citribel, an industrial producer and innovative expert in various bioprocesses, resulting in a wide variety of natural products for high-value applications.



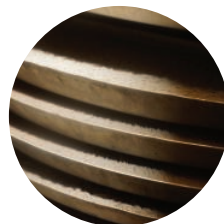
1916

In 1916, Mr Alphonse Cappuyns lived with his young wife near the pharmacy of his parents in law. Inspired by the lack of available citric acid for the pharmacy due to the first World War, Mr Cappuyns began researching the possibility of producing citric acid without lemons. His academic background as a fermentation specialist encouraged him to try and implement a German theory from the 19th century, which in essence claimed that citric acid could be produced by fermenting sugar. His first findings were negative: the theory was only theory and could not be turned into reality. But persevering as he was, he kept trying to find other organisms and experimented with a wide variety of process circumstances, which slowly led to first results.



1925

Despite these improvements, the new fermentation process could still not compete with the Italian lemon refining industry, and in 1925 P.O.T. was forced to halt its production activities. Mr Alphonse Cappuyns however continued to believe in the success of his approach and pursued his research. Barely three months later, using yet another micro-organism, he achieved a production yield that justified industrial operations and P.O.T. restarted production.



1947

Almost 20 years later, in 1947, the Italian partners left the company and Citrique Belge became 100% Belgian. The Belgians continued to improve the fermentation process. In 1948, the process expertise was sufficiently evolved to replace sugar as a raw material with less expensive sugar molasses. Hence, Citrique Belge became a circular company in its core, by upcycling a sidestream from another industry. During the following decades, fermentation yields, and production volumes slowly continued to increase.



2016

In 2016, Citrique Belge was acquired by a group of private Belgian investors and became an independent company again. These private investors all shared the vision of creating a long-term profitable company, with the balanced interests of all stakeholders in mind, equally focusing on citric acid and all the co-products.



Our Values

1. We're built to last

We go way back. To 1919, to be exact. We honor the perseverance of our founder Alphons Cappuyns, and all the hard work, knowledge, and trust former generations have poured into the company. Our history makes us the reliable, trustworthy partner we are today. Former generations provide us with the craftsmanship and the experience to continuously create high-quality products. Upon the solid foundation of the past, we build for the future.

2. We're born to be bold

We find ourselves at the hallmark of a global transition towards sustainability and circularity. Our products and our processes derive from nature, and it is our duty and privilege to give back to the environment. We continuously strive to do better, to push boundaries and to close the circle. This doesn't just happen. We balance thoughtful decision-making and bold curiosity. We embrace the wisdom of uncertainty, as it invites us to get creative, to make things work differently, and have some fun along the way.

3. We're in it together

The Citribel production processes are a daily reminder of connectedness. Once you've seen it with your own eyes, it's impossible to forget that everything is linked: the molasses and the fungi, the mycelium and the citric acid, the water and the fishes, the fermentation and the crystallization, our colleagues and their families, the buildings and the neighborhood, the company and its environment, past and present, present and future generations, you and I and us. We commit ourselves to the bigger picture, to the health and wellbeing of our people and planet.



Nice to meet you

Our processes are a daily reminder of connectedness. At Citribel, you realize everything is linked: the molasses and the fungi, the company and its people, present and future, you and I and us. Get in touch!

Addresses

Visitors administration building

Pastorijstraat 249
3300 Tienen
Belgium
T:+32 16 806.211

Loading citric acid

Sint Truidensesteenweg 233C
3300 Tienen
Belgium

Visitors technical & production

buildings and deliveries
Sint Truidensesteenweg 200
3300 Tienen
Belgium

Loading co-products

Ambachtenlaan 52
3300 Tienen
Belgium

Contact us

www.citribel.com
info@citribel.com

