



JUNE 2021 | BLOG 2

CITRIC ACID & CALCIUM CHLORIDE EXPLAINED

A NEIL JONES FOOD COMPANY BLOG
FOR CURIOUS FOODSERVICE PROS

IT'S ONLY NATURAL

"We must trust to nothing but facts: These are presented to us by nature and cannot deceive."

- Antoine Lavoisier, 18th century French Chemist

Living in the Information Age has its advantages and disadvantages, right? Sometimes we find the exact information we need, right when we need it (thank you, Google). Other times it's more complicated. We can get tangled in a web of *too* much information and become overwhelmed by the mixed messages. Now more than ever, it can be difficult to know who or what you can trust.

When it comes to choosing ingredients for our products, we at The Neil Jones Food Company know that earning and keeping our customers' trust is *crucial*. We have always prioritized our customers' safety and the high quality of our products above all, while striving for efficiency, consistency and clarity in our processes. Still, ingredients like Citric Acid and Calcium Chloride have remained somewhat of a mystery to a lot of us. *What are they? Why are they used?* With so much information on the internet, it can be hard to determine what is true and what is false.

So last month, I turned to an industry expert for answers - our very own Director of Product Development. Our Director is a man of facts and an expert in the field of Food Science,

A Conversation with NJFC Director of Product Development

By Kelly Jones

*NJFC Marketing and
Communications Coordinator*

from microbiology to the culinary arts. He graciously answered all of my questions with scientifically grounded responses. If you know him, then you know - his voice is a voice you can trust.

CITRIC ACID

KJ: *Let's start with Citric Acid. Is it synthetic or natural? Is it a "chemical"? Does it come from black mold? WHAT IS IT?*

Director: Citric Acid is a naturally occurring acid that is commonly found in many fruits and vegetables. We supplement the natural citric acid found in tomatoes with a citric acid that is produced through a natural fermentation process.

KJ: *Can you go into more detail about the supplemental citric acid and the fermentation process?*

Director: The two sources typically used by our suppliers are Cassava and Cane Sugar. Either material provides the sugar source required for the fermentation process.

KJ: *Okay, that's interesting. So our supplemental Citric Acid comes from either Cassava root (I just googled it and saw that it's a "yam or oddly carrot-*



Cassava Root. One source of our supplemental Citric Acid.



Other common fermented foods include Sourdough Bread, Kimchi, and Worcestershire Sauce.

shaped shrub") or Cane Sugar that's been fermented. And fermentation, as a food process, is very common (yogurt, sour cream, Kombucha tea). A lot of us consume fermented food and drink regularly. I know I do! Why do you think Citric Acid has gotten a bad rap?

Director: That is a great question. I think there is so much misinformation floating around online these days that it's difficult for the public to discern what's true. One aspect might be that the fermentation process uses a fungus (*A. niger*) to convert the sugars to Citric Acid. Although this process has been around for over 100 years and is GRAS (Generally Recognized as Safe) by the FDA, people still spread photos claiming black mold is being used to make Citric Acid. Of course, this is not the same type of microorganism (*S. chartarum*) that causes the toxic black mold commonly found in the walls of homes with moist environments, but most of the public can't tell the difference. In the end, it's often times the buzz phrases like "black mold" that will get the traction and unfortunately sway public opinion.

KJ: *That is so challenging. I'm glad we're talking about this from a factual, science-based standpoint.*

KJ: So, what does Citric Acid do for tomatoes?

Director: It does a few things, actually. First, it helps offset the natural sugars in tomatoes to balance the flavor profile with the tanginess we have all grown to love. It also functions as a mild antimicrobial and helps to keep the resulting food products free of microbial growth that can lead to foodborne illness.

KJ: Why do we add it to some tomato products and not others?

Director: The key to its addition in some products versus others is the concentration of the tomatoes in the finished products. When the concentration is low, like in a Marinara, a little supplemental citric acid is added to provide an additional buffer for food safety purposes. When the concentration is high, like in Tomato Paste, there is no need to add in any additional acid. Also, some of our customers really love the extra zip of flavor it brings to their sauces.

KJ: I've seen some information online that says you shouldn't consume too much citric acid. How much is too much?

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NJFC has always maintained full transparency with our product labeling and customers over the years. Our sources of Citric Acid have always been produced using a natural process.



Evaluating product samples in the TomaTek Quality Assurance Lab.

Director: In its pure or undiluted powdered form, Citric Acid can act as an irritant or be considered harmful. Most foods on the market have Citric Acid in them in much smaller quantities, however, excessive drinking of flavored beverages like sodas that are higher in Citric Acid are generally considered to be bad for your oral health. The same can be said of drinking the juice of, or eating fresh lemons or limes, in large quantities.

KJ: Why do we differentiate between “Citric Acid” and “Naturally Derived Citric Acid” in our NJFC ingredients?

Director: The difference is purely from a marketing perspective. Either way, our Citric Acid is derived from a natural source whether it is listed or not. Some of our customers just choose to spell out that distinction on their labels.

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CALCIUM CHLORIDE

KJ: Great. Now, Calcium Chloride. This definitely does not sound edible. What is it?

Director: Calcium Chloride is a naturally occurring salt that is often found in naturally formed basins, lakes, and rocks. It is a highly soluble salt in water, and can be found in some areas in liquid form. In fact, the Calcium Chloride we use is derived from such a brine basin, where lakes of this solution accumulate about 20% of the salt in solution, which are then evaporated by the sun until the concentration level reaches about 37% in solution.

KJ: So, what you're saying is, contrary to popular beliefs, calcium chloride is a material found in food that is not synthetically produced in a lab, but is actually found in nature?

Director: Precisely! Just because ingredients with names like "Citric Acid" or "Calcium Chloride" *sound* like complex chemicals that can only come from a lab, does not make it true. There are natural sources for these materials that are currently and commonly available to us. Calcium chloride is a natural mineral salt solution found in naturally occurring lakes and basins. It is not the product of taking synthetic chemicals and adding them into our food in a hidden laboratory. In a way, it is similar to the natural mineral transfer that occurs within soil as plants grow and mature in the field.

KJ: Nature continues to amaze me. So, why do we add Calcium Chloride to some of our tomato products and not to others?

Director: Calcium is a mineral that we are very familiar with, as it is primarily responsible for



National Chloride Evaporation Trench. Bristol Lake, Mojave Desert, CA.

the strength and firmness of our bones. In a similar fashion, calcium is added to some of our tomato products in very small quantities (parts per million) to assist in firming up the fruit prior to processing. This allows us to maintain good particulate identity and shape through the cooking process at our facility. We typically only add calcium to two groups of products, processed whole and diced tomatoes in juice.

Many folks assume that these two ingredients come from scientists working in large scale laboratories or refineries. In fact, we have used only naturally derived materials in our food products for decades.

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