
TM2
from CO2Sustain
One ingredient.
Two powerful
solutions.
Better taste • Better fizz

Taste. Bubbles. Science.

It's in our DNA.

At CO_2Sustain we've always believed there's far more to a great soft drink than sweetness and sparkle alone. Great drinks are engineered through chemistry, through curiosity, and through a relentless obsession with how things taste and feel from the first sip to the last.

Our journey began with some simple questions:

Why do some drinks taste slightly 'off'? Why do carbonated drinks lose their fizz too fast? Or why does stevia foam uncontrollably in production?

To answer it, our team of chemists developed a new kind of ingredient. One that smooths out the negative aftertastes of high-intensity sweeteners, stabilises carbonation and reduces foaming on pouring and on a production line when stevia is the chosen sweetener.

The result is TM² from CO_2Sustain a single, smart product that makes soft drinks taste better, and carbonated drinks hold their fizz longer.

One product. Two powerful benefits.

A better beverage experience for everyone.

TM² a single, smart product that makes soft drinks taste better, and carbonated drinks hold their fizz longer.

The challenges modern drinks face.

The rise of zero sugar. The rise of new problems.

Consumers want drinks that taste great and help them reduce sugar. But moving to high-intensity sweeteners such as stevia, sucralose, aspartame and Ace-K brings challenges that R&D teams know only too well:

Taste issues

High-intensity sweeteners often introduce:

- Bitter or metallic off notes
- A liquorice-like linger
- A slow, unbalanced sweetness curve
- Loss of mouthfeel and mid-palate body

These effects intensify in carbonated and acidic environments and can worsen over shelf-life.

Carbonation issues

- Carbonation interacts with sweeteners in unwanted ways:
- CO_2 highlights bitterness
- Fizz drops off too quickly
- Consumers describe drinks as “flat” or “chemical” near the end of consumption
- Drinks foam excessively on pouring
- PET lightweighting makes carbonation retention even harder

These challenges increase complexity, cost and risk for formulation teams, often stretching R&D timelines and limiting innovation.

So, we designed one product to solve all these challenges.

It's all about flavour modification.

TM² improves off notes and negative aftertastes.

Taste drives everything, consumer acceptance, repeat purchase, brand loyalty. So, our first and most impactful functionality is TM² ability to transform the taste performance of high-intensity natural and artificial sweeteners.

TM² can be used as a flavour with modifying properties (FMP). It works with sweeteners to reduce undesirable taste characteristics while enhancing overall flavour clarity.

TM² reduces:

- Bitterness
- Metallic notes
- Astringency
- Lingering sweetness
- "Chemical" or "artificial" impressions

TM² enhances:

- Clean, accelerated sweetness onset
- Shorter, cleaner finish
- Mid-palate body
- Overall flavour harmony

By balancing the sweetness curve and smoothing out off-notes, TM² helps beverages feel more refreshing and more sugar-like even at zero sugar.

And when stevia is the sweetener of choice TM² shifts Reb A's taste profile to more like Reb M's

The science in brief.

TM² influences how sweeteners interact with the palate, modifying aftertaste pathways and helps flavour ingredients integrate more smoothly in the final sensory profile, it does this by simply coating the more insoluble parts of the ingredients.

The result?

A better-tasting drink that consumers are more likely to choose again.

TM2 from CO_2Sustain

TM² in action

We have been working with well-respected independent providers of sensory and consumer research to evaluate TM²'s performance.

Using scientifically validated taste tests to provide clear and objective insights. Sensory profiling assessment of four non-sugar sweetened still beverages was undertaken with the objective of comparing the sensory characteristics of all profiled products in terms of aftertaste.

Here we can see the results of external sensory testing of TM²

Figure 1 shows the results of Sample 1 a lemon/lime still drink sweetened with Aspartame and Ace-k versus Sample 2, a lemon/lime still drink sweetened with Aspartame and Ace-k with the TM² FMP (Modifier) added.

The comparison of the two profiles indicates that they have some similarities, however there are also several differences between the products.

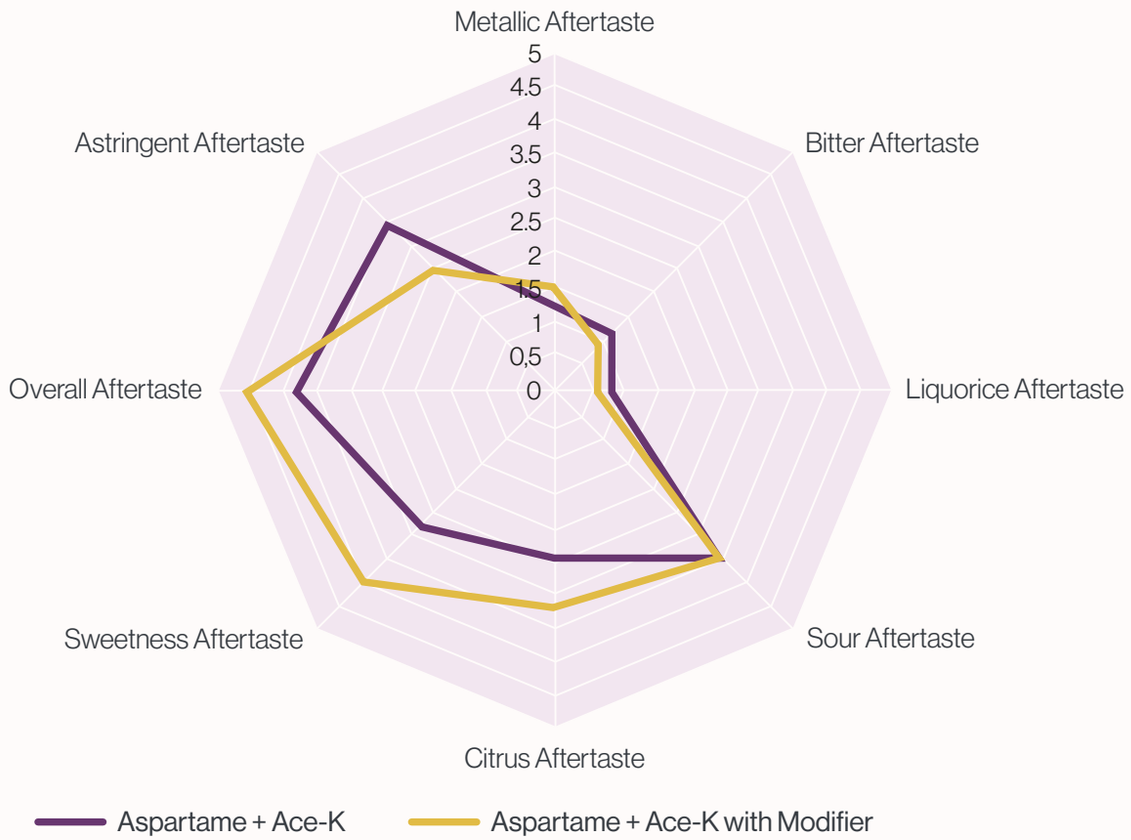
The Aspartame + Ace-K product scored significantly higher than the Aspartame + Ace-K with the TM² FMP (Modifier) for Astringent Aftertaste.

The Aspartame + Ace-K with the TM² FMP (Modifier) scored significantly higher than the Aspartame + Ace-K product for Citrus Aftertaste, Sweetness Aftertaste and Overall Aftertaste.

Conclusion:

The TM² FMP has reduced the negative aftertastes of Astringency and Liquorice allowing the Citrus and Sweetness flavour to come through.

Figure 1 - Aspartame + Ace-K & Aspartame + Ace-K with Modifier



We repeated the same process with still drinks sweetened with Stevia (Reb A)

Figure 2 shows the results of Sample 1 a lemon/lime still drink sweetened with Stevia (Reb A) versus Sample 2, a lemon/lime still drink sweetened with Stevia (Reb A) and with the TM² FMP (Modifier) added.

The comparison of the two profiles indicates that they have many similarities, however there are also differences between the products.

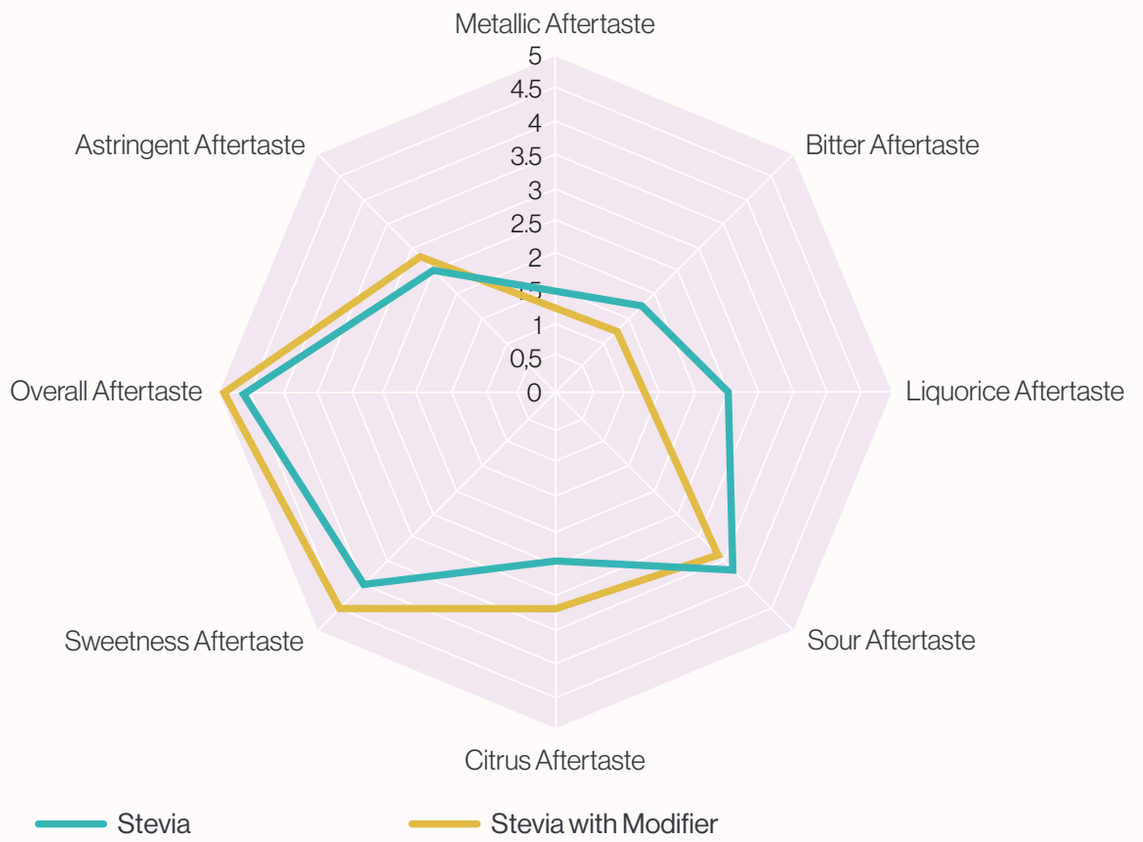
The Stevia product scored significantly higher than the Stevia with TM² FMP (Modifier) for Liquorice Aftertaste.

The Stevia with TM² FMP (Modifier) scored significantly higher than the Stevia product for Citrus Aftertaste.

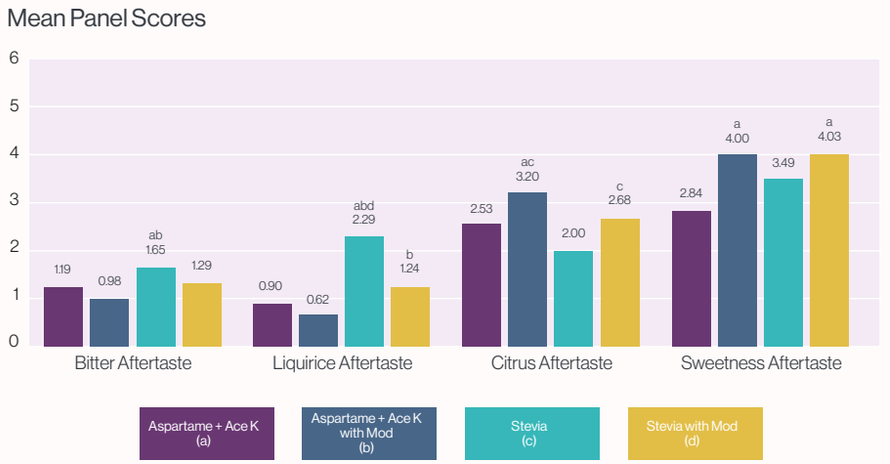
Conclusion:

The TM² FMP (Modifier) has reduced the negative aftertastes of Bitterness and Liquorice allowing the Citrus and Sweetness flavour to come through.

Figure 2 - Stevia & Stevia with Modifier



The final graph outlines the mean panel scores across all 4 drink sample types which clearly demonstrates the effectiveness of the TM² FMP against the criteria set.



TM² retains carbonation and makes bubbles behave better.

Great fizz is more than a feeling, it's a critical part of flavour delivery and drink satisfaction. Through years of carbonation research, our chemists discovered how to stabilise CO_2 more effectively inside the beverage.

How TM² works

TM² coats CO_2 bubbles during carbonation, making them:

- Smaller
- Denser
- More uniform
- Less prone to coalescing

This keeps CO_2 dissolved for longer and releases it more gradually during consumption.

Benefits:

- Fizz lasts longer in the glass
- Improved "tingle", "bite" and sensory brightness
- Foam is controlled on pouring
- Drinks feel fresher for longer
- Carbonation shelf-life is extended
- PET lightweighting becomes more viable
- CO_2 usage can be reduced without compromising experience.
  Many manufacturers achieve 10 - 15% CO_2 savings or maintain the same sensory profile at lower carbonation levels.

Cleaner taste + better fizz = a superior drinking experience.

TM² reduces foaming and improves production efficiency in carbonated drinks.

During filling, some sweetener systems, especially high intensity natural and artificial sweeteners such as stevia. This leads to:

- Slower line speeds
- Product losses
- More restarts
- Inconsistent fills
- Headspace variation

TM² overcomes some of these problems by:

- Reducing foaming at the filler which leads to
  - Faster line speed
  - Fewer delays
  - Lower waste

You get better taste, better fizz and smoother manufacturing — all from one product.

Our partnership with your R&D team.

Smarter formulation. Faster progress. Lower risk.

We work closely with technical teams around the world, supporting everything from early concept development to factory-scale implementation.

Our laboratory service includes:

- Taste optimisation testing
- Carbonation performance analysis
- Application guidance & dosing recommendations

You send syrup or finished product - We send back

- TM^2 treated samples
- Your original samples for comparison
- Taste testing data
- Carbonation data
- Clear conclusions and next steps

If you like what you taste and we're confident you will, our chemists can support you during a factory trial to ensure seamless integration.

Let's get started.

Better taste. Better fizz. One product.

TM² from CO_2Sustain™ gives beverage developers the freedom to create non or carbonated soft drinks that taste great and give an exceptional taste experience for consumers without complex reformulation or costly ingredient additions.

Whether you want to:

- Remove bitter aftertastes from sweeteners
- Create fizzier for longer drinks
- Extend carbonation shelf-life
- Reduce CO_2 usage
- Eliminate foaming issues

TM² is the simplest, most effective solution available.

Book your consultation with one of specialists today.

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