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# How to *Master* Formulation Challenges in the 'Wild West' of RTD Cocktails

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GUIDELINES FOR BREWERS AND DISTILLERS



# Contents

Introduction .....	3
Mapping Your Path to RTD Cocktail Success.....	4
Choosing Your RTD Cocktail Base.....	5
Adding Carbonation: What's the Right Amount of Fizz.....	6
Finding RTD Cocktail Flavor Profiles .....	7
Meeting Regulatory Requirements .....	9
Deciding About Functionality.....	10
The Future of RTD Cocktails .....	11
Conclusion .....	11





## Introduction

The RTD Cocktail market has attracted beverage pioneers, cowboys, and maybe a few outlaws, unified by a desire to expand and innovate in a small, fast-growing alcoholic beverage segment. What's drawing brewers and distillers to explore RTD Cocktails?

- **Popularity:** Global consumption of RTDs increased more than 40% in 2020, according to International Wine and Spirits Record (IWSR). Consumers of all ages enjoy the convenience, flavor, and refreshment found in canned cocktails.
- **Growth:** Anticipated gains of more than 25% in 2021 and a CAGR of 10.2% continuing through 2025 reflect the growth of RTDs in the United States, Japan, Australia, Canada, and China.
- **Staying Power:** In the U.S., hard seltzer gained +130% in 2020 as the leading RTD sub-segment, driving volume above total spirits. Within the next year, RTD volume consumption may surpass the millennial 'go-to' — wine. And global sales of RTD cocktails are forecast to reach USD 1.63 billion by 2027.

Market dynamics are appealing, but what constitutes a 'good' RTD Cocktail – one that will succeed with consumers? Does it require:

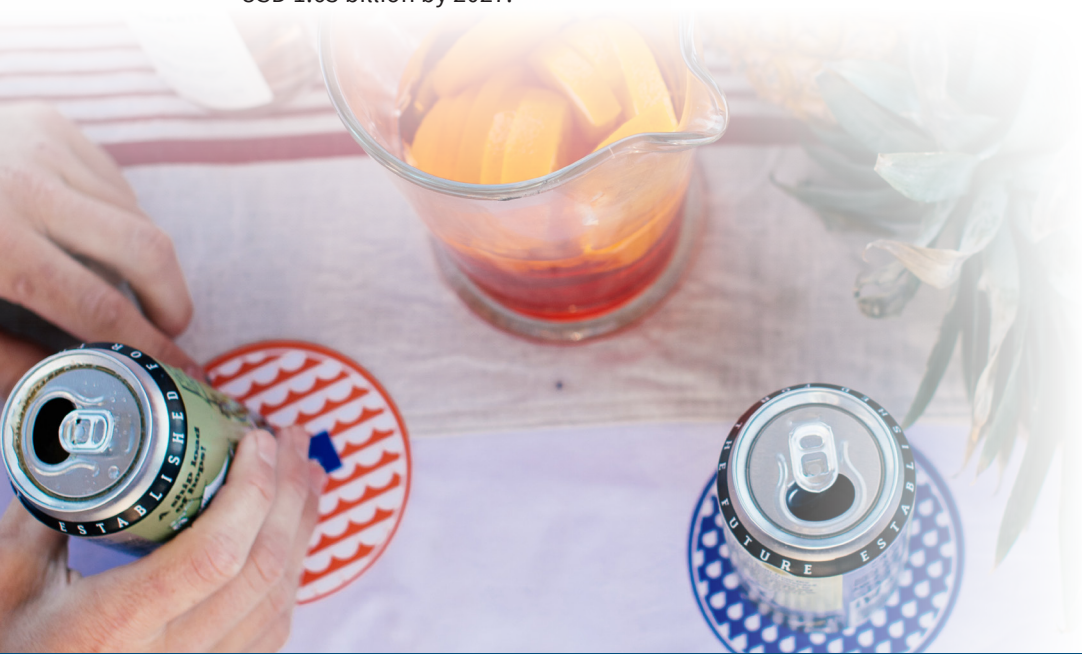
- Fruity sweetness or a dry, refreshing sparkle?
- Flavor complexity or easy-drinking neutrality?
- A malt base, spirits base, or grain-neutral base?

With wide-ranging formulations, RTD Cocktails draw on the Wild West's lawlessness where (almost) anything goes if the results deliver on the brand's promise and get repeat purchases. The 'almost' refers to the regulatory landscape where notably, in North America,

- The Alcohol and Tobacco Tax and Trade Bureau (TTB) regulates the approval of alcoholic beverages in the U.S.
- The U.S. Food and Drug Administration oversees flavor usage through the Code of Federal Regulations (CFR) – Title 21.
- Health Canada regulates alcohol through the Food and Drugs Act (FDA) and the Food and Drug Regulations (FDR).
- Provisions of the Safe Food for Canadians Act (SFCA) and the Safe Food for Canadians Regulations (SFCR) also apply to alcoholic beverages.

The FlavorSum team collaborated with several experts to develop guidelines and perspectives that can help you wrangle several RTD cocktail formulation challenges, including:

- Options for alcohol bases
- Carbonation processes
- The role of added flavors
- Meeting U.S. regulatory requirements
- Incorporating functional ingredients



## Mapping Your Path to RTD Cocktail Success

Before diving into formulation work, it's essential to have a collaborative conversation with your team to answer one fundamental question: What type of RTD cocktail (if any) will fit within the current company strategy? Addressing that question includes roping in specific dynamics, such as:

- Evaluating whether a RTD cocktail aligns with your existing portfolio.
- Measuring the appeal of a RTD beverage to your current customer base.
- Deciding if your RTD cocktail (or line-up) will build equity in your current brand or represent a new branch (sub-brand) of your business.

If you determine a RTD cocktail makes sense for your company, begin framing the strategy to guide your formulation process. Gathering input will help create a business model around guardrails such as:

- How much will style matter with your RTD offering(s)?
- What's more important to your brand story and your target consumer: process or flavor? Or are both vital to your brand?
- What's your ABV goal?
- What role does functionality play in your RTD product line?

Often, mass-market appeal resides in a more straightforward, flavor-focused brewing or distilling process. Taste is also paramount for craft brands, but the alchemy of the RTD cocktail is often a key characteristic of the product and an important reflection of brand values.

While most RTD alcoholic beverages carry 4-7% ABV to meet calorie expectations, higher strength seltzers entered the market with ABVs of 8-14%. Low alcohol launches are also emerging with 2-3.7% ABV for consumers interested in more control or the sober curious movement.



### Formulation Tips:

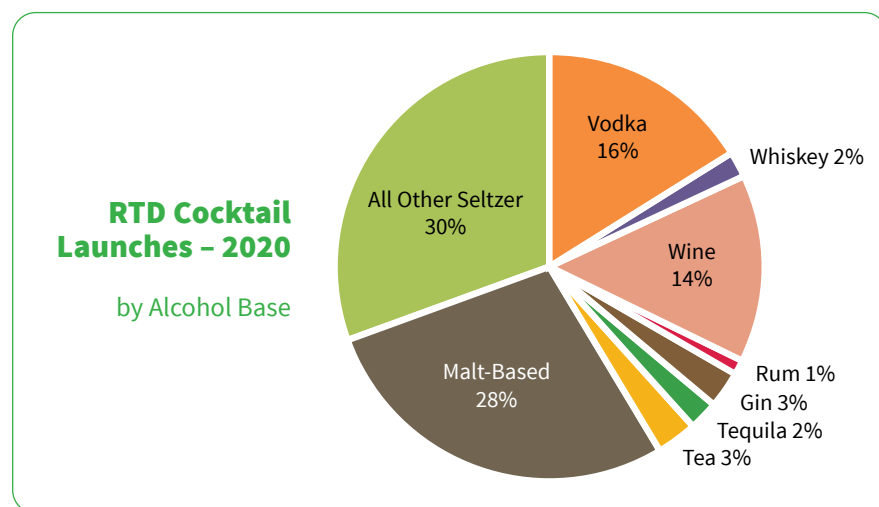
- Lower ABV beverages will need additional preservatives to maintain shelf life and product quality.
- Sodium benzoate is added to RTDs unless tunnel pasteurizing is part of the process. Natural additives like citric acid can pair with a vinegar or shrub-type drink, but preservatives remain essential with low ABV unless the process involves bottle fermenting.

And functionality beyond lower calories is bubbling up, with brewers turning to premium ingredients like organic vodka or botanicals like lavender or ginger for perceived health benefits. Hard kombucha cocktails offer probiotics, lower sugar, and 6-7% ABV, and hard RTD coffee with the energy boost of caffeine is picking up momentum.



## Choosing Your RTD Cocktail Base

North American launches of RTD cocktails more than doubled in 2020, with almost 60% of the new entries labeled seltzers. Currently, vodka is the most popular spirit foundation for RTD cocktails. Wine-based cocktail entries, including spritzers, coolers, and seltzers, more than doubled in 2020.



Each alcohol base carries implications for production processes, cost of goods, and the consumer taste experience.

- **Sugar** made from fermented beet, corn, or cane provides brewers or distillers with a clear, neutral seltzer base that's gluten-free, a 'plus' for health-positioned RTD cocktails. Molasses, made from refined cane or beets, provides a high distillate option. But the sugar and carbohydrates, roughly 1-2 grams respectively per 12 fluid ounces, will increase the total calories of your beverage.
- **Malt** made from mashed, boiled, fermented, and filtered grains adds a beer taste to your RTD cocktail, which may align with your brand promise. For many craft brewers, combining a malt base with fruit, spices, barrel aging, or oak in the tank produces a flavored malt beverage (FMB) that reflects their brand values. As with a sugar base,

malt adds calories beyond alcohol, a consideration if lower calories are part of your brand story.

Tax rates on sugar and malt based RTD alcoholic beverages follow beer taxation rules. Although laws vary across the United States and Canadian provinces, most allow you to sell RTD cocktails made with cane or malt in grocery stores.

- **Grain neutral spirits (GNS)**, derived from the fermentation and distillation of germinated grains (corn, wheat, barley, or rye), are another popular base for RTD alcoholic beverages. GNS often represent a quicker path to market, as producers can create a finished clean, refined beverage within 24 hours by adding water, carbonation, and flavor to the base.
- **Potato and grape neutral alcohols**, known as potato and vinous alcohols, respectively, bring unique characteristics to RTD cocktails. Potato lends a creamy texture, while vinous alcohol contains flavors from the grape residue, including pomace solids.
- **Spirits** including tequila, gin, rum, and whiskey carry more flavor nuances and color than GNS, sugar, or malt bases.
- **Wines** also add flavor and style variety along with color to RTD cocktails.

Production of neutral alcohols, spirits, and wine requires a distilling license and a processing facility with appropriate equipment and ventilation since the vapor by-products are explosive. RTD alcoholic beverages made with a spirit or wine usually face a higher tax rate than sugar or malt and have narrower distribution channels (usually wine or liquor stores).

*Each alcohol base carries implications for production processes, cost of goods, and the consumer taste experience.*



## Adding Carbonation: What's the Right Amount of Fizz?

While fermentation imparts some carbonation into RTD cocktails, many brewers and distillers also infuse bubbles with forced CO<sub>2</sub> bottles or pressurized carbonation systems. Consumers like carbonated beverages for the multi-sensory experience from the fizz, including:

- Excitement, as the bubbles pleasantly tingle the tongue.
- A depth of taste as the CO<sub>2</sub> combines with water, creating carbonic acid, which delivers a slightly acidic 'bite.'
- More intense flavor perception as bubbles waft the aroma molecules up to the nose.

Unlike container measurement of CO<sub>2</sub>, which registers as PSI (pounds per square inch), the liquid measure of carbonation is in volumes or grams per liter.

- Carbon dioxide volume is the "volume of carbon dioxide per equal volume of liquid at atmospheric pressure and 20°C."
- Grams per liter (g/L) equals the mass of carbon dioxide in a volume of water.
- To shift from g/L to volume, use a 1.96 conversion factor.

Ultimately, the amount of carbonation in your RTD cocktail will reflect several factors:

- The beverage base
- Your targeted taste experience
- Your brand image



### Formulation Tips:

- A general starting point for carbonating seltzers is approximately 3 volumes or 6 g/L. For context, sparkling waters contain 5-7 g/L, sparkling wines have as much as 9 g/L, and champagne features 12 or more g/L. Carbonating RTD cocktails could start with as little as 3 g/L and go up to 8 g/L with 10 g/L as an upper limit.
- CO<sub>2</sub> solubility increases in alcohol, meaning you'll need more g/L of carbon dioxide to produce a tingle comparable to water-based beverages.
- Sugar clings to CO<sub>2</sub>, so more carbonation results in a less sweet taste experience.

Applications testing is essential to recipe development, providing a method for achieving the right balance of sweetness, acidity, flavor, alcohol, and carbonation.

Depending on your production goals, investing in process technology or partnering with a carbonation systems expert gives you the capability to dose carbonation in line after blending and before pasteurization. The capital expense produces ROI through efficiency, high yields, and overall product quality. And systems are now available in smaller footprints to support small-to-mid-sized enterprises.

*Applications testing is essential to recipe development, providing a method for achieving the right balance of sweetness, acidity, flavor, alcohol, and carbonation.*

## Finding RTD Cocktail Flavor Profiles

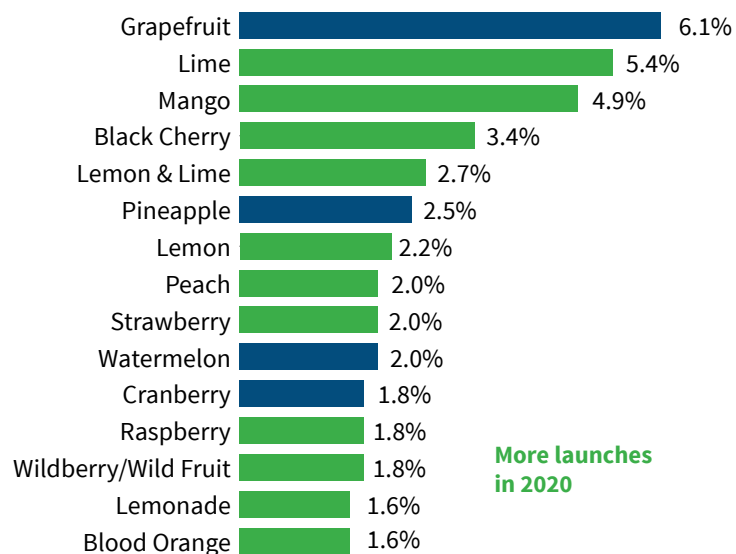
With flavor a primary contributor to the appeal of RTD cocktails, brewers and distillers offer a broad palette of tastes.

North American retail data from Mintel's Global New Products Database (GNPD) shows 15 single flavors accounted for 42 percent of flavored alcoholic beverage launches in the last 3 years. Many new products continue to feature these core flavors as the segment continues to expand.

### Flavored Alcoholic Beverages Top 15

Flavors = >40% of total Launches

North America: 2018–2020



More launches  
in 2020

Flavor blends such as Pineapple-Coconut or Strawberry-Guava represented 50 percent of new flavored alcohols, increasing 45% in 2020 as producers turn to flavor innovation to boost interest.

Flavors often align with the base of RTD cocktails, with leading profiles shown on the following page.



## Wine and Spirit-Based RTD Cocktails - % of Launches by Flavor | NORTH AMERICA: 2018-2020

Wine-Based		Vodka-Based		Tequila-Based		Rum-Based		Gin-Based		Whiskey-Based	
Flavor	% of Launches	Flavor	% of Launches	Flavor	% of Launches	Flavor	% of Launches	Flavor	% of Launches	Flavor	% of Launches
Wine (no added flavor)	12%	Grapefruit	10%	Lime	28%	Pineapple/Coconut	16%	Gin Tonic	29%	Chocolate & Cream	single
Grapefruit	11%	Lime	9%	Grapefruit	17%	Watermelon	16%	Gin Lime	18%	Coffee & Orange	single
Lemon/Lemonade	9%	Mango	9%	Citrus	7%	Cola/Root Beer	11%	Cucumber	12%	Ginger & Pomelo & Thai	single
Peach	9%	Cherry	7%	Mango	7%	Lemon/ade	11%	Cran Lemon Lime	6%	Honey & Tea & Chai	single
Orange	8%	Raspberry	6%	Chocolate	3%	Lime/Mojito	11%	Gin Lemon	6%	Lime	single
Mango	8%	Watermelon	6%	Coffee/Orange	3%	Ginger	5%	Grapefruit	6%		
Strawberry	7%	Citrus	5%	Cran Grapefruit	3%	Mango	5%	Berry	6%		
Raspberry	5%	Cranberry	5%	Lime/Orange	3%	Berry	5%	Watermelon	6%		
Sangria	5%	Lemon/ade	5%	Lime/Watermelon	3%	Orange	5%	Tea	6%		
Lime/Margarita	5%	Lemon & Lime	5%	Peach	3%	Fruit Punch	5%				
Malt Blends	4%	Blueberry	4%	Pineapple	3%	Raspberry	5%				
Cherry	3%	Cucumber	4%	Raspberry	3%	Butterscotch/Vanilla	5%				
Passionfruit	3%	Moscow Mule	4%	Butterscotch	3%						
Citrus Blends	3%	Pineapple	4%	Vanilla	3%						
Guava Blends	3%	Ginger	4%	Watermelon	3%						
Cranberry	2%	Butterscotch	2%	Sour Apple	3%						
Huckleberry	2%	Bloody Mary	2%								
Ginger Blends	2%	Coffee	2%								
Coconut Blends	2%	Other	7%								



### A Formula Illustration

Sugar 8-11Brix  
 Alcohol 5-9%  
 Flavor 0.25-1%  
 Color 0.2-0.5%  
 Preservative greater than 300 ppm  
 Water  
 CO2 level

*Flavor blends such as  
 Pineapple-Coconut or  
 Strawberry-Guava  
 represented 50 percent of  
 new flavored alcohols.*





The advantages of adding flavor to RTD alcoholic beverages are numerous.

*Flavors:*

1. Give brewers and distillers more accurate, consistent dosing
2. Provide a steady supply and easier customizability of unique tastes (or blends)
3. Offer easy, flexible incorporation into the brewing or distillation process
4. Minimize safety and contamination risks
5. Represent a sustainable ingredient that reduces volume loss in RTD or FMBs

Inspiration for flavor innovation is available through many sources. The RTD and FMB segments are analogous to the ice cream category and can draw on flavors ranging from simply sweet to bright, spicy, nostalgic, or indulgent.

For a glimpse into the evolution of flavor trends, look back at flavors featured at trade events like the Fancy Food Show, hosted annually by the Specialty Food Association. In 2015, new flavors included florals and maple, now frequently found in food & beverage launches. 2017 saw ginger and banana make it into the mainstream. And the 2019 show highlighted goldenberries, calamansi, and butterfly pea flower, emerging flavors to consider if your brand story includes trendier tastes.



#### *Innovation Tips*

- Flavors can replace (or replicate) alcohol notes if you're using GNS for your RTD cocktail.
- Although flavors deliver a consistent taste, getting a solution that provides the nuanced robustness of a raw ingredient can be challenging without a capable flavor supplier.

- RTD beverages aren't heavily tapping seasonal preferences since flavors typically showcase spring and summer tastes. Although challenging to plan a seasonal limited time offer (LTO), flavors linked to fall and winter, like apple-cinnamon-vanilla or pumpkin-spice-vanilla, represent an opportunity.
- Brewers and distillers could borrow the concept of terroir from wine and promote the environmental characteristics that add unique tastes to RTD cocktails or FMBs. The terroir of hops for FMBs or fruit varieties for GNS-based beverages could lend validity and sophistication to your brand.

## Meeting Regulatory Requirements

Agencies that regulate the production and sale of alcoholic beverages have detailed guidelines for getting approval to distribute your RTD cocktail or FMB. Usually, brewers or distillers using traditional processes, like pasteurization, filtration, lagering, carbonation, or blending, do not need to submit formulas for approval. But suppose your method includes non-traditional activities such as filtration to change color, the addition of flavor ingredients, or concentration. In those instances, you'll need to provide your formula and appropriate documentation.

- If you add flavors to a RTD alcoholic beverage that's brewed or distilled in the U.S., your formula application needs a [Flavor Ingredient Data Sheet \(FIDS\)](#) which details:
  - » The flavor manufacturer
  - » The flavor name and TTB drawback number
  - » The alcohol content
  - » The natural or artificial labeling designation
  - » The maximum usage rate for the flavor, which reflects other ingredients the flavor may contain like vanillin, caffeine, maltol, propylene glycol, and preservatives.

Regulating agencies may also ask for the following as part of the formula application:

- **Laboratory analysis** for imported products with more than 7% ABV, alcohol-free malt beverages, or other case-by-case submissions. You'll need to submit product samples as part of the application process.
- An **Ingredient Specification Sheet** (SPEC) when a beverage contains a multi-component ingredient. If you add fruit juice to sweeten your RTD cocktail, you'd need a SPEC sheet listing the elements of the fruit juice.



#### *Regulatory Tips*

- The U.S. regulating body, TTB, has explicit rules about ingredients you can highlight on your RTD cocktail packaging. If you link your RTD alcoholic beverage with a specific cocktail like a Moscow Mule, your front-of-pack will read Vodka with Ginger & Lime, Natural Flavors, and carbonation. Labels must call out components such as FD&C Yellow 5 but don't need to note water, sugar, or citric acid.
- Partnering with a beverage developer who understands the regulatory landscape can help you navigate the log jams that can occur with RTD cocktails or FMBs.

## Deciding About Functionality

Ingredients with functional benefits can add complexity and cost to the formulation process for RTD cocktails. Functional paths warrant additional investigation to verify you'll generate the expected return on your investment. For example,

- Turmeric's anti-inflammatory and antioxidant properties are drawing consumer interest. An online search shows more than 6 million recipes for 'turmeric-infused gin.' Distillers may have the opportunity to create a trendy RTD cocktail that meets a functional need with a convenient solution.
- THC, CBD, and cannabis-infused seltzers are emerging in some regions of North America. Each ingredient carries unique, often bitter flavor notes to address with your formula.



#### *Tips for managing bitterness*

- » Remove as much of the associated terpenes and flavonoids from the original extract as possible.
- » Or select flavors to surround the bitterness and create a more pleasing profile.
- » Ensure that all non-active components of the formulation have little to no taste.
- » Avoid making low-volume, high-concentrated solutions.
- » Use a flavor-masking agent:
  - Replace part of the extract, independently add it to the finished product, or blend it with the extract.





Consumers have expectations about the functionality found in RTD alcoholic beverages. A recent FlavorSum survey of North Americans interested in food & beverage benefits beyond nutrition shows the top 3 functions linked to drinks are:

- Energy
- Mood enhancement
- Immunity

If functionality is part of your RTD cocktail's brand positioning, finding ingredients that deliver benefits that fit with consumer expectations will help gain trial among your target audience.

## The Future of RTD Cocktails

All signs point toward the continued expansion of RTD alcoholic beverages. But as the 'Wild West' of formulators builds, it's logical to wonder if a certifying body like the Beer Judge Certification Program (BJCP) will set guidelines. Potential 'styles' to define for RTD products could include:

- Sweet / dry
- Low / average / high ABV
- Sparkling / still
- Functional / basic

The U.S. TTB continues to set standards that affect some, but not all, aspects of RTD cocktails. For example, the agency recently adopted 3 container sizes for the spirits sub-category: 700, 720, and 900 ml. In the same ruling, the agency avoided accepting 200-, 250-, and 355-ml containers, the most popular sizes for canned wines. Inconsistencies make it difficult for distillers (and brewers) to compete.

Our take: The increasing complexity of the rapidly growing RTD category, with multiple bases, tax rates, packaging, and labeling requirements, could lead to a restructuring of the alcoholic beverage market.

## Conclusion

History shows that the transformation of the Wild West involved gathering knowledge and identifying solutions to create order, unification, and progress. As brewers and distillers explore and conquer formulation challenges associated with RTD cocktails and FMBs, the category may 'settle' into a set of standards informed by in-market success. Regulatory agencies may also step in to establish firmer development guidelines.

Until then, if you need support with your RTD alcoholic beverage, connect with the FlavorSum team. We'll share our formulation expertise, flavor creativity, and regulatory knowledge to help you blaze a trail to success.



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## Let's Partner to Develop Your Next RTD Cocktail Beverage

At FlavorSum, our mission is to provide you with the solutions, expertise, responsiveness, and infrastructure that you need to accelerate your success.

*We're here to:*



**Speed Your Time-To-Market:** From hundreds of trending flavor sample options that ship in 24-hours, to online, on-demand ordering capabilities and documentation, FlavorSum helps you keep your projects moving.



**Extend Your In-House Capabilities:** Our cross-functional teams have supported the development of more than 500 flavors in each of the last 3 years by using consumer insights, industry knowledge, and commercialization expertise.



**Achieve Unmatched Reliability:** When it's time to ramp up production, you can count on FlavorSum. We have maintained a 99.8% on-time-in-full delivery performance over the last 3 years.

### Contact our team today

to get started on your next launch!



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