



JAVO BEVERAGE COMPANY EXTRACTS WHITEPAPER

Capturing the essence

*What's the best way to capture authentic coffee flavor?
By using Javo's authentic coffee extracts and concentrates.*

You needn't be a food-industry insider to know: Nothing compares to the taste of real, freshly brewed coffee.

But if you *are* a manufacturing or food service professional and you've tried to recreate that profile using any of the standard coffee extracts or concentrates on the market—let alone a coffee flavor—you understand better than most just how difficult a sensory experience coffee is to capture, and how inadequate to the task most coffee ingredients are.

So imagine if you could leave those run-of-the-mill extracts, concentrates, and flavors behind—along with the compromise in true-to-brew taste they entail—and formulate everything from brownies to boba beverages using actual cold-brew coffee as a flavor ingredient or application base.

Better yet, don't just imagine. *Do it*—using Javo Beverage Company's coffee extracts and concentrates, which taste like real cold-brewed coffee *because they are real cold-brewed coffee*.

Cupful of chemistry

If most coffee ingredients fail to do their namesake beverage justice, that's because coffee itself has an astoundingly complex chemical fingerprint. And it's that fingerprint in all its nuance that translates into what we recognize as coffee's sensory character—from its top notes to its aftertaste.

So what does coffee's fingerprint look like? To start, it's rife with nonvolatile compounds like oils, which create coffee's "crema" and hold volatiles inside the bean during roast. Then there's caffeine, which gives coffee not only its energizing kick, but body and bitterness, too. Organic acids contribute appealing acidity to a brew, while proteins—or, more specifically, their constituent amino acids—react with certain carbohydrates in the Maillard reaction to yield byproducts like melanoidins, which contribute texture, color and further sensory effects.

On the volatile side of the equation, analysts have identified more than 1,000 volatile compounds in roasted coffee beans, roughly 20 to 30 of which appear to act individually and in concert to generate coffee's flavor and aroma.

In fact, even though variety, growing conditions and postharvest processing all influence a coffee's finished profile, it's largely the release of key volatiles during roast—alcohols, aldehydes, carboxylic acids, esters, furans, furanones, hydrocarbons, ketones, phenols, pyrazines, pyridines, pyrroles and more—that transforms raw beans into the beverage we know.

Heat's the enemy

Coffee roasters carefully manipulate time and temperature to spark these reactions. And though heat is fundamental to achieving coffee's optimal chemistry—and, therefore, its hallmark flavor—*too much* heat, either during roast or via subsequent processing, can send coffee's flavor profile into a tailspin.

In fact, says Brad Petersmeyer, vice president of operations at Javo Beverage Company, "The worst thing you can do to coffee is expose it to heat and to oxygen." Why? Because both are potent pro-oxidants that react with coffee's chemical fingerprint to produce rancid, bitter, sour, astringent and all-around "off" notes.

Indeed, raising a brew above 160°F will start eliciting these off notes, even yielding ashy and overly caramelized flavors that knock the finished profile out of balance. Thus, Petersmeyer cautions, "When we're making our extracts and concentrates, we do everything we possibly can to keep those two factors away from the coffee."

Alas, most hot-brewed coffee concentrates and extracts on the market are steeped or brewed in hot water and then subjected to further heat during concentration. The result is a finished beverage base or flavor ingredient that not only lacks the full panoply of coffee's sensory qualities, but that might bear unmistakable defects, as well.

Keeping it cool

This is where Javo's coffee extracts and concentrates stand out.

Remember that unique coffee-flavor fingerprint described above? Javo creates its extracts and concentrates using a proprietary cold-water process that preserves that authentic coffee profile by averting heat's damaging effects.

As a result, their coffee ingredients not only carry none of the unfortunate drawbacks that high-heat processing evokes; they also capture fresh, cold-brewed coffee's "sensory personality" more fully than any other coffee options available today. And that's what makes Javo's extracts and concentrates the best choices for use in cold coffee beverages, where coffee's "sensory personality" really stands out.

Javo's careful cold-chain handling also protects its extracts and concentrates' true-to-brew flavor over the long term.

Consider that coffee acidifies naturally with time—a chemical transformation that, if allowed to proceed too far, detracts from the coffee's finished profile. Adding insult to injury, thermal processes like HTST pasteurization and baking accelerate acidification further.

Here again, Javo's 99%-refrigerated supply chain saves the day by slowing that acidification down, shielding the extract or concentrate's coffee profile from thermal assault and leaving it less acidic, fresher tasting and more robust in the face of whatever heat treatments await it further down the line. So when Javo's extracts and concentrates appear in a coffee beverage, their fresh-brewed essence stays strong for the duration of the product's shelf life.

Clean concentration

"Together," Petersmeyer says, "all our processes protect the sensory aspects of the finished product and contribute to everything we get on the other side. How we handle the raw material produces a very

smooth coffee ingredient and superior base for a product, whether that's a cold beverage, a candy or another application altogether."

Even better, where other processors may filter out water or introduce additives to increase concentration, Javo attains concentration levels from 3X to 28X without using additives—no instant or soluble coffee—and without running the coffee through additional filtration or concentration steps to remove more water from the extract.

The difference, Petersmeyer says, is palpable. "Getting to our concentration levels without additional processing, additives or water removal gives us the most authentic, natural-tasting product available. With a single pass, our proprietary method achieves the best-tasting extracts and concentrates around, with a sensory aspect that's true to the source. So instead of losing coffee quality in your finished application, you gain it."

And as for the ingredient statement, "roasted coffee and water" is all the consumer sees. You can't get cleaner than that.

Take it easy

No wonder manufacturers have caught on and are using Javo's extracts to bring the flavor of real coffee—not synthesized coffee flavor—to everything from baked goods and confections to frozen dairy, protein drinks, flavored milks and more.

And for foodservice operators, Javo's concentrates offer a whole other set of advantages.

For one, the concentrates' flavor gives operators the best of both worlds: Yes, it's true to the original brew; yet it's also infinitely versatile—smooth yet strong, and adaptable to multiple uses. "We consider it a launching point for any number of beverage profiles," Petersmeyer says. "Javo's coffee extracts always wind up the stars of the show."

And from an operational perspective, Javo's coffee concentrates represent a real leveling-up from the toddy method that effectively launched the cold-brew sector.

At its most basic, that method involves filling a receptacle with ambient water, putting roasted ground coffee in a cheesecloth and steeping the latter in the former for upwards of 18 hours. And admittedly, it yields delicious results.

"But from a commercial standpoint," Petersmeyer says, "The Toddy method is less scalable. Extracts provide many advantages, including consistency, operational ease, and never running out. Think of the operational challenges back-of-house when trying to manage all these 5-gallon buckets of steeping coffee everywhere."

And while the process has evolved toward greater automation and scale—with some operations able to produce capacities of 1,000 gallons and more—it's still time-consuming and labor intensive, and it still produces single-strength coffee, not a concentrated coffee base like Javo's extracts and concentrates, which grant operators both ease of use *and* adaptability.

Indeed, Petersmeyer explains, “We produce an extract that’s identical from a sensory standpoint to the toddy method—if not better—but at upwards of a twenty-to-one concentration. And we produce it in far less time. Again, that’s because of our proprietary equipment and process.”

Used as a beverage base, Javo’s concentrates are virtually foolproof: efficient, pumpable, concentrated liquids in packaging options ranging from 8-ounce bottles of hand-mix extract all the way up to 64-ounce containers. With the simple addition of water, operators can customize their dilution strength, giving them full control over the finished product.

“We have solutions that enable the end user to use our coffee extracts however they choose,” Petersmeyer explains. “The finished product is authentic and consistent, and it’s always there—you don’t have to worry about running out. Wouldn’t it be easier to pour a hand-mix bottle of our cold brew into a pitcher and add water, rather than use all that real estate to fill buckets for the one-to-one concentration you get out of the toddy method? We take that hard work off the operator’s shoulders.”

Beyond the brew

And the compact concentrates make for economical freight: No more paying extra to ship water.

What’s not to like? “Our company uses all-natural raw materials and the best water attainable to produce a cold coffee beverage base that makes for the best sensory experience *and* happens to help from an operational standpoint,” Petersmeyer declares. “Standard extracts, concentrates and flavors just don’t measure up on flavor, and the fuss of the toddy method isn’t worth the payoff when our ingredients deliver equal results.”

And Javo’s cold-chain benefits don’t stop with coffee. The company applies its proprietary process and technology to the production of tea and botanical extracts and concentrates, as well. With interest in “self-care” and “food as medicine” on the rise, tea, and botanical ingredients are set to become just as much a sensation as cold brew.

So capture that growing demand by capturing the essence, keeping things cool, and formulating your next clean-label food or beverage with Javo extracts and concentrates.