



FOR PRODUCT DEVELOPERS & R&D TEAMS

Adding terpenes to your next product?

5 things to consider before adding terpenes to your formulation: a practical checklist for beverage, botanical and cannabis product development teams.

WHAT YOU WILL LEARN

- 01 Define your formulation objective
 - 02 Evaluate ingredient compatibility
 - 03 Understand volatility and processing
 - 04 Review quality and consistency
 - 05 Plan meaningful testing and validation
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HOW TO USE THIS GUIDE

Each section opens with the question to answer, then gives a short checklist and the questions to put to any terpene supplier. Tick the boxes as you go. A one-page summary checklist is at the end.

WHAT IS A TERPENE FORMULATION?

A defined blend of individual terpene molecules, built to deliver a specific aroma, flavor or functional profile inside a finished product.

Terpenes are aromatic molecules made by plants. They are also volatile, sensitive to their surroundings and easy to under-specify. Most problems that show up late in development - a profile that fades, a blend that separates, a lot that does not match the last one - trace back to one of five early decisions.

01

CHECK 1 OF 5

Define your formulation objective

Define the job the terpenes need to do before you pick a single molecule. The objective drives every later decision, from which compounds you shortlist to how you test them.

CHECKLIST

- ☐ Write the objective as one sentence a lab can test - for example, a citrus-forward profile that stays recognizable across the product's shelf life.
- ☐ Name the primary goal: flavor or aroma, a functional direction, or a regulatory fit. Rank them if you have more than one.
- ☐ List your target markets now. Rules differ by country and, in the United States, by state.
- ☐ Agree the success criteria with your team before the first prototype.

ASK YOUR SUPPLIER

Which profiles fit this goal, and what is the reasoning behind them?

Can the profile be built for the markets we plan to sell in?

COMMON MISS

A goal like "make it taste better" cannot be tested. If you cannot measure it, you cannot tell whether a reformulation worked.

YOUR NOTES

02

CHECK 2 OF 5

Evaluate ingredient compatibility

Terpenes are oil-based, so compatibility starts with your matrix. A terpene that behaves well in an oil or ethanol system can separate, cloud or fade in a water-based one.

CHECKLIST

- ☐ Decide the format you need: oil-soluble, solvent-based or water-soluble.
- ☐ Taste the blend inside the finished base, not on its own. Sweeteners, acids and botanicals can mask or amplify individual terpenes.
- ☐ Test stability across the pH, temperature and storage conditions your product will see.
- ☐ If the formula includes other botanicals or functional ingredients, confirm the terpene profile supports the intended direction instead of competing with it.

ASK YOUR SUPPLIER

Which formats are available for my matrix?

Do you have prior work with similar bases, and what did you change to make them stable?

COMMON MISS

Approving a blend from a sample in a neutral base, then finding it behaves differently in the real one. Always test in the finished matrix.

YOUR NOTES

03

CHECK 3 OF 5

Understand volatility and processing

Volatility decides what survives your process. Lighter terpenes evaporate or degrade first, so the profile you smell in the jar is rarely the profile the consumer gets.

CHECKLIST

- ☐ Map every step where heat or air exposure occurs: mixing, filling, pasteurization, storage and use.
- ☐ Ask how the blend was built to handle that exposure. Eybna's Lava Line, for example, selects every molecule by boiling point instead of by jar aroma alone.
- ☐ Test at the end of the process, not at the start.
- ☐ Ask how the terpenes were extracted. Method affects purity and what travels with the molecule.

ASK YOUR SUPPLIER

How was the blend designed around volatility?

What extraction method was used, and are residual solvents a concern for my product?

COMMON MISS

Choosing a blend by smelling it in the jar. Blends picked this way tend to lose their lightest molecules first, so the profile drifts.

YOUR NOTES

04

CHECK 4 OF 5

Review quality and consistency

Consistency is a sourcing question, and you need evidence for it. A great sample means little if lot 12 smells different from lot 1.

CHECKLIST

- ☐ Request a Certificate of Analysis for every lot.
- ☐ Ask for the analytical methods behind the CoA and the specification range the supplier commits to.
- ☐ Check the quality system: certifications such as FSSC22000 and ISO 9001, and the regulatory statements that apply to your markets (for example U.S. FDA, EFSA and FEMA).
- ☐ Confirm the supplier can supply the same profile at the scale you are planning.

ASK YOUR SUPPLIER

How do you standardize a profile from lot to lot?

Can I see recent CoAs and your certification documents?

REFERENCE POINTS

For food and beverage flavorings, start from the primary sources: the FEMA GRAS program (femaflavor.org/gras) and EFSA's flavourings guidance (efsa.europa.eu/en/topics/topic/flavourings).

EYBNA STANDARD

FSSC22000 and ISO 9001 certified · U.S. FDA, EFSA and FEMA compliant · OU Kosher · Non-GMO

YOUR NOTES

05

CHECK 5 OF 5

Plan meaningful testing and validation

Meaningful validation tests the finished product under real conditions, against the objective you wrote in step one. A pass on the raw ingredient does not count.

CHECKLIST

- ☐ Run sensory evaluation on the finished product with a defined panel.
- ☐ Run analytical testing to confirm which terpenes are present and at what level, at the start and at the end of shelf life.
- ☐ Run stability testing under the temperature and storage conditions of your supply chain.
- ☐ For functional goals, ask what evidence links the blend to the intended direction.

ASK YOUR SUPPLIER

What data and technical support come with the profile?

How is the work documented? Eybna's BNA™ platform pairs in-silico calculations and pathway mapping with in-vitro biological assays.

COMMON MISS

Validating once, early. Re-test at the end of shelf life, and again whenever the process, matrix or supplier lot changes.

YOUR NOTES



SUMMARY CHECKLIST

The 5 checks at a glance

CHECK	QUESTION TO ANSWER	DONE
01 Objective	What exactly must the terpenes do? Is it written as a testable sentence?	☐
02 Compatibility	Do the terpenes hold up in my matrix, format and pH?	☐
03 Volatility and processing	What survives my process, and was the blend built for it?	☐
04 Quality and consistency	Will lot 12 match lot 1? Do I have CoAs, methods and certifications?	☐
05 Testing and validation	How will I prove it works at the end of shelf life?	☐

NEXT STEP

Have a project in mind? Our R&D team can help you narrow the options.

Request samples, talk to our R&D team or read more on the Eybna science blog.

eybna.com



ABOUT EYBNA

Research-driven botanical ingredient and terpene formulation development.

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