

# OVERCOMING OFF-NOTES:

## 3 Tips to Mitigate Taste Challenges

Your consumers want the best-tasting products on the market. But in formulation, you may run into stubborn off-notes from bitterness to metallic taste, fishiness and more that hinder your product development.

In this piece, Kaylind Cook, Sr. Applications Technologist, explores how you can combat these off-notes through complementary flavors and innovative flavor technologies. Tackling these challenges doesn't have to leave an unpleasant taste in your mouth. Let's take a look at a few tips and tricks to overcome taste challenges in your product.



### 1 BASE FORMULATION CONSIDERATIONS

Consumers today are looking for added benefits in the food and drinks they choose to consume. Areas of interest include:

- Gut health
- Immunity
- Cognitive health
- Mood and beauty

Adding functional ingredients to new products often imparts unwanted off-notes and taste challenges. Off-notes can vary depending on the vendor that supplies the functional ingredient. Sweetness, saltiness, acid, and fat are all areas that can be manipulated during formulation to counteract unwanted base notes.

### 2 COMBAT WITH COMPLEMENTARY FLAVORS

Complementary flavors are flavors that deliver a pleasant eating experience when paired together. To combat base off-notes

and optimize the flavor portfolio, try pairing base off-notes with flavors that complement them.

CHALLENGE	COMPLEMENTARY FLAVOR IDEAS
Bitterness	<ul style="list-style-type: none"><li>• Chocolate (Dark Chocolate, Truffle, Red Velvet Cake)</li><li>• Citrus (Grapefruit, Lemon, Lime, Orange)</li><li>• Coffee (Espresso, Mocha, Latte, Macchiato)</li></ul>
Vegetative/Plant Protein	<ul style="list-style-type: none"><li>• Brown Spice (Cinnamon Roll, Chai, Pumpkin Spice, Maple)</li><li>• Berry (Blueberry, Blackberry, Raspberry, Cooked Dark Berry)</li><li>• Nutty (Peanut/ Peanut Butter, Hazelnut, Almond)</li><li>• Mint (Dark Chocolate Mint, White Chocolate Peppermint, Mixed Berry Lavender Mint)</li><li>• Tropical Fruit (Mango, Pineapple)</li></ul>
Dairy/Whey Protein	<ul style="list-style-type: none"><li>• Indulgent (Cake Batter, Cheesecake, Truffle)</li><li>• Sweet Brown (Caramel, Coconut, Butter Cookie/Graham Cracker)</li></ul>

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CHALLENGE	COMPLEMENTARY FLAVOR IDEAS
Fishy	<ul style="list-style-type: none"> <li>Citrus (Lemon, Grapefruit, Blood Orange)</li> <li>Brown (Coffee, Caramel, Maple Brown Butter)</li> </ul>
Metallic	<ul style="list-style-type: none"> <li>Umami (Mushroom, Cheese, Bacon)</li> <li>Nutty (Peanut/ Peanut Butter, Almond, Cashew, Coconut)</li> </ul>
Vitamin/Mineral	<ul style="list-style-type: none"> <li>Sour (Citrus, Green Apple, Pineapple)</li> <li>Creamy (Ice Cream, Berries &amp; Cream, Key Lime Pie)</li> <li>Fruit (Mixed Berry, Raspberry, Kiwi, Fruit Punch)</li> </ul>
Botanical/Herbal	<ul style="list-style-type: none"> <li>Dark Berries/ Stone Fruit (Cherry, Blackberry, Raspberry)</li> <li>Florals (Rose, Lavender, Hibiscus, Elderflower)</li> <li>Cocktail &amp; Tea Inspired (Aperol Spritz, Peach Ginger Tea, Matcha Green Tea)</li> </ul>

### 3 TACKLE WITH FLAVOR TECHNOLOGIES

There is no one size fits all flavor technology solution, but your flavor supplier can help you to create an optimized solution for your product that best suits your needs. Work closely with your regulatory team and your flavor supplier when working with flavors that contain FMPs. When incorporating flavors that contain FMPs, it is important to

note they often have upper usage limits. Meaning, if they are used below the Max Usage in your finished product formula they can be classified as natural flavor. If used above upper usage limit they may be broken out on your ingredient deck and require packaging updates.

FLAVOR TECHNOLOGY	USE CASES
Sweetness Modifier/ Enhancer	Used to add sweetness to formulas. They can have FMPs (Flavors with Modifying Properties). Flavors with FMPs have regulatory upper limits, so it is important to work closely with your flavor supplier and flavor house to meet your label needs.
Bitterness Masker/Blocker	Used to mask bitterness. Bitterness is often the most difficult to mask because humans have 25 different bitter receptors. Many factors influence an individual's sensitivity to bitterness (i.e., genetics, age, environment).
Mouthfeel Enhancer	Used to build mouthfeel into base. Can add creaminess and fatty notes and be used to help reduce graininess/ chalky texture that often comes with protein powders.
Protein Masker	Used to mask protein off-notes. Protein off-notes can be source and vendor specific. Protein powders are complex, and it is important to work with your flavor supplier to develop a customized masker for your base's specific off-notes.
Vitamin Masker	Used to mask vitamin blends in fortified bases. Maskers are often customized to specific off-notes for vitamin blends. Try adding sweetness, saltiness or sourness to cover up unwanted base notes. FMPs can also be used to mask off-notes.

## DEALING WITH STUBBORN TASTE CHALLENGES?

### OUR EXPERTS CAN HELP.



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