



2,5-Dimethyl 3-(2H)-furanone

This hidden gem works well in fruit categories and adds interest to any heated flavor category.

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These raw material articles generally fall into two main categories: familiar raw materials that have unexpected uses and unfamiliar raw materials that seem to me to have been insufficiently appreciated. 2,5-Dimethyl 3-(2H)-furanone (FEMA# 4101, CAS# 14400-67-0) definitely fits into the latter category. For some years, new FEMA GRAS lists have been peppered with so many humdrum additions that it is easy to miss the occasional gem.

The relatively limited number of candy floss/burnt sugar aroma ingredients all have a common characteristic in that they seem to work unusually well when they are used in combination with one another. 2,5-Dimethyl 3-(2H)-furanone makes a very worthwhile contribution to this ubiquitous repertoire, and works especially well when used in combinations with other similar ingredients. This molecule has an obvious fruity, candy floss aroma that is well-suited to many fruit profiles, but it also has a burnt sugar element that performs interestingly in any heated flavor category.

The useful ability to sit astride fruit and brown categories with equal comfort is not the only distinguishing characteristic of this raw material. It is also much more volatile than the other members of this useful odor family, and hence has a unique ability to add top note impact and lift to flavors.

The dose rates given throughout this article are the levels suggested for use in flavors that are intended to be dosed at 0.05% in a ready-to-drink beverage or in a simple bouillon.

Tropical Flavors

Pineapple: Pineapple flavors can easily become thin and overreliant on bright aliphatic ester top notes. 2,5-Dimethyl 3-(2H)-furanone adds welcome

complexity and realism to this top note character at around 200 ppm in fresh pineapple flavors.

Passion fruit: The same effect is similarly very useful in passion fruit flavors, ameliorating aliphatic esters, but the ideal level of addition is significantly lower, around 50 ppm.

Mango: In mango flavors, the effect is a little different but equally useful. Realistic mango flavors can be easily dominated by the somewhat harsh mango skin notes of ingredients such as myrcene. 2,5-Dimethyl 3-(2H)-furanone moderates and softens this top note at levels in the region of 50 ppm.

Berry Flavors

Strawberry: 2,5-Dimethyl 3-(2H)-furanone works very effectively in combination with other candy floss notes in strawberry flavors, adding taste effects and odor impact. The ideal level depends on the profile of the strawberry flavor, but 100 ppm is a good starting point, with higher levels in wild strawberry profiles.

Raspberry: The effect in raspberry flavors is similar, but slightly subdued, with 50 ppm being the most effective level of addition.

Blackberry: Unsurprisingly, 50 ppm also works very well in blackberry and bramble flavors, adding brightness and impact.

Other Fruit Flavors

Peach: 2,5-Dimethyl 3-(2H)-furanone makes an effective addition to fresh peach flavors, adding lift and freshness at levels of addition in the region of 40 ppm.

Apricot: The effect of this ingredient is very similar in apricot flavors, which can sometimes tend to be rather heavy, adding a welcome brightness at 30 ppm.



Brown Flavors

Molasses: 2,5-Dimethyl 3-(2H)-furanone contributes magnificently to the top note character of molasses flavors at 200 ppm. Much lower levels are more appropriate for milder brown sugar flavors, down to nearer 50 ppm.

Coffee: Quite high levels of this ingredient are very effective in highly roasted flavors, around 150 ppm. Lower levels, down to 40 ppm, are better in milder flavors.

Licorice: Licorice flavors often need a little added complexity and interest. A level of 100 ppm of 2,5-dimethyl 3-(2H)-furanone is a good starting point.

Chocolate: The best level of use in chocolate flavors also depends on the style of flavor, ranging from a high of 100 ppm in dark chocolate profiles down to a low of 20 ppm in white chocolate profiles.

Vanilla: Realistic vanilla bean flavors are necessarily highly complex, and 2,5-dimethyl 3-(2H)-furanone can add authenticity and lift at around 50 ppm.

Caramel: The burnt sugar top note of caramel flavors can be achieved by the addition of around 40 ppm of this furanone.

Tea: This chemical might be expected to work better in black tea flavors than in green tea flavors, but in reality it makes a good contribution to both profiles at 40 ppm.

Malt: Malt and malted milk flavors can be lifted significantly by a modest addition, around 20 ppm, of 2,5-dimethyl 3-(2H)-furanone.

Savory Flavors

Potato: All the many types of cooked potato flavors benefit from the addition of this ingredient, but it is especially applicable to fried potato flavors. Levels vary considerably, up to 100 ppm in fried potato flavors.

Beef: Surprisingly, this ingredient is much better suited to roast beef, BBQ beef and even beef fat flavors than stewed beef flavors. Fifty ppm is a good place to start.

Chicken: Similar comments apply to chicken flavors. The ideal level of 2,5-dimethyl 3-(2H)-furanone varies, but around 30 ppm is ideal.

Pork, ham and bacon: Thirty ppm of this ingredient is also ideal in most pork and ham flavors, with slightly higher levels working well in bacon flavors.

Seafood: Slightly lower levels, around 20 ppm, of 2,5-dimethyl 3-(2H)-furanone are ideal in all fish, seafood and even seaweed flavors.

Fried onion and fried garlic: Twenty ppm is also the ideal level in all types of cooked onion and garlic flavors, especially those intending to reproduce a fried or toasted note.

Dairy Flavors

Butter: This ingredient is not exactly helpful in fresh butter flavors, but it adds a great toasted note to cooked and melted butter flavors at levels of addition around 100 ppm.

Condensed milk and dulce de leche: A similarly attractive toasted note is imparted to condensed milk and other cooked milk flavors at around 100 ppm.

Other Flavors

Bread: The effect of 2,5-dimethyl 3-(2H)-furanone in bread flavors is to enhance the tasty bread crust character. A level of 50 ppm is a good starting point.

Rice: Cooked rice flavors are often overly simplistic, and this ingredient is helpful when used at 50 ppm for

recreating the criminally attractive character of rice that has stuck slightly to the pan during cooking.

Cooked tomato: Cooked tomato and sun dried tomato flavors can be noticeably enhanced and lifted by the addition of 50 ppm of 2,5-dimethyl 3-(2H)-furanone.

Cooked bell pepper: In a very similar way, the character of roasted and fried bell pepper and chili flavors is brightened by a 50 ppm addition.

Soy sauce: 2,5-Dimethyl 3-(2H)-furanone is obviously not the primary

furanone character in soy sauce flavors, but it provides a very soft, attractive, ancillary note at around 20 ppm.

Sesame seed: The aromatic top note of toasted sesame seed and sesame seed oil flavors is sharpened by the addition of this chemical at 20 ppm.

Toasted corn: The effect in toasted corn flavors is also subtle, but the toasted character is noticeably enhanced by the addition of 10 ppm of this ingredient.

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