



2-Methyltetrahydrofuran-3-one

This meaty ingredient creates a good middle note in almost any cooked flavor category.

John Wright; johnwrightflavorist@gmail.com

All cooked flavors present creative challenges, and this is especially true of meat flavors. Complexity is part of the problem because all cooked flavors are intrinsically much more complex than their uncooked brethren, although the biggest challenge is often the lack of a natural balance within the flavor. All too often, meat flavors are hollowed-out caricatures of the real thing, bright, often fiercely pungent sulfur top notes underpinned by a slothfully heavy lactonic base. The missing middle notes are always the hardest part to recreate. 2-Methyltetrahydrofuran-3-one (FEMA# 3373, CAS# 3188-00-9) has a deceptively light and simple aroma, distinctly like fresh-baked bread, with nutty, brown and almost ethereal undertones. However, it can be used to good effect as a middle note in almost any cooked flavor category. Higher levels of this ingredient tend to confer a distinctly more roasted profile and blend especially well with other roasted and meaty notes such as pyrazines and 2-methyl-3-tetrahydrofuranthiol (FEMA# 3787, CAS# 57124-87-5), but lower levels can find many different avenues of use.

The dose rates given below are the levels of 2-methyltetrahydrofuran-3-one to be used in flavors that are intended to be dosed at 0.05% in a ready-to-drink taster, beverage or bouillon.

Meat and Fish Flavors

Roast beef: This category is far and away the most obvious use of this ingredient, although it's easy to add far too much of this interesting but unassertive raw material. Five thousand ppm is a good starting point in beef flavors, perhaps a



little higher in very roasted flavors and a little lower in more stewed-style flavors

Pork and ham: 2-Methyltetrahydrofuran-3-one works almost as well in pork flavors as in beef. The levels vary, but 2,000 ppm is very helpful.

Liver: A level of 2,000 ppm also rounds out liver flavors very effectively. Higher levels can be used, but they tend to push the profile toward beef

Grill: Grill notes can be applied to a wide range of meat, seafood and vegetable flavors, and this ingredient works well at 500 ppm.

Chicken: Lower levels work distinctly better in chicken flavors; in most cases, levels around 300 ppm are best. Somewhat higher levels can be used if a very roasted note is required.

Whitefish and seafood: Only subtle levels work well in fish and seafood flavors, ranging from 50–150 ppm

Brown Flavors

Coffee: If beef is the most obvious flavor use of this ingredient, then coffee may well represent its most abundant source in nature. Indeed, one of its trivial names is “coffee furanone.” Like beef flavors, coffee flavor almost invariably suffer badly from being hollowed out. Quite high levels

of 2-methyltetrahydrofuran-3-one, in the region of 2,000 ppm, work very well.

Chocolate: The hollowed-out problem is much less in evidence in cocoa and chocolate flavors, but 2,000 ppm also works well in this category, adding realism and complexity.

Brown sugar: The ideal level in brown sugar flavors depends very much on the type of profile that is required. At one extreme, molasses flavors can usefully accommodate 2,000 ppm. At the other extreme, 200 ppm works well in golden syrup flavors

Honey: Honey flavors are often hollowed out, with light fragrant top notes covering a cloying, sweet base and not much in between. A level of 1,000 ppm of this raw material helps to fill out the profile, without adding overtly cooked notes.

Licorice: Licorice flavors can often be very one-dimensional, and the addition of 1,000 ppm of this ingredient rounds out the profile and adds realism

Malt: Moderate levels, around 500 ppm, work well in malt and malted milk flavors, rounding out the profile and adding realism.

Caramel: More subtle levels work best in caramel flavors, depending on the level of brown notes required. A level of

200 ppm is a good starting point.

Tea: 2-Methyltetrahydrofuran-3-one can find a place in green tea flavors, but it is more useful in black and red tea flavors at levels around 100 ppm

Nut Flavors

Hazelnut: This component is very useful in all roasted nut flavors and performs best at a moderate level of addition, around 200 ppm.

Peanut: A level of 200 ppm also works well in roasted peanut and peanut butter flavors, adding welcome complexity.

Almond and pistachio: Slightly lower levels are preferable in roasted almond and pistachio flavors. A level of 100 ppm is ideal.

Cooked Vegetable Flavors

Roasted bell pepper: This ingredient fits perfectly into the intriguing profile of roasted bell pepper flavors at levels of addition in the region of 500 ppm.

French fries: In the same way, an addition of around 300 ppm to french-fry-type flavors brings great authenticity. Higher levels may be needed if the flavor is subjected to processes involving a high level of heating.

Fried onion: Once again, this ingredient offers a highly beneficial effect at levels of addition ranging from 200–400 ppm.

Toasted corn: The effect in toasted corn flavors is similarly spectacular, but the level of addition in the flavor should be lower, around 200 ppm.

Dried mushroom: Dried mushroom flavors usually target cep (porcini)-type mushrooms, and a good level of addition for this type of flavor is 100 ppm. The same level also works well if the target is dried shiitake mushrooms.

Alcoholic Flavors

Rum: 2-Methyltetrahydrofuran-3-one rounds out rum flavors very nicely. Levels of addition vary from 200 ppm in light rum flavors to 1,000 ppm in dark rum flavors

Whiskey: This chemical is effective in virtually all spirit flavors but, second to rum, it works best in whiskey flavors. A level of 100 ppm is a good level to add.

Dark beer: Similarly, some level of this ingredient can be useful in all beer flavors, but it is especially effective in dark beer flavors at around 100 ppm

Dairy Flavors

Toasted cheese: 2-Methyltetrahydrofuran-3-one adds attractive realism to toasted cheddar cheese-type flavors at levels up to 1,000 ppm.

Cooked butter: Five hundred ppm is an ideal level of addition in cooked butter and ghee flavors, rounding out the profile and adding depth

Condensed milk: The best level for use in condensed milk and dulce de leche flavors varies with the degree of cooked effect required, but 500 ppm is a good starting point.

Other Flavors

Soya sauce: This ingredient adds a useful, but subtle, cooked character to soya sauce flavors at 100 ppm

Watermelon: Most watermelon flavors bear only a passing resemblance to the real fruit and this ingredient would be wasted in such a “tutti frutti” environment. Nevertheless, it can be very helpful at around 50 ppm in realistic flavors

To purchase a copy of this article or others, visit www.PerfumerFlavorist.com/magazine. 