laevo-Rose Oxide

This floral note is essential in lychee flavors and adds realism to other flavor types.

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Laevo-Rose oxide (FEMA# 3236, CAS# 3033-23-6) is the universally used common name of tetrahydro 4-methyl 2(2-methyl propen-1-yl) pyranone, a very challenging flavor ingredient. On one hand, it is clearly unique and irreplaceable, but on the other, it is frustratingly difficult to define precisely in odor terms. It is ostensibly one of the floral notes, and is a firm favorite of mine; I am often accused of making flavors too floral. It is most frequently described as having a rose profile, although, in my opinion, the character also has an almost metallic aspect of unripe mangoes and might be better described in floral terms as geranium rather than rose. It is obviously very important in rose flavor compositions, but the main value is in lychee flavors, which would be quite challenging to formulate without it. In addition to these rose-related profiles, laevo-rose oxide can work well in a wide range of other flavor types, adding complexity and elusive realism.

Tropical Flavors

Lychee: Lychee flavors are usually dominated by a rose note, but this is offset by the drier character of laevo-rose oxide to a much greater degree than would ever be acceptable in conventional rose flavors. A level of 200 ppm is a good place to start to achieve a realistic lychee flavor.

Mango: This ingredient has an obvious affinity for mango flavors. It can help to achieve a slightly unripe, mango skin note but it should not be the principal contributor to that note. The best level of addition is 100 ppm. At this level, the result is greatly enhanced authenticity rather than an obvious impression of mango skin.

Passion fruit: The effect of laevo-rose oxide in passion fruit flavors is similar—increased complexity and enhanced realism. A level of 50 ppm is a good starting level.

Pineapple: Subtler levels are better in pineapple flavors, and a pleasant increase in authenticity is achieved by a modest addition of only 10 ppm.

Other Fruit Flavors

Peach and apricot: A level of 50 ppm works well in both peach and apricot flavors, adding a subtle skin character and enhanced authenticity.

Blackcurrant: Blackcurrant flavors also benefit greatly from low levels of laevo-rose oxide, around 20 ppm. This ingredient works especially when if a realistic profile is desired, less well if the character is strongly buchu-based.

Cranberry: laevo-Rose oxide gives a very helpful lift to cranberry flavors and contributes subtly to the natural, fresh skin notes. Levels vary depending on the profile of the flavor, but 20 ppm is a reasonable starting point.

Cherry: The same is true of cherry flavors, where a similar level of 20 ppm is ideal. Authentic flavor profiles are enhanced by this ingredient, but it has little effect in profiles that overemphasize benzaldehyde.

Grape: Twenty ppm also works well in many different types of grape flavors. The effect is noticeable in Concord grape flavors, but it is even more effective in the subtler varieties such as Muscat.

Grapefruit: Small additions of this ingredient can help in virtually all citrus flavors, but this is particularly true of grapefruit flavors. Levels around 20 ppm work well in most flavor styles, with slightly higher levels acceptable in deliberately "pithy" flavors.

Lemon: After grapefruit, this ingredient works almost as well in lemon flavors. All that is needed is a modest addition of around 10 ppm, but the effects are quite noticeable, accentuating the peel character.

Apple: Ten ppm of rose oxide is particularly helpful in green apple flavors. It gives a hint of unripeness and slightly enhances the skin character.

Watermelon: Many watermelon flavors have only a passing resemblance

to the real fruit but, if a natural profile is desired, laevo-rose oxide can brighten and add realism at around 10 ppm.

Pear: Even lower levels, around 5 ppm, work best in the subtle profile of pear flavors, adding a pleasant hint of pear skin.

Raspberry: Similar additions in the region of 5 ppm exert a small but beneficial effect in raspberry flavors.

Floral Flavors

Rose: As the name would suggest, this ingredient is extremely useful in rose flavors. This is not a big flavor category in most countries, but the addition of around 300 ppm of rose oxide can bring a cheap synthetic rose flavor much more sharply into focus.

Chrysanthemum: One hundred ppm of this ingredient is a better level for realistic chrysanthemum flavors, adding lift and floral character in equal measure to a flavor category that can often seem too earthy and lacking in floral notes.

Jasmine: laevo-Rose oxide may not seem a natural fit in jasmine flavors, but the addition of around 50 ppm of this chemical does brighten even the most heavy and cloying flavor and help bring it to life.

Elderflower: It is also useful in elderflower flavors, although at much lower levels. Only 20 ppm is required to add realism to this ethereal and challenging flavor.

Other Flavors

Black tea: laevo-Rose oxide can act as a very helpful modifier of the profiles of linalool and linalool oxide in black tea flavors, adding a more natural level of complexity and extra lift. Levels can vary, but 100 ppm is a good starting point.

Green tea: Even though the character of green tea is quite different from black tea, similar levels of rose oxide, around 100 ppm, work equally well, brightening the flavor and increasing the floral character.

Honey: This chemical works best in honey flavors that have a distinct floral character, such as lavender honey. Levels of use can vary radically depending on the profile of the flavor, but 50 ppm is typical.

Mastic: Mastic, with its unusual and strongly pine-tinged flavor, is of severely restricted popularity outside of a small group of countries clustered around the Mediterranean sea. About 50 ppm of laevo-rose oxide can be very helpful in making synthetic mastic flavors much less one-dimensional.

Ginger: Ginger flavors are notoriously difficult to formulate synthetically, and many natural ginger extracts and oils have a rather flat "processed" character. The addition of about 20 ppm of this ingredient adds freshness and life.

Cream soda: Many cream sodas have a noticeable element of rose in their overall profile, and modest levels of laevo-rose oxide, in the region of 20 ppm, can help to add realism to this note. In addition, they can help brighten a typically heavy flavor category.