

Notes on Solubility of Flavors

Many flavors are built by combining both water-soluble and oil-soluble flavoring ingredients. LorAnn specification sheets indicate whether or not a flavor is soluble in water with a simple statement of “soluble” or “insoluble”. Unfortunately, these two statements oversimplify the fact that flavors have different degrees of solubility and that they may in fact work well in a variety of applications. There are many factors that can affect the proper dispersion of flavor into the finished application.

Those flavors marked “insoluble in water” work in flavoring chocolates or other applications where the presence of water or moisture can create issues. They also blend well into massage oils, balms and other personal care products. Pure essential oils are all insoluble in water. Flavors that are insoluble in water are not always ideal for flavoring meringue or royal icing as these can be affected by the addition of an oil.

Flavors identified as “soluble in water” will generally mix easily into beverages, dairy and other baking applications. These flavors are often created by combining oil soluble ingredients such as essential oils and other aroma constituents into water-soluble carriers that may include alcohol, propylene glycol, glycerin or water. *In most cases*, flavors marked as soluble in water may not incorporate evenly in oil-based products and can cause chocolates to seize or thicken.

In reality, flavors have different degrees of solubility and that they may in fact work in a variety of applications. Many applications can support the use of either oil or water-soluble flavors (baking and hard candy making are two good examples) and some of LorAnn’s water-soluble flavors might even be suitable in an oil system (until too much of the flavor is added). An example would be some of LorAnn’s Super-Strength, water-soluble, flavors. Many of these can be used in coatings, chocolates and other oil-based applications since very little of the flavor is required and the solvent systems do not promote undesired effects.

Suggestion to increase the solubility of the flavor if you are having difficulty would be to:

- Decrease the level of flavor being used (too much can cause chocolates to seize)
- Increase your mixing time or level of mixing if possible
- Slightly increase the temperature of the application matrix when mixing in the flavor
- Consider adding an emulsifier, such as lecithin, xanthan gum, or gum arabic