MARCUS OIL & CHEMICAL

Marcus Wax Applications In Fruit Coatings

Marcus wax emulsions to protect and preserve fruit

Fruit Coating Wax

Many fruit produce a natural wax coating that aids in protecting against dehydration, pests and physical damage.

Today's use of pesticides and other chemicals on fruit often necessitates their removal by washing. In this process the natural protective wax coating is often removed due to the use of surfactants and other cleaning compounds .

To restore the useful properties that wax renders to fruit, it is advantageous to reapply a coating of wax to the fruit.

Marcus Waxes*, which are synthetic polyethylene waxes, are particularly well suited for use in fruit coating applications due to their high melt point, good hardness and high gloss upon drying.*

Application of fruit coating wax can pay for itself through increased yields and reduced spoilage.

***Regulatory and labeling requirements should be consulted regarding the use of polyethylene wax for your particular application. More information on regulatory status can be found at* www.marcusoil.com**

Fruit coatings are formulated to provide properties similar to those of natural coatings. This means they should provide good moisture barrier properties - allowing the fruit to 'breathe' but retarding moisture release and wilting. The coating must also be aesthetically pleasing for the consumer and not allow for undesirable properties such as tack that might cause the fruit to block or pick up dirt. Coatings must also comply with government regulations that vary from region to

A good fruit coating wax will be hard and high melting to prevent blocking of the coating. This is especially important where high temperatures may be experienced. The wax should also have good gloss properties to allow for an aesthetically appealing coating.

Application of fruit coatings is typically with the use of specialty equipment that either dips or sprays the coating on the fruit. It is important to provide an even coating to the fruit during this process. The coating must also be allowed to dry thoroughly. Application rates vary but are usually in the range of 1 gallon wax to 10-12,000 lb fruit.

Waxes used in fruit coatings are hydrophobic. They are usually converted into a water based form via emulsification prior to their application. Good emulsification results in small particle size wax that when applied on the fruit provides a coating of uniform thickness that will completely envelope the fruit. A suitable fungicide is also often used to retard bacterial growth in the emulsion and application system.

Waxes are usually used in combination with shellac to yield a fruit coating that balances permeability, anti-block, cost and other

Marcus M3400T with an acid number of 16 (mgKOH/g), drop point of 112C and hardness of 4 (dmm) is a suitable wax for emulsification as a fruit coating when synthetic waxes are allowed. Anionic emulsions are typically used. A starting point formulation is as follows:

	Parts
M3400T	40
Oleic Acid	10
Amine (28% Ammonia)	8
Water	150
Antifoam	as needed

The above formulation should be conducted under a pressure emulsification technique (see www.marcusoil.com for more information on emulsification). Other suitable amines can also be used. The above emulsion can be combined with a shellac dispersion to provide a final coating formulation.

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