Fresh Facts for Industry: Protective Coatings

Protective edible coatings and waxes are applied to fresh fruits and vegetables as a method of preservation during post-harvest treatment. Protective coatings have been in use since the 12th Century in China. However, it was not until 1922 that the waxing of produce was invented, and the first commercial application of edible coatings were applied to product.

Fresh fruits and vegetables that may be coated with protective coatings include:

- Apples
- Avocados
- Bell Peppers
- Cherries
- Eggplants
- Field Cucumbers
- Grapefruit
- Lemons
- Limes
- Lychee Fruit
- Melons
- Nectarines
- Oranges
- Parsnips
- Passion Fruit
- Peaches
- Pears
- Pineapple
- Pumpkins
- Rutabagas
- Squash
- Sweet Potatoes
- Tomatoes
- Turnips

Why is it Important?

As fruits and vegetables grow, they develop a natural coating called a *cuticle,* which is like a waxy outer layer. Once produce is harvested, it is sent to a packing house where it is often washed, a process which removes the cuticle. To replace this cuticle, a protective coating is applied to the produce.

Protective edible coatings help to slow dehydration and decay, while retaining moisture and increasing shelf life; they may also improve appearance by offering an attractive sheen.

What You Need to Know

There are numerous types of protective coatings that can be used on fresh fruits and vegetables. In Canada, components of fruit and vegetable coatings are not regulated as food additives, with the exceptions of mineral oil, paraffin wax and petrolatum, which are regulated as food additives under the *Food and Drugs Act* and the *Food and Drug Regulations* (the regulations set the allowable quantity limits for these protective coatings). In the U.S., there may be some wax and coating products that are Generally Recognized as Safe (GRAS) for use on food; however, these products must comply with Canadian regulations and be acceptable for use in Canada if they are to be imported.

Waxes are indigestible and will pass through the body without breaking down or being absorbed. If you choose not to eat a protective coating, even though it is safe to do so, buy un-waxed produce or peel the fruit or vegetable. Wax is not water-soluble and does not wash off. Waxes may turn white on the surface of produce if they have been subjected to excessive heat and/or moisture. This affects only the appearance of the produce; it does not affect the quality or food safety.

Priority allergens are a consideration when using protective coatings. The Canadian Food Inspection Agency (CFIA) reminds the industry to be aware of the most common food allergens, and that these items and any proteins derived from them **should not be used as components** in protective edible coatings. Under the *Food and Drugs Act,* coatings manufacturers and producers have an obligation to ensure their products will not pose health hazards to consumers. Information on the composition of these products may be submitted voluntarily to Health Canada for review.

The *Food and Drug Regulations* prescribe labelling requirements for food allergen, gluten sources and sulphites**.** These regulations require that manufacturers list any exempted components of ingredients if they contain food allergens, gluten sources, or sulphites. All previous requirements for component and sulphite declaration stand.

The regulatory requirements enhance the labelling of **prepackaged products.** If a food allergen[i], gluten source[ii], or sulphites above 10 ppm are present as a result of the use of a wax coating compound or its components in a prepackaged fresh fruit or vegetable that requires a label, they must be shown on the label of the product – either in the list of ingredients or in the "Contains" statement, using prescribed names and manner prescribed in the *Food and Drug Regulations(FDR)*.

- **Note:** these requirements would not apply to prepackaged fresh fruits or vegetables that are packaged in a wrapper or confining band of less than ½ inch in width, or in a protective wrapper, or a protective bag, that is transparent and on which no information is shown other than a price, bar code, number code, environmental statement or product treatment symbol since these products are exempt from carrying a label (*Food and Drug Regulations,* (B.01.003 (1)(a)(ii)), and *Safe Food for Canadians Regulations (SFCR), (*213(b) and (c)).

In addition, the common names for starches, modified starches, hydrolyzed plant protein and lecithin must be shown to provide information regarding the source from which these ingredients are derived (for example, wheat starch).

CPMA Contact and Other Resources

For more information, please contact Vincent Huston at vhuston@cpma.ca or use the following resources:

- *Canadian Food and Drug Regulations*
- *Safe Food for Canadians Regulations*
- Canadian Food Inspection Agency – Labelling Requirements for Fresh Fruits and Vegetables
- Canadian Food Inspection Agency – Allergen Labelling Tips for Food Industry
- ARCHIVED: Canadian Food Inspection Agency – Undeclared Allergens and Acceptability of Post Harvest Protective Coating Treatments
- Health Canada – Allergens and gluten sources labelling
- Health Canada – List of Permitted Food Additives with Other Accepted Uses
- Health Canada – Information Requirements For Food Packaging Submissions

[i] In Canada, the ten priority food allergens are: peanuts, tree nuts (includes almonds, Brazil nuts, cashews, hazelnuts, macadamia nuts, pecans, pine nuts, pistachios or walnuts), sesame seeds, milk, eggs, fish (including crustaceans and shellfish), soy, wheat and triticale, mustard seeds and sulphites.

[ii] Gluten sources need to be declared when a food contains gluten protein, modified gluten protein, or gluten protein fractions from barley, oats, rye, triticale or wheat (or a hybridized strain of any of these cereals).