

## Executive Summary

Apeel Sciences is applying to amend Schedule 15 of the Australia New Zealand Food Standards Code (“Code”), Substances that may be used as food additives, to add mono- and diglycerides of fatty acids (INS 471) as a permitted food additive with the technical function of glazing agent at a maximum permitted level (MPL) of “GMP” in the Food Category (FC) 4.1.2 (Surface treated fruits and vegetables).

Fresh fruits and vegetables undergo many physical and physiological changes during postharvest storage and handling, including loss of moisture, tissue softening (due to ripening), decrease in organic acid levels, production and losses of volatile flavor compounds, and breakdown of cell materials due to respiration. Edible films and coatings, such as wax on various fruits, have been used by commercial growers for nearly a century to prevent loss of moisture and to create a shiny fruit surface for aesthetic purposes.<sup>1</sup> However, not all fruits and vegetables are capable of withstanding the harsh process by which traditional waxes or resins, such as carnauba wax and shellac, are applied. The process often involves movement across a rough brush-bed surface and a considerable amount of heat to dry or “set” the wax or resin on the surface of the produce. Berries, for instance, are too delicate for the application of these waxes or resins.

On the contrary, edible coatings formulated with INS 471, applied using a variety of different means, have been demonstrated to increase the postharvest shelf life of more than 30 categories of fruits and vegetables, including those with edible and non-edible peels. Given the beneficial properties of mono- and diglycerides, Apeel Sciences intends to use this edible coating material as a glazing agent that covers the surface of fresh fruit and vegetables to help reduce moisture loss and oxidation.

Mono- and diglycerides have an extensive history of safe use in a variety of foods and are allowed for use as a glazing agent on fresh fruits and vegetables in several countries and regions, including Canada, Chile, China, Colombia, Japan, Mexico, Peru, and the United States, and are allowed on certain fruits in the European Union. JECFA established an acceptable daily intake (ADI) of “not limited” in 1974,<sup>2</sup> and an EFSA Panel concluded in its 2017 re-evaluation of mono- and diglycerides that there was no safety concern for the reported uses and use levels.<sup>3</sup> The Australia New Zealand Food Standards Code currently permits mono- and diglycerides at levels of “GMP” on several foods, including certain milk products, edible oils, chocolate, processed cereals, flour products, breads, among others. Notably, mono- and diglycerides are also permitted under the Code in infant formula products and food for infants at levels of 4,000 mg/L and 5,000 mg/kg, respectively.

The use of mono- and diglycerides as a glazing agent extends the quality and postharvest shelf life of fruits and vegetables, providing benefits across the supply chain to growers, suppliers, importers, and retailers, ultimately giving consumers more time to consume their produce after purchase, reducing food waste from farm to fork. Mono- and diglyceride coatings can also reduce the reliance on cold-chain storage and transportation systems that are currently necessary across the supply chain for a variety of harvested crops. Additionally, increased shelf life enables growers and producers to access new markets that were previously unavailable due to long transportation times or inadequate or inaccessible infrastructure, opening new trade routes and introducing consumers to exotic fruits and vegetables that are not commonly grown in their local market and year-round availability of seasonal crops.

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<sup>1</sup> Dhall, 2013.

<sup>2</sup> WHO Technical Report Series, 1974

<sup>3</sup> EFSA Panel on Food Additives and Nutrient Sources added to Food, 2017a.