EFSA Publishes Safety Assessment of Silver Nanoparticles Intended to Be Used in Plastics

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The European Food Safety Authority (EFSA) published a Scientific Opinion entitled “Safety assessment of the substance silver nanoparticles for use in food contact materials.” The EFSA Panel on Food Contact Materials, Enzymes and Processing Aids
(CEP) assessed the safety of the additive silver nanoparticles intended to be used in plastics. All the silver particles were in the size range of 1-100 nanometers (nm), with about 15 nm mean diameter and 99% by number of particles below 20 nm. The abstract states that the additive “is intended to be used as a surface biocide at up to 0.025% w/w in non-polar plastics for contact with a wide variety of foods, times, temperatures and food contact surface/mass of food ratios.” According to the abstract, “[t]he data and information on theoretical considerations, on specific migration and abrasion tests show that, under the intended and tested conditions of uses, the silver nanoparticles stay embedded in the polymer, do not migrate and resist release by abrasion, thus, do not give rise to exposure via food and to toxicological concern.” The abstract notes that there is migration of silver in soluble ionic form up to 6 microgram (μg) silver per kilogram (kg) food from the surface of the additive particles, which is below the group restriction of 50 μg silver/kg food proposed by the Scientific Panel on Food Additives, Flavorings, Processing Aids and Materials in Contact with Food in 2004 and would lead to a maximum exposure from food contact materials (FCM) that would be below the acceptable daily intake (ADI) of 0.9 μg silver ions/kg body weight (bw) per day established by the European Chemicals Agency (ECHA). Therefore, the abstract states, “the Panel concluded that the substance does not raise safety concern for the consumer if used as an additive at up to 0.025% w/w in polymers, such as polyolefins, polyesters and styrenics, that do not swell in contact with aqueous foods and food simulants. The Panel noted, however, that exposure to silver from other sources of dietary exposure may exceed the ADI set by ECHA.”

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