



David Tennant

Scientific Adviser,
Food Chemical Risk Analysis

Risk management measures to control mineral hydrocarbons presenting a potential risk to consumers need to be based on realistic and relevant estimates of exposure. Risk management also needs to reflect differences between hydrocarbons occurring in food as a result of intended uses, unintended uses and the presence of naturally occurring hydrocarbons in food.

In 2004, Concawe and EWF reported the results from a project to determine realistic exposures to hydrocarbons in food¹. The project included a usage survey of food grade oils and waxes, information about concentrations of hydrocarbons in foods and an intake estimate based on UK adults and children. If the proportion of foods that might contain MOSH was taken into consideration, then intakes ranged up to 0.6 mg/kg bw/day for children. In contrast potential intakes of hydrocarbons from natural sources, in particular natural waxes on fruit, could be as much as 2.5 mg/kg bw for children.

The EFSA call for scientific data on mineral oil hydrocarbons in food in 2010². Invited data providers were to provide the range of carbon atoms and the maximum of the distribution curve. There were no recommendations on sampling strategy except to exclude "known adulteration".

This resulted in the EFSA Opinion on Mineral Oil Hydrocarbons in Food (2012)³ being based on very broad definitions and including uncertainties associated with sampling. Many of the data came from one national enforcement laboratory where the selection of many samples was targeted and most of the data was pre-2010.

Following the EFSA Opinion, in 2017 the European Commission published recommendations⁴ on monitoring mineral oil hydrocarbons in food. The recommendations stated that where MOH are detected in food, Member States should carry out further investigations in the food business establishments in order to determine the possible source or sources.

The current Concawe/EWF project on exposure mapping is designed to review available literature and consult with food industry to identify current MOH origins, usage, sources of exposure, and levels and frequencies of occurrence. The results will be uploaded into a searchable database that will allow tracking of hydrocarbons from origin to final foods. This will make it possible to establish current hydrocarbon use patterns, provide reliable occurrence data linked to hydrocarbon source: intended, unintended, natural

Mapping Exposure to hydrocarbons: Intended and not intended uses

occurrence, etc. This will in turn provide a sound basis for realistic exposure modelling to support well informed risk management.

¹ Tennant, D.R. (2004). The usage, occurrence and dietary intakes of white mineral oils and waxes in Europe. *Food and Chemical Toxicology*. Vol 42/3 pp 481-492.

²EFSA (European Food Safety Authority), 2015. Specific requirements for chemical contaminant and food additive occurrence data submission. EFSA supporting publication 2015:EN-833. 26 pp.

³EFSA Panel on Contaminants in the Food Chain (CONTAM); Scientific Opinion on Mineral Oil Hydrocarbons in Food. *EFSA Journal* 2012;10(6):2704. [185 pp.] doi:10.2903/j.efsa.2012.2704

⁴Commission Recommendation (EU) 2017/84 of 16 January 2017 on the monitoring of mineral oil hydrocarbons in food and in materials and articles intended to come into contact with food. *OJ L* 12/95, 17.1.2017.