Title: Mitigation of emerging contaminants in oils and fats

Dr. Adina Creanga, Global Quality & Food Safety Director
AAK AB, Skrivaregatan 9, 215 32 Malmö, Sweden[1]

As humans, we simply cannot live without fat. Found in every cell in the body, it is essential for structuring the cell walls and regulating important mechanisms in the body, for example, our immune system.

Vegetable oils contain essential fatty acids which are required every day at well-balanced levels since they are precursors of bioactive components and essential for the human body to function.

As vitamins: A, D, E and K, are only soluble in oils, the body is only able to absorb these in the presence of fats.

Fat is an important provider of energy and is the most energy-dense part of our diet.

As an essential component within food, vegetable oils are used for many food applications as: infant formula, plant-based food, special medical purposes. Fat makes food tastier, enhance sensory properties, give structure and functionality to food.

Beside nutrition, food safety has paramount importance for the human diet.

During the last years, health concerns were surrounding Glycidyl Esters and 3-MCPD Esters. These compounds, present in all types of oils and fats, are formed during refining process. The European Food Safety Authority concluded that Glycidyl Esters are genotoxic and 3 MCPD Esters are carcinogenic, thus mitigation of these contaminants is mandatory in the EU.

Another focus of the scientific communities is on mineral oil hydrocarbons (MOH). These are anthropic contaminants composed of two main fractions: 'Mineral oil saturated hydrocarbons' (MOSH) and 'mineral oil aromatic hydrocarbons' (MOAH). MOSH-MOAH could enter in the supply chain from many sources. While the scientific developments are still underway to determine toxicity, exposure, and analytical methodology, the industry must focus on preventive and mitigation solutions.

Keywords: Food Safety, Glycidyl Esters, 3MCPD Esters, Mineral Oil

[1] adina.creanga@aak.com, + 32 479 79 00 22