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Contaminated sunflower oil: testing labs measure up

Following the discovery of contaminated sunflower oil imported from Ukraine (April 2008), the European Commission's Joint Research Centre (JRC) has tested 55 analytical laboratories from 17 EU Member States plus Switzerland and Ukraine to determine their capability to measure levels of the contaminant – mineral oil – in sunflower oil. The test results are now available and show that around 80% of laboratories performed satisfactorily.

The contaminated sunflower oil was reported by France to the European Commission and EU Member States via the Rapid Alert System for Food and Feed (RASFF) in April 2008, and the Commission subsequently imposed restrictions on the importation of sunflower oil from Ukraine (June 2008). The JRC was asked by the Commission's Directorate General for Health and Consumers to scrutinise the capabilities of official control laboratories and industrial food laboratories to measure mineral oil in sunflower oil.

The JRC Institute for Reference Materials and Measurements (IRMM) organised the tests, in which 55 analytical laboratories from 17 EU Member States plus Switzerland and Ukraine participated. Test samples comprising both naturally-contaminated and 'spiked' sunflower oil were dispatched to the laboratories, which then had to measure these blind samples using their in-house methods of analysis. The JRC analysed the results, and determined that between 78% and 85% of the laboratories were able to measure satisfactorily, depending on the test material[1].

Reliable measurements

A European Commission Decision (2008/433/EC) prohibits the importation of sunflower oil from Ukraine unless it is accompanied by a valid certificate for the level of mineral oil present. Furthermore, the decision stipulates that even once the Ukrainian authorities put in place a control and certification system, Member States should effectively double-check the values declared in the certificate until further notice.

Following the positive assessment by the Commission's Food and Veterinary Office of the control system put in place by the Ukrainian authorities and given that the double-check controls at import did not reveal any problems with unacceptable presence of mineral oil in sunflower oil from Ukraine since July 2008, the Commission has the intention to alleviate the measures foreseen in Decision 2008/433/EC in the autumn of 2009.

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[1] The performance of the laboratories in such tests is expressed as a z-score, and a z-score between -2 and +2 is considered satisfactory.

The contaminated sunflower oil case highlights the importance of having a well-functioning measurement infrastructure for food control, to enhance confidence in measurements and promote the 'measured once, accepted everywhere' philosophy.

What is mineral oil?

Mineral oil is a by-product of the distillation of petroleum. Food may come into contact with mineral oil, such as lubricants or binding agents, during harvesting, storage, processing or packaging. However, the levels of mineral oil measured in the imported sunflower oil from Ukraine were much higher than what could be expected from atmospheric or other background sources of contamination.

Download the JRC "Proficiency test on the determination of mineral oil in sunflower oil" **report**: http://irmm.jrc.ec.europa.eu/html/publications/technical_reports/index.htm

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About JRC-IRMM

The Joint Research Centre is a Directorate-General of the European Commission providing independent scientific and technical support to European policy-making. Its Institute for Reference Materials and Measurements (IRMM) promotes a common and reliable European measurement system in support of EU policies. The prime objective of JRC-IRMM is to build confidence in the comparability of measurements by the production and dissemination of internationally accepted quality assurance tools, including reference materials, validated methods, reference measurements, inter-laboratory comparisons and training.