

Revised safe intake for 3-MCPD in vegetable oils and food

EFSA's experts have used an updated scientific approach to reassess the possible long-term adverse effects of the food processing contaminant 3-MCPD on the kidney and male fertility.

Consumption levels of 3-MCPD in food are considered safe for most consumers but there is a potential health concern among high consumers in younger age groups. In the worst case scenario, infants receiving formula only may slightly exceed the safe level.

Updated 2016 opinion

The chemical 3-monochloropropane diol (3-MCPD) and related substances called 3-MCPD esters are food processing contaminants found in some processed foods and vegetable oils, mainly palm oil. 3-MCPD and its esters are formed unintentionally in these foods, in particular during oil refining processes.

EFSA's expert panel on contaminants first assessed the [potential risks of 3-MCPD](#) in 2016 together with another food processing contaminant called glycidyl fatty acid esters (GE). EFSA concluded that GE are a concern for public health because they are genotoxic and carcinogenic, i.e. they can damage DNA and cause cancer.

The European Commission is finalising [new EU legislation](#) aimed at reducing GE levels in vegetable oils and food.

The current update is for 3-MCPD and its esters only and EFSA's previous assessment of GE has not changed.

Why has EFSA updated its assessment of 3-MCPD?

Prof Christer Hogstrand, who chaired the scientific group that developed the 2016 opinion and the update, said: "EFSA decided to review its assessment after the UN's Joint FAO/WHO Expert Committee on Food Additives [JECFA] subsequently established a different safe level – tolerable daily intake or TDI.

"In the meantime EFSA updated the method we used to calculate our previous TDI – what's called the [benchmark dose \(BMD\) approach](#).

"The panel applied the revised method to its reassessment of 3-MCPD and, as a result, it has increased its previous safe level two and a half fold."

3-MCPD Tolerable Daily Intake (TDI) in µg/kg bw*

EFSA 2017	2.0
JECFA 2016	4.0

**Micrograms per kilogram of body weight*

Potential risks for the kidney and male fertility

Prof Hogstrand added: “We checked again the data concerning effects on development and reproduction, particularly on male fertility as these were highlighted by JECFA.

“We calculated the levels at which possible adverse effects on the kidney and on male fertility could occur. The updated TDI is protective for both types of effects.”

Technical differences, same overall conclusions

EFSA’s new TDI is closer to JECFA’s TDI. EFSA and JECFA used the same toxicological data but different BMD modelling techniques. Despite these technical differences, both bodies came to the same overall conclusions on the possible adverse effects of 3-MCPD and the level of concern for public health.