

BfR recommendations for the health assessment of chlorate residues in food

BfR opinion No. 028/2014, 12 May 2014



During industry quality control activities and official food surveillance, residues of chlorate were found in fruit and vegetables.

Chlorates are the salts of chloric acid HClO_3 . In the past, sodium and potassium chlorate were used as herbicides. In the EU, the use of chlorate-containing plant protection products or biocidal products is no longer allowed. However, chlorate can be formed as a by-product when chlorine-containing substances are used, e.g. for cleaning or disinfection purposes.

The intake of chlorate may cause adverse effects on red blood cells and inhibition of iodide uptake in the thyroid gland. However, consumers should not fundamentally change their dietary habits, since the health benefits of fruit and vegetables continues to be undisputed.

Based on the currently available knowledge, the Federal Institute for Risk Assessment (BfR) has compiled recommendations on the health assessment of chlorate residues found in foods. The European Food Safety Authority (EFSA) has not received a mandate for a chlorate assessment yet. EFSA is however currently working on an opinion on perchlorate. The recommendations given below are to be seen as provisional until this EFSA assessment of perchlorate is completed, since its outcome will influence the chlorate assessment as well.

The BfR recommends that the acceptable daily intake (ADI) of 0.01 milligrams (mg) of chlorate per kilogram (kg) of bodyweight derived by the World Health Organisation (WHO) is, for the time being, used as a basis for both chronic and acute risk assessment of chlorate. The methods commonly used for assessing pesticide residues including EFSA's Pesticide Residue Intake Model (PRIMo) should for the present be used.

		BfR risk profile: Health assessment of chlorate residues in food Opinion No. 028/2014		
A Who is affected	General population Children, persons with hypothyroidism or iodine deficiency			
B Probability of health impairment resulting from Chlorate residues in food	Practically non-existent	Unlikely	Possible	Likely Certain
C Severity of health impairments resulting from chlorate residues in food	No impairment	Slight impairment [reversible]	Moderately severe impairment [reversible/irreversible]	Severe impairment [reversible/irreversible]
D Informative value of the available data	High: Essential data are available and free of contradictions	Medium: Some essential data missing or contradictory	Low: Large amounts of essential data missing or contradictory	
E Controllability by consumers [1]	Control not necessary	Controllable by taking precautionary measures	Controllable by refraining from consumption	Not controllable

Dark blue shaded fields designate the characteristics of the risk assessed in this opinion (more detailed information on this can be found in the text of the opinion).

Explanations

The purpose of the risk profile is to visualise the risk described in the BfR opinion. It is not intended for risk comparisons. The risk profile should only be read in the context of the opinion.

Row E – Controllability by consumers

[1] – The information given in the row “Controllability by consumers” is not intended as a BfR recommendation but is of a descriptive nature only.

The full version of this BfR opinion is available in German on <http://www.bfr.bund.de/cm/343/vorschlaege-des-bfr-zur-gesundheitlichen-bewertung-von-chloratrueckstaenden-in-lebensmitteln.pdf>