

## Proposed maximum levels for the addition of chloride to foods including food supplements

The accompanying main opinion "**Updated recommended maximum levels for the addition of vitamins and minerals to food supplements and conventional foods**" can be found here: <https://www.bfr.bund.de/cm/349/updated-recommended-maximum-levels-for-the-addition-of-vitamins-and-minerals-to-food-supplements-and-conventional-foods.pdf>

### 1 Results

The German Federal Institute for Risk Assessment (BfR) recommends that chloride should not be added for nutritional purposes to food supplements or conventional foods (Table 1).

**Table 1: Proposed maximum levels**

Food category	Maximum levels
Food supplements (per daily recommended dose of an individual product)	no addition*
Other foods (per 100 g)	no addition*

\* for nutritional purposes

Chloride may be present in food supplements or conventional foods in conjunction with other essential minerals or vitamins when these are added to foods in the form of chloride compounds. The chloride intake is then limited by the maximum levels specified for the mineral or vitamin added as chloride compounds.

### 2 Rationale

#### 2.1 Tolerable Upper Intake Level<sup>1</sup> (UL) and Dietary Reference Values

Based on the data available, the European Food Safety Authority (EFSA) has not been able to derive a UL for chloride (Table 2). However, it was pointed out that there is a high level of evidence that the amount of salt (sodium chloride) currently consumed in Europe increases the risk of high blood pressure and that high blood pressure is associated with the development of cardiovascular and kidney diseases (EFSA, 2005). For this reason, the D-A-CH Societies<sup>2</sup>, among others, recommended limiting the consumption of salt to 6 grams per day (g/day) (corresponding to 3.6 g chloride) (D-A-CH, 2015).

For chloride, an estimated value for an adequate intake was derived, which is 2.300 milligrams per day (mg/day) for adolescents 15 years and older and for adults (D-A-CH, 2015; Table 2).

<sup>1</sup> Tolerable Upper Intake Level = Maximum level of total chronic daily intake of a nutrient (from all sources) considered to be unlikely to pose a risk of adverse health effects to humans.

<sup>2</sup> German-Austrian-Swiss Nutrition Societies

Table 2: Dietary reference values (estimated values for an adequate intake) and UL

Age groups	Dietary reference value (D-A-CH, 2015)	UL (EFSA, 2005)
	mg/day	
Adolescents from 15 years and adults	2,300	-

## 2.2 Exposure

In the second National Food Consumption Survey (NFCS II) (MRI, 2008), no information was provided on chloride intake in Germany. However, since a large part of the chloride intake results from the consumption of table salt, the intake amount can be estimated as a function of the average salt consumption: Results of the NFCS II, published in 2011, show that the median salt intake in men and women aged 14-80 years was 9.0 and 6.5 g/day, respectively (Hartmann et al., 2011). Thus, the consumption of table salt alone results in median chloride intakes in the 14- to 80-year-old age groups of approximately 4000 mg (f) and 5400 mg (m) per day, respectively.

Even in children between 6 and 17 years of age, the amount of salt consumed is generally close to or above 6 g/day, recommended by the German Nutrition Society (Mensink et al., 2007), so that even in these age groups the chloride intakes resulting from salt consumption are far above the estimated value for an adequate intake.

## 2.3 Aspects considered in deriving maximum levels for food supplements and fortified foods

With a typical diet, more than sufficient amounts of chloride (in combination with sodium) are consumed. Chloride deficiency can thus be virtually excluded in the healthy population. On the other hand, it can occur, for example, in diarrhoeal diseases and/or severe vomiting.

According to the German Food Supplements Regulation and Annex I of Directive 2002/46/EC on the approximation of the laws of the Member States relating to food supplements, respectively, and according to Annex I of Regulation (EC) No 1925/2006, the addition of chloride to food supplements and other foods is generally permitted. However, according to Annex II of both legal texts, it is to be assumed that chloride is predominantly used in combination with other minerals (calcium, magnesium, sodium, manganese, potassium, chromium, and zinc chloride) or vitamins (thiamine hydrochloride and pyridoxine hydrochloride).

Taking into account the supply situation of the German population as well as the potential risks associated with a high chloride or salt intake, there are no discernible reasons for the targeted addition of chloride to foods. However, chloride may be present in food supplements or conventional foods as a concomitant when other essential minerals or vitamins are added as chloride compounds. A restriction on the resulting chloride intake results from the maximum amounts specified for the mineral or vitamin deliberately added as chloride compound.

### Further information on the BfR website on chloride

Topic page on the assessment of vitamins and minerals in foods:

[https://www.bfr.bund.de/en/vitamins\\_and\\_minerals-54417.html](https://www.bfr.bund.de/en/vitamins_and_minerals-54417.html)



"Opinions app" of the BfR

### 3 References

BfR (2011). Blood pressure reduction through less salt in food. Opinion No. 007/2012 of the BfR, MRI and RKI of 19 October 2011. <http://www.bfr.bund.de/cm/343/blutdrucksenkung-durch-weniger-salz-in-lebensmitteln.pdf>; letzter Zugriff: 01.03.2021.

D-A-CH (2016). German Nutrition Society, Austrian Nutrition Society, Swiss Nutrition Society. Dietary Reference Values for Nutrients. Complete revision of the chapters on sodium, chloride and potassium in the 2<sup>nd</sup> version of the 2<sup>nd</sup> updated edition 2016, German Nutrition Society, Bonn.

EFSA (2005). European Food Safety Authority. Opinion of the Scientific Panel on Dietetic Products, Nutrition and Allergies on a request from the Commission related to the Tolerable Upper Intake Level of Chloride (Request N° EFSA-Q-2003-018) (adopted on 21 April 2005). <https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2005.210>; letzter Zugriff: 01.03.2021.

Mensink GBM, Heseker H, Richter A, Stahl A, Vohmann C (2007). Nutrition study as a KiGGS module (EsKiMo). Robert Koch Institute, University of Paderborn.

MRI (2008). Max Rubner Institute. National Nutrition Survey II, Results Report, Part 2. Max Rubner-Institut, Federal Research Institute of Nutrition and Food.

Directive 2002/46/EC on the approximation of the laws of the Member States relating to food supplements. <http://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:32002L0046&from=DE>; letzter Zugriff: 01.03.2021.

Regulation (EC) No 1925/2006 on the addition of vitamins and minerals to foods. <http://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:32006R1925&from=DE>; letzter Zugriff: 01.03.2021.

### About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL) in Germany. It advises the German federal government and German federal states ("Laender") on questions of food, chemical and product safety. The BfR conducts its own research on topics that are closely linked to its assessment tasks.

*This text version is a translation of the original German text which is the only legally binding version.*