

**Advice 18-2020 of the Scientific Committee established at the FASFC on action limit for aluminium in cocoa powder (revision of Opinion 09-2018)****Background and terms of reference**

In its opinion 09-2018, the Scientific Committee (SciCom) calculated an action limit for aluminium in cocoa powder and chocolate by dividing the tolerable weekly intake of aluminium (TWI, 1 mg/kg bw/week) by the consumption data at the 97,5 percentile (P97,5) of the commodity group "chocolate products", assuming that the consumption of cocoa powder (on the one hand) and chocolate (on the other hand) corresponded each to 50% of this value (i.e. 1,57 g of cocoa powder/kg bw/d and 1,57 g of chocolate/kg bw/d). The calculated action limit for these two foodstuffs was 90 mg/kg (SciCom, 2018).

In a letter dated March 11<sup>th</sup> of 2019 addressed to the Chairman of SciCom, representatives of the chocolate industry (Barry-Callebaut, Belcolade-Puratos, Cargill, Choprabisco) expressed their concerns about the action limit for aluminium in cocoa powder. As a reminder, it was said in the SciCom's opinion 09-2018 that the contamination of cocoa powder is of environmental origin (via the soil) and that it is therefore something difficult to control on an industrial scale. In addition, data provided by the industry and scientific literature indicate that the aluminium level of cocoa powder varies according to its geographical origin.

On April 29<sup>th</sup> of 2019, a meeting took place between representatives of the chocolate industry, SciCom and the General Directorate Control Policy of the FASFC to discuss the problem. During this meeting, the choice of the consumption data used in the calculation of the action limit was discussed. In view of the absence of consumption data specific to cocoa powder in Belgium in the FoodEx2 food classification system, the SciCom decided to choose the consumption data of the largest group of foodstuffs containing cocoa powder, namely "chocolate products", and assumed that these contained on average 50% cocoa powder. The representatives of the chocolate industry expressed the view that the assumption that "chocolate products" contained 50% cocoa powder would overestimate the level of cocoa powder in foodstuffs as this generally varies between 5% and 10%, depending on the food commodity.

Therefore, an official request has been submitted to SciCom to refine the calculation of the action limit of aluminium in cocoa powder by considering the actual level of cocoa powder contained in foodstuffs.

**Discussion and method**

The SciCom calculates estimated acceptable concentrations (EAC) on the basis of scientific data. An EAC is a risk-based concentration limit that corresponds to the concentration of a substance that can be present in food without exposure to the substance via food resulting in an appreciable risk or concern for public health. EACs can be used as a basis for the risk manager to set an action limit (SciCom opinion 15-2019).

In addition, due to the high variability in the percentage of cocoa powder used in foodstuffs, the potential contamination of aluminium in foodstuffs containing cocoa powder via other ingredients (e.g. cereals and cereal products), and the uncertainty about consumption data for certain food categories (e.g. pralines, waffles, etc.), the SciCom is of the opinion that an EAC for aluminium should be calculated in foodstuffs (end products) rather than in cocoa powder (ingredient).

For this purpose, the SciCom has identified all food categories classified at level 7 (L7) of the European Food Consumption Database of the EFSA (FoodEx2 classification system) that explicitly contain chocolate or cocoa and for which consumption data from Belgian food consumption surveys are available.

An EAC for aluminium is calculated for each identified food category by dividing the TWI of aluminium (1 mg/kg bw/week; EFSA, 2008) by the 95<sup>th</sup> percentile (P95) consumption data of each food category considered.

## Results

EACs for aluminium in foodstuffs of interest are presented in the table below.

Food(s)	EAC (mg/kg)
Cocoa based powder for instant preparation <sup>1</sup>	150
Filled chocolate	100
Pralines	100
Chocolate spread	50
Chocolate sauce	150
Confectionery coated with chocolate	150
Dark chocolate	150
Milk chocolate	60
White chocolate	100
Chocolate biscuits	60
Chocolate filled croissants	90
Chocolate cakes	60

## Conclusions

The SciCom has calculated an EAC for aluminium in cocoa based powder for instant preparation, filled chocolate, pralines, chocolate spread, chocolate sauce, chocolate covered confectionery, dark chocolate, milk chocolate, white chocolate, chocolate biscuits, chocolate filled croissants and chocolate cakes. EACs can be applied as action limits on finished products containing cocoa powder, including chocolate. This opinion renders obsolete the action limit that was proposed for aluminium in chocolate in the Opinion 09-2018. The measures or actions, applied when these limits are exceeded, are determined by the risk manager.

## Recommendation

For the particular case of cocoa based powder for instant preparation composed of 100% cocoa powder, and for which the EAC (150 mg/kg) is likely to be frequently exceeded (as a reminder, 40% of samples > EAC of 150 mg/kg), a risk assessment could be carried out on a case-by-case basis, considering the recommended dose on the product packaging for the preparation of chocolate drinks. If the risk assessment indicates that there is a risk to the consumer, the producer could be recommended to adapt the recommended dose on the packaging.

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The full text is available on this website in dutch and in french.

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<sup>1</sup> In this opinion, a distinction is made between "cocoa powder" and "cocoa based powder for instant preparation". "Cocoa powder" is the powder obtained after grinding the kernels of fermented and roasted cocoa beans produced by the cocoa tree. It is used as an ingredient in the preparation of various foodstuffs, including in the formulation of "cocoa based powder for instant preparation" which may also contain other ingredients (such as added sugar, food additives (emulsifiers, etc.) or flavourings), and is used in the preparation of instant chocolate drinks.