

Position paper on bamboo composites in food contact materials

1. Risk assessment advice on biobased food contact materials (BBFCMs) has been increasingly requested from the Food Standards Agency (FSA), hence it was considered timely for the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) to review the available toxicological information on BBFCMs (COT, 2021a).
2. The COT acknowledged the challenges and complexities associated with BBFCMs and highlighted several limitations and knowledge gaps on BBFCMs research and regulation. These included labelling, composition (including biodegradability), contamination and standardisation (COT, 2021a).
3. The COT undertook a more detailed review of the potential health risks of bamboo composites in Food Contact Materials (FCMs) due to the increased number of incidents reported of non-compliant bamboo composite items (e.g. coffee cups) being placed onto the European market (COT, 2021b).
4. Until December 2020, reports in relation to bamboo composite FCMs were predominantly related to misleading labelling on packaging and/or their advertisement, as well as incidences of formaldehyde/melamine migration levels exceeding legal limits. Since 2021, and due to the EU's conclusion that bamboo is an unauthorised additive within plastic FCMs, reports received by the FSA have predominantly been of non-compliance of plastic-bamboo FCMs in the European market. This included the advertisement of products from UK businesses on EU facing markets. No action appeared to have been taken on that basis prior to this year.
5. In 2019, the EFSA panel on FCMs was asked by the European Commission to assess whether the authorisation of untreated wood flour and fibres (FCM no. 96) as an additive in plastic food contact materials was still in accordance with EC Regulation 1935/2004, and also to consider whether bamboo could be considered under the scope of this authorisation. EFSA concluded that

wood and bamboo should be considered distinct and each material regarded on a case-by-case basis (EFSA, 2019). In addition, the food safety authorities of Belgium, Luxembourg and the Netherlands (Benelux) published a joint letter calling for the market withdrawal of bamboo-melamine plastics (NVWA, 2021a). In April 2021, the EC recommended that Member States should take stringent action on bamboo composite FCMs and set out a coordinated control plan. The UK FSA is aware of the stance by the EC and of the individual Member States and is considering an appropriate course of action based on scientific evidence.

6. The COT previously assessed the reports by the German Federal Institute for Risk Assessment (BfR) and the Netherlands Food and Consumer Product Safety Authority (NVWA) and noted that the BfR applied their own tolerable daily intake (TDI) of 0.6 mg/kg/day for formaldehyde whereas the NVWA and EFSA used a lower TDI of 0.15 mg/kg/day (BfR 2020; NVWA 2021b; COT 2021c). Overall, the COT concluded that the exposure assessments were conservative but not necessarily worst-case. It was agreed that although the NVWA and BfR opinions took slightly different approaches, in general the same conclusions were reached. Based on the assessment of the BfR and NVWA reports the Committee concluded that the migration of formaldehyde and melamine from bamboo composite cups was a potential concern to human health (COT 2021c).
7. Due to insufficient UK data, the COT was unable to make recommendations on bamboo bio-composites FCMs. A UK study assessing the risks associated with bamboo composites and other biobased food contact materials is currently underway. The study aims to address migration levels of formaldehyde and melamine, and also the potential presence of other chemicals, such as heavy metals and pesticide residues. Data from this study is expected to be available in March 2022. Once, UK data is available, a full risk assessment will be undertaken.

COT Position paper

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Abbreviations

BBFCMs Biobased food contact materials

BfR	German Federal Institute for Risk Assessment
NVWA	Netherlands Food and Consumer Product Safety Authority
COT	Committee on Toxicity
EC	European Council
EFSA	European Food Safety Authority
EU	European Union
FCM	Food Contact Material
TDI	Tolerable daily intake

References

BfR (2020) Fillable articles made from melamine formaldehyde resin, such as a coffee-to-go cups sold as “bamboo-ware”, may leak harmful substances into hot foods. Available online: [Fillable articles made from melamine formaldehyde resin, such as coffee-to-go cups sold as ‘bambooware’, may leak harmful substances into hot foods \(bund.de\)](#)

Committee on toxicity of chemicals in food, consumer products and the environment (COT). (2021a). The potential human health risks of bamboo bio-composites in food contact materials. Available online: [TOX-2021-34 COT Draft discussion paper on bamboo composites in food contact materials](#)

Committee on toxicity of chemicals in food, consumer products and the environment (COT). (2021b). Discussion paper on the German Federal Institute for Risk Assessment (BfR) and Office for Risk assessment & research (BURO)/ Netherlands Food and Consumer Product Safety Authority (NVWA) opinions on the potential health risks of bamboo food contact materials (FCMs). Available online: [Acc V TOX-2021-54 Discussion paper on the German and Dutch opinions on](#)

[bamboo-composite FCMs \(food.gov.uk\)](https://www.food.gov.uk/bamboo-composite-fcms)

Committee on toxicity of chemicals in food, consumer products and the environment (COT). (2021c). October meeting final minutes 2021. Available at: [COT Final Minutes October 2021 \(food.gov.uk\)](https://www.food.gov.uk/cot-final-minutes-october-2021)

European Food Safety Authority (2019) Update of the risk assessment of 'wood flour and fibres, untreated' (FCM No 96) for use in food contact materials, and criteria for future applications of materials from plant origin as additives for plastic food contact materials. Available at: [Update of the risk assessment of 'wood flour and fibres, untreated' \(FCM No 96\) for use in food contact materials, and criteria for future applications of materials from plant origin as additives for plastic food contact materials - - 2019 - EFSA Journal - Wiley Online Library](https://www.efsa.europa.eu/en/efsajournal/doc/5212/abstract)

Netherlands Food and Consumer Product Safety Authority (2021a) Benelux statement on bamboo or other unauthorized additives. Available online: [Home | NVWA-English](https://www.nvwa.nl/en/food-safety/benelux-statement-on-bamboo-or-other-unauthorized-additives)

Netherlands Food and Consumer Product Safety Authority (2021b) Health Risks of Bamboo Cups. Available online: [Advice from BuRO on the health risks of bamboo cups | Risk analysis | NVWA-English](https://www.nvwa.nl/en/food-safety/health-risks-of-bamboo-cups)