Meeting

Final minutes of the 28th March 2023 COT Meeting

Meeting of the Committee at 10:00 on 7th February 2023 at Broadway House, London and on Microsoft Teams

Present

Chair:	Alan Boobis

COT Members:	Dr Phil Botham
	Professor James Coulson
	Professor Gary Hutchison
	Professor Thorhallur Ingi Halldórsson
	Dr Michael Routledge
	Dr Natalie Thatcher
	Dr Sarah Judge
	Dr Mac Provan
	Ms Juliet Rix
	Dr Simon Wilkinson
	Professor Maged Younes
	Professor Mireille Toledano
	Professor Philipe Wilson
	Ms Jane Case
	Professor Gunter Kuhnle
	Professor Shirley Price
	Dr Cheryl Scudamore
SACN Liaison	Professor Paul Haggarty
Science Council Liaison	Professor John O’Brien

	Ms Cath Mulholland - FSA Scientific Secretary
	Mr Michael Dickinson
Food Standards Agency (FSA)	Dr David Gott
	Dr Alex Cooper
Secretariat:	Ms Claire Potter
	Dr Barbara Doerr
	Dr Olivia Osborne
	Ms Chara Tsoulli
	Dr Joseph Shavila
	Ms Emma French
	Ms Rhoda Aminu
	Ms Sabrina Thomas
	Dr Gail Drummond
	Ms Cleanncy Hoppie
	Ms Jocelyn Frimpong-Manso
	Ms Sophy Wells
	Dr Gaetana Spedalieri
	Mr Thomas Hornsby
	Dr Emily Hudson
	Mr David Kovacic
	Kaitlyn Jukes
	Dr Aaron Bradshaw
	Dr Andrew McClure
	Ms Jessica Cairo
	Dr Lorcan Browne

UK Health Security Agency (HSA) Secretariat:	Ms Britta Gadeberg - UK HSA Scientific Secretary
Invited Experts and Contractors:	Dr Sarah Bull - Institute of Environment and Health (IEH) Consulting
Assessors:	MS Valerie Swaine - Health and Safety Executive (HSE) Ms Louise Dearsley - HSE Ms Susannah Brown - Office for Health Improvement and Disparities, (OHID), DHSC Dr Ovnair Sepai - UK Health Security Agency (UKHSA) Mr Ian Martin - Environment Agency (EA) Liz Lawton - Department for Environment Food and Rural Affairs (DEFRA) Ms Frances Hill - Department for Business, Energy and Industrial Strategy (BEIS) Ms Hannah Jones - BEIS
Observers	Dr Emma Bradley - FERA

FSA and other Officials:	Ms Kate Shield- FSA Ms Amanda Blackler - FSA Mr Donal Griffin - FSA Mr Will Smith - FSA Mr Afielia Choudhry - FSA Mr Allan Shivembe - FSA Ms Krystle Boss - Food Standards Scotland (FSS) Ms Lucy Smythe - FSS Dr Marianne James - FSS Dr Debby Webb - DHSC

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Date of the next meeting – Tuesday 16th May at Ministry of Justice, Clive House, London and via Teams

Announcements

1. The Chair welcomed Members and other attendees.

Interests

2. The Chair reminded those attending the meeting to declare any commercial or other interests they might have in any of the agenda Items.

Item 1: Apologies for absence

3. Apologies were received from COT Members Dr Stella Cochrane, Dr David Lovell and Professor Matthew Wright and Dr John O'Brien, Science Council Liaison. Apologies were also received from Mr Barry Maycock and Ms Frederique Uy of the Secretariat.

Item 2: Draft Minutes from the meeting held on 7th of February 2023 (TOX/MIN/2023/01)

4. It was noted that apologies for the February meeting had been sent by Juliet Rix and should have been included in the minutes.

5. A spelling error was noted in paragraph 45, thamin, should have read thiamin.

6. The remainder of the minutes were accepted as an accurate record.

7. There were no comments on the reserved minutes and these were accepted as an accurate record.

Item 3: Matters arising from the meeting held on 7th of February 2023

Matters arising from previous meetings

EFSA opinion on BPA

8. The Secretariat informed Members that they had expected to be able to update them on the European Food Safety Authority (EFSA) opinion on bisphenol A (BPA), which was expected prior to the March meeting, but it had not yet been published.

9. Depending on the contents of the opinion, the Secretariat were planning to set up small groups of Members to focus on reviewing particular sections. However, until the report was available this could not be confirmed. There was no information from EFSA as to when the opinion would be published.

JEG update

Joint Expert Group on Additives, Enzymes and other Regulated Products - AEJEG

10. Two meetings were planned for the regular AEJEG to discuss applications for changes to steviol manufacturing methods, blue microalgae, a colour, and possibly RP1330, a flavouring.

11. For the continuing review of the Smoke Flavourings re-authorisation applications, the AEJEG would meet twice in April and Members would assess the responses to requests for further information (RFIs), which were currently being finalised. A rolling 6 month extension had been granted for the applications. It was hoped that COT would be presented with genotoxicity-based smoke flavouring opinions at the end of the year, with a joint meeting of COT and the Committee on Mutagenicity to discuss the applications being planned.

12. It was asked how the AEJEG was discussing genotoxicity data as the tests had not yet been completed. The Secretariat noted that applicants had provided both old and new data, however, for 2 or 3 applications, follow up studies were still pending. The Secretariat stated that timings were also dependent on whether the AEJEG requested further follow up studies.

FCMJEG

13. Members were informed that the Joint Expert Group on Food Contact Materials had reviewed recycling processes and plastic additives at their last meeting.

14. The Secretariat stated that at upcoming meetings the FCMJEG would review applications for recycling processes and a draft can coating opinion which had previously been seen by the COT.

15. The Advisory Committee on Animal Feedingstuffs (ACAF) have a meeting planned that would take place in April and would review a number of draft opinions and requests for information. Members agreed that they did not need to be regularly updated on the activities of ACAF, as this was now an independent committee.

Working Group update

16. There were no updates on the Plant Based Drinks Working Group and cannabidiol (CBD) would be covered elsewhere on the agenda.

Scientific Advisory Committee recruitment.

17. Members were informed that sifting for applicants to the FSA SACs, including COT, would commence in April, and that a number of applications had been received for both full and associate COT membership. Members were also informed that letters of re-appointment for some COT Members would be sent out shortly.

Item 4: CBD update (Reserved) (TOX/2023/12)

18. The item was reserved as it includes commercially confidential data.

Item 5: Opportunities and outlook for United Kingdom Food and Chemicals regulation post European Union Exit- Workshop Report (2022) (TOX/2022/13)

19. No interests were declared.

20. The Committee discussed the draft workshop report on the joint COT, Food Standards Agency (FSA) and UK Health Security Agency (UKHSA) workshop entitled “Opportunities and outlook for United Kingdom Food and Chemicals regulation post European Union Exit” that took place on the 13th of July 2022 in

Liverpool, UK.

21. Members congratulated the Secretariat on putting the workshop report together.

22. The Committee had no comments and were happy with the content and structure of the report.

Item 6: Aircraft Cabin Air – Basis of the regulatory values for carbon dioxide (TOX/2023/14)

23. No Interests were declared.

24. The paper presented was part of the series on aircraft cabin air, and followed the paper discussed by the Committee in December (TOX/2022/65) outlining the concentrations of carbon monoxide (CO) and carbon dioxide (CO2) in aircraft cabin air and comparing these to aircraft regulatory values and occupational standards. At the December 2022 meeting it was noted that levels of CO2 were lower than the workplace exposure limit and the aircraft regulatory limit of 5000 ppm but higher than the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) limit of 1000 ppm and the Committee requested more information on the basis for the derivation of regulatory and occupational values so conclusions could be made regarding the potential risks of CO2 in aircraft cabin air. Paper TOX/2023/14 discussed the available information on the background of the regulatory and occupational standards.

25. Members noted that no information was available regarding the derivation of regulatory and occupational standards, with the exception of the occupational standard from Safe Work Australia. The effects reported by Safe Work Australia were noted, in particular that no noticeable physiological signs were observed following exposure to 5500 ppm for 6 h. This was contrasted with the transient effects on outcomes such as decreased cognition and increased heart rate associated with measured CO2 concentrations of 1000 ppm and above, where CO2 is potentially acting as an indicator of the indoor environment, presented at the December 2022 meeting. Such effects would not be considered an effect of CO2 *per se*, but it was recognised that any effects of CO2 on cognition and heart rate could potentially affect decision making in aircraft pilots and crew.

26. Members agreed that exposure to CO2 was unlikely to cause effects that were not attributable to the physiological response to CO2, and that any effects of CO2 on cognition were likely to be secondary to physiological effects related to changes in respiratory drive and acid-base balance in the body. Furthermore, the Committee considered that people exposed to high concentrations of CO2 would normally be aware of the resultant physiological effects, such as increased respiratory rate.

27. The Committee considered that, in the absence of a biological mechanism, reported acute effects associated with low concentrations of CO2 on outcomes such as cognition and heart rate, which have multiple potential causes, were unlikely to be due to CO2 *per se* but were more likely to be a consequence of a confounded association or residual confounding. Confounding factors linked to CO2 included temperature, humidity, ventilation, human bio-effluents and other indoor air pollutants, and the Committee agreed that CO2 could be a marker of indoor air quality, which should be monitored and if necessary, improved.

Item 6: Volatile organic compounds in European aircraft cabin air: concentrations and comparison with regulatory standards (TOX/2023/15)

28. The paper presented was part of the series on aircraft cabin air, and followed the previous papers that compared concentrations of VOCs in aircraft cabin air with those in other modes of transport (September 2022; TOX/2022/46) and in other work environments such as offices, schools and hospitals (October 2022; TOX/2022/55). In the October 2022 meeting, it was agreed to focus on VOCs in aircraft flying within Europe, and this paper provided a comparison drawing out the data from Europe, and identifying six VOCs (1,2-propanediol, 2-phenoxyethanol, decanal, ethanol, hexanoic acid and octanal) where the highest mean concentration reported in aircraft was above highest reported mean concentration for all the other available modes of transport or work environments. For these six VOCs, concentrations were substantially lower than the UK EH40 occupational standards, Public Health England (PHE) indoor air quality guidelines (IAQ) and chronic derived no effect levels (DNELs) for workers via inhalation exposure as cited in REACH dossiers.

29. The Committee agreed that no further information was required for any of the VOCs as the margins between the concentrations reported and the standards or health-based guidance values were large. In the context of exposures in aircraft it was noted that acute DNELs would potentially be a relevant comparator but it was agreed that as acute DNELs are usually higher than chronic DNELs, and concentrations of VOCs were substantially below the available chronic DNELs, this did not require further consideration. Members had some discussion about the derivation of the chronic DNELs, including the critical endpoint on which they were based, but did not require any further information on the DNEL derivations.

30. Members discussed how to assess the potential for mixture effects of VOCs and agreed an initial screening approach calculating hazard quotients based on the chronic DNEL for the six VOCs identified. This would be precautionary as the DNELs were based on different effects, and not necessarily related to neurological endpoints; if required this could be refined at a later time. This initial screening evaluation would be included when the first draft statement is presented at a future meeting.

Item 7: Review of the EFSA opinion on the safety of titanium dioxide as a food additive: reproductive toxicity (reserved) (TOX/2023/16)

31. Professor Alan Boobis declared an interest that dated back to 2019. He is a member on the External Advisory Committee of the Center for Research on (Food) Ingredient Safety at Michigan State University. One of their research groups had undertaken research on titanium dioxide, published in 2019, which was partly funded by industry. This is not a direct interest and would not preclude Professor Boobis from contributing to the discussions, but the item was chaired by Dr Sarah Judge, the COT deputy Chair for consistency, as this was the case when the topic was last discussed.

32. Professor Maged Younes declared a conflict of interest as he was one of the authors of the EFSA opinion: Professor Younes could answer questions or clarify the EFSA opinion but was otherwise precluded from contributing to the item. Dr Natalie Thatcher also declared a specific non-personal interest as her employers buy and use titanium dioxide, however, this was not in the United Kingdom or European Union. Professor Shirley Price declared an interest as she is

a member of the JECFA group on titanium dioxide and will be attending the next meeting in October 2023 to discuss it. Professor Price and Dr Thatcher were able to join the discussion of this item.

33. Titanium dioxide is used in food as a colour to make food more visually appealing, to give colour to food that would otherwise be colourless, or to restore the original appearance of food.

34. The safety of titanium dioxide was reviewed by EFSA in 2016 and additional studies were required to re-evaluate its toxicity.

35. EFSA published a revised opinion on the safety of titanium dioxide in food in 2021 which concluded that as concerns with respect to genotoxicity could not be ruled out, it could no longer be considered as safe when used as a food additive. Due to a number of reservations regarding the EFSA opinion, the COT and the Committee on the Mutagenicity of Chemicals in Food, Consumer Products and the Environment (COM) are conducting their own review of the data, with the COM focussing on the genotoxicity data and the COT reviewing data on the other endpoints, most notable reproductive and developmental toxicity.

36. Paper TOX/2023/16 summarised the data from the reproductive and developmental studies considered in the revised 2021 EFSA opinion (excluding the genotoxicity considerations) and the previous conclusions made by COT in their interim position paper (2022). The Titanium Dioxide Manufacturers Association Submission to Joint FAO/WHO Expert Committee on Food Additives (2023) was also provided to COT members.

37. Members noted that the size and shape of the titanium dioxide particles could affect absorption and agglomeration. It was also noted that there was some uncertainty about whether the absorption and distribution of the titanium dioxide in the studies were representative of the titanium dioxide form that you would find in food, as there were no studies that were conducted in complex food groups. There was evidence that suggested that particles could pass across the blood-brain barrier or into the placenta via passive diffusion and active uptake. However, it was unclear on what form the titanium dioxide material was in when it reached the tissues and the duration it stayed there. Overall, the Committee agreed that there was evidence of absorption but there was little evidence for accumulation reported in studies.

38. It was noted that there was a lack of studies on pure bulk titanium dioxide to compare to the studies on nanoparticles.

39. The Committee agreed that the EOGRT (Extended One Generation Reproductive Toxicology) study was very detailed and well conducted. There was no evidence of reproductive or developmental toxicity. An extensive range of endpoints had been considered in the study and it was noted that there was some small evidence of focal effects on the testes and sperm abnormalities in the sperm production in one treated rat, however, these changes were not statistically different to the control group.

40. Overall, it was agreed that there was no evidence that titanium dioxide caused reproductive or developmental toxicity at the doses tested.

41. Members discussed the Warheit et al and Lee et al reproductive toxicity studies. The top dose used in the Warheit study was 1000 mg/kg/ bw and the titanium dioxide particles were characterised. It was noted that there were no adverse effects in the oral gavage study by Lee et al and the No Observed Adverse Effect Level was reported as 1000 mg/day for both.

42. The Committee considered the potential aberrant crypt foci effects of titanium dioxide. It was noted that the EORGT study showed no increase in aberrant crypt foci at titanium dioxide concentrations up to 1000 mg/kg/bw. The Blevins et al study also showed no increase in aberrant crypt foci. However, the Bettini et al study reported that some aberrant crypt foci were observed in DMH (dimethyl hydrazine) initiated animals. It was also noted that in 4 out of 12 animals that were not initiated with DMH, small numbers of aberrant crypt foci were observed. However, it was noted that there were uncertainties as to whether a pathologist or histologist had analysed this study leading to uncertainty about the findings. Overall, the Committee were unable to conclude on whether titanium dioxide had the potential to induce aberrant crypt foci.

43. It was noted that paragraph 198 should state that the EORGT study was a dietary study and to include the characterisation of the titanium dioxide used. It was further suggested that the methods section (paragraph 199) should include further information on the duration of dosing that was used and, that no histopathological changes were noted.

44. Based on the EOGRT, the Committee agreed on a provisional point of departure of 1000 mg/kg/bw and stated that it seemed reasonably robust for the reproductive effects of titanium dioxide, however, it was noted that sections of the study were due to be repeated in 2023.

45. Members stated that a point of departure could not be identified for the toxicity of nanoparticles based on the information presented.

46. Regarding the studies that were excluded by the EFSA Panel, the Committee did not think it was worthwhile to review the excluded studies at this stage.

47. The Secretariat informed Members that the genotoxicity working group are aiming to report back to the COM (The Committee of Mutagenicity) on their conclusions about the genotoxicity potential of titanium dioxide by June. A combined statement will be presented at a future meeting.

Item 8: Second draft statement on the guidance levels for the fortificants in the Bread and Flour Regulations (TOX/2023/17)

48. No interests were declared.

49. In 2022, consultees of the Bread and Flour Regulations (BFR) 1998 review were asked whether they agreed with the proposal to raise the minimum levels of calcium as calcium carbonate, iron and niacin to 15% of the nutrient reference value (NRV) supplied by 100g of non-wholemeal wheat flour, whilst keeping thiamin at the same fortification level of 19% of the NRV supplied by 100g of non-wholemeal wheat flour. Therefore, the Department of Health and Social Care (DHSC) requested COT provide an assessment on the dietary exposure of calcium carbonate, iron, nicotinic acid and thamin (vitamin B1) at the current and proposed minimum fortification levels, respectively. The legislative requirements for the fortificants are a minimum, and DHSC are seeking to raise it to match the 15% minimum under the labelling legislation (1169/2011) and addition of vitamins legislation (1925/2006).

50. The item was initially discussed in October 2022 with a first draft statement being presented to COT in February 2023; Members made a number of comments and suggestions particularly with respect to the structure of the statement. Paper TOX/2023/17 contained the second draft of the statement.

51. It was noted that references to “current” levels of fortification in the entire diet in the exposure section of the statement were potentially misleading and it should be clarified that exposures were based on “actual” levels of fortification used in industry.

52. The Committee questioned whether the exposure assessment accounted for industry wide uses of overage, where levels of vitamins and minerals in food products can be up 20-25% higher than the amount on the label to accommodate for losses that may occur due to nutrient stability and shelf-life. If not, it was suggested that this uncertainty could be expressed in the statement.

53. The Committee asked for clarification on the units in which that the upper level/guidance level for iron was expressed as well as the reported levels associated with the occurrence of moderate symptoms of iron toxicity noted in paragraph 17. There appeared to be a mismatch between per kg bw and per person.

54. Members suggested it should be explained in paragraph 41 that, as the guidance level for iron was based on effects specific to supplement consumption, it was unlikely that there was a risk of adverse health effects.

55. Similarly, in paragraph 44 it should be clarified that exceedances of the guidance levels for thiamin were not likely to be of concern as the upper levels are based on effects arising from supplement consumption.

56. It was further noted that the conclusion set out in paragraph 45 should explain that use of upper levels based on supplement studies in the risk characterisation was a conservative approach.

57. Members agreed that the NHS guidance on iron consumption should be included in the statement’s conclusions.

58. The Committee highlighted that intakes of vitamins and minerals resulting in exceedances when exposures from foods were combined with exposures from food supplements was a general issue, with the supplement exposure driving the exceedances.

Item 9: EFSA Public consultation on “Update of the risk assessment of mineral oil hydrocarbons (MOH) in food” (TOX/2023/18)

59. Prof Alan Boobis had been a member of the EFSA CONTAM Panel working group for the 2012 EFSA opinion on mineral oil hydrocarbons (MOH). However, as more than five years had passed and he was not involved in the current draft opinion, this interest was considered to have expired. No other

interests were declared.

60. EFSA had been asked by the European Commission (EC) to assess any toxicity studies on mineral oil hydrocarbons (MOH), that had become available since EFSA's last evaluation in 2012 and to update their scientific opinion, if necessary. EFSA had also been asked to update the exposure assessment and to update the risk characterisation, if necessary.

61. EFSA launched a public consultation on the "Update of the risk assessment of mineral oil hydrocarbons (MOH) in food" on 15th March 2023. The paper presented to the Committee provided a short overview of the previous EFSA evaluation in 2012, as well as the key points of the 2023 assessment.

62. The Committee noted that the datasets for Mineral Oil Saturated Hydrocarbons (MOSH) and Mineral Oil Aromatic Hydrocarbons (MOAH) differed significantly and considered the current opinion to largely be two different assessments, one for MOSH and one for MOAH.

63. Following the 2012 opinion, EFSA commissioned toxicology studies on MOSH, which were available for the current evaluation. The rat study provided additional data on the Fischer rat and hence allowed for a clear conclusion on strain sensitivity, which had previously been suggested but not confirmed. Members agreed that the study used to establish the Health Based Guidance Value (HBGV) proposed in the EFSA opinion was a well-defined study, with the No Observed Adverse Effect Level (NOAEL) being at the highest dose tested. Overall, Members agreed with EFSA's approach to the assessment of MOSH.

64. Members also agreed with the overall approach taken by EFSA for the assessment of MOAH, utilising the BMDL10 for PAH8 in the absence of studies to define a reference point (RP) for 3- or more ring MOAH.

65. However, Members, would have liked to have seen additional detail on the derivation of the uncertainty factors, in particular the application of an additional uncertainty factor of 6. While the Committee did not disagree with the use of the additional factor, the discussion and underlying reasoning was considered very complicated, and a clearer definition/explanation would have been useful.

66. Overall, the Committee agreed that the 2023 EFSA draft opinion was a good compilation and discussion of the available data and agreed with EFSA's approach and conclusions.

67. Members noted that setting standards for MOH was difficult, especially as MOH was a mixture of compounds, often not well defined. Hence it was difficult to conclude on a representative chemical, and the assessment was further complicated by the fact that there was incidental exposure to other MOHs.

68. The Committee would have liked to have seen further details covered within EFSA's recommendations, especially with regard to the specifications of food grade MOH, and other sources of MOAH in food.

Item 10: Interim position statement on per- and polyfluoroalkyl substances – first draft (TOX/2023/19)

69. Professor Boobis declared he had been involved in a SETAC workshop on the state of the science on per- and polyfluoroalkyl substances **(**PFAS). This did not preclude him from taking part in the discussions. No other interests were declared.

70. Following the COT statement on the EFSA opinion "Risk to human health related to the presence of perfluoroalkyl substances in food" in which Members considered there to be substantial uncertainties in the derivation of the Tolerable Weekly Intake (TWI), the Committee had subsequently been asked to consider what further guidance can be provided to support human health risk assessments undertaken by UK Government Departments. This paper presented the first draft interim position statement for PFAS which summarised the uncertainties in the evidence base and outlined the planned programme of work.

71. The potential need for grouping PFAS was discussed, with Members agreeing that an approach to combine PFAS was necessary. It was noted that various methods could be used, including computational approaches, to group substances based on structural parameters. This would be explored with the proposed subgroup who would be looking at this topic.

72. Members asked how much of the total PFAS in the environment was accounted for by the PFAS that were known about and measured. This would be further investigated with analytical experts.

73. It was noted that a substantial amount of work has been carried out by other groups on the toxicokinetics of PFAS and this would be evaluated as part of the proposed programme of work.

74. Members highlighted that PFAS were present in the environment and asked whether extrapolation from wildlife data could be carried out during the hazard evaluation of these substances. It was also noted that Governmental regulatory bodies were considering PFAS with options focussed on persistence in the environment.

75. The Committee was content with the interim position paper and the programme of work proposed.

Item 11: Arsenic in the maternal diet discussion paper (TOX/2023/20)

76. No interests were declared.

77. In 2019, The Scientific Advisory Committee on Nutrition (SACN) agreed to conduct a risk assessment on nutrition and maternal health focusing on maternal outcomes during pregnancy, childbirth and up to 24 months after delivery; this would include the effects of chemical contaminants and excess nutrients in the diet.

78. SACN agreed that, where appropriate, other expert Committees would be consulted and asked to complete relevant risk assessments e.g., in the area of food safety advice. Following a discussion at the COT meeting in September 2020, a list of components was agreed, including heavy metals, that would be reviewed by the Committee. Arsenic was one of the chemicals prioritised and selected for review. The COT most recently reviewed arsenic in 2016 as part of the infant diet work, also conducted with SACN.

79. Members had reservations about the significance of some of the studies reviewed, which were from countries with higher arsenic exposures, and their extrapolation to the UK population. Members recognised the analytical challenge in detecting low levels of arsenic in the UK and EU and noted that the studies used were mainly conducted in regions with much higher concentrations and environmental exposures to arsenic.

80. The Committee agreed with the approach to the combined aggregate exposure, where Members were encouraged to think about the uncertainties surrounding the pathways and levels of exposure.

81. It was noted that EFSA had recently released a paper reviewing and changing Maximum Levels (MLs) for arsenic and this should be reviewed before

the paper was brought back to the Committee.

82. The Committee asked for the high blood pressure outcomes to be included in the maternal health section of the paper.

83. The Committee stated that there should be some commentary on the studies. For example, text should be included in paragraph 30 to state that the whereas the genetics of an enzyme will contribute to changes in arsenic metabolism, identified differences do not appear to play a large role in population variation in arsenic levels.

84. Members commented on the non-cardiac birth defects described in paragraph 72 and stated that arsenic has also been shown to be protective of some defects (as well as being a potential cause). Members considered that stating the defects were caused by dietary exposure was too strong and although differences between groups were highlighted by the paper, they would not be caused by exposure to arsenic alone.

85. The Committee asked for epigenetic effects to be reviewed and included in the assessment. The Committee noted that although already mentioned in general, they would like to see inclusion of how these contribute to the underpinning mechanisms for relevant outcomes.

86. The Committee considered the assumption of inorganic arsenic in the aggregate exposure assessment to be reasonable.

87. Members asked for inclusion of calculations for the average consumer in the exposure assessment using mean dietary exposure and 97.5^{th} percentile consumption, but that the exposures for high consumers should still be included.

Item 12: Update on the work of other FSA Scientific Advisory Committees - for information (TOX/2023/21)

88. This paper was circulated for information. Members were asked to send in any questions or comments on the document to the Secretariat.

Item 13: Any other business

89. There was no other business.

Date of next meeting

The next meeting of the Committee will be at 10:00 on the 16th of May 2023 at Food Standards Agency, Clive House, 70 Petty France, Westminster, London, SW1H 9EX, Ground floor Rooms 1,2,3,4.