**TOX/MIN/2014/06**

# Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment

Minutes of the meeting held on Tuesday, 9th December 2014 in Aviation House, London.

Present

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| Chairman: | Professor D Coggon | | |
| Members: | Mr D Bodey<br>Dr R Brimblecombe<br>Dr R Crevel<br>Dr M Graham<br>Dr Caroline Harris<br>Prof D Harrison<br>Prof R Harrison<br>Prof B Houston<br>Prof B Lake<br>Prof I Morris<br>Dr N Plant<br>Dr J Thompson<br>Prof F Williams | | |
| Food Standards Agency (FSA) Secretariat: | Dr D Benford<br>Ms H Gbormittah<br>Ms R Acheampong<br>Ms L Buckley<br>Dr D Hedley<br>Ms Francis Hill<br>Dr L Kent<br>Mr B Maycock<br>Ms Cath Mulholland<br>Mr A Sbaiti<br>Dr J Shavila | Scientific Secretary<br>Administrative Secretary | |
| Public Health England (PHE) Secretariat: | Ms F Pollitt | Scientific Secretary | |
| Invited experts and Contractors: | Dr Rebecca Suckling | Consultant Nephrologist, Epsom and St Helier University Hospitals NHS Trust | Item 5 |
| | Dr Rebekah Jenkins | Epsom and St Helier University Hospitals NHS Trust | Item 5 |
| Officials: | Ms Nathalie Shapiro | FSA Allergy and Novel | Item 3 |

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| | | Foods team | |
| | Ms Elaine Boylan | PHE | Items 4-6 |
| | Ms Rachel Elsom | PHE | Items 4-6 |
| | Ms Mary McNamara | Department of Health (DH) | Item 5 |
| | Dr Sharon Broby | PHE | |
| Assessors: | Dr Michaela Benton | Health and Safety Executive (HSE) | |

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**Announcements**

1. The Chairman, Professor Coggon, welcomed Members and assessors to the meeting. He also welcomed Dr Rebecca Suckling and Dr Rebecca Jenkins, from the Epsom and St Helier University Hospitals NHS Trust, who were in attendance to assist the Committee with the discussion on item 5.

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

**Item 1: Apologies for absence**

3. Apologies were received from three Members – Professor Janet Cade, Dr Anna Hansell and Professor Robert Smith. No written comments had been submitted. Apologies were also received from assessors Professor Tim Gant (Public Health England) and Sam Fletcher (Veterinary Medicines Directorate).

**Item 2: Draft minutes of the meeting held on 28th October 2014 – TOX/MIN/2014/05**

4. The minutes were agreed subject to minor editorial amendments.

**Item 3: Matters arising**

*Item 3: Matters arising from previous meetings*

5. Para 6: A letter had been sent to the Permanent Secretary on 12th November, but as yet, no reply had been received.

6. Para 8: Publication of the paper on aspartame research was still awaited.

7. Para 9: The Chair provided a brief report on the expert workshop on "Implementing systematic review techniques in chemical risk assessments: challenges and opportunities", which he and the Scientific Secretary had attended. He noted that systematic reviews of the type conducted by the National Institute for Health and Care Excellence (NICE) worked well if only one or two specific questions needed to be answered, but were less practical when there were a large number of questions, as often occurred in risk assessment for chemicals. In that situation, the time required for such detailed methods of review would often be difficult to justify. He noted also that the methods that were commonly used to grade evidence were often unsatisfactory, and suggested that more attention should be given to the potential impact of bias on the findings from each of the studies under consideration. For example, a study that was liable to important bias might still be telling if the effect

observed was too large to be explained plausibly by the bias. The Chair offered to circulate his perspectives on the workshop to the rest of the Committee.

8. The COT/COC subgroup to document how epidemiological evidence is assessed had still to be established.

9. Para 10: Members were provided with a brief verbal update on progress towards setting up an *ad hoc* allergy working group to review whether the addition of lactobacillus GG to fully hydrolysed formula presents any risks to children who are allergic to cows' milk. A further update would be provided at a future meeting, and the outputs of the working group would be reported to the COT in due course.

10. Para 11: A draft paper on interspecies variation in developmental toxicity was expected to be ready for the February meeting.

11. Para 13: Prof Morris would attend the European Food Safety Authority (EFSA) stakeholder meeting on 10th December to present the COT/COC views on the EFSA draft opinion on acrylamide.

*Item 4: Recommendations of the Bystander Risk Assessment Working Group report concerning skin sensitisation from exposure to pesticides*

12. Para 19: Information on whether there was evidence of sensitisation in re-entry workers, bystanders, residents or non-professional pesticide users would be brought to a future meeting.

13. Paras 24 and 25: The papers on the local lymph node assay were still to be provided to COT.

*Item 5: Scoping paper on the potential risks from polybrominated biphenyls (PBBs) in the infant diet*

14. Information on the rationale for selection of the congeners that had been analysed would be provided under item 6 of the current agenda.

*Item 6: Second draft statement on the potential risks from polybrominated diphenyl ethers (PBDEs) in the infant diet*

15. Para 45: Following correction of an error in units, which had resulted in major changes in the margins of exposure, a revised statement was being brought back to the Committee for discussion at the current meeting.

*Item 7: Second draft statement on adverse effects of high levels of vitamin D – TOX/2014/33*

16. Para 48: Members were advised that corrections were now made in the National Diet and Nutrition Survey (NDNS) to allow for missing data on the vitamin D content of some foods, and therefore this was not expected to have a major impact on the intake assessments.

17. Para 50/51: Members were informed that a draft statement was being finalised by Chairman's action; a lay summary to the statement was also being prepared and would be circulated to the rest of the Committee when finalised.

*Item 8: Second draft statement on domoic acid in King Scallops (Pecten Maximus)*

18. Para 54: The draft statement had been approved by Chair's action and a lay summary circulated to Members for comment. The finalised versions were due to be published imminently.

**Item 4: First draft statement on the potential risks from hexabromocyclododecanes (HBCDDs) in the infant diet – TOX/2014/35**

19. No interests were declared.

20. At the September COT meeting, Members had discussed a scoping paper on the potential risks from hexabromocyclododecanes (HBCDDs) in the infant diet, as part of a continuing series of investigations in support of a Scientific Advisory Committee on Nutrition (SACN) review of the Government's dietary recommendations for infants. The Committee had agreed with an EFSA opinion from 2011 that the available data were not sufficient to establish health-based guidance values and that a margin of exposure (MOE) approach would be more appropriate. However, Members had questioned the appropriateness of the reference point that had been identified by the EFSA and had asked that more recent data be considered in greater detail. It had been concluded that the available information was sufficient to justify drafting a statement for discussion at a future COT meeting.

21. Paper TOX/2014/35 included a first draft statement that took into account the previous COT discussion and summarised the available information on the toxicology of HBCDDs. Members were invited to comment on the draft statement and on whether new information that had become available since the EFSA 2011 opinion called into question the reference point that had been used for the risk assessment in the draft COT statement.

22. Members agreed that the overall structure of the statement was satisfactory but asked that clearer justification be given for the assertion that an MOE of 30 was of low concern. Members noted that the highest exposures to dust would be of concern.

23. The Committee suggested that the uncertainties surrounding the different toxicity of individual HBCDD isomers, and the difference between the compositions of technical mixtures and the mixtures to which people are actually exposed (especially their exposures to higher levels of the $\alpha$ isomer) needed highlighting. The uncertainties in the risk assessments for diet and dust should be noted separately. A comment should also be made on what is known about the half-lives of the different HBCDD isomers and whether there are important differences between them.

24. Although HBCDDs are now no longer permitted for use in domestic products, and therefore the exposures of infants should be declining, Members recommended further monitoring of levels in household dust to expand the currently small database and check on trends over time. Studies on HBCDDs in infant formula, infant food and supplements would also be useful but were of lower priority.

25. A revised draft statement would be prepared for discussion at the next Committee meeting in February 2015.

**Item 5: Potassium-based replacements for table salt and sodium additives (TOX/2014/38 and TOX/2014/39)**

26. Dr Crevel declared a non-personal, specific interest and did not take part in the discussion of items 5a or 5b.

27. As a prelude to setting new Responsibility Deal targets for salt, DH had asked the SACN to consider the merits of potassium-based replacements for table salt and for sodium-based additives in food products. The aim of the salt targets is to reduce population intakes of sodium, thereby lowering blood pressure and the risk of stroke.

28. DH does not currently recommend the use of potassium-based replacements as a means of achieving sodium reduction, since their use would maintain a higher salt flavour in food, and it would be preferable to encourage consumers' palates to adjust gradually to lower salt levels. In addition, increasing levels of potassium in food might have adverse effects in vulnerable individuals who were at risk of hyperkalaemia because of impaired or immature kidney function. These vulnerable groups could include the elderly, very young children and people with kidney disease. Some individuals with impaired kidney function are required to consume a low potassium diet, and would need to avoid products using salt replacers, but there are

also many more people with undiagnosed renal disease, who might be adversely affected by increased levels of potassium in their food.

29. Industry had asked the DH to reconsider this view as some producers would like to use (and may already be using) potassium-based replacements as a way of reducing levels of sodium in food. The products concerned were generally those for which further reductions in sodium could not be achieved by reformulation since the sodium salt had a function (for example, as a preservative or a raising agent) as well as providing taste.

30. Following earlier discussions, Members had concluded that young children were not particularly sensitive to high potassium intakes, but there were concerns about people with kidney disease, and particularly those in whom it was undiagnosed. They had asked to revisit the topic once further data had been obtained.

**Item 5a: Additional information on hyperkalaemia – TOX/2014/38 RESERVED BUSINESS**

31. Paper TOX/2014/38 included additional information on the incidence of hyperkalaemia and an updated assessment of the increases in potassium intakes that might arise from potassium-based replacement of sodium. The Chairman welcomed Dr Rebecca Suckling and Dr Rebekah Jenkins of the Epsom and St Helier University Hospitals NHS trust who had undertaken the additional research on hyperkalaemia.

32. Discussion of Annex A of paper TOX/2014/38 was held as reserved business pending publication of the research.

40. Paper TOX/2014/38 also provided an assessment of the potential increase in potassium intakes arising from the use of potassium-based substitutes. When the original assessment had been conducted, it was assumed that sodium would be replaced by the potassium equivalent at a maximum of 25% weight/weight (w/w). The limited recipe data obtained from industry since then had not materially affected the assessment, as it related to only a few selected food items, which contributed less than 3% of the overall potassium intakes in the original assessment. Data on larger food groups, such as bread, that might have a larger effect on the overall estimate were sparse, but the limited information that was available was reasonably consistent with the assumed replacement of 25% w/w. Therefore the previously estimated maximum of 500-600 mg additional exposure to potassium (see TOX/2013/44) remained applicable. The Committee agreed that there was no need at this stage to

search in depth for further data on rates of replacement, although any that came to light should be taken into account.

41. Members were asked to consider the new information that had been obtained and the potential for adverse effects from hyperkalaemia if potassium-based replacement of sodium were introduced.

42. It was agreed that it would not be appropriate for the Committee to endorse the use of potassium-based replacements or to advise on a suitable level for any such replacement, as that was risk management. However, a statement could set out the potential scale of adverse effects.

43. The Chairman thanked Dr Suckling and Dr Jenkins for attending.

**Item 5b: First draft statement on potassium-based replacements for sodium chloride and sodium-based additives – TOX/2014/39**

44. Paper TOX/2014/39 included a first draft statement that took into account the previous COT discussion and summarised available information on the toxicology of potassium and potential increase in potassium intakes arising from the use of potassium-based replacements.

45. Members made a number of comments on the overall structure and content of the first draft statement, noting that further data would be included in the next draft, to be discussed at a future meeting.

**Item 6: First draft statement on polybrominated biphenyls (PBBs) in the infant diet – TOX/2014/40**

46. No interests were declared.

47. At the October COT meeting, Members had discussed a scoping paper on polybrominated biphenyls (PBBs) in the infant diet, as part of a continuing series of investigations in support of a SACN review of Government's dietary recommendations for infants. Members had concluded that it would not be possible to conduct a meaningful risk assessment due to the limited exposure data available, and that a position paper or statement should be drafted to explain this.

48. Paper TOX/2014/40 included a first draft statement that took into account the previous COT discussion and summarised available information on the toxicology of PBBs, points of departure agreed by the Committee at the October meeting, and the

limitations of the available exposure data. The Committee agreed with the proposed format for the statement.

49. Members suggested some minor editorial changes, including some re-ordering and further clarification of the relevance of the constitutive androstane receptor (CAR) to human toxicity.

50. Information on the criteria by which congeners had been selected for analysis was provided verbally and would be included in the statement.

51. As the requested changes were minor, Members agreed that the statement could be finalised by Chairman's action.

**Item 7: First draft statement on the effects of soya consumption on thyroid status – TOX/2014/41**

52. No interests were declared.

53. At a number of previous meetings, the COT had considered the potential effects of consumption of soya products on various health outcomes investigated in FSA-funded studies, and the Committee had concluded that it would be appropriate to produce a COT statement on possible effects of soya phytoestrogens on the thyroid. Paper TOX/2014/41 contained a first draft statement, with an overview of the results of FSA-funded research and other scientific literature concerning the effects of phytoestrogens on the thyroid, and summarised the conclusions from previous COT meetings.

54. Members agreed with the structure of the statement, but suggested that it would benefit from some additional subheadings, and from the inclusion of tables summarising the studies reviewed (segregated into sub-categories), including those funded by FSA.

55. The Committee asked for a number of editorial changes to help clarify the design and interpretation of the studies included.

56. A revised draft statement would be prepared for discussion at the next Committee meeting in February 2015.

**Item 9: Third draft statement on the potential risks from polybrominated diphenyl ethers (PBDEs) in the infant diet – TOX/2014/42**

57. No interests were declared.

58. Following discussion of the second draft statement at the October 2014 meeting, an error had been discovered in the units in one part of the draft, which had led to overestimation of the MOEs. In addition, in consultation with one Member, a reference point for BDE-209 had been calculated to allow for extrapolation of body burden from acute to chronic exposure. Appropriate amendments had been incorporated into a third draft statement.

59. A number of editorial changes were requested. The Committee noted that many of the estimated MOEs were now low. This did not necessarily imply that adverse effects were occurring, and the absence of clear adverse effects in epidemiological studies gave some reassurance. However, it meant that there was not the assurance of safety that the Committee usually sought. Since the main sources of dietary exposure were breast milk and dairy products, there was limited scope for risk management action to reduce exposure.

60. There should be continued monitoring of concentrations of PBDEs in breast milk and food to check that concentrations are declining, and infant formula and pre-prepared infant foods should also be analysed.

61. Following revision, the draft statement would be sent to the SACN Sub-group on Maternal and Child Nutrition (SMCN) for comment, before being considered again by the COT.

**Item 9: Paper for information: FSA Scientific Advisory Committees (SACs) update – TOX/2014/43**

62. This paper was provided for information only.

**Item 10: Any other business**

63. The secretariat informed Members that interviews had been scheduled to select a new Chairman and another Committee Member.

64. The Chairman had been communicating with a local authority contaminated land officer regarding category 4 screening levels (C4SL). As part of continuing professional development, the officer was seeking specific training in toxicology and epidemiology with relevance to risk assessment for contaminated land. Members were asked if they were aware of any training that might be suitable for that purpose. Although Members felt that the focus was probably too narrow for a specifically tailored course to be commercially viable, some suggestions were made for contacts that might be able to offer relevant training. These included the Royal Society of Chemistry's Environmental Chemistry Group.

65. The secretariat informed Members that the Agency's reprographics section had been closed down and there was no replacement service in place yet. Some Members were content to receive only electronic copies of papers, but others stated that they would require printed copies of at least the main papers.

**Item 11: Date of next meeting**

66. Date of next meeting – Tuesday 3rd February 2015, Conference Rooms 4 & 5, Aviation House, 125 Kingsway, London. WC2B 6NH.