(VPG/12)

Guidance on the safety and shelf-life of vacuum and modified atmosphere packed chilled foods with respect to *Clostridium botulinum*

Second meeting of Food Standards Agency VP/MAP Guidance drafting group 16th February 2007, Room 531 Aviation House.

Present

Brian Curtis (BC)	Food Safety Consultant
Maurize Rossi (MR)	Sealed Air
Kaarin Goodburn (KG)	CFA
Mike Peck (MP)	IFR
Mike Stringer (MS)	CCFRA
Kevin Woodfine (KW)	FSA, PPD
Kathryn Callaghan (KC) (Chair)	FSA, MSD
Ian Smith (IS)	FSA, MSD

Apologies

Paul Cook (PC)	FSA
Alec Kyriakides (AK)	BRC
Jenny Morris	CIEH

Introductions.

1. The chair welcomed members to the second meeting of the Drafting Working group. Brian Curtis was welcomed in place of Jenny Morris. The aim of the group is to take forward extensive revisions of the Agency guidance on vacuum packed and modified atmosphere packed chilled foods with respect to *Clostridium botulinum*.

Consideration of revised guidance *(VPG/07)*

2. The drafting group agreed that the existing guidance document *(VP07*) was too long and the content too complex for the target audience. The Working Group agreed the following changes:

3. Section *Introduction:* Revise to define the scope of the document, in particular that the guidance should be followed for hish risk foods and make reference to ACMSF Table 12 (page 29), noting high and medium risk foods and that the list is not exhaustive.

4. Add a sentence to cover high oxygen and low oxygen MAP

Action: MP to draft

5. Combine sections on *Examples of toxin formation*… and *Risk toxin formation* …and summarise

6. Section *What does this guide cover*: Move first sentence and last sentence to Introduction section. With reference to "More recent ACMSF advice" this should be retained but make reference to the recommendations of the ACMSF advice at 8 June 2006 meeting, (i.e. "The Committee endorsed the recommendation to support a 10-day shelf-life recommendation with the vacuum packaged guidance document being revised from less than or equal to 5 days to less than or equal to 10 days at 8 degrees C.")

7. Section *Who should use this guidance document*: Revise 2nd sentence to encompass small businesses

8. Section *Statement on the practice of repackaging VP/MAP foods:*This should be covered elsewhere so could delete – move to annex for now.

9. Section *The risks associated with vacuum packing at home*: Refer to ACMSF recommendation that home vacuum packaging should not be encouraged (page 48 Rec 2). Delete last 3 sentences. Check industry code of practice advice on shelf-life of home vacuum packed foods.

10. Section *The uses and limitations of predictive growth models:* Move to annex for now.

11. Section *HACCP AND PRODUCT DESIGN*: Delete.

12. Section Background *on specific controlling factors* move to annex section

13. Incorporate a decision tree to determine long or short shelf life for VP or MAP chilled foods, with specific reference to repacked bulk products

14. Include Q&A section for local authority Food Enforcement Officers, with sub-sections on:

Repacking VP/MAP Chilled Foods;
Advice & Further Guidance;
Specific Enforcement Advice

Q&A and Decision Tree – advice for Enforcement Officers *(VPG/08)*

15. The group considered the decision trees drafted by BC and agreed that this was a highly effective method for communicating a complex issue. Rather than two separate decision trees it was recommended that they be combined to include repackaging of bulk product and MAP products.

Acton IS to draft decision tree.

16. It was agreed that the decision tree should appear as a centre page section, followed by the EHO Q&A section.

17. Revise the title to …packed product “with respect to C.botulinum” according to ACMSF Guidelines “at 8^{o}C or lower where the food has been identified as high priority for attention”, Add a footnote to reference ACMSF Table 12. Add a foot note on predistribution storage less than 3^{o}C (no growth of C.botulinum) and shelf-life starts once it goes above 3^{o}C.

18. Revise box “Is the heat treatment thought to be suffient to inactivate spores of Cl.botulinum?” to “Is the heat treatment 90^{o}C at least or equivalent at the slowest heating point used ? Add a footnote referring to equivalence table.

19. Add a footnote on validation (if it is known to be sufficient and if so provide evidence e.g. references). If not then consider as a higher risk area (on the basis of whether the product is heated to 70^{o} for 2’ for Listeria). Add a footnote that “Food heated prior to packaging must be handled under high hygienic conditions to prevent recontamination”.

20. Add a footnote explaining what “appropriate verification means” along the lines of regular checks to make sure cooking etc. is working properly (i.e. delivering that process).

21 For box “Continue to apply shelf-life greater than 10 days at max temp 8oC” add a foot note “The Food Business Operator should demonstrate that the shelf-life is appropriate for the product under the storage conditions”.

22. For box “Is control by a combination of preservation factors” add a footnote to ACMSF report covering controlling factors (page 18). Add a new tree to cover single preservation factor.

Chilled foods – Discussion on when the shelf-life actually starts *(VPG/09*)

23 The group discussed the following scenario and how the guidance can be interpreted to answer the question:

Q Is the following practice acceptable with regard to ACMSF guidelines:

- Prepare ingredients (e.g. by chopping vegetables/ meat), hold at 8°C for 5 days;
- Combine ingredients together to make a ready meal, heat at 70°C for 2 min;
- Give the product a shelf-life of 8°C for 10 days.

A In relation to the recommendation that foods should be stored at 8°C or less for a maximum of 10 days, it is important that the total shelf-life takes due account of the storage times of both ingredients and the finished product, if neither are formulated to prevent the growth of non-proteolytic *C.botulinum*. Thus the shelf-life of chilled VP/MAP ingredients which are themselves not

formulated to prevent the growth of non-proteolytic *C.botulinum* should be considered as part of the overall shelf-life of the finished product i.e. the *combined* shelf-life of the ingredients and finished product should not exceed 10 days at 8°C if neither prevents the growth of *C.botulinum*.

In cases where such ingredients are combined in a final mix that is then subject to a further heat process which destroys vegetative cells e.g. 70°C for 2 mins, the shelf lives do not need to be combined, providing the ingredients remain fit for consumption.

Action MP to draft form of wording

European context *(VPG/10)*

24. Annex II of Regulation (EC) No 2073/2005 of 15 Nov 2005 was tabled to ensure that members were content that the guidance ensured a consistent approach to EU requirements. Annex II of the microcriteria regulations covers shelf-life establishment principally for *Listeria monocytogenes*. A reference could be made to Annex II in relation to validation.

25. Members discussed bringing the guidance to the attention of the Commission and it was suggested that it could be submitted as an information document to EU contacts on the Microcriteria Working Group . An earlier draft of the document was brought to the attention of the Expert Group on Durability Studies (EU contact Pia Makela) at the time of drafting Annex II.

26. The Agency has since become aware that the Central Reference Laboratory for *Listeria* is holding a National Reference Laboratory workshop in April which would begin work to draft guidelines for Food Business Operators on how to conduct durability studies required under Article 3(2) in accordance with Annex II. This is high priority for the Central Reference Laboratory and it is hoped the guidance can be published by the end of 2007. At present there is no National Reference Laboratory.

Need for a Regulatory Impact Assessment; request for information on industry costs and affected sector(s).

27. Agency officials sought the view of the Working Group on the need for a Regulatory Impact Assessment (RIA). KG, MP and MS all agreed that the revised guidance is a consolidation of existing industry (CFA) and ACMSF guidance, in a form suitable for small business operators such as butchers and catering staff. KW considered the guidance to be 'forward looking and precautionary'. Given that the recommendations are based on existing industry best practice, the guidance is simply making food businesses aware of their responsibility in this area. Therefore, in the view of the working group there is no justification for an RIA.

Timetable

28. The revised draft and decision tree will be circulated to members by the end of March 2007. The final version of the guidance is likely to be presented at the September 2007 ACMSF meeting.

Future Research Requirements - General discussion on the need for future research.

29. The following research areas were considered by the WG and prioritised

- Detection and enumeration of spores – Use of the method. A database of maximum spore loadings per food type would provide an indicator of high risk foods. This research need stems from the industry's use of the 6 decimal reduction rule of thumb, but there has been so little work done on this fundamental area that a 4 decimal reduction or other may well be an adequate protection factor. Technically demanding and expensive but potential major benefits for the chilled food industry e.g. the use of more moderate heat treatment for a range of food types (and hence complying with sustainable development). The Chair asked whether this could be supported through CCFRA membership funding and agreed to submit the suggestion to MS as membership is canvassed for issues. High priority

- Predictive modelling – use new and existing data from research for software tool. Extend Combase Predictor to a four factor model to include nitrite, using existing research data on the effect of heat temperature and incubation temperature on time to toxin formation, to develop a new software tool. The highest priority is the need to include the non-proteolytic *C.botulinum* nitrite model.

- Appropriate choice of Z values for more consistent time/temperature profiles. There is a need for more robust data to produce a 90^{o}C for 10' equivalent between 90^{o}C and 98^{o}C. We are currently working to 3 tables with different choices of Z values so it is very confusing for the industry. High priority.

- Improved understanding of unknown controlling factors such as inhibiting agents, pH and food structure. Medium priority;

- Survey of UK domestic refrigerator temperatures – The chair mentioned that the Agency was considering the possibility of a survey for next year.

A.O.B.

30. BC raised the need for a 'fighting fund' to enable Local Authorities to fund advice from CCFRA etc**.**
Action IS to liaise with Paul Cook and FSA EHOs to take this forward.

31. It was suggested that Agency officials from Enforcement Divison and the HACCP team should have sight of the revised guidance.
Action Chair to make interested FSA parties aware

Date of the next meeting

32 The third meeting of the drafting working group will take place on Wednesday 18th April at AVH.