

**Advisory Council on Food and Environmental Hygiene**

**A Food Incident - Brominated Vegetable Oil (BVO)  
Detected in a Beverage Sold in Hong Kong**

**Purpose**

This paper briefs Members on the captioned incident and follow-up actions taken by the Centre for Food Safety (CFS).

**The Incident**

2. CFS, through its routine Food Incident Surveillance System, learned about the imminent withdrawal of BVO uses from bottled drinks manufactured by Coca Cola and PepsiCo in the United States (US) in May 2014.

3. BVO is not permitted to be used in food in many countries but allowed in the US and Canada. In response to the above report, CFS embarked on a targeted surveillance on BVO in bottled drinks originated from North America between May and June 2014 and collected 25 beverage samples from local retailers. One sample of carbonated beverage which labelled BVO as an ingredient on its packing was found to contain BVO at the level of 0.9 ppm. BVO was not detected in the other 24 beverage samples.

4. Regarding the sample with BVO detected, CFS informed the vendor concerned of the unsatisfactory test result together with a warning letter. According to information provided by the concerned trade, only a small amount of the problem food was imported and distributed via three retail outlets. All products in question had been sold out or off-shelved according to their record. The incriminated food was not found on sale during subsequent checking.

5. The BVO surveillance result was announced in the monthly Food Safety Report at the end of June 2014. Prosecution action is being considered.

### **Risk Assessment**

6. BVO is a viscous oil liquid with a pale yellow to dark brown colour and a fruity odour. It could be used in flavouring for fruit flavoured beverages as emulsifier and stabiliser.

7. So far, there is no internationally recognised health-based guidance value established for BVO. BVO is not included in the permitted list of food additives in jurisdictions such as the European Commission (EC), Australia, New Zealand, Mainland China, Singapore and Japan, but it is still permitted to be used in flavouring for beverages in the US and Canada, with a maximum permitted level of 15 ppm.

8. The safety of BVO was evaluated by JECFA (Joint FAO/WHO Expert Committee on Food Additives) in 1970. The research by JECFA panel demonstrated evidence of accumulation of bromine in the body lipids of the rat, pig and human beings (particularly children). Progressive cardiac lesions had been noted in the rat at comparatively high levels of intake. According to their assessment, it seemed undesirable that lipid-bound bromine should accumulate in the tissues of human beings despite the absence of any definite pathological effects. As no long-term studies were available at the time of evaluation, the JECFA panel did not establish an Acceptable Daily Intake (ADI) for BVO.

9. JECFA concluded from that time (1970) that BVO should not be used as food additives in the absence of evidence indicating their safety, and has not re-evaluated the safety of BVO since then.

10. CFS contacted the US Food and Drug Administration (FDA) in connection with the current incident. FDA is of the view that the totality of evidence supported the safe use of BVO in fruit-flavored beverages at the level of 15 ppm, although it has remained on a list of food additives permitted on an interim basis pending the outcome of additional toxicological studies.

## **Regulatory Control of BVO in Hong Kong**

11. Since BVO is an emulsifier and a stabiliser, it is not governed by the subsidiary legislation under the Public Health and Municipal Services Ordinance (Cap. 132), which imposes control on the use of sweeteners (Cap. 132U), colouring matters (Cap. 132H), as well as preservatives and antioxidants (Cap. 132BD) in food. In addition, BVO is not listed as one of the prohibited harmful substances in the Harmful Substances in Food Regulations (Cap. 132AF). Nevertheless, as stipulated in section 54 of Cap. 132, all food for sale in Hong Kong must be fit for human consumption.

### **CFS' Position**

12. As quantitative risk assessment based on an internationally recognized ADI cannot be conducted, CFS shares the view of JECFA that BVO should not be used as food additives from a risk assessment perspective.

13. Since 2005, CFS<sup>1</sup> has made known its position via answers to trade enquiries and the Centre's website that members of the trade should not use BVO in food in Hong Kong.

### **Previous BVO Surveillance Results**

14. CFS previously conducted surveillance on BVO in food and beverages. From 2000 to 2007, a total 73 food samples covering mainly prepackaged fruit juices and drinks, tea, snacks and bakery products, were collected from the local food factories and retail outlets for testing. None of them was detected to contain BVO.

### **Way forward**

15. CFS will remain vigilant in the development of the BVO incident and is actively considering prohibiting categorically the use of BVO in

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<sup>1</sup> CFS was set up in 2006 under FEHD.

food under law in the near future. CFS will submit its proposals to the Food and Health Branch in due course.

### **Advice Sought**

16. Members are invited to note the above report on this food incident.

**Food and Health Bureau  
Food and Environmental Hygiene Department  
Centre for Food Safety  
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