

**For information**

**On 17 July 2001**

**LegCo Panel on  
Food Safety and Environmental Hygiene**

**Monitoring of chemical levels  
in sauces and other savoury products**

**PURPOSE**

Following the UK publication of survey reports on soy sauces, there were concerns raised about possible public health implications. This paper discusses the monitoring of 3-monochloropropane-1,2-diol (3-MCPD) and 1,3-dichloropropanol (1,3-DCP) in soy sauces and other savoury products.

**BACKGROUND**

2. In June 2001, the United Kingdom Food Standards Agency (FSA) announced the results of a study on soy sauces. Among the 100 samples of sauces taken, 22 were found to contain chemicals called 3-MCPD and/or 1,3-DCP. The UK authority has requested voluntary recall of these products.

3. This is a follow up study to two similar surveys conducted in UK in 1999. Surveys of 3-MCPD in acid-hydrolysed vegetable protein

(acid-HVP) and soy sauce were released in the UK by the Ministry of Agriculture Fisheries and Food (MAFF) in June and September 1999 respectively. Nineteen brands of soy sauce were found to contain 3-MCPD. There was no official request by MAFF for product recall. Suppliers were advised to take actions to ensure their products would not contain 3-MCPD.

### **3-MCPD AND 1,3-DCP IN SOY SAUCES**

4. Both 3-MCPD and 1,3-DCP belong to a chemical group called chloropropanols. It has been shown that 1,3-DCP is formed from 3-MCPD and hence is found where 3-MCPD is present.

5. They may be generated as by-products in the manufacturing of soy sauce and acid-HVP which is a common food ingredient.

6. Since acid-HVP gives a meaty flavour, it is used as flavour enhancer and commonly used in savoury food products. Some examples are soups, prepared meals, savoury snacks, gravy mixes and bouillon cubes.

### **HARMFUL EFFECTS OF 3-MCPD AND 1,3-DCP**

7. The safety of these chemicals has been evaluated by Joint FAO/WHO Expert Committee on Food Additives (JECFA), which concluded that 3-MCPD and 1,3-DCP were undesirable contaminants in food and considered that their levels should be reduced as far as is technically possible. Some of the methods include: avoid the use of hydrochloric acid and other chlorinating agents; use fermentation or enzyme hydrolysis in soy sauce manufacturing instead of acid hydrolysis; choose good quality HVP.

8. The greatest concern regarding the intake of 3-MCPD and 1,3-DCP is possible carcinogenicity. European Union Scientific Committee on Food has opined that 3-MCPD is carcinogenic in rats. 1,3-DCP are also considered carcinogenic. However, it has not been established that they would cause cancer in human.

## **REGULATORY STANDARDS OF 3-MCPD AND 1,3-DCP IN FOOD**

9. Up to present, no international consensus has been reached on the limit of 3-MCPD and 1,3-DCP in food. The issue has been discussed at meetings of Codex Alimentarius Commission (CAC) but it was not able to propose a control limit.

10. Different countries have adopted different approaches in tackling the presence of 3-MCPD and 1,3-DCP in food (see Annex). The US food authority and Canadian Food Inspection Agency have encouraged compliance to a guideline level of 1 mg/kg for 3-MCPD, whereas the European Commission has stipulated a control limit of 0.02mg/kg in law for implementation in early 2002.

## **SITUATION IN HONG KONG**

11. In the absence of an internationally agreed regulatory standard, there is no prescribed limit for these chemicals in our local laws. Since late 1999, we have advised the related trade to reduce/eliminate levels of these chemicals in food. We have also started surveys to obtain information on the local situation.

12. So far, results of 72 samples have been available and 3-MCPD is not detected in 57 (79.2%) of these. Of the remaining 15 samples containing 3-MCPD, 7 samples were detected of 3-MCPD above US

guideline level. We have followed up with the manufacturers/ importers concerned regarding the appropriate actions to be taken.

## **CONCLUSION**

13. This Department will continue to monitor the situation and keep in view international developments. Active dialogue with the trade will be continued.

**July 2001**

**Food and Environmental Hygiene Department**

## **Annex**

### **Control approaches on 3-MCPD and 1,3-DCP adopted by some developed countries:**

#### **United States**

The US food authority does not specify a legal limit. The industry voluntarily comply to a specification of 1 mg/kg of 3-MCPD and 0.05mg/kg of 1,3-DCP in HVP.

#### **Canada**

The Canadian Food Inspection Agency has adopted a provisional guideline of 1mg/kg of 3-MCPD in soy sauces with effect from 1 April 2000. The Canadian authority set no limit for 1,3-DCP.

#### **European Commission**

The European Commission has proposed a limit of 0.02 mg/kg for 3-MCPD in soy sauces and acid-HVP in December 2000. This Regulation will be implemented in early 2002. No limit for 1,3-DCP is set.