FAQ on Aluminium in Food

Q1. What is aluminium?

A1. Aluminium (Al) is a silvery-white metal with light weight and is the most abundant metallic element of the earth's crust. Aluminium metal has a wide variety of uses including cooking utensils, food packaging such as beverage cans and foil, as well as other industrial uses. Aluminium compounds have a wide variety of applications including food processing (e.g. food additives), consumer products (e.g. antiperspirants) and medicinal products (e.g. antacids), etc.

Q2. Where does Aluminium come from?

A2. Small amount of aluminium exists in food, water, air, and soil in the environment. People cannot completely stay away from aluminium in daily lives. Dietary intake is the major route of exposure to aluminium. Aluminium may also be present in drinking water due to its use in water treatment but normally at low levels, or due to the use of aluminium cooking utensils and foil, in which the magnitude of this increase is generally not of practical importance.

Q3. Why does food contain aluminium?

A3. Food contains aluminium for various reasons. Aluminium can be naturally present in food but usually at low levels. The major source of dietary intake of aluminium is the use of aluminium-containing food additives. These food additives can be used as raising agent in steamed cake /bread and bakery products, firming agent in jellyfish (alum), anti-caking agent in powder mix and colouring matter in candy-coated confectionery.

Q4. What are the health effects of aluminium?

A4. At present, no acute toxicity by oral exposure to aluminium has been reported in general population. However, aluminium compounds have demonstrated developmental toxicity in experimental animals. There is no evidence showing casual association between dietary

exposure to aluminium and the development of Alzheimer disease. Aluminium is not regarded as a human carcinogen.

Q5. Is there any health-based guidance value set for aluminium by international authority?

A5. At the evaluation in 2011, Joint Food and Agriculture Organization/World Health Organization Expert Committee on Food Additives (JECFA) allocated a Provisional Tolerable Weekly Intake (PTWI) of 2 mg/kg body weight (bw) to all aluminium compounds in food including food additives.

As the emphasis of PTWI is long term exposure, an intake above the PTWI does not automatically mean that health is at risk. Transient excursion above the PTWI would have no health consequences provided that the average intake over long period is not exceeded.

Q6. What are the levels of aluminium in different types of food as shown in the follow up study released by the Centre for Food Safety in 2016?

A6. The follow up study result showed that aluminium-containing food additives were widely used in certain food products available in Hong Kong. The food products, which found to contain relatively high concentrations of aluminium, included "steamed bread/bun/cake" (mean: 65-280 mg/kg), some "bakery products" such as egg waffle and waffle (mean: 270 mg/kg), as well as "jellyfish (ready-to-eat form)" (mean: 800 mg/kg). Details of the study can be found in the link below: http://www.cfs.gov.hk/english/programme/programme_rafs/programme_rafs_fa_01.html

Q7. What is the dietary exposure to aluminium among general population in Hong Kong according to the follow up study?

A7. Risk assessment was conducted basing on the study results in which the dietary exposures to aluminium for average and high consumers of the local population were found to be below the

health-based guidance value set by JECFA. Based on these assessments, general population were unlikely to experience major undesirable health effects of aluminium. Nevertheless, for consumers with brand loyalty to products with high aluminium contents, adverse health effect of aluminium cannot be ruled out.

Q8. How can consumers reduce their dietary exposure to aluminium?

A8. Consumers should maintain a balanced diet to avoid excessive exposure to aluminium from a small range of food items. Consumers can make informed choice when buying prepackaged food. If you want to know if aluminium-containing food additives have been added to a prepackaged food, read the information on the ingredient list and find out the name of the food additives used or their identification numbers (as shown in the figure below).

523 is the number of aluminium ammonium sulphate in the International Numbering System (INS) adopted by the Codex Alimentarius Committee.

Here below are the Chinese and English names and INS number of some of the aluminium containing food additives:

國際編碼系統編號 **INS Number**	食物添加劑名稱 **Name of Food Additive**

173	鋁粉　Aluminium powder
520	硫酸鋁　Aluminium sulphate
521	硫酸鋁鈉　Aluminium sodium sulphate
522	硫酸鋁鉀　Aluminium potassium sulphate
523	硫酸鋁銨　Aluminium ammonium sulphate
541	磷酸鋁鈉　Sodium aluminium phosphates
541(i)	酸性的磷酸鋁鈉　Sodium aluminium phosphate, acidic
541(ii)	鹼性的磷酸鋁鈉　Sodium aluminium phosphate, basic
554	硅鋁酸鈉　Sodium aluminosilicate
555	硅酸鋁鉀　Potassium aluminium silicate
556	硅酸鋁鈣　Calcium aluminium silicate
559	硅酸鋁　Aluminium silicate
1452	辛烯基琥珀酸鋁澱粉 Starch aluminium octenyl succinate