

CODEX ALIMENTARIUS COMMISSION



Food and Agriculture
Organization of
the United Nations



World Health
Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - Fax: (+39) 06 5705 4593 - E-mail: codex@fao.org - www.codexalimentarius.net

Agenda Item 5(d)

FA/43 CRD 14
(original language only)

JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX COMMITTEE ON FOOD ADDITIVES

Forty-third Session

Xiamen (Fujian Province), China, 14-18 March 2011

PROVISIONS FOR ALUMINIUM CONTAINING FOOD ADDITIVES

The following comments have been received from the following Codex members and observers

Kenya, India, Indonesia, Japan, Mali, Thailand and **NHF**

KENYA

Kenya notes the importance attached to this discussion paper especially in regard to protecting health and safety of consumers. We agree in principle that only numerical MLs should be provided and where such information is missing or not provided that provision should be discontinued (for the case of new food additives) or revoked in the case where its already in the GSFA.

We are in agreement with recommendations 1, 3, 4, 5 but propose that recommendation 2 be discarded in its entirety. We are of the opinion that recommendation 1 provides a more detailed and clear way of establishing the MLs of aluminum. However, in regard to recommendation 1 part (c), Kenya is for the opinion that the highest percentage be adopted and **not** the average. This will ensure the MLs established will provide the highest level of safety.

INDIA

It has been indicated in the compilation that calcium aluminium silicate (INS 556) is allowed for use in India in food categories 01.6.1 (Unripened cheese) and 01.6.2.1 (Ripened cheese, includes rind), which is not correct.

In relation to the dairy products, the only aluminium containing food additive, from amongst those listed in the Circular Letter CL 2009/10-FA, allowed under the Indian food law is aluminium silicate in cheese/sliced/cut/shredded cheese, which includes both above food categories (ripened and unripened cheese), at a level of 10,000 mg/kg on whole aluminium silicate basis.

i. **Comment:** This needs to be corrected in the compilation.

Sodium aluminium silicate

ii. **Comment:** We propose that level of 5000 ppm under food category 14.1.4.3, and would urge committee to finalize this level.

Rationale: This level is required for technological purpose. This is the only anticaking agent permitted in India under this category.

INDONESIAComment :

According to the report of Sixty-seventh JECFA meeting in 2006 that the PTWI of aluminium has changed from 7 mg/kg BB into 1 mg/kg BB. Because of that, it has consequential to reduce the establishment of the current maximum level of this additives which has an impact to the effectiveness of the technological function of this additive to the product. Therefore Indonesia considered to discontinue the use of this additives.

JAPAN

Japan would like to express its appreciation on the leadership of the Brazil as the chair of electronic Working Group on provision for aluminium containing food additives.

We have comments to add and revise CX/FA 11/43/10 as follows:

Aluminium ammonium sulfate (INS 523)1. Food category 04.2.2.3

Japan would like to provide additional information on current use in burdock and perilla.

Aluminium ammonium sulfate is used in perilla in brine to retain colour at maximum level of 785 mg/kg as Al and in burdock in brine to retain colour at maximum level of 315 mg/kg as Al.

2. Food category 06.6

Japan would like to revise maximum level based on current use in batters for *tempura*.

Aluminium ammonium sulfate is used in batter for *tempura* to inflate batter at maximum level of 165 mg/kg as Al.

MALI

Le Mali félicite le groupe de travail présidé par le Brésil pour la préparation de l'Avant-projet. Il n'a pas d'observations particulières sur le document de travail et est favorable aux recommandations formulées par le Groupe de travail.

THAILAND

Thailand agrees with the principle of the six recommendations in document CX/FA 11/43/10 prepared by electronic Working Group led by Brazil. We, however, believe that all proposed MLs for aluminium-containing food additives should be taken into account technological justification and safety concern including the exposure of aluminium from aluminium-containing food additive that exceed PTWI.

NHF (THE NATIONAL HEALTH FEDERATION)

The National Health Federation (NHF) opposes the approval and/or use of aluminium (aluminium) at any dosage level on the grounds that it has no metabolic use in the human body, it is a toxin that cumulates in the body, and indeed its ingestion has been associated with various chronic diseases, including but not limited to Alzheimer's. There is really no scientific debate as to the safety of aluminum in conventional or any foods, so its toxicity should absolutely preclude its inclusion in the General Standard for Food Additives. Approving aluminium and its various salts would bring these Codex Standards into disrepute and diminish their credibility.

1. Aluminum Is Dangerous.

Scientists have known that aluminum is toxic since at least 1911. Unfortunately, its health dangers were greatly underrated since those same scientists thought that aluminum was poorly

absorbed from the gastrointestinal tract. The truth, however, is very different since aluminum is absorbed and concentrates in certain portions of the brain. It can be no coincidence that those same portions of the brain in which aluminum accumulates are the same areas affected by Alzheimer's disease.

One of the effects of aluminum is the release of iron in the blood stream from iron's protective carrier transferrin. This greatly increases the toxicity of iron and is at least one of the mechanisms by which aluminum is toxic to the brain – that is, through the oxidative stress caused by the released iron. A similar effect has been noted with aluminum's effect on copper.

Aluminum also interferes with ATP enzymes, which carry out the important function of energy transfer among brain cells. Aluminum interferes with a number of important enzymes and cell processes that are crucial to brain function.

Aluminum worsens the effects of other toxins, such as pesticides, herbicides, mercury, cadmium, fluoride, lead, and glutamate. Aluminum salts cause neuron degeneration in the brain.

Many of the symptoms of aluminum toxicity mimic those of Alzheimer's disease and osteoporosis. Colic, rickets, gastrointestinal problems, interference with the metabolism of calcium, extreme nervousness, anemia, headaches, decreased liver and kidney function, memory loss, speech problems, softening of the bones, and aching muscles can be, and are, all caused by aluminum toxicity.

Aluminum is excreted by the kidneys, therefore toxic amounts can also impair kidney function. Aluminum can also accumulate in the brain, causing seizures and reduced mental alertness. The brain is normally protected by a blood-brain barrier, which filters the blood before it reaches it. Elemental aluminum does not pass easily through this barrier, but certain compounds contained within aluminum, such as aluminum fluoride do. Interestingly, many municipal water supplies are treated with both aluminum sulfate and aluminum fluoride. These two chemicals can also combine easily in the blood. Aluminum fluoride is also poorly excreted in the urine.

2. Further Concerns Expressed about Aluminum

Dr. Wiley in his book, *History of Crime against the Food Laws* (1929), wrote that "From the earliest days of food regulation, the use of alum (aluminum sulphate) in foods has been condemned. It is universally acknowledged as a poison in all countries. If the Bureau of Chemistry had been permitted to enforce the law . . . no food product in the country would have any trace of . . . any aluminum or saccharin. No soft drink would contain caffeine or hebromin; no bleached flour would be in interstate commerce. Our food and drugs would be wholly without adulteration . . . and the health of our people would be vastly improved and their life greatly extended." Dr. Wiley was the prime mover behind the original Pure Food Law in the United States and a Director of the FDA. He resigned in disgust in 1912 over exceptions granted to the law and lack of enforcement.

Aluminum has been exempted from testing for safety by the FDA under a convoluted logic wherein the FDA has classified it as GRAS (Generally Regarded As Safe). It has never been tested by the FDA on its safety. Yet, there are over 2000 references in the National Library of Medicine on the adverse effects of aluminum. The following were extracted to provide a small sample of the range of toxicity of aluminum.

From the Chemical Registry: "Aluminum toxicity has been recognized in many settings where exposure is heavy or prolonged, where renal function is limited, or where a previously accumulated bone burden is released in stress or illness. Toxicity may include: encephalopathy (stuttering, gait disturbance, myoclonic jerks, seizures, coma, abnormal EEG), osteomalacia or aplastic bone disease (associated with painful spontaneous fractures, hypercalcemia, tumorous calcinosis), proximal myopathy, increased risk of infection, increased left ventricular mass and decreased myocardial function microcytic anemia with very high levels, and sudden death.

"Cells appear to take up aluminum from transferrin rather than from citrate. Purified preparations of ferritin from brain and liver have been found to contain aluminum. It is not known if ferritin has a specific binding site for aluminum. Factors regulating the migration of aluminum across the blood-brain barrier are not well understood.

“Serum aluminum correlates with encephalopathy; red cell aluminum correlates with microcytic anemia, and bone aluminum correlates with aluminum bone disease. Basal PTH when elevated appears to protect bone and thereby favor CNS toxicity. Other factors favoring one form of toxicity over another are not well understood. Aluminum toxicity has been reported to impair the formation and release of parathyroid hormone. The parathyroid glands concentrate aluminum above levels in surrounding tissues. Treatment of aluminum toxicity in renal failure patients often reactivates hyperparathyroidism, which to a certain extent is helpful for bone remodeling and healing.”

Aluminum accumulates in the body and also interacts with other toxins. Even the smallest doses of aluminum over time will result in adverse effects. For this reason, as well as others, the acceptable levels of the various forms of aluminum proposed by the Working Group are dangerous even at the smallest levels – particularly in the case of infants, children, and pregnant women.

3. Conclusion

Aluminum is unsafe for human consumption. It has no place whatsoever as a Codex “approved” food additive, at any dosage level. Codex has been charged with the task of protecting public health. This is clearly an instance where Codex would be shirking its mandate were it to allow dangerous aluminum to be used as a food additive in any foods, no matter what its prior history of use might have been.