

## **Dangers of the Toxin Melamine Found in Food**

Comments by J. C. Spencer

The toxin melamine found in foods, especially baby formula, has been a major concern lately. The melamine scandal has caused contamination of pet food and human foods made with powdered milk. A few have died and tens of thousands are sick.

The potentially deadly toxin is a white powder, looks like powdered milk, is cheaper than powdered milk. Powdered milk coming out of China has been laced with it. While glycomics teaches us that certain sugars are beneficial in removing toxins, we are to expose and halt toxins from ever entering the human body to the best of our abilities.

Short cuts in food production and marketing for sake of economics without regard for human life is the very reason we are in our health crisis. In one of my trips to India, I was told about how a worker had chipped little white rocks into rice size pieces to add to the rice to make it weigh more. My grandfather back in the early 1900s owned a country store. He told the story of some boys who bought from him some buckshot to feed to their geese to make them weigh more so they could sell them to my grandfather. The finger on the scale will destroy a society.

When toxins are intentionally added to food, that is criminal. But, if that toxin looks like and even has a molecular structure that fools the scientists, it can slip through normal detection. I have long contended that "identical molecules" can be different. A classic example, of course, is carbon. Coal/graphite and diamond are carbon, but each has different crystal structure. The structure, the bond, though it be slight, renders the molecule to have a totally different function. The angle of the bond, the positive or negative ion charge and the strength of that charge, and many factors concerning that environment yet to be discovered and understood, play roles in the functionality of molecules.

Following the articles on melamine in milk by David Bradley, Huang Yuanxi, Zhang Jing, Edward Wong, and others, you will be able to review how melamine tricked the scientists. Much of this extensive report comes out of China.

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### **Melamine in Milk**

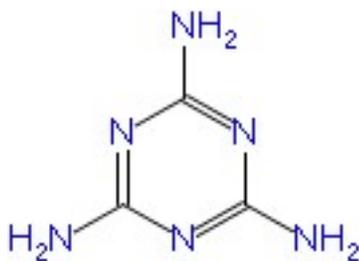
Several thousand babies in China became ill, having suffered acute kidney failure, with several fatalities, having been fed formula milk contaminated with the industrial chemical melamine. The toll is far higher than was previously admitted by the Chinese authorities, according to the BBC. According to David Bradley there is a long list of melamine contaminated products.

Manufacturer, Sanlu, part-owned by New Zealand's Fonterra Cooperative, recalled all

of its powdered milk products in China's north-west province of Gansu. However, twenty-two brands, including China Mengniu Dairy Co and Inner Mongolia Yili Industrial Group, of milk powder were quickly identified as containing melamine. "The majority of afflicted infants ingested Sanlu-brand milk powder over a long period of time, their clinical symptoms showed up three to six months after ingesting the problematic products," Health Minister Chen Zhu told Bloomberg Asia.

Allegedly, someone in the supply chain, milk supplier or manufacturer, was adding melamine to the milk formula to artificially inflate the reading for protein levels. Formula milk was not until now tested for melamine, because regulators did not suspect this ingredient might be added. But, it turns out that melamine in the food supply is China's big open secret.

So, what is melamine and how does it spoof the protein levels in baby formula milk?



The melamine-structure is

Melamine is a compound, a base with chemical formula C<sub>3</sub>H<sub>6</sub>N<sub>6</sub>. Officially it is 1,3,5-triazine-2,4,6-triamine in the IUPAC nomenclature system (CAS #108-78-1). It has a molecular mass of just over 126, forms a white, crystalline powder, and is only slightly soluble in water. It is used in fire retardants in polymer resins because its high nitrogen content is released as flame-stifling nitrogen gas when the compound is burned or charred.

Indeed, it is this high nitrogen level - 66% nitrogen by mass - in melamine that gives it the analytical characteristics of protein molecules. Melamine can also be described as a trimer of cyanamide, three cyanamide units joined in a ring. It is described as being harmful according to its MSDS sheet: "Harmful if swallowed, inhaled or absorbed through the skin. Chronic exposure may cause cancer or reproductive damage. Eye, skin and respiratory irritant." Not something you would want in your infant's milk. However, that said, the toxic dose is rather high, on a par with common table salt with an LD50 of more than 3 grams per kilogram of body weight.

Previously, melamine was found in exported pet food last year and blamed for killing thousands of cats and dogs in the US. Bloomberg also reports that analysis of samples of ice cream produced by Yili have also revealed the presence of melamine. Regardless of crushing inflation and legislative pressure, there is no excuse for the adulteration of food in this way. Diluting a product, the previous approach, is highly unethical and can lead to malnutrition, but straight poisoning is tantamount infanticide. This is also not the first time that Chinese consumers have faced problems with milk

powder. In 2004, more than a dozen children died having been fed formula with minimal nutritional content.

The Beijinger milk has been withdrawn from the likes of Starbucks as it emerges that regular milk has been tainted, including that produced by Olympic sponsor Yili. However, milk from more than 400 companies including Sanyuan and Nestle have tested negative for melamine and are presumably perfectly safe to drink.

But, if melamine has low toxicity (hat tip to commenter Barney) then what is it that has poisoned thousands of babies in China and why has this scandal occurred? Well, LD50, the toxic dose issue, tells us something about acute exposure not the apparent six-months' worth of accumulated exposure these babies have suffered. Chronic exposure to melamine can lead to bladder or kidney stones and even bladder cancer and as we have learned, acute kidney failure.

The melamine in milk headlines also ignore the fact that the compound added to the milk may not be pure. There is no reason to imagine that those unscrupulous enough to add a toxic compound to baby formula milk would worry about contaminants, such as cyanuric acid, that might be found in the raw material. Indeed, even if melamine toxicity were not an issue and truly was an inert substance added to spike the protein readings in quality control tests, then any one of the impurities associated with rough melamine manufacture may be a major cause for concern.

<http://www.sciencebase.com/science-blog/melamine-in-milk.html>

By David Bradley Sep 17, 2008

Sciencebase will be keeping you updated on the melamine scandal with opinion from the experts and the latest news on the story as it unfolds. To stay informed, be sure to subscribe for free to the newsfeed to receive the latest updates on this story via RSS or email.

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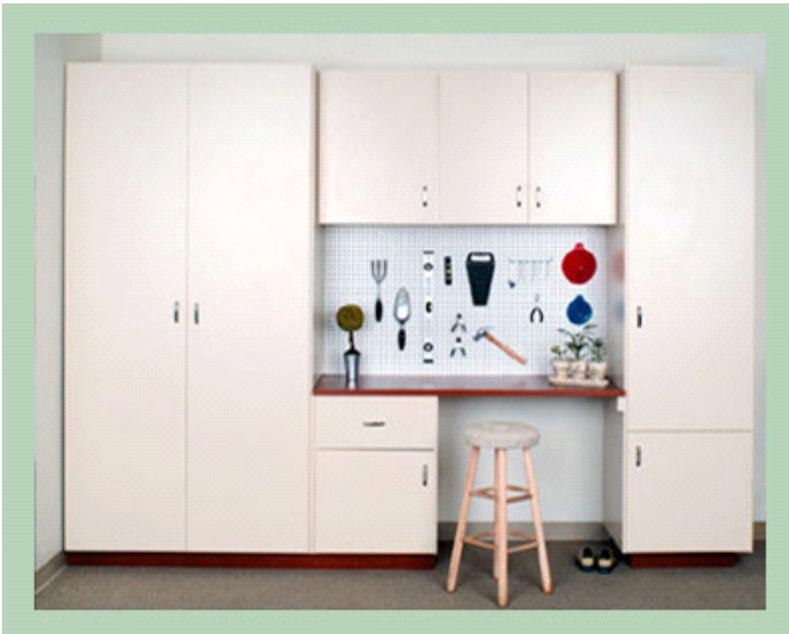
The following information a friend sent me is very informative but not referenced. This information with pictures and graphs were made outside of the US. JCS

### **What is Melamine use for?**

It is an industrial chemical use in the production of melawares.



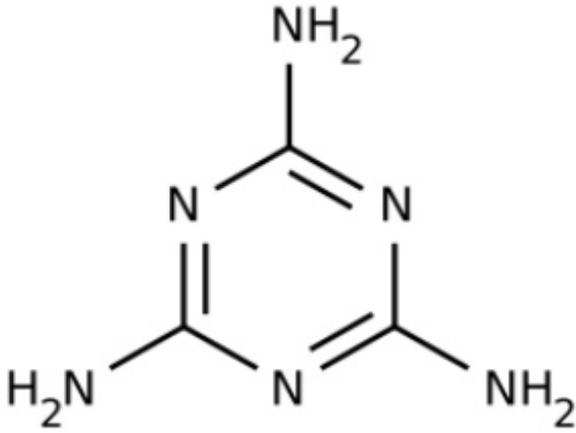
It is also used in home decoration. ' US resistant board'



Do you understand? Melamine is use in industrial production & it cannot be eaten.

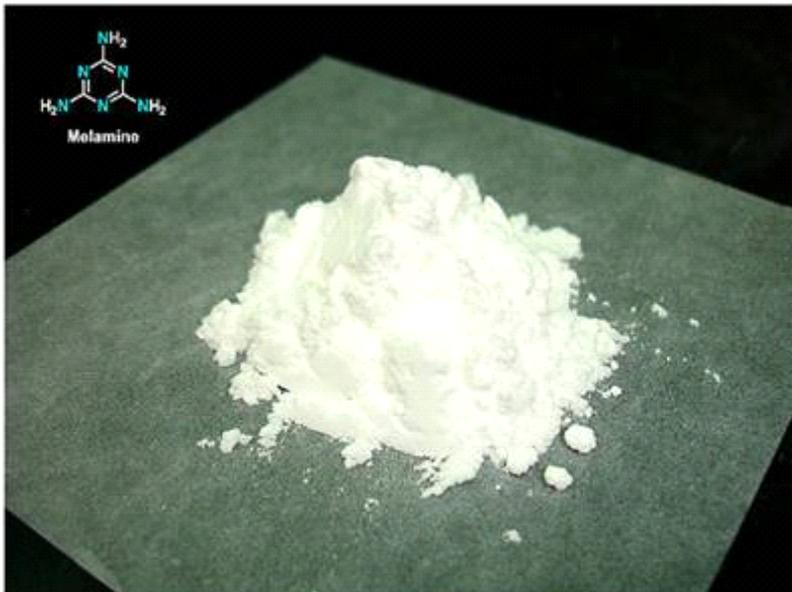
## 2. Why is Melamine added in milk powder?

The most important nutrient in milk is protein. And Melamine has the same protein that contains 'NITROGEN'



Adding Melamine in milk reduces milk content and it is cheaper than milk so it lowers capitalization. It can give the business man more profit!

Below is Melamine; doesn't it look like milk?  
It doesn't have any smell, so cannot be detected.





### 3. When was it discovered?

Year 2007, US cats and dogs died suddenly, they found that pet food from China contains Melamine.

Starting 2008, In China , an abnormal increase in infant cases of kidney stones.



August 2008 China Sanlu Milk Powder tested with Melamine



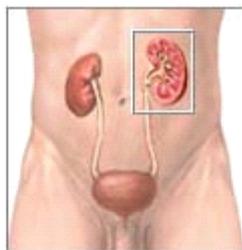
Sept. 2008, New Zealand gov't ask China to check this problem

Sept. 21, 2008, lots of food products in Taiwan tested with Melamine

#### **4. What happens when Melamine is digested?**

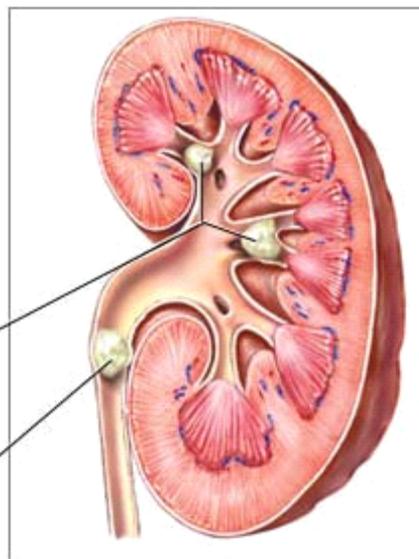
Melamine remains inside the kidney. It forms into stones blocking the tubes.

Pain will be eminent and person cannot urinate. Kidney will then swell.



Kidney stones in the minor and major calyces of the kidney

Kidney stone in the ureter



ADAM.

Although surgery can remove the stones, but it will cause irreversible kidney damage.

It can lead to loss of kidney function and will require kidney dialysis or lead to death because of uremia.

What is dialysis? In fact, it should be called 'blood washing'; it is filtering all of the body's blood into the machine and then go back to the body.



The whole process takes 4 hours and it is necessary to dialysis once for every 3 days for the rest of your life.

Here is a dialysis center



Large dialysis center



A small hole is required in the arm to insert the sub-dialysis catheter.



Why is it more serious in babies? Because the kidney is very small and they drink a lot of milk powder.

Here is a baby undergoing dialysis.



China currently has 13,000 infants hospitalized



It does not matter how much a human being took Melamine. The important point is 'It cannot be EATEN!'

##### **5. What are the foods to be avoided?**

Foods that contain dairy products should be avoided.



奶粉



保久乳



調味乳



煉乳



奶油球



奶油



冰淇淋



布丁



奶酪



優格



起司



麵包



蛋糕



月餅



餅乾



牛奶  
巧克力



巧克力



牛奶糖



火腿



膠囊



奶精



奶茶



即溶咖啡



即溶  
五穀粥



即溶麥片



即溶濃湯



豆漿



豆花



素食食品



素火腿

Remember: Foods with creamer or milk should be avoided.

### 6. Which companies are affected?

Hereunder are the companies affected with Melamine.



雀巢奶粉



雀巢三花



克寧奶粉



鷹牌煉奶



美祿



梅農古坑咖啡



伯朗咖啡



金車



真鍋珈琲



卡夫麥斯威爾



聯合利華



立頓



樂天製果



愛之味



華元食品



必勝客



豐力富



芝司樂



子母奶粉



阿薩姆



統一企業



星巴克



樂天製果



味全



康師傅



M&M's



士力架



德芙



明治



古道

### 7.What do we do next?

Avoid the above foods for at least six months.

If you have a snack bar, restaurant or coffee shops, stop selling dairy products for the meantime.

If you have infants at home, change to mother's milk or find other substitutes.

Finally, share this information with friends so they will understand the risk of milk poisoning.

The whole world is scared of China made 'black hearted goods'. Can you differentiate which one is made in the USA , Philippines , Taiwan or China ? Let me tell you how... the first 3 digits of the barcode is the country code wherein the product was made.

Sample all barcodes that start with 690.691.692 until 695 are all MADE IN CHINA.

471 is Made in Taiwan



This is our human right to know, but the government and related departments never educate the public, therefore we have to RESCUE ourselves.

Nowadays, Chinese businessmen know that consumers do not prefer products 'Made in China', so they don't show from which country it is made.

However, you may now refer to the barcode, remember if the first 3 digits is 690-695 then it is Made in China.

- 00 ~ 13 USA & CANADA
- 30 ~ 37 FRANCE
- 40 ~ 44 GERMANY
- 49 ~ JAPAN
- 50 ~ UK
- 57 ~ Denmark
- 64 ~ Finland
- 76 ~ Switzerland and Lienchtenstein

628 ~ Saudi-Arabien  
629 ~ United Arab Emirates  
740 ~ 745 - Central America

All 480 Codes are Made in the Philippines.

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Method developed for detecting melamine in baby formula

New FDA method for detecting melamine and cyanuric acid in infant formula uses Merck SeQuant™ ZIC®-HILIC chromatography column

The contamination of food with melamine can cause severe illness - especially to children. Therefore, a reliable method is needed to determine melamine residues and related potential contaminations in food and particularly in milk products for children.

Merck SeQuant™ ZIC®-HILIC technology offers a solution.

Reliable and sensitive: FDA recommends SeQuant™ ZIC®-HILIC from Merck  
Recently, the U.S. Food and Drug Administration (FDA) announced that it has developed a method for simultaneously detecting residues of melamine and cyanuric acid in infant formula using the chromatography column SeQuant™ ZIC®-HILIC from Merck. The FDA regulates, among other things, the safety of foods in the U.S. Recommendations of the FDA receive global attention and are often adopted by national authorities in other countries.

The proposed method is a variant of liquid chromatography (hydrophilic liquid chromatography, HILIC) combined with mass spectrometry (LC-MS). With the use of SeQuant™ ZIC®-HILIC, even minute quantities of melamine and cyanuric acid can be precisely separated and detected. The limits of quantification and confirmation are 0.25 µg/g for both analytes. Thus, using SeQuant™ ZIC®-HILIC from Merck, the quality of infant formula can be reliably tested.

Simultaneous detection of melamine and cyanuric

The ZIC®-HILIC method proposed by the FDA offers a decisive advantage over alternative measurement methods: Infant formula contaminated with melamine may also contain other toxic triazine compounds such as cyanuric acid, which in combination with melamine can intensify the negative effects of the contaminated food. By simultaneously determining and confirming melamine and cyanuric acid in powdered milk-based infant formula, the proposed procedure considerably increases food safety.

More about the FDA method for detecting melamine and other substances in infant formula can be found at <http://www.cfsan.fda.gov/~frf/lib4421.html>.

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## China announces permissible levels of melamine in milk

By Edward Wong

Published: October 8, 2008

BEIJING: The Chinese Health Ministry announced on Wednesday new limits set by the government on the amount of the industrial chemical melamine to be permitted in dairy products, but it refused to provide updated statistics on the number of people who have died or fallen ill from ingesting melamine-tainted dairy products.

The announcement of the new limits is the latest move by the government to try to rebuild consumer confidence after it was revealed last month that at least three babies had died and 53,000 children had fallen ill from drinking milk products tainted with melamine.

Government officials say the melamine was added to milk products by suppliers to artificially boost protein count in milk that had been diluted. Babies and children who regularly drink the tainted milk can develop kidney stones after several months.

On Wednesday, Health Ministry officials said at a news conference that traces of melamine are found in many food products because melamine is used to make plastic, and can seep into food from packaging. A certain amount of melamine can be tolerated, they said.

The government has now set melamine limits at one milligram per kilogram of infant formula and 2.5 milligrams per kilogram of liquid milk, milk powder and food products that contain more than 15 percent milk. Any dairy products with higher levels are banned. The news limits are supported by assessments by the Hong Kong government, the World Health Organization and the United Nations, the officials said.

When asked what the previous standards were, the officials declined to give an answer and implied that there had been no limits before the milk scandal erupted last month.

Wang Xuening, the deputy chief of the ministry's health inspection and supervision department, said the new limits act as guidance for how much unintentional seepage of melamine into food can be permitted by inspectors.

People who purposefully add melamine to food will be prosecuted, he said.

"Melamine is neither a raw food material nor a food additive," he said. "Deliberately adding the chemical to food items is prohibited. Once such cases are spotted, they will be investigated according to law."

The officials were asked by reporters to give updated statistics on the number of people made sick by tainted food, but a ministry spokesman, Deng Haihua, said he could not do that at the news conference. Later, a ministry employee said by telephone that the

statistics were not authorized for release.

In late September, the ministry reported the figures on the deaths and illnesses from drinking tainted milk products. At the time, 13,000 children were hospitalized, it said. Since then, the government has not released any new statistics.

Before that announcement, Xinhua, the official news agency, reported that an infant in the western region of Xinjiang had died from melamine ingestion, but the ministry has not confirmed it. The latest news reports from Xinhua put the number of deaths at three.

A scan by The New York Times of statistics on the Web sites or official news media outlets of eight of China's more than 30 provinces and provincial-level administrative areas shows that in those eight territories, about 52,000 people have fallen ill from tainted milk. Some of the numbers were published in early October and others in late September. Extrapolating from those statistics, the number sickened across all of China would be much higher than the 53,000 announced by the Health Ministry in late September.

Two lawyers representing separate cases of one-year-old children from Henan Province who fell ill said by telephone on Wednesday that they were awaiting word on whether local courts would hear their cases.

One lawyer, Chang Boyang, said lawyers in Henan had been told they should inform the government if they represent any clients in the milk scandal, which amounts to a certain level of "psychological pressure," but that there was no overt ban on working on the cases. "We are told to report to them if anyone decides to handle a milk powder case," he said. "But they never said we can't do it."

Huang Yuanxi and Zhang Jing contributed research  
International Herald Tribune  
<http://www.iht.com/articles/2008/10/08/asia/milk.php>