

## Melamine Toxicity in Milk: Havoc in Recent Past

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**M**elamine - an industrial chemical - was recently found in infant formula in China and in some food categories that use milk powder as an ingredient, such as chocolate, biscuits, candy, ice-cream and eggs. Up to September 22, 2008, a total of 52,857 cases of nephrolithiasis, in some cases, renal failure, 12900 hospitalization and 4 deaths had been reported in ten different regions in China linked to consumption of melamine contaminated milk powdered products. The vast majority of them were infants and young children under the age of 3 years. Test results conducted in China on samples of the powdered infant formula showed that they contained a wide range of concentrations (0.1 ppm to greater than 2,500 ppm) melamine powder.

Melamine is an organic compound, a base with chemical formula  $C_3H_6N_6$ . It is white, crystalline powder and is only slightly soluble in water. It is used in industry to produce plastic materials, plates (melamine plates), gum, tiles, filters, etc. and also 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. It was illegally added with an evil motive to food products in order to increase the apparent protein content to mislead the authority after water was added to fraudulently dilute the milk. Because of melamine's high nitrogen content (66% by mass versus approx. 10-12% for typical protein), it can cause a food to appear to have more protein than it really has.

Melamine was found as one component of milk products from China. Before the incident in China such adulteration of food, specially of powdered milk was not known to us. Cyanuric acid is often present in melamine samples and the two can react together to form melamine cyanurate which can form stones in the kidney causing pain and swelling of the kidney, irreversible damage, renal failure leading to death because of uraemia. Chronic exposure may cause cancer or

reproductive damage. Previously, melamine was found in exported pet food last year and blamed for killing thousands of cats and dogs in the US. There is no excuse for the adulteration of food in this way.

Since the toxicity levels of melamine consumption in foods and its complex compounds formations and derivatives in human organs are still not very well understood, it does not matter how much melamine one consumes in any product, - the important news to the general people is that "melamine is not a food ingredient and therefore foods suspected or identified to contain melamine should not be consumed".

### References:

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