



## Questions and Answers on melamine

### What is melamine?

Melamine is an organic base chemical most commonly found in the form of white crystals rich in nitrogen

### What is melamine generally used for?

Melamine is widely used in plastics, adhesives, countertops, dishware, whiteboards.

### Why was melamine added into milk and powdered infant formula

In China, where adulteration has occurred, water has been added to raw milk to increase its volume. As a result of this dilution the milk has a lower protein concentration. Companies using the milk for further production (e.g. of powdered infant formula) normally check the protein level through a test measuring nitrogen content. The addition of melamine increases the nitrogen content of the milk and therefore its apparent protein content.

Addition of melamine into food is not approved by the FAO/WHO Codex Alimentarius (food standard commission), or by any national authorities.

### Has melamine been found in other food products?

In 2007, melamine was found in wheat gluten and rice protein concentrate exported from China and used in the manufacture of pet food in the United States. This caused the death of a large number of dogs and cats due to kidney failure.

In the present event, melamine contamination has been found in a number of different brands of powdered infant formula, in one brand of a frozen yogurt dessert and in one brand of canned coffee drink. All these products were most probably manufactured using ingredients made from melamine-contaminated milk.

### What are the health effects of melamine consumptions in humans?

While there are no direct human studies on the effect of melamine data from animal studies can be used to predict adverse health effects. Melamine alone causes bladder stones in animal tests. When combined with cyanuric acid, which may also be present in melamine powder, melamine can form crystals that can give rise to kidney stones.

These small crystals can also block the small tubes in the kidney potentially stopping the production of urine, causing kidney failure and, in some cases, death. Melamine has also been shown to have carcinogenic effects in animals in certain circumstances, but there is insufficient evidence to make a judgment on carcinogenic risk in humans.

### What are the symptoms and signs of melamine poisoning?

Irritability, blood in urine, little or no urine, signs of kidney infection, high blood pressure

### What is the treatment for kidney stones and kidney failure?

Patients may receive various types of treatment, depending on the severity of the kidney effects. Treatment may include infusion of fluids and urine alkalinisation, correction of electrolyte and acid-base disturbance, haemodialysis or peritoneal dialysis, or surgical removal of kidney stones.