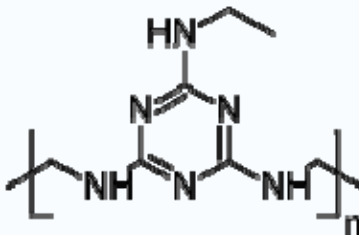


Melamine

Do you know what is Polymer? Maybe you've heard about it so many times. by the way for the start its necessary to know what this word means. Polymer is derived from two Greece words Poly and Meros and it means "having many parts" .We surrounded by Polymers. Hair, Nail, Wool, Silk, Teflon, Paper, Wood, Rubber, Melamine and Throwingaway dishes and so on. Maybe we dare say what ever exist is Polymer or one kind of that. but some of these Polymers can be harmful for human's health and can put his life in jeopardy. Melamine and Throwingaway dishes are the ones which we must be careful how to use them. Did you ever heard that you must avoid eating hot and warm foods in them? Undoubtedly when you discover what harms may come to you and your beloved friends and family you would never utilize such things or you may use them so carefully.

Melamine resin or melamine formaldehyde (also shortened to melamine) is a hard, thermosetting plastic material made from melamine and formaldehyde by polymerization you can see the structure below:



Melamine resin is often used in kitchen utensils and plates (such as Melmac). Melamine resin utensils and bowls are not microwave safe, as they absorb the microwave radiation and heat up.

Melamine is an organic base and a trimmer of Cyanamid, with a 1,3,5- triazine skeleton. Like Cyanamid, it contains 66% nitrogen by mass and if heated it can release nitrogen .imagine when you pour hot foods in such kind of dishes the heat can release nitrogen and it will combine with the food you swallow. Also the glossy glaze of melamine which plays protection role in such dishes will be demolished through time and it can be mixed by food we eat. Melamine is described as being "Harmful if swallowed, inhaled or absorbed through the skin. Chronic exposure may cause cancer or reproductive damage. Eye skin and respiratory irritant." However, the toxic dose is on a par with common table salt with an LD50 of more than 3 grams per kilogram of bodyweight.FDA scientists explained that when melamine is absorbed into the bloodstream, it concentrate and interact in the urine-filled renal microtubules, then crystallize and form large numbers of round, yellow crystals, which in turn block and damage the renal cells that line the tubes, causing the kidneys to malfunction.

The European Union set a standard for acceptable human consumption of melamine at 0.5 milligrams per kg of body mass, Canada declared a limit of 0.35 mg and the US FDA's limit was put at 0.63 mg, but was later reduced to 0.063 mg daily. The World Health Organization's food safety director estimated that the amount of melamine a person could stand per day without incurring a bigger health risk, the "tolerable daily intake" (TDI), was 0.2 mg per kg of body mass. A toxicology study conducted after recalls of contaminated pet food concluded that the combination of melamine and cyanuric acid in diet does lead to acute renal failure in cats.

Ingestion of melamine may lead to reproductive damage, or bladder or kidney stones, which can lead to bladder cancer. A study in 1953 reported that dogs fed 3% melamine for a year had the following changes in their urine: (1) reduced specific gravity, (2) increased output, (3) melamine crystalluria, and (4) protein and occult blood.

A survey commissioned by the American Association of Veterinary Laboratory Diagnosticians suggested that crystals formed in the kidneys when melamine combined with cyanuric acid, "don't dissolve easily. They go away slowly, if at all, so there is the potential for chronic toxicity.

Of course, right now the carcinogenicity of such products is still hypothesis and we cannot accuse them definitely. On the other hand, melamine producers believe that if the process of production is done accurately with sufficient firing time and enough glaze amount, these dishes are no longer harmful. Standards organization has some tests to make sure about these 2 factors. Among them is Acid Penetration. If the acid penetrates in dish that means firing time and glaze are not sufficient and this dish does not have quality.

Notwithstanding, the most important fact in utilizing melamine dishes is that we should not use cracked and old dishes due to penetration of microbes and viruses and we'd better confine the usage of such dishes in picnics and only cold foods. Don't keep foods on them for long time.

As with all thermosetting materials, melamine resin cannot be melted and, therefore, cannot be recycled through melting. Ipso facto we shouldn't leave them in the nature.

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