

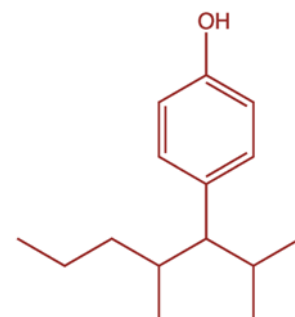
Nonylphenol (NP)

Nonylphenol (NP) has been announced as the endocrine disrupting chemicals by Japan Ministry of the Environment. The structure of NPs may change, and could be either branched or linear. The commercially produced NPs are predominantly 4-nonylphenol, branched. NP has both hydrophilic and hydrophobic properties, which was widely used in industry, agriculture and daily necessities. The main uses of NP are the manufacture of nonylphenol ethoxylates (NPEO) and resins plastics. The industry uses NP for antioxidants and additives, such as textile, paints, pulp & paper, and plastics. NP was also used for emulsifiers in agriculture (e.g. insecticides and biocides), surfactants in daily necessities (e.g. domestic cleaning), and others including: cosmetics, cleaning products and office products such as correction fluids and inks. In 1999, NP was considered to be "toxic" as defined in the Canadian Environmental Protection Act. In 2003, European Union published the regulatory action of NP. In 2007, Taiwan FDA has prohibited the NP and NPEO surfactants to contain more than 0.1 % in food-use detergents. Taiwan EPA has classified NP and NPEO as Class 1 toxic chemical for management in 2007, and prohibited for use in the manufacture of domestic cleaning in 2008. Although lots of research had found trace amounts of NP in the environmental media, food and human samples, the current risk of NP dietary exposure in general population was far below the acceptable risk by worldwide scientific report and Taiwan FDA evaluation. Therefore, there is no health concern for Taiwanese.



Q : Does NP exist in our environment?

A : Many surveys have found that NP does exist in the environment. NP is mainly used to produce industrial and domestic cleaning or detergents. NP could be released to environment is from wastewater treatment system. In addition, it is also possible to contaminate the soil by spraying pesticide containing NP. NP enter our environment during their manufacturing, usage, and discard of consumer products. Therefore, NP could widely exist in soil, sediment, surface water, and underground water.



Q : How can NP affect my health?

A : Only few studies have been published on the toxicities and health hazards of NPs in experimental animals, but lack of epidemiological studies for human. Based on studies, the major NP adverse effect on the reproductive system were reported.



Q : How likely are NP to cause cancer?

A : So far, the scientific evidence shows it is unlikely that NP will cause carcinogenic hazard. NP has not been classified by the International Agency for Research on Cancer (IARC) as human carcinogen.

Q : How might I be exposed to NP?

A : NP enter our environment during their manufacture, use, and discard of consumer products. People may be exposed to NP from food, drinking water, and soil. NP was easily bioaccumulated through the food chain in marine and terrestrial organisms. Therefore, the main exposure source of NP are food and drinking water intake.

Q : Which kinds of food have higher or lower level NP?

A : According to the foodstuff monitoring of NP by Taiwan FDA, the higher NP concentrations was found in fish, other aquatic products, whole grains, and livestock. The measured NP levels in eggs, dairy products, infant foods and vegetables were lower.

Q : What NP levels in food are considered safe?

A : Due to lack of scientific evidence that NP may affect human health, there is no maximum residual limit or safety level proposed by World Health Organization, European Food Safety Authority, or developed countries.

Q : If we expose to higher level NP from food intake?

A : According to the foodstuff monitoring of NP by Taiwan FDA, the exposure dose in all age groups in present study were lower than the reference value (TDI), which was derived by Danish Veterinary and Food Administration. The current dietary exposure to NP in Taiwanese was unlikely to cause undesirable or harmful health effects. People do not need to worry excessively.

Q : How can I prevent or reduce NP from food intake?

A : (1) Taiwan has prohibited to use NP in the manufacture of domestic cleaning, and limited the NP and NPEO concentration in food-use detergents. Recommended that people choose qualified products, to avoid the purchase of goods of unknown origin. And do not use industrial cleaning agents to clean food and edible tableware, to prevent ingestion to NP due to residues of cleaning agents.
(2) A balanced diet, randomize the purchasing source of your food, and don't eat the same food every day, to reduce the risk of NP accumulation in body.

Q : Is there a medical test to show whether I've been exposed to NP?

A : Some laboratories with well-equipped and advanced technology can measure NP in blood, urine, and breast milk in Taiwan. Those tests can identify whether you have been exposed to high levels of NP, but cannot tell you the actual harmful effects may occur. We suggest you ask a physician to judge whether the test is necessary.

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