



ACRYLAMIDE

What is ACRYLAMIDE?

Acrylamide (CAS#: 79-06-1) is a chemical that occurs as a solid crystal or in liquid solution. It is primarily used for industrial purposes, usually reacted with other chemicals to create copolymers, another chemical with different properties than the two original chemicals. Trace amounts of unreacted acrylamide generally remain in copolymers used in various processes such as the production of paper, dyes and plastics; and the treatment of drinking water, sewage and waste.

Recent findings reported the detection of acrylamide in certain foods, although it is not added to foods during processing or preparation. Relatively high levels were reported in potato chips and French fries, with lower levels in some breads and cereals. The U.S. Environmental Protection Agency (EPA) classified acrylamide as a Group B2, probable human carcinogen as well as a neurotoxin. In addition to food, acrylamide is also found in cigarette smoke, another leading cause of exposure to humans. Although this chemical is found in foods at levels below those shown to produce neurotoxic effects, scientists do not yet know if acrylamide in food poses a health risk for humans.

Why is acrylamide in my food?

In September 2002, researchers discovered that the naturally occurring amino acid that can be found in many vegetables, called asparagines, can form acrylamide when heated to high temperatures (temperatures greater than 120°C or 248°F). Asparagines form when frying, baking and broiling foods that contain certain natural sugars. Longer cooking times form more acrylamide. Lower-heat methods of cooking, such as microwaves and boiling, appear less likely to cause the formation of acrylamide in foods.

How can acrylamide affect my health?

Historically, high levels of acrylamide in the workplace caused neurological damage. Although acrylamide is not proven to cause cancer in humans, it has been shown to cause cancer in laboratory rats. Therefore, it is considered as a probably human carcinogen by both the EPA and the International Agency for Research on Cancer (IARC). It is not known whether the levels in foods are significant enough to cause cancer. Additional research will need to be conducted to better understand the mechanism of the formation of acrylamide in food; the nature and extent of uptake from food by humans; and the relationship between acrylamide in food and cancer in humans.

Regulations and Recommendations:

No regulations exist governing acrylamide in food. The World Health Organization is not currently changing any dietary recommendations and continues to support diets rich in fruits and vegetables and containing less fattening foods.

References

Acrylamide in Food and Cancer Risk, National Cancer Institute, <http://www.cancer.gov/cancertopics/factsheet/risk/acrylamide-in-food> - Accessed 9/2/09

Technical Fact Sheet on Acrylamide, U.S. EPA, <http://www.epa.gov/ttn/atw/hlthef/acrylami.html> - Accessed 9/2/09

Acrylamide, U.S. EPA, <http://www.epa.gov/iris/subst/0286.htm> - Accessed 9/2/09

International Food Information Council, <http://ific.org/publications/ga/acrylamidega.cfm> - Accessed 9/2/09