Acrylamide

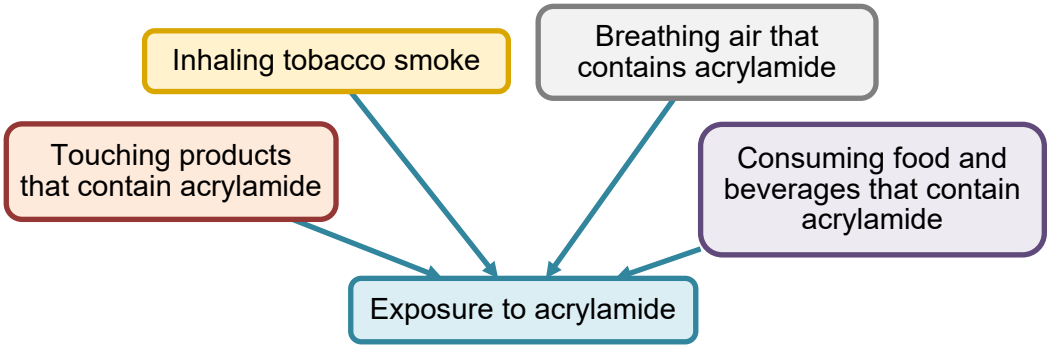
Why am I being warned about potential exposure to acrylamide?

- The US Environmental Protection Agency found acrylamide is likely carcinogenic to humans based on evidence of carcinogenicity in animal studies and damage to genetic material in cells in humans and animals. Other agencies have made similar findings.
- The federal National Toxicology Program found clear evidence of developmental toxicity and male reproductive toxicity in laboratory animals.
- California's Proposition 65 requires businesses to warn people before exposing them to a significant amount of a chemical listed under Proposition 65 for cancer or reproductive toxicity.

What is acrylamide?

- Acrylamide is a chemical that is formed in certain plant-based foods during cooking or processing at high temperatures, such as frying, roasting, grilling, and baking. Boiling or steaming foods does not create acrylamide.
  - Sources of acrylamide in the diet include french fries, potato chips, other fried and baked snack foods, roasted asparagus, canned sweet potatoes and pumpkin, canned black olives, roasted nuts, roasted grain-based coffee substitutes, prune juice, breakfast cereals, crackers, some cookies, bread crusts, and toast.
  - Researchers discovered the presence of acrylamide in fried, roasted, and other cooked foods in 2002. High temperatures during cooking convert sugars and other naturally occurring substances in these foods to acrylamide.
- Tobacco smoke contains acrylamide.
- Acrylamide is used for industrial purposes. It has been used in grouts and cements. It is also used to produce polyacrylamide.

How does exposure to acrylamide occur?



- During pregnancy, acrylamide can pass from mother to baby.

How can I reduce my exposure to acrylamide?

⊗ Do not smoke. Do not allow children to breathe tobacco smoke.

✓ The US Department of Health and Human Services recommends:

- Adopt a healthy, balanced eating plan that includes fruits, vegetables, lean meats, fish, high-fiber grains, and beans.
- Fry foods at 170 degrees Celsius (338 degrees Fahrenheit) or lower temperatures. *The higher the frying temperature, the more acrylamide is formed.*
  - If you do not have a "deep fry" thermometer, dip a wooden chopstick or wooden spoon handle into the oil. If the oil slowly starts to bubble and the bubbles are small, then the oil is hot enough for frying. If the oil bubbles rapidly, with large bubbles, then the oil is too hot.
- Cook potato strips, such as french fries, to a golden yellow rather than a golden brown color. Longer cooking times result in greater formation of acrylamide.
- Toast bread to the lightest color acceptable.
- Soak raw potato slices in water for 15-30 minutes before frying or roasting. Drain and blot dry before cooking. Soaking in water removes some of the precursors to acrylamide formation.

⊗ Do not store raw potatoes in the refrigerator. Cold temperatures increase the sugar content of potatoes. Sugars are precursors to acrylamide formation.

For more information:

General Fact Sheets and Resources

- American Cancer Society
  - Acrylamide and Cancer Risk
    https://www.cancer.org/cancer/cancer-causes/acrylamide.html

Acrylamide in Food

- US Department of Health and Human Services (HHS)
  National Institutes of Health (NIH)
  - Acrylamide
    https://www.niehs.nih.gov/health/topics/agents/acrylamide/index.cfm
  - Acrylamide and Cancer Risk
    https://www.cancer.gov/about-cancer/causes-prevention/risk/diet/acrylamide-fact-sheet

  US Food and Drug Administration (FDA)
  - Acrylamide
    https://www.fda.gov/food/chemicals/acrylamide

Scientific Information on Acrylamide

- California Environmental Protection Agency (CalEPA)
  Office of Environmental Health Hazard Assessment (OEHHA)
  - Characterization of Acrylamide Intake from Certain Foods
    http://oehha.ca.gov/media/downloads/crnr/acrylamideintakereport.pdf
- National Toxicology Program (NTP)
  - NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Acrylamide
    https://ntp.niehs.nih.gov/ntp/ohat/acrylamide/acrylamide_monograph.pdf

Proposition 65

- California Environmental Protection Agency (CalEPA)
  Office of Environmental Health Hazard Assessment (OEHHA)
  - Proposition 65: Background
    https://www.p65warnings.ca.gov/faq
  - Proposition 65: The List of Chemicals
    https://www.p65warnings.ca.gov/chemicals
  - Proposition 65: Fact Sheets
    https://www.p65warnings.ca.gov/fact-sheets