

Analysis: 14 carcinogens allowed for use in U.S. food, despite legal prohibition

The FDA's weak application of the law puts Americans' health at risk.

The 1958 Food Additives Amendment to the Federal Food Drug and Cosmetic Act grants the Food and Drug Administration (FDA) the authority to regulate all food chemicals. A key statute within the law, known as the Delaney Clause, prohibits the use of cancer-causing ingredients or carcinogens in food. The clause stipulates that a substance is prohibited from being added to food in the United States if it is found to be carcinogenic to humans or animals.



People who drink decaf coffee may not realize that some popular brands contain methylene chloride, one of the 14 carcinogens identified in this analysis. (Getty)

In contrast to the Delaney Clause's absolute prohibition on carcinogens, FDA regulations allow cancer-causing ingredients to get into our food. For some substances, the FDA sets a concentration limit. However, no concentration of a carcinogen should be acceptable.

EDF has identified eight known carcinogens and six probable carcinogens — a total of 14 — currently approved for use in Americans' food, confirming the FDA's practical disregard for the Delaney Clause. See Table 1 for the full list of carcinogens identified. These chemicals can be used across the food production chain as ingredients or processing agents, in packaging materials and more, putting the health of consumers and workers at risk.

Four examples of carcinogens allowed in our food

Here we'll take a closer look at four examples of carcinogens approved by the FDA for use in food:

- **Formaldehyde:** The presence of formaldehyde in food is complex. A colorless, flammable gas common in everything from building materials to personal care products, it can be introduced to food through contamination in the processing stage, as it is authorized for use in a variety of food contact surfaces and defoaming agents. However, it can also be present in food as a byproduct of other chemicals. Its health effects range from short-term skin, eye and nose irritation to some types of cancer.
- **Methylene chloride:** Methylene chloride is used for decaffeinating coffee, extracting hops and spices and in adhesives. It also has many industrial and commercial uses, including as a degreaser and a solvent, and in consumer products, such as paint strippers, sealants and adhesives. In addition to being carcinogenic,

methylene chloride can cause other health harms, such as liver toxicity, and at higher exposures, neurological effects and even death.

- **Trichloroethylene (TCE):** TCE is permitted for use in decaffeinated coffee, certain extracts of spices used as food and/or color additives and hops extracts. A volatile, colorless liquid present in solvents, paints and varnishes, TCE is known to cause cancer and Parkinson's disease, and can adversely impact fetal heart development during pregnancy. In terms of environmental effects, it is a persistent soil, water and air contaminant.
- **Asbestos:** Currently, the FDA permits asbestos for uses such as adhesives, rubber articles, and polyester resins in articles across the food preparation pipeline from manufacturing to storage. It is a naturally occurring group of fibrous silicate materials notorious for its threat posed by usage in building insulation many decades ago.

While the EPA has taken action in recent years to reduce exposure, the FDA has not followed suit. Asbestos is linked to increased risk of lung cancer and mesothelioma.



Carcinogens can be used across the food production chain as processing agents and in packaging, as well as ingredients. (Getty)

Conclusion

Considering the evidence, FDA's decision to remove these cancer-causing food additives should be straightforward. It is unacceptable for FDA to allow carcinogenic substances in common foods consumed by millions of Americans every day. The agency's inaction is even harder to accept when safer substitutes for these substances are readily available. For example, coffee can be decaffeinated using the Swiss Water Process instead of resorting to methylene chloride.

The FDA typically takes many years to resolve cases that should be open-and-shut. In January 2025, the agency revoked an authorization for color additive [Red No.3](#) based on the Delaney Clause. The FDA banned the substance in cosmetics back in 1990, citing evidence of its carcinogenicity. Yet somehow, the agency took over 30 years to extend that ban to food. EDF and partners [submitted a petition](#) on the additive in 2022, citing this same substantial body of evidence. The FDA's [responses to comments](#) clarified that its decision to finally ban Red No. 3 in food was based entirely on the Delaney Clause. The FDA's glacial slowness meant this carcinogen remained in U.S. food for three decades too long. How much longer will the FDA decide to wait to remove other carcinogens?

EDF and others have already petitioned the FDA to act on four cancer-causing substances, including [methylene chloride](#). The agency's response is overdue by more than 365 days. These chemicals cannot and should not be deemed safe. The FDA does not need to wait for advocacy groups to petition to revoke its approvals for carcinogens — they can proactively ban them. The FDA has long held the legal authority to keep carcinogenic substances out of U.S. food processing and food — it's time they use it.

TABLE 1

Group 1 and 2A carcinogens found in the code of federal regulations

Additive Name	CAS No.	Carcinogen classification	Permitted uses of substance in the Code of Federal Regulations: Title 21
Asbestos	1332-21-4	Known human carcinogen	175.105 : Adhesives 177.241 : Phenolic resins in molded articles 177.242 : Polyester resins, cross-linked; articles or components of articles for repeated contact with food – reinforcements 177.2600 : Rubber articles intended for repeated use - fillers
Benzene	71-43-2	Known human carcinogen	172.560 : Modified hop extract 175.105 : Adhesives
Ethylene Oxide	75-21-8	Known human carcinogen	176.180 : Components of paper and paperboard in contact with dry food 178.3520 : Industrial starch-modified
Formaldehyde	50-00-0	Known human carcinogen	173.340 : Defoaming agents 175.105 : Adhesives 175.210 : Acrylate ester copolymer coating 176.170 : Components of paper and paperboard in contact with aqueous and fatty foods 176.180 : Components of paper and paperboard in contact with dry food 178.3120 : Animal glue
Pentachlorophenol	87-86-5	Known human carcinogen	175.105 : Adhesives 178.3800 : Preservatives for wood
Sodium Chromate	7775-11-3	Known human carcinogen	175.105 : Adhesives
Trichloroethylene	79-01-6	Known human carcinogen	73.645 : Paprika oleoresin 73.615 : Turmeric oleoresin 172.560 : Modified hop extract, used in beer 173.290 : Decaffeinated ground coffee, Decaffeinated soluble (instant) coffee extract, Spice oleoresins
Zinc Chromate	13530-65-9	Known human Carcinogen	178.3297 : Colorants for polymers
Acrolein	107-02-8	Probable Human Carcinogen	172.892 : Food starch-modified 176.300 : Slimicides

Acrylamide	79-06-1	Probable Human Carcinogen	172.255 : Polyacrylamide (with <0.2% acylamide) 173.5 : Acrylate-acrylamide resins (with <0.2% acylamide) 173.10 : Modified polyacrylamide resin (with <0.2% acylamide) 176.110 : Acrylamide-acrylic acid resins (with <0.2% residual ¹ acylamide) 176.170 : Components of paper and paperboard in contact with aqueous and fatty foods (some polymers with <0.2% residual acrylamide) 178.3520 : Industrial starch-modified with <0.2% residual acrylamide)
2-Mercaptobenzothiazole	149-30-4	Probable Human Carcinogen	175.104 : Adhesives 176.300 : Slimicides 177.2600 : Rubber articles intended for repeated use
Chloral hydrate	302-17-0	Probable Human Carcinogen	175.105 : Adhesives 176.180 : Components of paper and paperboard in contact with dry food
Dichloromethane (methylene chloride)	75-09-2	Probable Human Carcinogen	172.560 : Modified hop extract 173.255 : Spice oleoresins, hops extract, caffeine extract from green coffee beans, decaffeinated roasted coffee and in decaffeinated soluble coffee extract (instant coffee) 175.105 : Adhesives 177.1580 : Polycarbonate resins 177.1585 : Polyester carbonate resins 73.1 : Diluents in color additive mixtures for food use exempt from certification 73.30 : Annatto extract 73.345 : Paprika oleoresin 73.615 : Turmeric oleoresin
Dimethyl sulfate	77-78-1	Probable Human Carcinogen	175.105 : Adhesives

¹ Residuals refer to the presence of chemicals remaining after a chemical process.