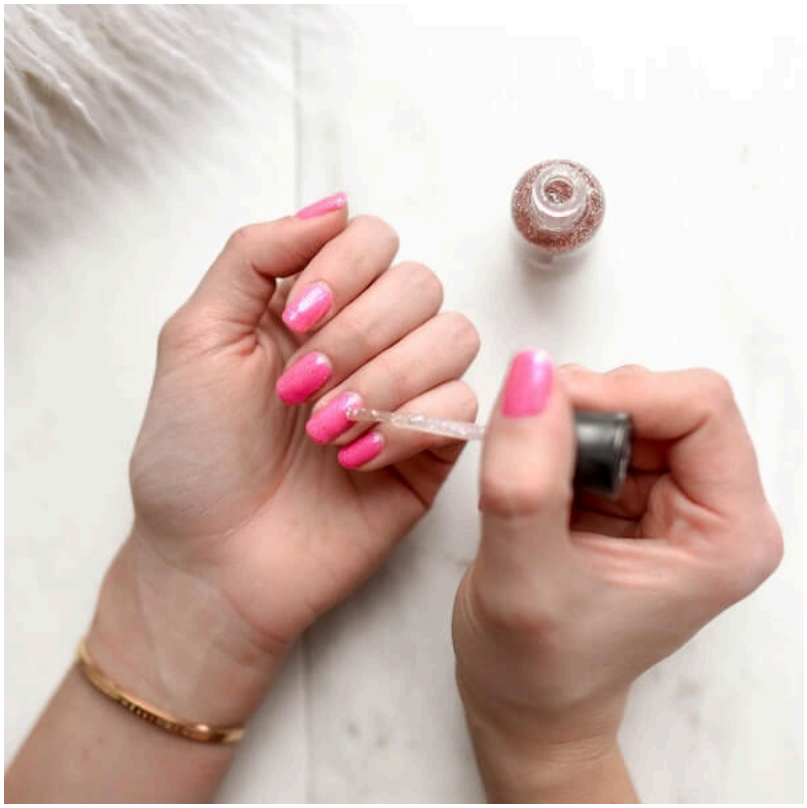
Styrene Acrylates Copolymer

Styrene acrylates copolymer is a chain of polymers consisting of styrene and acrylate which is added to cosmetics for color. There is the potential for styrena acrylates copolymer to be contaminated with styrene, a possible carcinogen.



WHAT IS STYRENE ACRYLATES COPOLYMER?

Styrene acrylates copolymer is a chain of polymers consisting of styrene and acrylate which is added to cosmetics for color.[1] There is a contamination concern with this ingredient and related ingredients.

Styrene acrylates copolymer may contain a small amount of residual styrene. Styrene is used predominately in the production of polystyrene plastics and resins. Styrene is also used as an intermediate in the composition of materials used for ion exchange resins and to produce copolymers.[2] Styrene can be found in air, water, and soil after release from the manufacture, use, and disposal of styrene-based products. It is quickly broken down in the air, usually within 1-2 days.[3]

Found In

- Styrene acrylates copolymer and related styrene-based polymers are most often found in nail polish
- Sunscreen (SPF greater than 30)
- Sunscreen moisturizer
- Body wash/cleanser
- Shampoo
- Eyeliner

What to look for on the label

- Styrene/acrylates copolymer
- Styrene butadiene copolymer
- Polystyrene
- Styrene copolymer
- Styrene resin
- Ehylbenzene
- Vinylbenzene

Health Concerns

Styrene acrylates copolymer is considered safe because there is a low likelihood of absorption of the full compound. However, contamination with the possible carcinogen styrene is a concern.

In our 2016 report focusing on kids' makeup products our lab results found trace amounts of residual styrene in one stick-on nail product.[4] The residual styrene was most likely the result of residual styrene in styrene-acrylates copolymer, an ingredient listed on the label. Styrene is also one of almost 3,000 chemicals listed by the International Fragrance Association (IFRA) as being used in fragrance.[5] The product that contained styrene did not have fragrance as a listed ingredient, but it is theoretically possible that fragranced ingredients could contain trace levels of styrene. Our tests did not reveal detectable levels of styrene in fragranced products tested.

Even in trace amounts it is concerning to have the presence of a carcinogen in products marketed to children and adults. Styrene acrylates copolymer itself has no evidence of adverse health effects, but our tests illustrate its potential contamination with styrene. Not all products we tested with styrene acrylates copolymer had detectable levels of styrene; as a result, there is no simple way to know if a product contains residual styrene. Instead, it would require lab testing to determine if it is present in products, and at what levels.

Styrene may also serve as a film-forming agent.[6] If ingested, styrene can be toxic to red blood cells and the liver and if inhaled, it is toxic to the central nervous system.[7] Fragranced products are often in an aerosol or spray form, allowing for inhalation.[8] Exposure to solvents including styrene can result in an increased risk of breast cancer.[9][10][11]

Cancer: Styrene is a reasonably anticipated human carcinogen by the International Agency for Research on Cancer[12] and by the National Toxicology Program.[13] Styrene is also listed on the California Proposition 65 list of known carcinogens to cause cancer.[14] The National Institute of Environmental Health Sciences reported that styrene has been linked to increased risks for cancers such as leukemia and lymphoma, and genetic damage in the white blood cells, or lymphocytes, of workers exposed to styrene. There is also some evidence for increased risk of cancer in the pancreas or esophagus among some styrene workers, but the evidence is weaker than that for lymphohematopoietic cancers.[15]

Endocrine Disruption: The European Commission on Endocrine Disruption classifies styrene as a Category 1 endocrine disruptor, meaning evidence for endocrine disruption has been documented in humans and wildlife.[16] A 2007 study on male rat offspring found that prenatal exposure to styrene at low levels obstructed genital organ development, and disrupted the endocrine systems.[17]

Other effects: Short-term exposure to styrene in humans results in mucous membrane and eye irritation, and gastrointestinal effects. Long-term exposure to styrene in humans results in effects on the central nervous system (CNS), such as headache,

fatigue, weakness, and depression, CSN dysfunction, hearing loss, and nerve damage. [18][19]

Vulnerable Populations

Babies & Children (https://www.safecosmetics.org/population/babies-children/), Men (https://www.safecosmetics.org/population/men/), Pregnant Women (https://www.safecosmetics.org/population/pregnant-women/), Teenagers (https://www.safecosmetics.org/population/teenagers/), Women of Color (https://www.safecosmetics.org/population/women-of-color/), Workers (https://www.safecosmetics.org/population/workers/)

Regulations

Determined safe for use in cosmetics, subject to concentration or use limitations – Safe for use in cosmetics with some qualifications.[20]

How to Avoid?

Read product ingredient labels, and avoid items with fragrance or styrene acrylates copolymer listed as ingredients.

Explore other Chemicals

Parabens (https://www.safecosmetics.org/chemicals/parabens/)

Petrolatum, Petroleum Jelly (https://www.safecosmetics.org/chemicals/petrolatum/)

Formaldehyde And Formaldehyde-Releasing Preservatives (https://www.safecosmetics.org/chemicals/formaldehyde/)

Quaternium-15 (https://www.safecosmetics.org/chemicals/quaternium-15/)

Synthetic Musks (https://www.safecosmetics.org/chemicals/synthetic-musks/)

Phthalates (https://www.safecosmetics.org/chemicals/phthalates/)

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