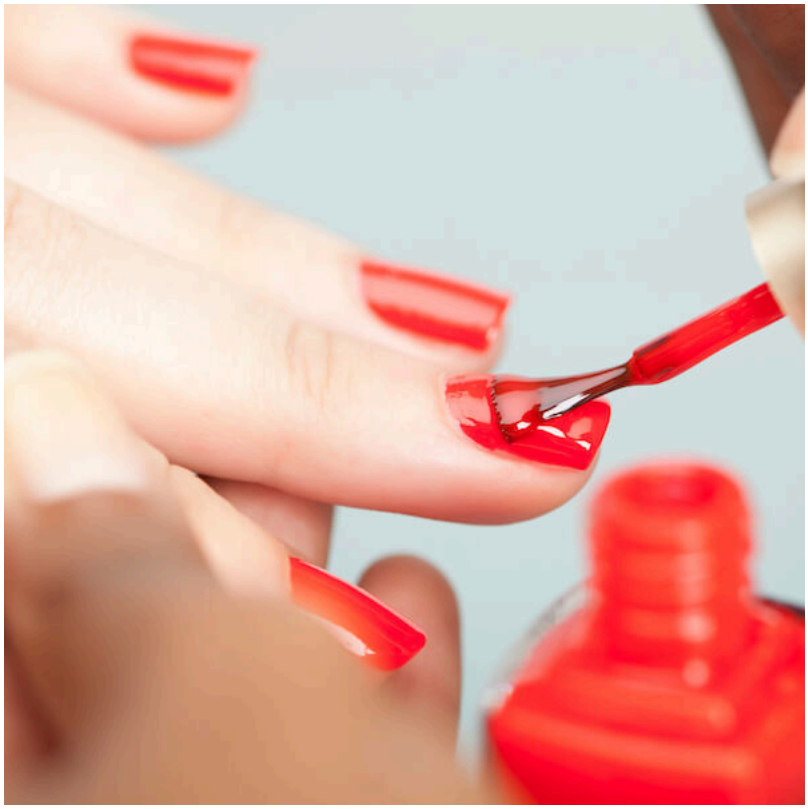
Toluene

Toluene is a toxic chemical used in in nail products and hair dyes. Exposure to toluene can result in temporary effects such as headaches, dizziness and cracked skin, as well as more serious effects such as reproductive damage and respiratory complications.



WHAT IS TOLUENE?

Toluene, found naturally in crude oil and in the tolu tree, is added to gasoline[2] and is used in the making of many products including paint thinners, adhesives, rubber and hair dyes.[2][3]

It is also used in nail products to suspend the color and form a smooth finish across the nail. While the Occupational Safety and Health Administration has set limits for worker exposure to toluene, and the California Division of Occupational Safety and Health has set even stricter limits,[1] it is reasonable to assume that nail salon workers are exposed to unacceptably high levels of the chemical. These workers are exposed on a daily basis over long shifts in salons that may lack proper ventilation and environmental monitoring equipment.

Found In

- Nail polish
- Nail treatment
- Hair dyes

What to look for on the label

- Toluene

Health Concerns

Organ system toxicity: Dysfunction of the central nervous system following acute, intermediate or high inhalation exposure to toluene is a critical health concern. Low to moderate daily workplace exposure can cause temporary tiredness, confusion, weakness, nausea and memory loss.[7] Studies of occupationally exposed workers indicate that chronic exposure to concentrations of toluene ranging from 30-150 ppm can result in hearing and color vision damage, reduced ability in tests of cognitive and neuromuscular function and neurotoxic symptoms.[6] A Korean study that looked at workers chronically exposed to toluene below 100 ppm found that this lower dose exposure was associated with neurobehavioral changes and could result in attention, concentration and motor performance deficits.[4] Toluene has also been listed as a known human respiratory toxicant by the Environmental Protection Agency.[3] Exposure to toluene in humans can result in respiratory tract irritation.[2] Additionally, in human

epidemiological studies and in animal studies, this chemical has been associated with toxicity to the immune system and also possibly with blood cancers such as malignant lymphoma.[5]

Developmental and reproductive toxicity: Toluene is listed as a possible human developmental toxicant by the California Environmental Protection Agency Proposition 65. A mother's exposure to toluene vapors during pregnancy may result in developmental damage in the fetus. Exposure to high concentrations of toluene via inhalation during pregnancy may be toxic to the developing fetus.[6]

Irritation: The EU classifies toluene as a skin irritant (only for products for use on skin).[3]

Vulnerable Populations

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

Restricted in cosmetics in the EU; found unsafe for use in cosmetics by the International Fragrance Association Codes and Standards.

How to Avoid?

Look for less toxic brands and formulations of nail polishes and treatment. Practice BYOP—bring your own (safer) polish—to the salon. Limit polish use, especially by children. Try buffing nails instead of lacquering. Skip the mani and just get a pedi. Pregnant women should apply and remove polish in a well-ventilated area.

Salon workers should wear face masks when working with nail polishes containing toluene, and if possible should only work with nail polishes that do not contain toluene. In recent years, three major nail polish companies—OPI, Orly and Sally Hansen—have removed toluene from their nail polishes, largely due to a multi-year campaign by the Campaign for Safe Cosmetics.

Explore other Chemicals

Triclosan (https://www.safecosmetics.org/chemicals/triclosan/)

Benzophenone & Related Compounds (https://www.safecosmetics.org/chemicals/benzophenone/)

Carcinogens in Cosmetics (https://www.safecosmetics.org/chemicals/known-carcinogens/)

Coal Tar (https://www.safecosmetics.org/chemicals/coal-tar/)

Mica (https://www.safecosmetics.org/chemicals/mica/)

Talc (https://www.safecosmetics.org/chemicals/talc/)

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References

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[2] ASTDR, Toxicological Profile for Toluene, September 2000. Available online: http://www.atsdr.cdc.gov/toxprofiles/tp56.pdf (http://www.atsdr.cdc.gov/toxprofiles/tp56.pdf). Accessed April 21, 2022.

[3] EWG, Skin Deep Cosmetics Database, Available Online: http://www.ewg.org/skindeep/ (http://www.ewg.org/skindeep/). Accessed April 21, 2022.

[4] S. Kang, Neurobehavioral performance in workers exposed to toluene, Environmental Toxicology and Pharmacology, vol. 19 (3), pp. 645-50, May 2005.

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[7] CDC, Fourth National Report on Human Exposure to Environmental Chemicals, 2009. Available online: http://www.cdc.gov/exposurereport/pdf/FourthReport.pdf (http://www.cdc.gov/exposurereport/pdf/FourthReport.pdf). Accessed April 21, 2022.

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