

Which harmful ingredient is NOT found in nail polish?

- A. Toluene
- B. TCS (Triclosan)**
- C. DBP (dibutyl phthalate)
- D. Formaldehyde



Triclosan (TCS) is an antimicrobial agent commonly found in products such as deodorant, soap and toothpaste and has been used for over 20 years. Its use has been associated with emerging health concerns such as microbial resistance, higher incidence of allergies and endocrine disruption [1]. In addition, TCS has been shown to be toxic to aquatic bacteria and accumulate in the environment [2]. It has also been detected in streams and rivers in the US [3].

Toluene, DBP and formaldehyde have been called “the toxic trio” by some in the cosmetics industry. Dibutyl phthalate (DBP) is used in order to minimize chipping, however it has been banned in the European Union since the early 2000’s and many US companies have been voluntarily removing it from their products [4]. DBP has been classified as an endocrine disruptor, causing birth defects and developmental effects in animal models [5]. Toluene is the nail polish ingredient used to create a smooth application and finish and is also used as a solvent in paints, lacquers, etc. It is known to cause reproductive toxicity and can cause adverse affects to the central nervous system (CNS), cardiovascular, hematopoietic, reproductive, and respiratory systems, as well as to the liver, kidneys, skin, and sensory organs after exposure to high concentration [5]. Formaldehyde is used to harden and strengthen nail polishes, also serving as a preservative that impairs bacterial growth. At low levels formaldehyde is not dangerous however exposure to high amounts can cause many detrimental affects such as asthma, convulsions, nausea, and cancer [6].

1. *Dhillon, G. S.; Kaur, S.; Pulicharla, R.; Brar, S. K.; Cledón, M.; Verma, M.; Surampalli, R. Y. (2015). "Triclosan: Current Status, Occurrence, Environmental Risks and Bioaccumulation Potential". International Journal of Environmental Research and Public Health. 12 (5): 5657–84. doi:10.3390/ijerph120505657.*
2. *"Estimates Of Exposures And Risks To Aquatic Organisms From Releases Of Triclosan To Surface Water As A Result Of Uses Under EPA'S Jurisdiction" (PDF). Retrieved 2014-09-22.*
3. Dhillon, p. 5668.
4. J.D. Breskey. California again leading the way: cosmetics safety and worker health. Calif. J. Health Prom, 11 (2013), pp. vi-viii.
5. *Luda Kopelovich, Angela L. Perez, Neva Jacobs, Emma Mendelsohn, and James J. Keenan (2015). Screening-level human health risk assessment of toluene and dibutyl phthalate in nail lacquers. Food and Chemical Toxicology. 81: 46-53.*
6. Gerald McGwin, Jr., Jeffrey Lienert, and John I. Kennedy, Jr. (2010). Formaldehyde Exposure and Asthma in Children: A Systematic Review. 118 (3): 313-317.