

# Exposing the Formaldehyde MYTH



**DOUG SCHOON**,  
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divulges his views  
about the global  
concern of  
formaldehyde in  
cosmetic products

**A**n unfortunate misunderstanding is happening globally concerning many cosmetic products, including some nail products. Some groups are incorrectly claiming that 'formaldehyde' is an ingredient in cosmetics. Advocacy groups are even loudly proclaiming that formaldehyde is a known carcinogen and are demanding manufacturers remove this cancer-causing ingredient from cosmetics. Actually, if these groups understood formaldehyde's basic chemistry, they would see their claims are absolutely wrong. They'd also know that formaldehyde is not a cosmetic ingredient and never has been!

Advocacy groups incorrectly claim that formaldehyde is an ingredient found in nail hardeners, nail polish and preservatives used to prevent bacterial and fungal growth in products such as lotions, creams and shampoos. So, how can I be so sure that formaldehyde has never been a cosmetic ingredient?

Because formaldehyde is a gas, not a liquid or a solid. A gas cannot be added to cosmetics as an ingredient, since it would rapidly escape from the product. Interestingly, formaldehyde is a naturally occurring gas that must be kept absolutely bone dry. In the presence of even tiny amounts of moisture, it instantly transforms into completely different substances. This is why it quickly breaks down and doesn't accumulate in the environment. As you can imagine, this is yet another reason why formaldehyde can't be used in cosmetics;

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it wouldn't be stable for more than 1000th of a second after contact with moisture.

How did this misunderstanding begin? Sometime in the early 1900s formaldehyde manufacturers began mixing this gas with water to create a liquid substance called 'formalin'. These manufacturers mistakenly assumed that the added formaldehyde was simply dissolving in the water, so this is how formalin was sold. They didn't realise the truth; formaldehyde does not dissolve in water, but instead instantly reacts with the water to change into a completely new and different substance called methylene glycol. Not only is it completely different, methylene glycol belongs to an entirely separate chemical family. Formaldehyde is a gas and methylene glycol is a liquid with very different chemical properties.

Here's what caused most of the confusion. Europe, Canada, United States, Australia and many other countries require labelling with ingredient names listed in the 'INCI Dictionary'. INCI stands for *International Nomenclature of Cosmetic Ingredients*. This dictionary repeated the original misinformation and required cosmetic manufacturers using formalin to put the name 'formaldehyde' on product labels. About 1.5% formalin is often used in nail hardeners and these labels carried the incorrect 'formaldehyde' ingredient name for many years, even though they contain almost undetectable trace levels of true formaldehyde amounting to around 0.0010%.

Manufacturers of these products had no reason for concern until it was discovered that inhaling relatively high concentrations of formaldehyde gas for long periods in rare instances may cause an unusual form of nasal cancer. Suddenly, advocacy groups began to erroneously claim that nail hardeners, polish and other cosmetics contain a dangerous cancer-causing ingredient. They obviously did not realise that the label name was incorrect.

When the Nail Manufacturer's Council (NMC) discovered that nail techs and their clients were being given incorrect information, it decided to clear up the situation once and for all. As co-chair of the NMC, I worked with others in this industry group to officially correct the INCI naming error, which was finally approved in December 2008 and is now in effect. Manufacturers using formalin in nail hardeners can now use the correct name for this ingredient, 'methylene glycol'. If you find 'formaldehyde' on a cosmetic label, you now know this is an incorrect name and you can be sure that formaldehyde was NOT added to the product. You can also be sure that the formaldehyde related cancer risks claimed by these advocacy groups don't apply to cosmetics.

Some advocacy groups also claim formaldehyde is a nail polish ingredient, which is also completely incorrect. Here are the facts: a major ingredient used in nail polish is called 'tosylamide formaldehyde resin'. This resin is originally made using several substances, including formaldehyde gas, but the resin is totally different. It's very thick, sticky, doesn't

evaporate and has completely different properties from formaldehyde gas. This resin can contain tiny trace amounts of formaldehyde residuals, but those levels are well below those found in nature. Formaldehyde is created in many naturally-occurring processes. Yes, formaldehyde is a natural and organic substance that is normally found in many foods up to 0.0098%. Trace amounts naturally occur in even organically grown pears, apples, carrots and tomatoes. In nail polish, the trace formaldehyde residuals are about the same as what naturally occurs in some foods. Also, scientific studies done in salons have proven that nail products don't increase levels of formaldehyde in the salon air, so why the concern? Unless these advocacy groups think organically grown apples and carrots are also dangerous, they must be greatly over-exaggerating the health risks.

The third incorrect claim is that certain preservatives used in some lotions, creams, shampoos, body washes etc. release so much formaldehyde gas that they can cause cancer. What is the scientific truth? The most effective preservative ingredients for these types of cosmetics will very slowly release even lower amounts of formaldehyde than what is found in foods. In general, they release about 100 times lower levels or about 0.0001%. As you now know, this will immediately mix with water in the product and instantly convert into methylene glycol, so there's virtually no chance of inhaling harmful levels of formaldehyde gas. The same thing happens to the trace levels of formaldehyde that naturally occur in food, which is why formaldehyde gas inhalation isn't a problem with cosmetics.

Remember, formaldehyde gas only rarely causes nasal cancer and when it does, these problems are only found in people who inhale significantly large dosages for long periods of time e.g. formaldehyde manufacturing plant workers. These extremely beneficial preservatives can help ensure the safety of cosmetic products, so it's important not to unfairly slander them. These preservatives may occasionally cause skin irritation and allergic sensitivity in a small percentage of the population, but show no adverse effects for the overwhelming majority of people who use products protected by these important ingredients.

You can see that when the science behind this issue is examined, it becomes clear and obvious that the claims about formaldehyde in cosmetics causing cancer are not only incorrect; the entire issue has been dramatically exaggerated and overstated.

Next time you hear that 'formaldehyde' is a cancer causing ingredient in cosmetics, you'll know this is NOT true! You'll also know that whoever made this statement doesn't understand the facts. Please set them straight. Save this article so you can give it to them. Educators, please share this information with your students. It hurts the entire beauty, cosmetic and personal care industries when misinformation like this goes uncorrected. We need to set the record straight and you can help. **S**

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