

Formaldehyde From Hair Care Products: Methylene Glycol Awareness

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With the recent concern of formaldehyde emissions from laminated flooring, it is useful to review that there are multiple sources of formaldehyde that contribute to levels detected in indoor air. These additional sources include cigarette smoking, wood burning stoves and fireplaces, new carpeting, wood paneling, new mattresses, particle board, and wooden furniture and cabinets. An additional source of formaldehyde is from hair care products, especially hair straighteners. Certain manufacturers include an ingredient listed as methylene glycol (CAS 463-57-0). The product may have as much as 10% of this ingredient. This ingredient is actually a stabilized form of formaldehyde.

In simplified terms, when formaldehyde is added to water, a reaction occurs and methylene glycol is formed. This is known as a formalin solution. The formaldehyde, water, and methylene glycol exist in an equilibrium mixture, meaning that the reaction is reversible. Methylene glycol is the predominant component at room temperature. However, when heat is applied to this mixture, such as with a hair dryer or hair-straightening device, formaldehyde is formed, which can result in unhealthy indoor air quality. This is particularly a concern in hair salons, where stylists and clients are possibly exposed to elevated formaldehyde levels for extended time periods. OSHA issued a Hazard Alert regarding this issue in 2011 (https://www.osha.gov/SLTC/formaldehyde/hazard_alert.html).

This issue is particularly confusing for consumers because some hair care product labels promote the fact that the product is “formaldehyde free”. The safety arm of the European Commission has begun to ban these formulations and several products have also been banned in California, but in general, products containing methylene glycol still exist and the buyer must beware of the potential health risks involved.