MINNESOTA MDH DEPARTMENT OF HEALTH

IMPORTANT INFORMATION FROM THE MINNESOTA DEPARTMENT OF HEALTH

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Hair smoothing products containing formaldehyde can cause health problems

April 2011

Salons are experiencing increased requests for hair treatments to straighten or smooth hair. These treatments are sometimes referred to as "keratin treatments". While these hair treatments are popular, the Minnesota Department of Health (MDH) warns that some people may experience reactions to these products because they contain formaldehyde. MDH wants people to be aware that the use of these products can cause adverse health effects in some people.

In response to concerns related to the use of these products, Oregon's Occupational Safety and Health Administration (OSHA) tested a wide variety of these products. Independent testing has also been performed by Health Canada. Tests from both organizations showed that some of these products contain formaldehyde, including some products that were labeled as "formaldehyde free".

When air monitoring was performed during the use of these products, air concentrations from most sample results exceeded short- term exposure values for formaldehyde that are recommended by the American Conference of Governmental Industrial Hygiene (ACGIH) and the National Institute for Occupational Safety and Health (NIOSH). Regulatory levels adopted by the Occupational Safety and Health Administration (OSHA), are less protective than ACGIH and NIOSH values. Al-though the OSHA value was not exceeded, one of the samples was found to be 94 percent of the OSHA short-term regulatory value.

People who regularly work with these formaldehyde-containing products are at greater risk of adverse health effects than those people who may have incidental or occasional exposures.

What is formaldehyde?

Formaldehyde is a colorless gas that has a pungent, distinct odor at room temperature. Small amounts are produced naturally by both human activity and in nature. Large amounts are produced industrially, and formaldehyde is found in many consumer products. Formaldehyde can be toxic. Formaldehdye levels in the air ranging from 0.1 to 0.5 parts per million (ppm) can cause nose and eye irritation, neurological effects, and increased risk of asthma and/or allergies.[2] Some studies of humans exposed repeatedly to formaldehyde in workplace air found more cases of nose and throat cancer than expected. Animal studies of laboratory rats exposed for life to formaldehyde in air found that some rats developed nose cancer. ACGIH estimates that 10-20% of the population may be sensitized to very low concentrations of formaldehyde (<0.25 ppm).

2. ATSDR Toxicology Profile, Oct. 2010.

Formaldehyde Guidance

NIOSH **0.1 PPM**
(15 MINUTE CEILING LIMIT)

ACGIH **0.3 PPM**
(15 MINUTE CEILING LIMIT)

EPA **0.73 PPM**
(AEGL-1)[1]

OSHA **2 PPM**
(15-MINUTE CEILING LIMIT)

[1] AEGL-1 IS THE AIRBORNE CONCENTRATION, EXPRESSED AS PARTS PER MILLION (PPM) OR MILLIGRAMS PER CUBIC METER (MG/M3) OF A SUBSTANCE ABOVE WHICH IT IS PREDICTED THAT THE GENERAL POPULATION, INCLUDING SUSCEPTIBLE INDIVIDUALS, COULD EXPERIENCE NOTABLE DISCOMFORT, IRRITATION, OR CERTAIN ASYMPTOMATIC NON-SENSORY EFFECTS. HOWEVER, THE EFFECTS ARE NOT DISABLING AND ARE TRANSIENT AND REVERSIBLE UPON CESSATION OF EXPOSURE.. (EXPOSURE DURATION OF 10 MINUTES)

NOTE THAT ACGIH, NIOSH AND OSHA ALL HAVE STANDARDS USED TO PROTECT WORKERS. THESE VALUES GENERALLY ASSUME THAT THE EXPOSED INDIVIDUAL IS HEALTHY.

Should I Be Concerned?

People who have been sensitized to formaldehyde and people with asthma or other chronic lung diseases may be more at risk from exposure to these products.

Be aware of the symptoms that may be experienced from exposure to formaldehyde. Health effects include eye, nose and throat irritation; breathing difficulties such as wheezing and coughing; headache; fatigue; skin rash; and severe allergic reactions. Formaldehyde can enter the body through the skin (dermal exposure), or through breathing in vapors containing formaldehyde (respiratory exposure).

If acute symptoms occur, immediately remove oneself from the exposure.

It is not easy to determine which products are safe. Unfortunately, some products are being advertised as "formaldehyde-free" when they are not.

Generally a Material Safety Data Sheet (MSDS) is included with each product. To avoid formaldehyde, be sure that the MSDS does not list formaldehyde, formaldehyde solution, formalin, methylene glycol, methylene oxide, paraform, formic aldehyde, methanol, oxomethane, oxy-methylene or methanediol.

Warnings have been issued by the Food and Drug Administration (FDA), Health Canada, and some states. Some of the warnings have been expanded to include all hair straightening products that contain greater than 0.1 percent formaldehyde, methylene glycol or formalin. Salon owners are advised to ask their suppliers about the content of the chemicals used in their hair straightening products.

highest percentage of formaldehyde

Smoothing solution "Formaldehyde Free"	8.8%
Brazilian Blowout Solution	8%
Brazilian Gloss Keratin Smoothing Gloss	7.3%
Brazilian Thermal Reconstruction by Cadiveu	7.0%
Global Keratin Taming System with Juvexin Strawberry Resistant by Global Keratin	4.4%
Pro-Collagen RX Keratin Treatment	2.8%
IStraight Keratin (Advanced Keratin Treatment) by IBS Beauty	2.3%
Chocolate, extreme de-frizzing treatment	2.0%

Additional products that have been found to contain formaldehyde can be found on the Oregon OSHA and Health Canada websites listed in the "Resources" section at the end of this factsheet.

What can I do to protect myself?

The best option is to avoid the use of products that contain formaldehyde.

If you cannot avoid the use of these products, then take care to protect yourself and your clients.

Carefully read all labels and material safety data sheets before using chemicals. Never eat or drink near chemicals and wash hands well with soap and water after using chemicals, even if you have been wearing gloves.

Hair treatments that require the use of irritating chemicals such as formaldehyde should be carried out in a well-ventilated area. Recognize the symptoms of formaldehyde exposure and if acute symptoms occur such as difficulty breathing, coughing or wheezing, immediately remove yourself from the exposure.

Personal protective equipment should be considered when handling irritating chemicals. At a minimum, wear a work apron or lab coat, safety glasses or goggles and/or a face shield. Gloves should be made of nitrile or butyl/neoprene rubber. Latex gloves will offer little protection if used for extended periods of time.

Respirators can offer protection but employees should be medically cleared and fit tested before wearing a respirator.

If you have experienced adverse health effects from use of this type of product, contact your personal physician and share a copy of this fact sheet with him or her.

Although the FDA does not regulate cosmetic products and ingredients except for color additives, complaints can be made by calling (612) 758-7221 or logging the complaint at Medwatch at:

http://www.fda.gov/Safety/MedWatch/HowToReport/

Check out our website at:
www.health.state.mn.us/asthma/

Minnesota Department of Health Asthma Program
85 East 7th Place
St. Paul, MN 55164

Phone: 651-201-5909
health.asthma@state.mn.us

Resources:

FDA Receives Complaints Associated With the Use of Brazilian Blowout. 10/8/2010 updated 10/18/2010. Online at : http://www.fda.gov/Cosmetics/ProductandIngredientSafety/ProductInformation/ucm228898.htm

Health Canada Advisory and Warning: Several professional hair smoothing solutions contain formaldehyde, 12/10/2010.
Online at : http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/_2010/2010_222-eng.php
Update, 10/26/2010. Online at: http://www.hc-sc-gc-ca/ahc-asc/media/advisories-avis/_2010/2010_182-eng.php
Update 4/12/2011 Online at: http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/_2011/2011_56-eng.php

Oregon OSHA– Full Report: "Keratin-Based" Hair Smoothing Products And the Presence of Formaldehyde, Oregon OSHA and the Center for Research in Occupational and Environmental Toxicology (CROET) at Oregon Health & Sciences University. October 29, 2010. www.orosha.org/pdf/Final_Hair_Smoothing_Report.pdf

US ATSDR-CDC ToxFAQs, Formaldehdye at: http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=219&tid=39
US OSHA, Hazard Alert, April 2011, at: http://www.osha.gov/SLTC/formaldehyde/hazard_alert.html