



# SENSOR

# Occupational Lung Disease Bulletin

Massachusetts Department of Public Health  
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Winter 2011-2012

Dear Healthcare Provider:

*Hair stylists who use keratin hair-smoothing treatments on their client's hair are at risk for exposure to formaldehyde, a known asthmagen and carcinogen. This Occupational Lung Disease Bulletin provides a summary of recent FDA and OSHA actions warning stylists and consumers about the health hazards associated with straightening hair treatments. Despite claims of being "formaldehyde free" many products have been documented to release formaldehyde to the salon environment. To date no cases of work-related asthma (WRA) associated with hair straightening have been reported in Massachusetts. However, nearly 20 confirmed WRA cases reported exposures to formaldehyde in a variety of industries, including healthcare, lumber mills, paper-making, plastics and jewelry box manufacture. If your patients are employed in salons, notify them about the risk of formaldehyde.*

**REMINDERS: Report cases of WRA to the MA Department of Public Health.**

**To receive your Bulletin by e-mail, please send a message to [occupational.asthma@state.ma.us](mailto:occupational.asthma@state.ma.us)**

Sincerely,  
Elise Pechter MPH, MAT, CIH

## Hair straightening with health risks

Hair straightening (or "smoothing") treatments, the most well known of which is Brazilian Blowout, have gained popularity over the last few years. The 90 minute treatment is touted for its success in providing smooth, straight, manageable, humidity-resistant hair that lasts for months. The YouTube video demonstrating the Brazilian Blowout technique has been viewed nearly 400,000 times; it shows repeated use of both a hairdryer and hot flat iron to achieve the desired results.<sup>1</sup>

There is a downside to these treatments—the hair straightening products contain and release formaldehyde with heating. The manufacturers and distributors have denied the use of formaldehyde, but sampling results by

<sup>1</sup> [www.youtube.com/watch?v=r9KhydvXks8](http://www.youtube.com/watch?v=r9KhydvXks8) Accessed 1/5/12.

the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH) and researchers have documented its presence.<sup>2</sup> The client is exposed only during treatment, but the stylist and coworkers may provide multiple treatments or work nearby, resulting in additive exposures over a work shift; other clients may also be exposed.<sup>2</sup>

## Formaldehyde

Formaldehyde is a colorless, pungent gas that can cause work-related asthma (WRA). The highly reactive chemical can damage the eyes, cause severe irritation of the eyes, nose and throat, and cause dermal and respiratory sensitization. It is estimated that 10-20% of the population may be sensitized. Formaldehyde is also a known carcinogen. While consumer products may legally contain it, OSHA has a standard designed to protect employees from exposure to formaldehyde on the job. The standard sets limits for air concentrations, and requires labeling and material safety data sheets that describe the hazards if the concentration in the product is 0.1% or more.

## Recent history—agencies find formaldehyde

In October 2010, Oregon OSHA (OR-OSHA) reported that they had tested 100 products from 50 salons. Their results showed significant levels of formaldehyde in products labeled "formaldehyde free." OR-OSHA initiated this investigation in response to a complaint from a hair stylist who had nosebleeds, eye irritation and trouble breathing while using a hair straightening product. Of the products tested, 37 came from bottles of Brazilian Blowout Acai Professional Smoothing Solution, labeled "formaldehyde free." OR-OSHA alerted federal OSHA about these problems. Health Departments in California, Connecticut and Minnesota issued warnings to salon owners, stylists, and clients. And California's Attorney General has filed a lawsuit against the maker, asserting they failed to warn consumers of the health risks. NIOSH conducted air sampling for formaldehyde during a Health Hazard Evaluation at an Ohio salon in December 2010. One employee applied the treatment to another

<sup>2</sup> Pierce JS, Abelman A et al. Characterization of formaldehyde exposure resulting from the use of four professional hair straightening products. JOEH 2011;8:686-699. [www.tandfonline.com/doi/pdf/10.1080/15459624.2011.626259](http://www.tandfonline.com/doi/pdf/10.1080/15459624.2011.626259)

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employee, while the salon was closed. The report (May 2011) stated that six of seven personal breathing zone samples for formaldehyde exceeded the NIOSH ceiling limit of 0.1 ppm. An adjacent stylist, cutting hair, was also exposed to formaldehyde at the ceiling limit.<sup>3</sup>

In August 2011, the US Food and Drug Administration (FDA) issued a warning letter stating that keratin hair straightening treatments could be injurious to users.<sup>4</sup> The FDA conducted their own sample analysis of Brazilian Blowout, and found concentrations of formaldehyde ranging from 8.7-10.4%. FDA stated that this product is an “adulterated and misbranded cosmetic.” It contains methylene glycol, which releases formaldehyde, during normal conditions of use. In response, the company denied the assertion, asserting that the formaldehyde was “well below” even the most stringent standards and urging customers to complain to FDA.

While FDA has warned consumers, OSHA recently issued a Hazard Alert for workers in English, Spanish and Vietnamese about the dangers in using these products (September 22, 2011):

[www.osha.gov/SLTC/formaldehyde/hazard\\_alert.html](http://www.osha.gov/SLTC/formaldehyde/hazard_alert.html)

OSHA also has an online factsheet about hair salons

<http://www.osha.gov/SLTC/hairsalons/index.html>

**HAZARD ALERT  
UPDATE**



Hair stylists are a large and fast growing occupational group, with more than 630,000 current employees nationwide and projected 20% growth by 2018.<sup>2</sup> Information about the hazards of keratin hair straightening products should be shared among the health community.

<sup>3</sup> [www.cdc.gov/niosh/hhe/pdfs/HETA\\_11-0014\\_Interim\\_Letter\\_for\\_web.pdf](http://www.cdc.gov/niosh/hhe/pdfs/HETA_11-0014_Interim_Letter_for_web.pdf)

<sup>4</sup> [www.fda.gov/ICECI/EnforcementActions/WarningLetters/ucm270809.htm](http://www.fda.gov/ICECI/EnforcementActions/WarningLetters/ucm270809.htm)

## OSHA Alert

OSHA’s Alert notifies salon owners that if they continue to use hair straightening products that contain or release formaldehyde, they must follow the requirements of the OSHA formaldehyde standard. OSHA wrote a letter to Brazilian Blowout objecting to the company’s claim that all air quality tests have been in compliance with OSHA standards. OSHA wrote, “Please be advised that we disagree with this statement.” They noted a salon inspection in 2011 in which Brazilian Blowout Acai Professional Smoothing Solution was being used, and workers were exposed to formaldehyde at concentrations that exceeded the short term exposure limit of 2 ppm, 20 times higher than the NIOSH Ceiling limit of 0.1 ppm.<sup>5</sup>

A recent study of four keratin hair straightening products found that they varied in formaldehyde content, with La Brasiliana releasing little to no formaldehyde and Brazilian Blowout releasing the most.<sup>6</sup> Salons using formaldehyde containing and releasing products must comply with the OSHA standard. Depending on the concentration that is present, manufacturers should include hazard information on the label, including “potential cancer hazard.” Employers must make sure the product is labeled, take steps to reduce exposure and train their employees.

- ◆ Install air ventilation systems where products are mixed and used, to keep concentrations low
- ◆ Require workers to use lower heat settings on blow-dryers and flat irons used in the process
- ◆ Provide respirators for employees
- ◆ Ensure stylists and other salon workers understand the hazards, how to use the product safely and protective gear to use
- ◆ Provide safe ways to clean and dispose spills

**CẢNH BÁO NGUY HIỂM**



<sup>5</sup> [www.osha.gov/SLTC/formaldehyde/brazilian\\_blowout\\_letter.pdf](http://www.osha.gov/SLTC/formaldehyde/brazilian_blowout_letter.pdf)

<sup>6</sup> In order of concentration with largest first: Brazilian Blowout>Global Keratin>Coppola>La Brasiliana in bulk concentration and release to environment.

*Please report work-related asthma cases to SENSOR by phone, fax, or mail!*