



policy matters

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PEDICURES AT WHAT PRICE?

The Nail-Salon Workforce Has Experienced Tremendous Growth, Prompting a Closer Look at the Health and Safety Issues Impacting its Employees

The health and safety of California's 96,000 licensed nail technicians is capturing the attention of policymakers, worker advocates, researchers, and regulators at a time when California is also embarking on a comprehensive program to reduce or eliminate hazardous chemicals in consumer products and the environment.

Nail technicians provide services—manicures, pedicures, nail polishing, artificial nails—that expose them to an array of potentially toxic and hazardous chemicals that can lead to significant health problems. And the nail services industry has experienced phenomenal growth since the late 1980s: the number of nail technicians in California alone has more than doubled from 35,500 in 1987 to 96,000 today.

The composition of the state's nail-technician workforce also has changed significantly. According to a study published in 2006 in Cornell University's *Industrial and Labor Relations Review*, Vietnamese workers comprised 10 percent of the nail-technician labor force in California in 1987, which increased to 59 percent in 2002. Nail salons contribute significantly to the Vietnamese community's economic base, primarily because this industry provides immigrants easy access to the workforce.

Risky Business?

Working in the nail-salon business is not without its risks, however, and various factors make it difficult for nail technicians to take a proactive role in protecting themselves from toxic exposure in the workplace. Competition, along with building and retaining clientele, is a significant problem facing nail technicians today, so they tend to work quickly and for many hours at a time to increase their customer base



Is Nail Polish Hazardous to Your Health?

Nail polish, like other cosmetic products, is not subject to FDA pre-market approval (except for color additives), and some industry experts question whether its ingredients are safe.

and maximize their earnings. Product health and safety information usually is not readily available to them and when it is, it's typically only printed in English, even though many of the state's nail technicians have limited English-language skills. Furthermore, nail technicians must depend on the building owners to provide proper ventilation and air circulation in their work areas.

Reports and studies claim that exposure to chemicals found in nail products can pose health risks to nail-salon employees. For example, a United States Environmental Protection Agency (EPA) report indicates that, if not properly handled, overexposure to professional nail-care products can result in many adverse health effects, including skin irritations, allergic reactions, serious eye injuries, central-nervous-system depression, nausea, and, in extreme cases, cancer, uncontrollable muscle contractions, and impaired human reproductive and development processes.

Regulation of Cosmetic Products

The United States Food and Drug Administration's (FDA) legal authority over cosmetics differs from its regulation of other products, such as drugs and medical devices, which must be established as safe and effective before they may be sold. Cosmetic products, however, including nail products and their ingredients, are not subject to FDA pre-market approval, except for color additives. Instead, the FDA relies on the cosmetic firms to substantiate the safety of their own products and ingredients before marketing them.

The national Cosmetic Ingredient Review (CIR) panel, funded by the Personal Care Products Council, conducts safety assessments of cosmetic-product ingredients. The panel reviews existing literature on ingredients and makes recommendations to the cosmetics industry, but there is no requirement for cosmetic manufacturers to implement the

California's Safe Cosmetics Act

In 2005 California enacted Senate Bill 484 (Migden, Chapter 729, Statutes of 2005), creating the California Safe Cosmetics Program. This law requires manufacturers who sell products in California to provide the state with a list of their products that contain chemicals known to cause cancer or reproductive toxicity. The law also gives the California Department of Public Health (DPH) the authority to conduct investigations on the impact of hazardous chemicals in cosmetic products, and based on the conclusions of their studies, DPH may recommend establishing permissible exposure limits. In addition, the law may require the California Division of Occupational Safety and Health to regulate these products of concern.

If manufacturers are using ingredients featured on state or federal lists of chemicals that cause cancer or birth defects (such as DBP, formaldehyde, and toluene), they must disclose which products sold on or after January 1, 2007, contain these ingredients. However, Senate Bill 484 does not provide for enforcement of the disclosure requirements.

panel's findings. Of approximately 1,200 cosmetic ingredients reviewed by the CIR since its establishment in 1976, nine ingredients have been deemed unsafe for cosmetic use. While the industry claims the CIR panel's decisions are based on solid science and not on speculation, many health groups, women's rights organizations, and environmental health advocates claim that the panel's decisions protect the cosmetic and chemical industries at the public's expense.

The European Union has implemented guidelines known as the Cosmetics Directive, which prohibits using—in cosmetic products sold in the European Union—nearly 1,300 chemicals known or strongly suspected of causing cancer, mutation, or birth defects. In contrast, the United State's FDA bans only the following ingredients from cosmetic products: bithionol, chlorofluorocarbon propellants, chloroform, halogenated salicylanilides, methylene chloride, vinyl chloride, zirconium-containing complexes, and specified prohibited cattle materials. Other cosmetic ingredients—such as hexachlorophene and mercury compounds, which are banned in the European Union—may be used in cosmetics, but the amounts used are restricted.

California became the first state in the nation to require cosmetic manufacturers to notify the state when chemicals linked to cancer or birth defects are used; the state law also provides for the regulation of cosmetic products that may be hazardous to consumers (see "California's Safe Cosmetics Act" on page 2).

Nail-salon workers are exposed to numerous toxic chemicals in the workplace, such as solvents, foot spa disinfectants, and acrylic nail products. Three chemicals found in nail products elicit the greatest health concerns: dibutyl phthalate (DBP) (a chemical that makes plastic more flexible), formaldehyde (used as a preservative and nail hardener), and toluene (a solvent).

According to the United States Environmental Protection Agency's Office of Pollution Prevention and Toxics, these three chemicals are linked to cancer as well as adverse reproductive results. They also are on the California Proposition 65 list of chemicals known to cause cancer and reproductive toxicity (see "Proposition 65: California's Safe Drinking Water and Toxic Enforcement Act of 1986" below).

Proposition 65: California's Safe Drinking Water and Toxic Enforcement Act of 1986

Proposition 65, an initiative passed by California voters, requires California to publish and update annually a list of naturally occurring and synthetic chemicals known to cause cancer, birth defects, or other reproductive harm. Currently comprised of 775 chemicals, this list includes additives and ingredients found in pesticides, common household products, food, drugs, dyes, and solvents.

Administered by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment, the Proposition 65 program requires businesses to notify Californians when they knowingly expose individuals to a listed chemical. The law also prohibits California businesses from knowingly discharging significant amounts of these chemicals into drinking water sources.

One of the chemicals, DBP, has been banned from nail care and cosmetics products in the European Union, although the U.S. FDA has not followed suit. In fact, the Cosmetic Ingredient Review panel studied DBP, formaldehyde, and toluene and found these ingredients to be “safe as used” or “safe with qualifications.” Despite the panel’s determinations, however, in the last couple of years the major nail-polish manufacturers have voluntarily begun reformulating the products they sell in the United States by removing some, if not all, of these three ingredients in response to safety concerns.

Ventilation and Air Quality

As anyone who has walked into a nail salon has likely experienced, the vapors from nail care products—even those not considered toxic—and the “dust” from nail filing can affect air quality. Many salons rely on existing building ventilation systems to help reduce exposure to irritating and harmful chemicals. However, if ventilation is inadequate, fumes may cause headaches, an inability to concentrate, dizziness, nausea, eye and throat irritation, and fatigue.

While worksite inspections of nail salons by the National Institute for Occupational Safety and Health have found that these chemical vapors are below regulatory limits for occupational exposure, a properly designed ventilation system would reduce the odors and decrease the concentration of carbon dioxide in the air. (Carbon-dioxide concentration indicates the adequacy of outside air supplied to occupied areas; elevated concentrations suggest that indoor contaminants may be harmful to one’s health.) The EPA’s Office of Pollution Prevention and Toxics advises installing exhaust ventilation systems near nail-salon work tables to minimize the inhalation of

fumes, since improving air circulation in nail salons could play a major role in preventing health problems associated with exposure to nail products.



Chemical Attraction

In the course of a work day, nail-salon workers are exposed to several toxic chemicals when they give clients manicures, pedicures, and other nail services. The U.S. Environmental Protection Agency says some of these chemicals may cause cancer and harm to a woman’s reproductive system.

California’s Division of Occupational Safety and Health (Cal/OSHA) and the state’s Board of Barbering and Cosmetology require building ventilation to be in compliance with California’s Uniform Building Code. This code requires either (a) natural ventilation through exterior openings of at least 1/20th of the total floor area, or (b) artificial light and a mechanically operated ventilation system. However, what is adequate for an office or store may not be adequate where even low levels of toxic chemicals are in constant use and where workers face prolonged exposure to certain chemicals.

Outdoor air quality is regulated by the California Air Resources Board but it does not specifically regulate indoor air quality, except for indoor air cleaners. In its efforts to improve outdoor air quality, the Air Resources Board has established emission limits for “volatile organic compounds” (VOCs) in various consumer products that have a measurable impact on ambient ozone (smog). The board

has established a 1 percent by weight VOC limit for nail-polish removers in an attempt to eliminate all VOCs in nail-polish removers that contribute to outdoor ozone levels. The board also can limit or ban toxic air contaminant emissions if it can be shown that the emissions pose a specific health hazard to people who may be nearby. The board is evaluating the use of xylenes, toluene, DBP, and formaldehyde in nail coatings; while the board lists these chemicals as toxic air contaminants, to prohibit their use in nail products the board must first demonstrate that these chemicals are potentially harmful if exposed to the public via outdoor air.

Exposure to Multiple Chemicals

Nail-salon technicians are exposed to a variety of chemicals and solvents through inhalation and skin contact every day they work. California's Occupational Safety and Standards Board is responsible for regulating employee exposure to toxic materials and establishing permissible exposure limits (PELs) to substances that employees may encounter in the workplace. State law specifies that standards must be set to ensure that no employee will suffer material impairment if exposed to a substance during his or her working life and those established standards must be based upon research and must be possible to achieve.

While there are set standards for several substances used in cosmetology, some experts believe they fail to address the real-life conditions facing nail-salon workers because the PEL standards address chemical exposure to one chemical at a time—not simultaneous exposure to multiple chemicals. They also say the focus of these standards has been on acute

exposures in industrial environments, not chronic exposures in small and poorly ventilated nail salons.

Air monitoring by Cal/OSHA indicates that PELs are not typically exceeded. Yet some experts claim nail-salon chemicals may cause health effects at concentrations lower than the established standards. Also, exposure-limit standards do not exist for some chemicals, such as those commonly used in the application of artificial nails.

A recent report by the Office of Environmental Health Hazard Assessment (OEHHA) in the California Environmental Protection Agency found that the process used by Cal/OSHA for establishing PELs in the workplace differs from the methodology used by OEHHA for developing environmental standards for the public; as a result, there are inconsistencies in the level of protection afforded by these standards.

As noted in OEHHA's report: 44 workplace chemicals are on the California Proposition 65 list of cancer-causing chemicals yet there are no PELs established for these chemicals; 62 chemicals defined as cancer-causing under Proposition 65 have PELs but are not regulated specifically as occupational carcinogens; and



Overexposed?

While regulatory agencies establish exposure limits for several substances used in cosmetology, some say nail salons generate a unique blend of chemicals and merit a more comprehensive safety evaluation.

5 workplace chemicals under Proposition 65 cause reproductive and/or developmental toxicity but they also do not have established PELs. Furthermore, 14 workplace chemicals listed under Proposition 65 cause reproductive and/or developmental toxicity but do not have PELs that explicitly account for reproductive or developmental health risks. Among the chemicals cited in OEHHA's report, some are of potential concern to nail-salon workers in particular, including DBP, formaldehyde, and toluene.

OEHHA recommends closing the gaps between the ways these agencies evaluate risks associated with chemical exposure.

Policy Considerations

The workplace conditions faced by nail-salon employees present a complicated picture of how state programs and initiatives provide a patchwork layer of workplace protections. Improving the health and safety of nail-salon workers will require the combined efforts of multiple entities—including state agencies and key stakeholder groups—and perhaps legislative direction. Some possible actions that could help mitigate exposure to hazardous chemicals include:

> **Increase outreach and technical assistance.**

Until 2008, there had been limited outreach or technical assistance to the cosmetology and nail-salon industry. In response to growing demands by workers' advocates, this industry has received increased attention from Cal/OSHA and the Board of Barbering and Cosmetology. For example, they intend to prepare a brochure on workplace health and safety issues for nail-salon workers in languages other than English (no publication date has been set).

Senate Bill 1916 (Sher, Chapter 881, Statutes of 1998) requires the California Department of Toxic Substances Control

to select two industry sectors every two years for targeted pollution-prevention outreach and assistance. The nail-salon industry could be an ideal candidate for a coordinated outreach effort because of the complex array of state regulatory entities involved, the large number of small businesses operating throughout the state, and the communication difficulties within the industry.

> **Improve communication.** Language barriers limit nail technicians' access to information needed to adequately understand health and safety standards, as many nail technicians have limited English proficiency and do not have regulatory or basic health and safety information available to them in their native language. Providing translated information about workplace and product safety in languages such as Vietnamese and Spanish could immediately help improve workplace conditions by providing employees with a better understanding of the chemicals they use as well as the associated hazards and the steps one should take to minimize chemical exposure.

> **Provide continuing education.** Eleven states have continuing education requirements for licensed nail technicians, but California does not. Offering educational courses in a nail-salon worker's native language would help provide California's nail technicians with essential information about the dangers posed by potentially hazardous materials.

Without continuing education, nail-salon workers must rely on material safety data sheets to keep them informed about the risks inherent with some products, the precautions to take when using such products, and the steps to take if exposed to hazardous substances. Federal law requires these safety sheets to be accessible to workers in all nail salons,

however, these safety sheets usually are not printed in a salon worker's native language. And according to Board of Barbering and Cosmetology inspection reports, product distributors frequently fail to provide the safety sheets to nail technicians, even though it's required by federal law.

> Improve air quality inside the nail salons.

While building owners are required to meet ventilation standards specified in the state's Uniform Building Code, the owners of the salon—who often do not own the entire building—are not required to demonstrate the existence of adequate ventilation in their establishment. Furthermore, ventilation standards established for all buildings may not address the specific requirements of nail-salon employees who work long hours and are exposed to multiple chemicals in typically small work spaces.

Possible ways to address indoor air quality could include (1) requiring the California Occupational Health and Safety Standards Board to adopt specific safety standards for nail salons and buildings that house



Air Quality Control

Irritating chemicals, vapors, and "dust" from nail filings often permeate the air of busy nail salons and workers typically rely on existing building ventilation systems to properly filter the air they—and their customers—breathe. While some experts say the air is safe in such salons, others argue it's a toxic soup that requires more scrutiny.

nail salons, (2) expanding the California Air Resources Board's jurisdiction to include air inside nail salons (not just the air outside of nail salons), and (3) requiring specific ventilation standards as a part of the application process for nail salons.

> Establish standards for nail-salon owners.

There are no educational or licensing requirements for nail-salon owners; one of the few requirements for opening a salon is to submit an application to the Board of Barbering and Cosmetology. And since nail-salon owners are not required to be licensed cosmetologists, they are not under the direct jurisdiction of the Board of Barbering and Cosmetology. These factors, along with language barriers, often make it difficult to ensure compliance with ventilation and product-use standards because regulatory agencies do not hold salon owners accountable.

> Modify Cal/OSHA's process for establishing permissible exposure levels for chemicals in the workplace.

Gaps between the environmental and the occupational regulation of "chronic toxicants" were identified in a December 2007 OEHHA report, which states that Cal/OSHA's process for establishing permissible exposure limits lacks a consistent scientific basis. The report's authors recommend using existing OEHHA cancer and non-cancer risk assessments to update occupational standards in California.

Legislation considered in 2007 and 2008 addressed this issue by requiring the California Occupational Safety and Health Standards Board to prioritize the adoption of PELs for certain toxic materials. Had this legislation passed, it would have required each adoption to correspond, to the extent feasible, with the health-based occupational exposure levels recommended by OEHHA. These bills had extensive support and

Green Chemistry

California Assembly Bill 1879 (Feuer, Chapter 559, Statutes of 2008) and California Senate Bill 509 (Simitian, Chapter 560, Statutes of 2008) launched the state's Green Chemistry program, a comprehensive effort to reduce or eliminate hazardous chemicals in products and the environment. Instead of banning one chemical at a time, this program, the first of its kind in the nation, creates a science-based process for identifying and prioritizing chemicals of concern.

California Assembly Bill 1879 requires the Department of Toxic Substances Control to adopt regulations by January 1, 2011, that require establishing an evaluation process for chemicals of concern in products—as well as potential alternatives to these chemicals—to determine how to limit exposure or reduce the risks posed by these chemicals. The department also is required to specify possible actions that can be taken after the evaluations are completed, including, but not limited to, requiring labeling or other product information on the product, controlling access to or limiting exposure to the chemicals, requiring a manufacturer to appropriately dispose of a chemical, restricting or prohibiting the use of the chemical, or taking no action.

California Senate Bill 509 requires the Department of Toxic Substances Control to establish a Toxics Information Clearinghouse to collect, maintain, and distribute information about hazardous chemicals.

opposition and ultimately either died in committee or the relative provisions were deleted from the proposed legislation.

While the above actions would help bridge some gaps in existing laws and worksite practices, California is embarking on a more comprehensive approach through its Green Chemistry program (see "Green Chemistry" at left). Under this program, California will take a more proactive role in identifying, prioritizing, and regulating chemicals found in consumer products, including nail-salon chemicals (individual chemicals and combinations of chemicals). Researchers will explore whether specific chemicals should be prohibited or exposure should be controlled, how products can be reformulated, and whether alternative products can safely replace those deemed unsafe. Evidence of change is already underway in the development of alternative products by major manufacturers and a new "green" industry. There likely will be even more demand for reformulated products as worker and consumer awareness of the health effects of these substances continues to grow.

Written by Rona L. Sherriff. The California Senate Office of Research is a nonpartisan office charged with serving the research needs of the California State Senate and assisting Senate members and committees with the development of effective public policy. It was established by the Senate Rules Committee in 1969. For more information and copies of this report, please visit www.sen.ca.gov/sor or call (916) 651-1500.

Sources: California Air Resources Board; California Board of Barbering and Cosmetology; California Department of Industrial Relations, Division of Occupational Safety and Health; California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA); Cosmetic Ingredient Review; Illinois Department of Public Health; Toxics Use Reduction Institute; United States Environmental Protection Agency; United States Food and Drug Administration; Women's Voices for the Earth.