



# *Protecting the Health of Nail Salon Workers*

*UPDATED MARCH 2007*

For more information, please visit:

[www.epa.gov/dfe/pubs/projects/salon/index.htm](http://www.epa.gov/dfe/pubs/projects/salon/index.htm)



Office of Pollution Prevention and Toxics and  
Office of Administration and Resource Management

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U.S. Environmental Protection Agency - White House Initiative on Asian Americans and Pacific Islanders, Office of Administration and Resource Management

U.S. Environmental Protection Agency - Office of Environmental Justice

U.S. Environmental Protection Agency - Office of Air Quality Planning and Standards

U.S. Environmental Protection Agency - Regional Offices

U.S. Food and Drug Administration

U.S. Occupational Safety and Health Administration

Asian American Health Coalition

California Healthy Nail Salons Collaborative

Center for Research on Minority Health at the University of Texas M.D. Anderson Cancer Center

City of Houston

Nails for You Training Academy

Nail Manufacturers Council

Pioneer Valley Project

Saigon Houston Radio

Texas Cosmetology Commission

Texas Department of Health

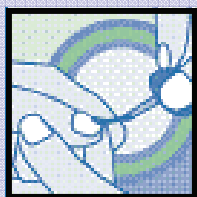
Vietnamese American Community Health Network

Vietnamese American Physicians Group in Arlington, Texas

Vietnamese Hung Vuong Association

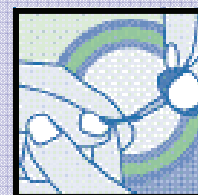
Vietnamese Public Radio

University of Texas Health Science Center at Houston - School of Public Health



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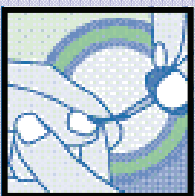
# INTRODUCTION

**A**pproximately 155,000 people work in the United States as manicurists and pedicurists. These trained professionals provide nail treatments including filing, polishing, applying artificial nails, and giving manicures and pedicures. Products that nail salon workers use are critical to performing high-quality services, and indeed, without them, these services would not be possible. However, many of the products contain ingredients that should be used and handled properly to minimize potential for overexposure. Professional nail care products are typically formulated to minimize exposure and the potential for adverse health effects. Also, nail salon products are typically used in small amounts, which can further lower the risk of overexposure. Yet, if proper care is not taken, overexposure may occur and could result in adverse health effects, such as skin irritation, allergic reaction, or serious eye injury. This guide recommends shop practices that nail salon workers and owners can use to minimize exposures and prevent overexposure.

In addition, this guide will help you understand how to use Material Safety Data Sheets (MSDSs). These documents contain information for people working in many occupations including factory workers, shippers, warehouse employees, emergency responders, and doctors, as well as nail professionals who use these products to perform salon services. Not all of the information found on an MSDS is useful to nail professionals, but the information in the Appendix will help you better understand how to use these important documents properly and make your workplace safer.

The Appendix also contains information on ingredients in nail salon products and the potential health effects that could be associated with overexposure.

This guide was originally produced in response to requests from the Asian-American nail salon worker community in Houston, Texas, and the surrounding area. EPA's Region 6, located in Dallas, Texas, in collaboration with the EPA's Design for the Environment Program, in EPA's Washington, D.C. headquarters, partnered with nail salons to document and encourage best practices to protect nail salon workers, owners, and customers.

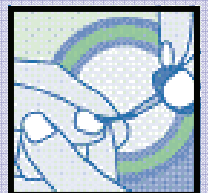


# BEST SHOP PRACTICES

**D**eveloped in collaboration with pilot nail salons and other partners, the best practices recommended here are aimed at helping nail salon workers and shop owners improve working conditions and reduce or minimize product exposures. Since mandated state and local requirements may differ from these recommendations, always contact your local cosmetology board and/or your state health department for more information.

## TO MINIMIZE INHALATION

- Install a local exhaust ventilation system near work tables. Since the general heating, ventilating, and air-conditioning systems (HVACs) slowly exchange the air inside the shop, a nail salon should use a system intended to effectively capture vapors and dust or expel them from the workplace, as well as a system that will exchange indoor air with fresh air from outside the building to maintain good air quality. Nail salons should have one or a combination of the following:
  - Work table with an exhaust vent embedded in it that is vented to the outdoors.
  - Ceiling or wall-mounted exhaust system with exhaust intake suspended above the work table.
- Use professional quality room air cleaning devices. Avoid using ozone generating air cleaning devices. Healthy people, as well as those with respiratory difficulty, can experience breathing problems when exposed to even relatively low levels of ozone.
- Always turn on the general ventilation system (HVAC) during work hours.
- Replace charcoal and dust filters regularly and according to the manufacturer's directions. If filters are not replaced, they will become ineffective.
- Keep the top of the ventilated table clear of obstructions, e.g., towels.
- Tightly close nail care product containers when not in use.
- Do not use excessive amounts of product when performing services.
- Keep products in properly labeled, smaller-sized containers at the work table.
- Do not use bulk containers when performing services. Instead, transfer products from large containers to smaller, properly labeled containers. Perform this task in a well-ventilated area, such as outside or near an open window or door. For additional protection, an organic vapor cartridge respirator may be worn during the transfer process, but it is usually unnecessary if ventilation is adequate.
  - Place all waste in a metal trash can with a self-closing lid, and empty it often.
  - Place all waste that has absorbed product, such as paper towels, gauze, cotton, or other absorbent material, in a sealed container (e.g., an empty plastic milk jug or resealable bag) before disposing of it in the trash.
  - Change trash can liners at least once daily.
- Wear a dust mask if recommended in the Material Safety Data Sheet (MSDS) to prevent inhaling dust particles.



### **TO MINIMIZE SKIN EXPOSURE**

- Wash hands before and after performing each service, before eating, and after handling products.
- Wear disposable nitrile gloves or the glove type recommended in the product MSDS when handling certain products.
- Replace gloves immediately if there are signs of cuts, tears, or holes.
- Choose appropriate clothing. Ensure that the clothing is not too loose in order to avoid accidental spills and that its coverage is adequate to help prevent skin overexposure to ingredients. For example, long-sleeved blouses or smocks protect arms; pants or skirts that are at least knee length when seated help protect the lap.
- Keep containers tightly closed when not in use to prevent accidental spills or leakage.
- Do not use excessive amounts of product when performing services.
- Keep products in small-sized containers at the work table to reduce the risk of spills and potential skin exposure.
- While transferring products to smaller containers, wear safety equipment, e.g., eye protection and/or gloves as recommended in the MSDS, and use a funnel or dropper to avoid spills.

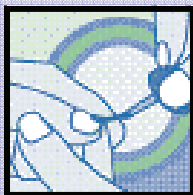
### **TO PREVENT THE ACCIDENTAL SWALLOWING OF PRODUCTS**

- Wash hands before eating and drinking.
- Do not eat or drink at the work table.
- Do not keep/store food and beverages around work area.
- Store nail care products in a separate area away from food and the eating area.
- Designate a dining area separate from storage and work areas.

### **TO ENSURE ADEQUATE SHOP CLEANLINESS**

It is important to keep your shop clean. Bacteria, fungi, and viruses can be transferred between customers through dirty nail implements and other supplies and equipment, e.g., towels and pedicure tubs.

- Use a new towel for each customer.
- Wash your hands and your customer's hands and/or feet before each service.
- Perform services only on healthy nails and intact skin. Refuse service to clients that show any signs of infection, unhealthy appearing conditions, or broken/irritated skin.
- Clean any residue from all nail care implements after each use and before disinfection.
- Disinfect all nail care implements with an appropriate disinfectant after each customer.



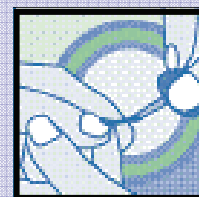


- Follow your state cosmetology board's rules and instructions on proper cleaning and disinfection techniques. It is best to use an EPA-registered, hospital disinfectant labeled as viricidal, bacteriocidal, and fungicidal or a disinfectant as prescribed by your state cosmetology board. Follow usage instructions exactly. You may also choose to sterilize these disinfected items in an autoclave, if desired, or if required by your state's regulations.
- Do not put clients' feet into water that contains an EPA-registered disinfectant and avoid skin contact with the disinfectant.
- Use disposable implements on only one customer.
- If gloves are worn, replace them after each customer.
- Do not use razor-type shavers to remove calluses. These devices can cause injuries requiring medical attention. Licensing laws for nail salon workers and manicurists do not allow the use of cutting tools to remove living or callused skin.
- Using nail implements owned by customers is not recommended. Problems can arise because clients may not properly clean and disinfect the implements. All implements must be properly cleaned and disinfected by the salon worker before use on a client.



### **OTHER BEST SHOP PRACTICES**

- Do not allow anyone to smoke in your shop, because products stored and used in nail salons may be extremely flammable.
- Provide training on hazard communication (OSHA 29 CFR 1910.1200) and the proper storage and handling of flammable liquids (OSHA 29 CFR 1910.106) to nail salon workers as required by OSHA.
- Read and understand the state cosmetology board's rules and regulations.
- Keep a copy of the most updated state cosmetology board's rules and regulations in the shop.
- Keep the latest version of the MSDS for each product containing potentially hazardous ingredient(s) stored and used in the salon.
- Keep all MSDSs in a binder, and store this binder in the same place you store your products.
- Read and understand the content of these MSDSs.
- Update all MSDS sheets at least once a year to keep them current.
- Label all containers so that nail salon workers can easily identify the contents.
- Dispose of liquid waste according to manufacturers' instructions on the product label or MSDS and in accordance with local regulations.





# GLOVES

## WHY SHOULD NAIL SALON WORKERS WEAR GLOVES?

- To prevent damage to workers' nails and skin.
- To prevent skin from absorbing potentially harmful ingredients which may cause skin allergies, irritation, or other related problems.

## WHY DO SOLVENTS CAUSE MORE CONCERNS THAN OTHER NAIL SALON PRODUCTS?

- Skin can easily and quickly absorb certain solvents.
- Solvents may damage skin by removing natural oils from the skin (defatting), which can lead to skin dryness and/or irritation, making it easier for other ingredients to enter the body.

## WHAT KIND OF GLOVES SHOULD NAIL SALON WORKERS WEAR?

- Nitrile gloves provide the best protection – latex and vinyl gloves are permeable to many nail product ingredients and should not be used.
- Always refer to the MSDS for recommendations on the kind of gloves to wear.

## HOW DO NAIL SALON OWNERS AND WORKERS FIND MORE INFORMATION ABOUT THE TYPE OF GLOVES TO WEAR?

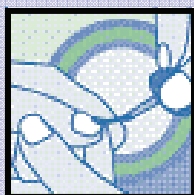
- Call the glove manufacturers and personal protective equipment distributors. Their phone numbers are listed in the phone book, on the box, and on glove manufacturers' websites. These companies often offer technical advice and free samples.
- Ask your shop's nail care product distributor and personal protective equipment vendors.

### **SENSITIZATION**

Sensitization or hypersensitivity reactions usually occur as a result of repeated or prolonged contact with a chemical substance that interacts with the body's immune system. In some cases, an individual may develop a reaction only after encountering a material repeatedly or after continuous prolonged contact. Red or itchy skin, water blisters, and areas that throb or feel warm are signs of possible sensitization of the skin.

### **EXAMPLE**

After wearing latex gloves daily for several weeks or months, a previously unaffected person may develop a persistent rash on their hands and wrists. This sensitization may be caused by one of several components of the gloves acting as an allergen (allergy-causing substance). If this occurs, gloves made from other materials, such as nitrile, may be used.



# MASKS AND RESPIRATORS

## WHY SHOULD NAIL SALON WORKERS WEAR DUST MASKS?

- To minimize breathing in dust particles.
- If you have asthma, allergies, or other breathing related conditions, and a nail service is expected to generate a lot of dust, it may be necessary to wear a dust mask to minimize breathing in particles.
- Dust masks are intended to prevent inhalation of dust; they will not protect against inhalation of vapors.

## WHEN SHOULD NAIL SALON WORKERS WEAR DUST MASKS?

- When filing or shaping artificial nail enhancements.

## WHAT KIND OF DUST MASKS SHOULD NAIL SALON WORKERS WEAR?

- Dust masks approved by the National Institute for Occupational Safety and Health (NIOSH), (e.g., N95 rated).
- Follow manufacturers' instructions when using these masks.
- Refer to the MSDS to determine if it is necessary to wear a dust mask and which type might be best.



## TYPES OF MASKS NAIL SALON WORKERS CAN USE TO PROTECT THEMSELVES

- Dust masks will protect you from dusts and particulates.
- Surgical masks may help prevent the spread of germs but will not protect you from dusts or vapors.

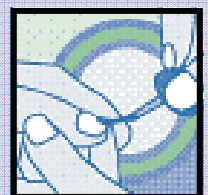
## WHY DON'T NAIL SALON WORKERS NORMALLY NEED TO WEAR RESPIRATORS WITH ORGANIC VAPOR CARTRIDGES?

- The most feasible way of protecting nail salon workers is to provide adequate ventilation in the salon. Providing adequate ventilation eliminates the need for respirator use.

## WHAT REQUIREMENTS EXIST FOR USING A RESPIRATOR IN NECESSARY CIRCUMSTANCES?

Typically, an organic vapor respirator is not required. However, if a nail salon worker has a special need due to pre-existing health conditions, then the worker/shop owner should check the sources below to determine the proper type and proper fit guidelines, in accordance with the OSHA Respiratory Protection standard.

- OSHA has a Respiratory Protection standard that includes specific requirements such as training, fit testing, care and maintenance, and medical surveillance that shop owners and workers may need to follow when workers wear respirators.
- Contact OSHA at (202) 693-1888 or (800) 321-6742 for more information on the requirements that apply to your shop or for a copy of the Respiratory Protection standard (29 CFR 1910.134) and/or the Hazard Communication standard (29 CFR 1910.1200). To obtain an electronic copy, visit the OSHA website: [www.osha.gov](http://www.osha.gov) and enter the CFR number into the search function.



# BEST SHOP PRACTICES

## CHECKLIST FOR OWNERS/MANAGERS

- Post “No Smoking”, “No Eating”, and “No Drinking” signs in the shop’s work area.
- Post a sign near the shop’s sink to remind workers to wash their hands before and after each customer, after handling chemicals, and before eating.
- Require all customers to wash their hands and fingernails thoroughly before receiving service.
- Perform services only on healthy nails and intact skin.
- Post step-by-step procedures near the shop’s sink and in the shop’s work area on how to clean and disinfect nail instruments and other equipment that comes in contact with clients’ skin.
- Properly ventilate each work station. Preferably, install an effective exhaust system with individual exhaust vents for each work table. If possible, the exhaust should be vented outdoors in a manner that meets local building code requirements.
- Keep the general ventilation system (HVAC) on during work hours.
- Place a metal trash can with a self-closing lid at every work station.
- Label all product containers clearly and properly.
- Purchase appropriate masks and gloves recommended in the MSDS for your employees.
- Do not buy or use any nail product containing liquid methyl methacrylate (MMA) monomer.
- Designate a chemical storage area far away from the dining area and equipped with local exhaust ventilation.
- Provide an adequately ventilated dining area for nail salon workers, partitioned from the shop’s work area.
- Designate a storage place for a binder of MSDSs for all nail salon products.
- Ask for the most up-to-date MSDS for each product at least once a year.
- Inform employees where MSDSs are kept.
- Provide training required for reading and understanding MSDSs.
- Provide worker training on hazard communication and proper storage and handling of flammable liquids as required by OSHA.
- Maintain the latest copy of the state cosmetology board’s rules and regulations.

# BEST SHOP PRACTICES

## CHECKLIST FOR WORKERS

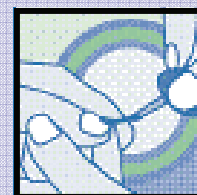
- Keep the top of ventilated tables or other vents clear of any obstruction, e.g., towels.
- Keep nail product containers closed when not in use.
- Do not use excessive amounts of product when performing services.
- Keep nail products in smaller-sized, properly labeled containers at the work table.
- Keep a metal trash can near the worktable with a self-closing lid completely covered at all times.
- Place waste soaked with product in a sealed container before disposing of it in the trash container.
- Wear mask and gloves and protective eyewear, if recommended in the MSDS, when handling larger quantities of chemicals.
- Wash hands frequently:
  - before and after working on customers.
  - before eating and drinking.
  - after handling products.
- If there are visible signs of sensitivity or allergic reaction to a product, discontinue use immediately.
- Do not eat, drink, or store food at the work table.
- Use a clean or disposable towel and a new pair of disposable gloves for each customer.
- Use disposable nail implements on only one customer.
- Clean and disinfect nail care implements properly after each use.
- Do not put disinfectants in the water when clients' feet are in the footspa. Avoid skin contact when using disinfectants.
- Do not use sharp instruments to shave calluses or remove living skin.
- Do not allow smoking in the shop.
- Read and understand the content of MSDSs for each product used.
- Know where to find MSDSs in the shop.
- Dispose of all waste properly.

# APPENDIX

## INTRODUCTION

The following table describes potential health effects that may be associated with overexposure to some of the ingredients found in certain types of nail care products. For the purpose of this table, overexposure is defined as exposure exceeding safe limits established by the Occupational Safety and Health Administration (OSHA). Quantities of these ingredients in nail care products are typically small, and with proper usage and application techniques, exposure levels can be further minimized. Overexposure should not occur if proper steps are taken, as described in this guide. It is important to understand that nail care work can be performed safely if proper steps are taken to protect yourself.

The Appendix also contains a more detailed explanation of Material Safety Data Sheets (MSDSs) on page vi and a guide to interpret the information found on MSDSs on page vii.



# INGREDIENTS TABLE

## POTENTIAL SYMPTOMS & HEALTH EFFECTS OF OVEREXPOSURE TO INGREDIENTS USED IN NAIL CARE PRODUCTS

INGREDIENT	USAGE	SYMPTOMS OF OVEREXPOSURE*
Acetone	Nail polish remover, fingernail glue remover <sup>A</sup>	Overexposure may cause headache, dizziness, irritation to skin, eyes, and throat, and central nervous system depression <sup>1</sup>
Benzoyl Peroxide	Powder additive for artificial nails <sup>A,B,E</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, throat, and lungs, and skin rash <sup>2</sup>
Butyl acetate	Nail polish <sup>A,D,F</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, and throat, headache, drowsiness, skin rash, confusion and/or haziness <sup>1,2</sup>
Butyl methacrylate	Artificial nails <sup>A</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, and throat, shortness of breath, and skin rash <sup>2</sup>
Camphor**	Nail polish <sup>D</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, and throat, nausea, vomiting, diarrhea, headache, dizziness, and in extreme cases of overexposure, uncontrollable muscle contractions <sup>1,2</sup>
Dibutyl phthalate**	Nail polish, nail hardener <sup>C</sup>	Overexposure may cause irritation to eyes, stomach, and upper respiratory system. Prolonged exposure to high concentrations may be hazardous to human reproduction and development <sup>1,2,3</sup>
Ethyl acetate	Nail polish, <sup>DE</sup> fingernail glue <sup>F</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, and throat, skin rash, confusion and/or haziness <sup>1,2</sup>
Ethyl cyanoacrylate	Fingernail glue <sup>A,C,D,G</sup>	Overexposure may cause irritation to eyes, mucous membranes, and skin, and skin sensitization <sup>2,4</sup>
Ethyl methacrylate	Artificial nails <sup>A,E,F,G</sup>	Overexposure may cause irritation to eyes, skin, and respiratory track, and skin sensitization <sup>2,4</sup>
Formalin**†	Nail hardener <sup>A</sup>	Overexposure may cause irritation to eyes, nose, skin, throat and respiratory system, and wheezing. Prolonged exposure may cause asthma-like respiratory problems. <sup>5</sup> Substance may be a carcinogen if inhaled in high concentrations or for long periods <sup>1,2,^</sup>



# INGREDIENTS TABLE (CONT'D)

## POTENTIAL SYMPTOMS & HEALTH EFFECTS OF OVEREXPOSURE TO INGREDIENTS USED IN NAIL CARE PRODUCTS

INGREDIENT	USAGE	SYMPTOMS OF OVEREXPOSURE*
Hydroquinone**	Artificial nails <sup>A</sup>	Overexposure may cause irritation and inflammation to eyes, irritation to skin, skin rash, and in more serious cases of overexposure, colored urine, nausea, dizziness, rapid breathing, muscle contraction, and central nervous system excitement <sup>1,2</sup>
Isobutyl methacrylate	Artificial nails <sup>A</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, throat, and lungs <sup>3</sup>
Methacrylic acid	Artificial nails <sup>F,G</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, and throat, burning of eyes and skin, shortness of breath, labored breathing, and cough <sup>2</sup>
4-methoxyphenol**	Artificial nails <sup>A</sup>	Overexposure may cause irritation to eyes and skin, burning of eyes and skin, and central nervous system depression <sup>1,2</sup>
Methyl ethyl ketone	Nail polish, <sup>D,E</sup> nail polish remover, <sup>C</sup> artificial nail remover	Overexposure may cause irritation to eyes, skin, nose, mouth, and throat, cough, headache, dizziness, drowsiness, vomiting, and skin rash <sup>1,2</sup>
Methyl methacrylate (typically not used - illegal in many states. See fact sheet on page v)	Artificial nails <sup>A</sup>	Overexposure may cause irritation to eyes, skin, nose, mouth, and throat, sore throat, cough, shortness of breath, and skin rash <sup>1,2</sup>
Poly (ethyl/methyl Methacrylate)	Powder for artificial nails <sup>E,F,H</sup>	Overexposure may cause irritation to the eyes, skin, and throat (by inhalation) <sup>6</sup>
Titanium dioxide**	Nail polish, powder for artificial nails <sup>A</sup>	Overexposure may cause lung fibrosis and may be an occupational carcinogen <sup>1</sup>
Toluene	Nail polish, <sup>A</sup> fingernail glue	Overexposure may cause irritation to eyes and nose, weakness, exhaustion, confusion, inappropriate feelings of happiness, dizziness, headache, dilated pupils, runny eyes, anxiety, muscle fatigue, inability to sleep, feeling of numbness/tingling, skin rash, and in more serious cases of overexposure or intentional abuse, liver and kidney damage <sup>1,2,‡</sup>
Tosylamide Formaldehyde Resin (TFR Resin)	Nail hardener, <sup>A</sup> nail polish <sup>1</sup>	Overexposure may cause irritation to skin and skin rash <sup>4</sup>



# TABLE NOTES

## FOOTNOTES

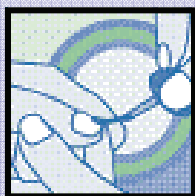
- \* Potential health effects depend on conditions of exposure, which may be minimized by working safely (e.g., ventilation and use of masks and gloves).
- \*\* Quantities in nail care products are small and application techniques are designed to minimize the potential for exposure.
- † The term formalin describes aqueous solutions, particularly those containing 37 to 50 percent formaldehyde and 6 to 15 percent alcohol stabilizer.<sup>5</sup>
- ^ A study has shown that formaldehyde concentrations in nail salons were comparable to those found in office buildings and did not increase when nail products were in use and ventilation systems were operating properly.<sup>7</sup>
- ‡ A study has shown that toluene concentrations in nail salons were below the OSHA safe limit.<sup>7</sup>

## USAGE COLUMN REFERENCES AND NOTES

- A. OPI Products Inc. product MSDS or correspondence with Paul Bryson, O.P.I.
- B. Correspondence from General Dental Products
- C. Backscratchers product MSDS (available at: <[www.backscratchers.com](http://www.backscratchers.com)>)
- D. European Nail Factory product MSDS (available at: <[www.european-nailfactory.com](http://www.european-nailfactory.com)>)
- E. Kupa Incorporated product MSDS (contact: 800-994-5872)
- F. Nail Systems International product MSDS  
(available at: <[www.nsinails.co.uk/content/msds](http://www.nsinails.co.uk/content/msds)>)
- G. Originails, E.O.H Industries, Inc. product MSDS  
(available at: <[www.originails.com/msds/index.htm](http://www.originails.com/msds/index.htm)>)
- H. Star Nail International product MSDS (available at: <[www.starnail.com/msds.htm](http://www.starnail.com/msds.htm)>)
- I. Sally Hansen product MSDS (available at the National Institute of Health, Household Product Database: <<http://hpd.nlm.nih.gov>>)

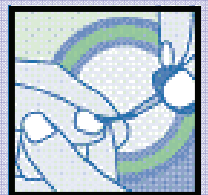
## SYMPTOMS OF OVEREXPOSURE COLUMN REFERENCES

1. National Institute for Occupational Safety and Health (NIOSH); Pocket Guide to Chemical Hazards; available at <[www.cdc.gov/niosh/npg/npg.html](http://www.cdc.gov/niosh/npg/npg.html)>
2. National Institute for Occupational Safety and Health (NIOSH); International Chemical Safety Cards; available at <[www.cdc.gov/niosh/ipcs/nicstart.html](http://www.cdc.gov/niosh/ipcs/nicstart.html)>
3. Hazardous Substance Data Bank; profiles available at <<http://toxnet.nlm.nih.gov>>
4. National Library of Medicine; Haz-Map: Occupational Exposure to Hazardous Agents; profiles available at <<http://hazmap.nlm.nih.gov>>
5. Occupational Safety and Health Administration (OSHA); Fact Sheet on Formaldehyde <[www.osha.gov/OshDoc/data\\_General\\_Facts/formaldehyde-factsheet.pdf](http://www.osha.gov/OshDoc/data_General_Facts/formaldehyde-factsheet.pdf)>
6. ESSCHEM Inc, Linwood, PA. Material Safety Data Sheets
7. Industrial Hygiene Assessment of Toluene and Formaldehyde Concentrations in California Nail and Full Service Salons, Clayton Project, project no. 800-97276.00, Clayton Environmental Consultants, Santa Ana, CA, March 16, 1999.



# FACTSHEET ON LIQUID METHYL METHACRYLATE (MMA) MONOMER

- Liquid MMA monomer was a commonly used ingredient in artificial nail products for many years.
- Liquid MMA monomer is a chemical substance that reacts and hardens when mixed with powdered acrylic.
- Liquid MMA monomer does not bond well to the natural nail without heavy filing with coarse abrasives, which may cause damage to the nail plate and bed.
- Liquid MMA monomer may cause overexposed people to develop an allergic reaction, usually after repeated exposure. Continued exposure often results in a worsening of symptoms for individuals that have developed sensitivities to products containing this monomer.
- Testing done on animals that had been exposed to high concentrations of liquid MMA monomer vapors suggests that excessive inhalation may cause damage to the respiratory system and to the liver.
- In the early 1970s, the Food and Drug Administration (FDA) received a number of personal injury complaints associated with the use of fingernail extenders containing liquid MMA monomer. After investigations and discussions with medical experts, the FDA concluded that liquid MMA monomer was a poisonous and harmful substance that should not be used in artificial fingernail products. Court rulings resulted in legal action against one firm, as well as several seizure actions and voluntary recalls to remove products containing liquid MMA monomer from the marketplace. More information is available at: <http://www.cfsan.fda.gov/~dms/cos-nail.html>
- Across the United States, at least 30 states have restricted or banned the use of liquid MMA monomer.
- Unlike liquid MMA monomer, powder MMA polymers are considered safer because they will not penetrate the skin and do not pose the same risks as liquid MMA.



# MATERIAL SAFETY DATA SHEET (MSDS)

## WHAT IS AN MSDS?

- An MSDS is an important document that explains the risks, precautions, and response actions related to exposure to a particular hazardous material used as an ingredient in a product. An MSDS also explains the appropriate and best course of action should accidental overexposure occur. A sample MSDS is shown on the next page.

## WHY IS IT IMPORTANT TO KEEP MSDSs IN YOUR SHOP?

- Federal law requires that MSDSs must be kept in a nail salon and be available to employees during working hours.
- Keep MSDSs in your shop to ensure that all employees:
  - Are aware of the dangers posed from potentially hazardous materials stored in the salon.
  - Know how to respond in an emergency or if overexposure occurs.
  - Know how to dispose of unused products properly.
  - Know what protective equipment (e.g., masks, gloves) should be worn when working with professional nail products.

## WHAT SHOULD NAIL SALON WORKERS DO WITH AN MSDS?

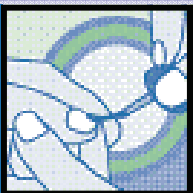
- Review and understand the content of an MSDS.
- Know where they are kept in the salon.

## WHAT SHOULD NAIL SALON OWNERS DO WITH AN MSDS?

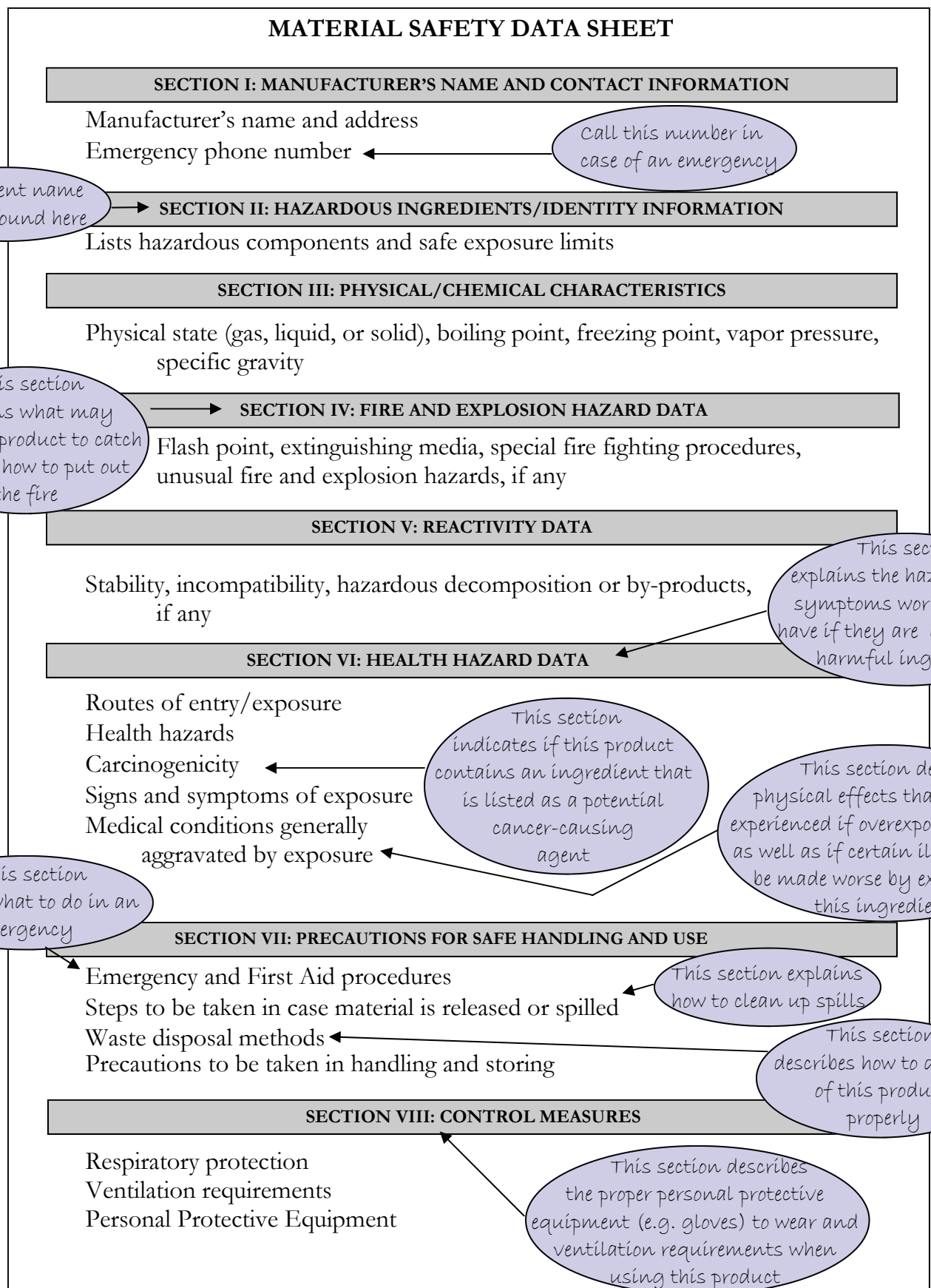
- Ask for the most up-to-date version of the MSDS at least once each year to ensure or verify that you have the most recent version. If a product is delivered without an MSDS, ask the manufacturer to send you the MSDS before using the product in the workplace.
- Keep a binder that has an MSDS for all professional products stored and used in the salon.
- Inform employees where MSDSs are stored.
- Provide periodic training for reading and interpreting the MSDS.
- Read MSDSs to know what kind of protective equipment (e.g., masks, gloves, eye protection) should be purchased for employees.

## HOW CAN YOU GET COPIES OF MSDSs FOR YOUR SHOP?

- Ask your nail products suppliers or distributors. By law, your distributors or suppliers must provide you with a copy of an MSDS for each product that contains a potentially hazardous ingredient.
- You may also request an MSDS from the product manufacturer by calling the phone number provided on the label of the product container or by submitting a request on the product manufacturer's website.



# MATERIAL SAFETY DATA SHEETS (MSDS)



# REFERENCES AND RESOURCES

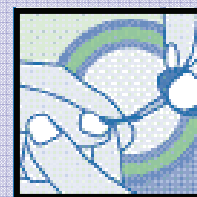
1. Bryson, Paul. "A Quick Chemistry Lesson." Beauty Tech. 20 December 2005. <[http://www.beautytech.com/articles/opi\\_chem\\_rpt.pdf](http://www.beautytech.com/articles/opi_chem_rpt.pdf)>
2. California Department of Consumer Affairs, Bureau of Barbering and Cosmetology. Methyl Methacrylate Monomer (MMA) Fact Sheet. California: 2002.
3. "Healthy Cosmetology." Toxics Use Reduction Institute. <<http://www.turi.org/content/content/view/full/2677/>>
4. Hill, Suzette. "The MMA Controversy." Nails Magazine. September 2007: 102. Reprinted with permission: <<http://www.beautytech.com/articles/mma2.pdf>>
5. Moore, Booth. "Pointing a Finger at Discount Nail Salons." Los Angeles Times. 28 January 2000, Home Edition: A1.
6. Rudner, Lawrence. Job Demand in the Cosmetology Industry, 2003. National Accrediting Commission of Cosmetology Arts and Sciences, 2003.
7. "Safety in Nail Salons." EZ facts®:Document No. 281. labsafety.com. <<http://www.labsafety.com/refinfo/ezfacts/ezf281.htm>>
8. Schoon, Douglas. Nail Structure and Product Chemistry, 2nd edition. Clifton Park, NY: Delmar/Thompson Learning, 2005.
9. U.S. Environmental Protection Agency and the Centers for Disease Control and Prevention, Preventing Pedicure Foot Spa Infections. <<http://www.epa.gov/pesticides/factsheets/pedicure.htm>>
10. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Technology Transfer Network.. Methyl Methacrylate. January 2000. <<http://www.epa.gov/ttn/uatw/hlthef/methylme.html>>
11. U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, Office of Cosmetics and Colors. Phthalates and Cosmetic Products. <<http://www.cfsan.fda.gov/~dms/cos-phth.html>>

## OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CITATIONS FOR LISTING INGREDIENTS IN MSDS

1910.1200(g)(2): Each material safety data sheet shall be in English (although the employer may maintain copies in other languages as well), and shall contain at least the following information:

1910.1200(g)(2)(i)(C)(1): The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under paragraph (d) of this section shall be listed if the concentrations are 0.1% or greater; and,

1910.1200(g)(2)(i)(C)(2): The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise less than 1% (0.1% for carcinogens) of the mixture, if there is evidence that the ingredient(s) could be released from the mixture in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees.



For more information, please visit:

[www.epa.gov/dfe/pubs/projects/salon/index.htm](http://www.epa.gov/dfe/pubs/projects/salon/index.htm)



Office of Pollution Prevention and Toxics and  
Office of Administration and Resource Management

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