Chapter 15

Salon Health and Safety

Key Terms

Absorption
Acute effects
Carcinogenic
Chronic effects
Flammable
Ingestion
Inhalation
Material Safety Data Sheets (MSDSs)
Occupational Safety and Health Administration (OSHA)
Toxic
Vapors
Volatile

Learning Objectives

After completing this chapter, you should be able to:

- Understand the importance of working safely.
- Explain how chemicals affect our every day lives.
- Explain how the "overexposure principle" can protect you.
- List the rules of working safely.
- Understand the importance of Material Safety Data Sheets (MSDSs).
- Choose and use the proper safety equipment.
- Define toxicity and carcinogenicity.
- Protect your health while working in the salon.

TAKE TIME TO READ AND LEARN

Take the time to learn the rules of working safely with salon chemicals. Why risk the consequences? In the salon, achieving superior results for clients is the ultimate goal, but don't stop there. Keep clients happy and keep your body healthy too! Both of these goals require knowledge and careful attention to safety.

Learn to use products correctly and safely. Study the manufacturer's educational literature and read the warning labels. Always handle, mix, and store products following directions of the experts. The experts include the manufacturer and federal and state agencies that monitor product research, use, and disposal. Use products in strict accordance with the manufacturer's instructions and follow the rules of working safely. Remember safety and health come first!

THE IMPORTANCE OF WORKING SAFELY

What is a chemical? In chapter 8, we learned that everything you can see and touch is a chemical, except for light and electricity. Air is a combination of many chemicals (i.e., oxygen, hydrogen, and nitrogen). Clean, pure mountain stream water is a chemical. Hair is long polypeptide chains of chemicals.

Many people believe that all chemicals are dangerous or toxic substances. Ask your friends what they think of when they hear the word *chemicals*. Toxic waste dumps or factories dumping poisonous waste into streams?

People fear chemicals because they have little understanding of chemistry. The news media often use the word *chemical* in a scary, negative way.

Understanding chemical tools will help put you in control and help clients understand products. Working safely is very easy to do, if you know how and read and follow directions. However, irresponsible or careless use may result in serious accidents or permanent damage to you or a client's health.

THE RULES OF WORKING SAFELY

FACT #1: Most chemicals are not harmful unless you overexpose yourself to the substance.

Is it possible to work safely with potentially dangerous chemicals? Of course it is if you read the literature. Safety doesn't just happen. You must learn the facts and obey the rules of working safely.

All hairstylists should learn and remember the *overexposure principle*. This rule says, "Every chemical substance used in a salon has a safe and unsafe level of exposure. Simply coming in contact with a potentially hazardous substance should not cause you harm. The danger is exceeding the safe level of exposure."

Chemicals that are identified as dangerous at low levels are not suitable for use in the salon. Profession products are formulated to be as safe as possible. Still, no cosmetic chemical is completely free from risks.

RULE #1: Look for ways to reduce chemical exposure to safe levels.

You are ultimately responsible for proper use and safe handling of the chemicals. A normally safe product can become dangerous if used incorrectly. Workers in all professions must follow safe working procedures.

How can this be done? Product knowledge, proper training in chemical use, and information are the key factors.

The **Occupational Safety and Health Administration (OSHA)** is responsible for enforcing a federal law designed to help you work smartly and safely. This agency includes regulations for the *Hazard Communication Standard* or the *Employee Right to Know Act*. Employees who work with chemicals on the job are affected by OSHA regulations. They include the following:

1. Information about hazardous ingredients must be provided to all employees.
2. Employers must train employees to understand this information properly.
3. Employers are required to provide a safe working environment.

When children are shown how to pick up broken glass safely without getting cut, they are learning to perform a potentially dangerous task without being harmed. That's what working safely is all about! Even simple tasks become dangerous when done incorrectly.

The Hazard Communication Standard requires manufacturers to specify information about a product's safety. This vital information is found on special forms called **Material Safety Data Sheets (MSDSs).** (Appendix E) Your local distributors of beauty supplies must supply you with MSDSs for the products that you buy from them. You are responsible for collecting these sheets and keeping them available for reference. If you have difficulty collecting the MSDSs you need, send a formal written request to the distributor.

MSDSs provide information to many types of workers who handle chemicals; MSDSs help firefighters deal with chemical fires and clean up chemical spills. Information on an MSDS often helps doctors treat accidental poisonings.

Understanding MSDSs is as important as learning proper application techniques.

Here is a brief list of what is shown on an MSDS:

- Potentially hazardous ingredients found in each product
- Properly store and safely use chemical products
- Ways to prevent hazardous chemicals from entering the body
- The short-term and long-term health effects of overexposure
- Early warning signs of product overexposure
- Emergency first-aid advice
- Safe handling techniques

The MSDSs teach you how to work safely and avoid risks (Fig 15–1). Knowing that a chemical may cause a blood disorder isn't as important as avoiding exposure that can cause a blood disorder. Working safely is an important part of the

Figure 15-1 *Read your* MSDSs.

hairstylist's profession. Being a professional means more than creating beautiful hair. Professionals must work responsibly with trade tools and products. This is what sets a professional apart from the nonprofessional.

Proper Storage Conditions

Improper storage of chemicals can create many problems. Improper storage may ruin a product or shorten its shelf life. It can also cause a fire or explosion. Extreme cold, excessive heat, and light adversely affect many products.

Flammable products must be stored away from heat or any source of flame (e.g., away from cigarettes, heaters, window sills). Never carry any product in a car trunk. Many salon chemicals are as flammable as gasoline.

Chemicals should always be kept in their original, marked containers. For maximum stability and safety, always store chemicals in a cool, dry location away from sunlight and excessive heat or cold.

Hydrogen peroxide (H_2O_2) demonstrates the importance of proper storage. Storing (H_2O_2) in sealed, metal containers can cause violent explosions.

The information on the MSDS also helps you avoid other dangerous conditions, such as dangerous mixtures that might emit toxic fumes or cause fires.

Keeping Salon Chemicals Out of Your Body

Chemicals can enter your body by three routes:

1. Inhalation of vapors, mists, or dusts
2. Absorption through the skin or broken tissue
3. Unintentional or accidental ingestion

The information on the MSDSs warn you of the possible *route of entry* for each product. Lowering chemical exposure is easier if you know which products are dangerous to breathe and which should not come in contact with the skin.

Health Effects

The MSDSs explain both short-term and long-term effects of overexposure. Short-term effects (**acute effects**) result from overexposure for short periods. Typically, working 40 hours a week for three months or less is considered short term.

Long-term effects (**chronic effects**) can occur with overexposure or misuse. Adverse health effects often begin after several years of repeated overexposure.

The information on the MSDSs might not list any negative health effects, but don't assume that the product cannot cause you harm. Handle salon chemicals with respect and follow the instructions. Be extra careful when mixing products. Mixing some products together can cause unwanted and dangerous chemical reactions. The most common example is mixing chlorine bleach with ammonia or an acid. Chlorine bleach will react with ammonia or an acid to form deadly chlorine gas. Exposure to chlorine gas can be fatal after just a few minutes of exposure in a poorly ventilated area.

Make sure you carefully read the labels on products before mixing. For example, mixing the activator tube from an acid-balanced permanent with the neutralizer, instead of the waving solution, can cause a violent explosion. The activator tube in acid waves contains glyceryl monothioglycolate (GMTG), which is added to the waving solution immediately prior to use (Chapter 13, Permanent Waving). Neutralizers are oxidizing agents, usually peroxide. Adding the activator (thioglycolate) to the neutralizer (peroxide), by mistake, will result in a violent, explosive, exothermic oxidation reaction.

The reaction involved in this accident is the same reaction that takes place in exothermic waves. The only difference is in the concentration of reactants and the rate of reaction. The activator in exothermic permanents contains hydrogen peroxide. When the activator (peroxide) is added to the permanent waving solution (thioglycolate) an exothermic oxidation reaction takes place, which causes the solution to heat up. The rate of this reaction is slow due to the small concentration of peroxide in the activator, far less than the concentration of peroxide in the neutralizer. As in most chemical reactions, increasing the concentration of reactants increases the amount and rate of reaction.

FACT #2: Scientists are constantly learning about the dangerous properties of chemicals.

Oxidizers that are mixed with alkaline chemicals or placed in metal containers will expand and get hot. Hydrogen peroxide that has been contaminated, or is stored in the wrong container, can heat up and explode.

RULE #2: The products you use are tools, not toys! Treat them with respect.

Remember, adverse health effects are not likely to happen if you use products correctly. However, problems might arise if you misuse or abuse the product.

Always work safely and follow directions precisely.

Signs and Symptoms of Overexposure

The human body is wonderfully complex. The body will often give early warning signs when chemical products are not being used safely. Different chemicals cause different early warning signs.

For example, overexposure to some solvents can make you feel very tired or may keep you from sleeping. Overexposure to other chemicals can cause headaches, nausea, angry or frustrated feelings, nosebleeds, tingling fingers and toes, dry or scratchy nose and throat, puffy red and irritated skin, itching, and many other symptoms.

Understanding and watching for unusual symptoms helps hairstylists avoid more serious, long-term problems. Pay attention to how your body reacts.

Emergency and First Aid Treatment

FACT #3: Accidents usually occur when they are least expected.

If a serious accident happens in a salon, what do you do? Only after the fact do people often discover that they are unprepared to treat or respond to accidents.

The MSDS may help provide answers to these questions during a time of crisis.

Our next rule is a familiar one.

RULE #3: Be prepared! Read, learn, and get some training! Plan ahead for accidents.

What should you do if a small child, running through the salon, grabs a bottle of permanent wave solution and drinks some of it? By the time you remember where you put the phone number to the poison control center, it could be too late. Plan ahead; you may save a life (Fig. 15–2).

Figure 15–2 *Be prepared to handle accidents. Don't wait until after an accident has happened to figure out how to handle it. Have the poison control number and other emergency numbers near the phone.*

Safe Handling Techniques

Each job requires different tools and techniques. The same is true when using professional salon chemicals. Each chemical requires different handling for safe use.

For example, quickly evaporating solvents require appropriate ventilation during use to remove vapors. Safety glasses should be worn to prevent chemicals from splashing in the eyes. Other products may require a special type of glove or extra precautions to prevent fires.

The manufacturer's instructions and the information on the MSDSs will help guide you. If either of these suggests that you wear safety glasses, it is for good reason. Manufacturers are the voice of experience. Use this information to your advantage. It is your responsibility.

You can find useful information on the MSDS. Become accustomed to reading MSDSs. Properly using these important resources is wise. The world of hairstyling is constantly changing. Keeping pace with the industry means keeping up with the changes. Don't let your education end when you leave school; continue with lifelong learning.

Using and Choosing Safety Equipment

Actually, working safely is surprisingly easy! Still, each year some hairstylists suffer needless harm or injury. Following rules of safety will help protect you from hazards in the salon.

Figure 15-3 *Wear gloves whenever recommended by the manufacturer's instructions or* MSDS.

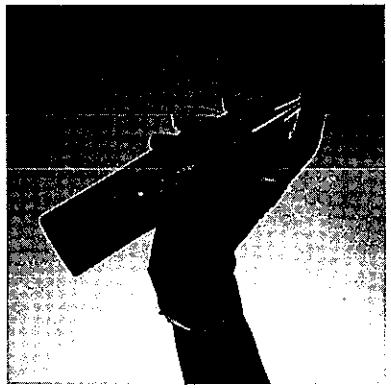

Figure 15-4 *Wear gloves when preparing and mixing formulas.*

Remember that chemicals enter the body through three routes of entry:

- **Inhalation** of vapors, mists, and dusts
- **Absorption** through the skin or broken tissue
- Accidental or unintentional **ingestion**

Blocking these routes helps lower your exposure to safe levels.

FACT #4: All liquids evaporate and form vapors.

RULE #4: Keep products capped or covered when not in use. Also, empty waste containers regularly (at least three times a day).

Volatile solvents are those which evaporate quickly. Some liquids evaporate slowly but still form vapors. What is the best and easiest way to avoid inhaling excessive amounts of harmful **vapors**? Use techniques (good ventilation) that keep vapors from getting into the air you breathe.

Closing product containers reduces the amount of vapor released into the air. Besides, it helps keep products fresh and effective. An open container can be an accident waiting to happen.

Quickly wipe up spills, especially chemicals. Using waste cans with covers to help keep vapors out of the air is recommended.

FACT #5: A vapor molecule is hundreds of times smaller than a dust particle.

Mists are actually tiny liquid droplets that rapidly evaporate into the air. Spraying any chemical into the air increases the risk of excessive inhaling and overexposure. For example, pressurized aerosol containers produce fine and lingering mists. A fine mist is difficult to control and usually more hazardous to breathe. Pump sprayers create larger droplets that are less hazardous. Avoid spraying excessive amounts of products into the air.

RULE #5: Never use a dust mask to protect yourself from vapors. Vapors are far too small to be filtered by dust masks.

Surgical-type dust masks are ineffective against vapors. These masks should only be used to keep dust particles out of your lungs. Some high-quality masks are also effective against mists (i.e., hair sprays). The instructions that come with the masks tell you whether they can be used for both dust and mist. Also, throw away dust masks daily; they quickly lose effectiveness.

FACT #6: Odors themselves are not dangerous. In fact, odors can help you work more safely.

Using products that cover up or remove odors from the salon will not protect people against health hazards. Simply removing odors will not make the air safer to breathe. Odors are no indication of product safety; however, odors can warn against overexposure. An odor is nothing more than vapors touching the highly sensitive detectors in the nose. After the vapors leave the nose and enter the lungs, the odor is no longer important.

RULE #6: Never judge product safety by odor.

You are asking for trouble if you use an odor to judge product safety. Hazardous chemicals don't always smell unpleasant. Many are rather agreeable and pleasant to smell.

Proper ventilation removes vapors from the room and expels them from the building. Any system designed to clean the air will not be as effective.

Working Smart

Question: What do a coffee cup, a piece of chocolate, and a sack lunch have in common?

Give up? These are all ways that hairstylists EAT their chemical products. Sadly, hairstylists eat far more product than they realize.

Figure 15–5 *Never eat or drink in the salon area. You will be eating or drinking your products.*

FACT #7: Federal regulations prohibit eating in areas where potentially hazardous chemicals are used.

RULE #7: Never eat or drink in the salon. Always store food away from salon chemicals and wash your hands before eating (Fig. 15–5).

- Coffee cups can easily collect dusts and powders. Hot liquids like coffee and tea will also absorb vapors right out of the air.
- When someone offers you a piece of chocolate or you dodge into the kitchen for a cookie, do you always think to wash your hands first?

Accidental product ingestion is easy to do in the salon. Watch for young children, too. They are curious and may grab open bottles.

Protect Your Eyes

FACT #8: Each time you mix or apply products incorrectly, you could lose your vision.

Accidents involving the eyes are a serious danger in salons. Solvents in the eye can be very painful and may cause severe damage. Hydrogen peroxide, permanent wave solutions, and neutralizers are just a few of the chemicals that may cause eye injury or blindness.

Wear eye protection whenever there is the slightest chance that a chemical product may get into your eyes. Eye injuries account for approximately 45 percent of the cosmetic-related injuries seen in hospital emergency rooms.

Seldom do salons lose business because hairstylists worked safely or showed concern for a customer's well-being (Figs. 15–6 through 15–8).

RULE #8: You should wear approved safety glasses whenever you work with caustic chemicals and give client eye protection too!

Wearing contact lenses in the salon is risky. Vapors collect on the soft contact lenses and make them unwearable. The contaminated lens may etch the surface of the eye. Should an accidental splash get into the eye, contact lenses hinder proper natural cleaning of the eye. The contact lenses should be removed and the eye properly flushed should a splash of liquid get into the eye.

Most of these rules are common sense. When using salon chemicals, applying common sense may save you from pain and suffering. Learn the chemical safety rules and practice them!

FACT #9: Soft contact lenses can absorb vapors from the air.

RULE #9: It is not advisable to wear contact lenses in the salon and always wash your hands before touching the eye area.

Figure 15-6 *Wear safety glasses and give your client a pair.*

Figure 15-7 *Protect your eyes and your client's eyes during a scalp treatment.*

Figure 15-8 *Protect your client's eyes during a facial treatment.*

FACT #10: A chemical is considered to be relatively nontoxic only if drinking a quart or more won't cause death.

RULE #10: Treat all chemical products with respect. Don't be fooled by marketing terms like *nontoxic*, *natural*, and *organic*.

TOXICITY AND CARCINOGENICITY

Toxic substances are usually thought of as being dangerous poisons. The news media use the term *toxic* often and the general public fears its very mention. Should hairstylists avoid any product that is toxic? The answer to this question will surprise you.

Paracelsus, a famous 14th-century physician, was the first to use the word "toxic." He said, "All substances are poisons; there is none which is not a poison. The right dose differentiates a poison and a remedy." Over the last 500 years, the public has forgotten what Paracelsus discovered. The overexposure principle is the modern-day interpretation of Paracelsus's discovery. If you remember, this principle also says that the dose level (overexposure) determines toxicity.

Next time someone tells you a product is nontoxic, think about this definition. This type of claim is actually deceptive.

Remember your chemistry? Organic simply means that the chemical contains carbon in its structure. Rat poison and road tar are both organic!

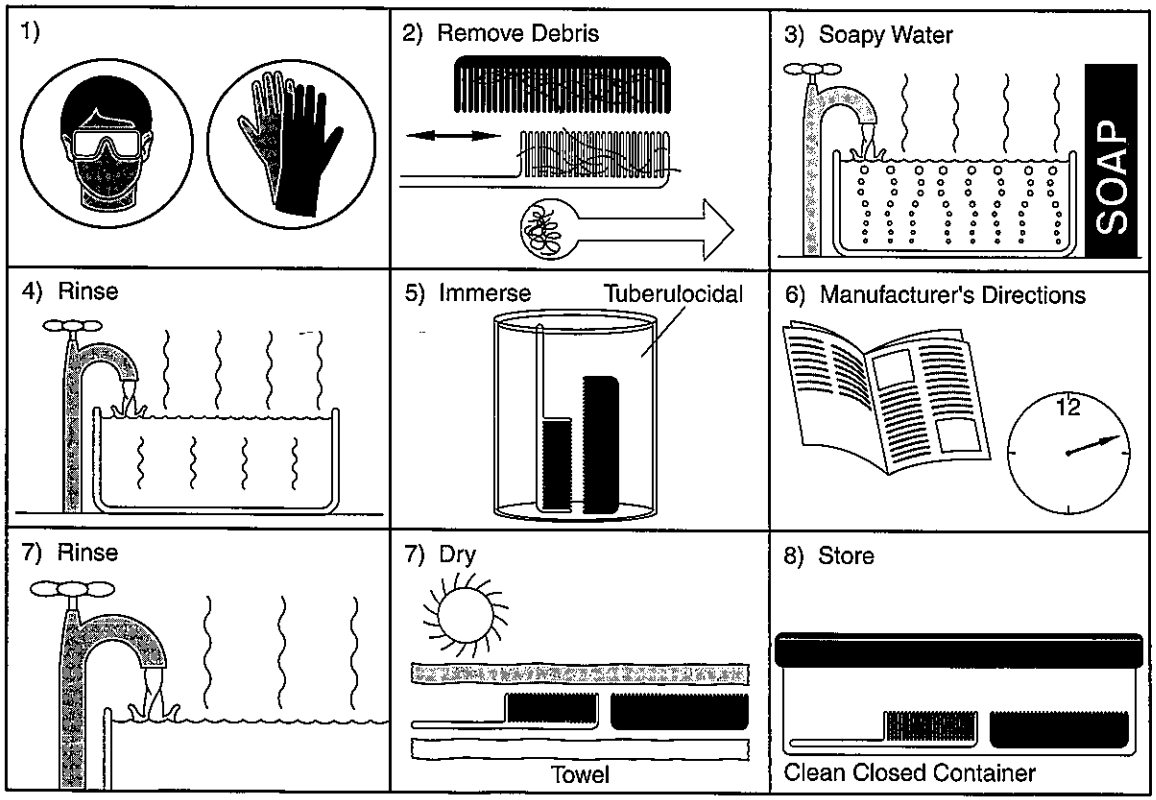

Figure 15-9 *Step by step procedure for decontaminating implements.*

FACT #11: Millions of organic substances are found in nature. Of these millions, fewer than 500 are known to cause cancer in humans. Many known cancer-causing agents are only dangerous at extremely high doses.

RULE #11: Don't judge a chemical by what it CAN do. What's important is how easily you can prevent any potential hazard.

Carcinogenicity

The media have treated the topic of **carcinogenic** (cancer-causing) chemicals in an irresponsible manner. According to the news, nearly everything causes cancer, right? WRONG!

Don't let these exaggerated reports frighten you. If you work safely, product exposure or use will probably not cause cancer. The cancer risks from cigarettes are hundreds (maybe thousands) of times greater. Besides, even chemicals that may cause serious illnesses, can only cause harm if you overexpose yourself for a prolonged period.

Overexposure to many salon chemicals can cause illness, but overexposure is unnecessary and risky. These useful substances can be used safely, without posing a health risk.

Ultimately, you are responsible for preventing accidents and protecting your health! Learn what you can about working safely and obey the rules. You may become the best hairstylist in the state, but it won't mean anything if you harm yourself in the process. Don't just talk about working safely, it only works if you really do it!

RULES OF SAFETY

1. Look for ways to reduce chemical exposure to safe levels.
2. The products you use are tools, not toys! Treat them with respect.
3. Be prepared! Read, learn, and get some training! Plan ahead for accidents
4. Keep products capped or covered when not in use. Also, empty waste containers regularly (at least daily).
5. Never use a dust mask to protect yourself from vapors. Vapors are far too small to be filtered by dust masks.
6. Never judge product safety by odor.
7. Never eat or drink in the salon. Always store food away from salon chemicals and wash your hands before eating.
8. Wear approved safety glasses whenever you work.
9. It is not advisable to wear contact lenses in the salon and always wash your hands before touching the eye area.
10. Treat all chemical products with respect. Don't be fooled by marketing terms like nontoxic, natural, and organic.
11. Don't judge a chemical by what it CAN do. What's important is how easily you can prevent any potential hazard.

Review Questoins

1. Write a paragraph (use your own words) that explains both the Overexposure Principle and Paracelsus's philosophy.
2. List seven important pieces of information found on an MSDS.
3. Name the routes of entry and give examples of a safety technique that can block each route.
4. What is the "best" way to help keep salon air free from hazardous chemical vapors?
5. Against which kind of salon hazard are surgical type masks most effective? Against which salon hazard are they ineffective?
6. Name five symptoms of chemical overexposure.
7. To work safely with chemicals you must lower your _____ to _____ levels.
8. List three ways that accidental ingestion of salon products might occur.
9. What percentage of salon chemicals can never be toxic under any circumstances?

Discussion Questions

1. List the steps that you can take to protect yourself from overexposure.
2. Make an emergency action plan that lists the proper steps to take in the event of an emergency.