PART 03

HAIR SERVICES

CHAPTER 15:

Chemical Texture Services

Learning Objectives

After completing this chapter, you will be able to:

LO 1 Explain why cosmetologists should study chemical texture services.

LO 2 Define the different chemical formulations used for relaxing hair.

LO 3 Describe hydroxide relaxers and the various types and strengths that are available to relax hair.

LO 4 Define ammonium thioglycolate (thio) relaxers and how to use them.

LO 5 Describe the tools and supplies that are used for relaxing hair.

LO 6 Outline the safety guidelines and precautions for chemical relaxer services.

LO 7 Explain how to conduct a thorough chemical relaxer consultation.

LO 8 Safely perform virgin and retouch chemical services.

LO 9 Define permanent waving and different types of waving solutions that are used to perform these services.

LO 10 Explain the importance of selecting the right type of permanent wave solution for each client and processing the hair correctly.

LO 11 Describe the tools and supplies that are used for permanent waves.

LO 12 Describe the various permanent wave patterns, placements, and results.

LO 13 Outline the safety guidelines and precautions for permanent wave services.

LO 14 Explain how to conduct a thorough permanent wave consultation.

LO 15 Safely perform permanent wave services.

15

"You don't have to be a movie star for me to do your hair; when you sit in my chair, you're my movie star."

Vincent Roppatte

Style Director,
Celebrity Hairstylist

LO 1 Explain why cosmetologists should study chemical texture services.

Why Study Chemical Texture Services?

Fig. 15-1 Example of a texture service.

Chemical hair texture services allow you to change the existing hair's texture, thereby offering clients various styling options that otherwise would not be possible **(Figure 15-1)**. There are two broad categories of texture services: (1) permanent texture services that permanently straighten highly textured hair, relax tightly coiled hair, curl straight hair, or soften curls and (2) semipermanent smoothing treatments that eliminate frizz and smooth curly or wavy hair for up to three months.

Chemical texture services are hair services that either cause a change within the hair's natural wave or curl pattern, or smooth the cuticle. Cosmetologists should study and have a thorough understanding of chemical texture services because:

- Knowing how to perform these services accurately, safely, and professionally will help build a trusting and loyal clientele.
- Knowledge builds confidence, to offer chemical texture services to all clients.
- Chemical services are among the most lucrative and repetitive services in the salon.

Even though the hairstyling world is ever changing, many clients will always want to chemically alter the texture of their hair. Because of the recurring nature of chemical texture services, learning these techniques allows you to greatly expand your potential as a cosmetologist. The chart to follow outlines a few services and their function to get you started.

Texture Services Chart

SERVICE	FUNCTION	WORKS BEST FOR...
Chemical relaxer 	*Remove* curl or wave, leaving hair smooth or straight	• Clients who prefer a permanent solution for straightening highly textured hair. • Can be used on moderately wavy coily hair.
Keratin-based smoothing treatment (semipermanent) 	*Smooths* curly and wavy hair textures and eliminates frizz	• Clients with highly textured hair who want controlled frizz and the option of wearing curls or straight hair.
Permanent waving 	*Adds* wave or curl to the hair; also used to loosen curls	• Clients with straight hair who want to add curls and lift or body to their flat hair. • Also for clients who desire to loosen their curly hair to wear it straight, but do not require strong alkalis to straighten their hair.
Soft curl permanent 	*Loosens* very curly hair, leaving hair with soft curls or waves	Clients who want to permanently rearrange their coils to a looser curl pattern.

Check In

1. List the four types of chemical texture services performed in a salon setting.
2. Why are texture services considered timeless?

LO 2 Define the different chemical formulations used for relaxing hair.

Fig. 15-2 Example of relaxed hair.

Chemical Relaxers

Chemical hair relaxing is a process that permanently rearranges curly hair's structure into a straighter or smoother form **(Figure 15-2)**. The two categories of **chemical relaxers** commonly used by cosmetologists are hydroxide relaxers and ammonium thioglycolate (thio) relaxers. Now let's take a look at how relaxers actually work to alter the hair.

Reforming Hair Textures

Hair fibers are made up of proteins—mainly keratin—containing different types of bonds. The hydrogen bonds and disulfide bonds determine each individual's distinctive hair texture and curl pattern. Hydrogen bonds are broken when hair is wet and then naturally reform as the hair dries.

Disulfide bonds cannot be broken by water, so chemical hair relaxers are used to break these bonds to create a permanent change in the hair. This is achieved by raising the hair's pH balance to an alkaline state. This action raises the cuticle layer, allowing the relaxer to reach the cortex layer where restructuring occurs, and permanently relaxes the hair **(Figure 15-3)**. See **Chapter 7, Hair and Scalp Properties**, for more in-depth hair structure information.

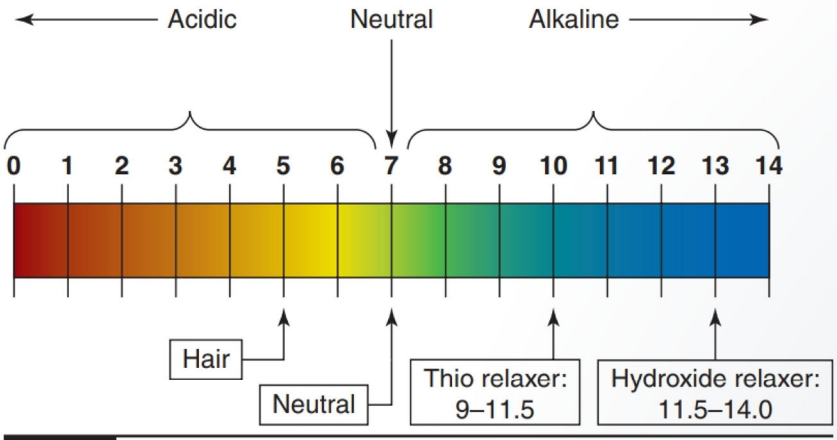


Fig. 15-3 The pH of thio and hydroxide relaxers.

IMPORTANCE OF pH IN TEXTURE SERVICES

In ***Standard Foundations*, Chapter 6, Chemistry and Chemical Safety,** you learned that pH is an abbreviation for *potential hydrogen*. The pH scale describes a substance's acidity and alkalinity by measuring the quantity of hydrogen ions it contains. The scale ranges from 0 to 14: 7 pH is neutral, below 7 pH is acidic, and above 7 pH is alkaline. Coarse, highly textured hair with a strong, compact cuticle layer requires a

high-alkaline chemical solution. Porous, damaged, or chemically treated hair requires a less alkaline solution **(Figure 15-4)**.

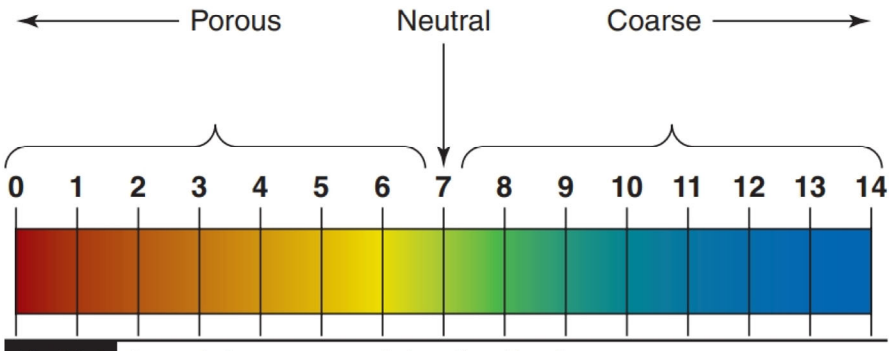


Fig. 15-4 Porous hair versus coarse hair on the pH scale.

The hair and scalp have a natural pH of 4.5 to 5.5. This natural acidity prevents fungi and bacteria from thriving on the hair and scalp and keeps the cuticle layer closed and healthy. When a chemical relaxer is applied to the hair, it can increase the hair's alkalinity up to pH 14. Since each step in the pH scale represents a 10-fold change in concentration, pH 13 is 100 million (100,000,000) times more alkaline than pH 5.

Table 15-1 explains where each ingredient in a relaxer falls on the pH scale and its effects on the hair.

Table 15-1

Types of Relaxer

ACTIVE INGREDIENT	pH	MARKETED AS	ADVANTAGES	DISADVANTAGES
Sodium hydroxide	12.5–14.0	Lye relaxer	Very effective for coily curly and wavy, highly textured hair	May cause scalp irritation and hair damage
Lithium hydroxide and potassium hydroxide	9.0–11.0	No-lye relaxer	Very effective for relaxing curly to wavy hair textures that straighten with the aid of milder strength chemical	May cause scalp irritation and hair damage
Guanidine hydroxide	9.0–11.0	No-lye relaxer	Good for clients with a looser curl or wave pattern, but not suitable for coily, highly textured hair	May dehydrate and damage the hair but causes less skin irritation than other hydroxide relaxers
Ammonium thioglycolate (commonly called thio)	9.6–10.0	Thio relaxer, no-lye relaxer	Suitable for clients that want to keep "texture" in hair; not compatible when hair has been previously treated with lye or no-lye relaxers; not suitable for highly textured hair that desires a smooth straight look	Strong, unpleasant ammonia smell; may damage the hair
Ammonium sulfite/ ammonium bisulfite	6.5–8.5	Low-pH relaxer, no-lye relaxer	Less damaging to hair; this is not a common ingredient, all professional no-lye or low-pH relaxers are usually guanidine or calcium	Does not sufficiently relax highly textured or coarse hair; higher incidence of curl reversion

See **Chapter 7, Hair and Scalp Properties**, page 130, for more in-depth information about hair bonds. Refer to the "Potential Hydrogen" section in ***Standard Foundations***, **Chapter 6, Chemistry and Chemical Safety**, for more in-depth information about pH values and how they affect hair.

Check In

3. What is the purpose of chemically relaxing the hair?
4. Can water break disulfide bonds? If not, how are they broken?
5. What is the natual pH of hair and skin?

LO 3 Describe hydroxide relaxers and the various types and strengths that are available to relax hair.

Hydroxide Relaxers

Hydroxide ions are the active ingredient in all **hydroxide relaxers.** They are very strong alkalis with a value of pH 13. Sodium hydroxide, potassium hydroxide, lithium hydroxide, and guanidine hydroxide are all types of hydroxide relaxers that can swell the hair up to twice its normal diameter. **Calcium hydroxide**, or $Ca(OH)_2$, is commonly added to hydroxide relaxers, but it is not used by itself to relax hair.

Hydroxide relaxers break disulfide bonds differently than the reduction reaction of thio-based relaxers (discussed on page 545 in this chapter). A disulfide bond consists of two bonded sulfur atoms. In **lanthionization**, the process by which hydroxide relaxers permanently straighten hair, the relaxers remove a sulfur atom from a disulfide bond and convert it into a lanthionine bond. Lanthionine bonds contain only one sulfur atom. The disulfide bonds broken by hydroxide relaxers can never be reformed.

Metal Hydroxide Relaxers

Metal hydroxide relaxers are ionic compounds formed by a metal and combined with oxygen (O) and hydrogen (H). Metal hydroxide relaxers include sodium hydroxide (NaOH), potassium hydroxide (KOH), and lithium hydroxide (LiOH). Metal hydroxide relaxers do not require product mixing before application.

Lye Relaxers

Sodium hydroxide relaxers are commonly called **lye relaxers**. They are the oldest and most common type of chemical hair relaxer used by salon professionals. Sodium hydroxide, also known as *lye* or *caustic soda*, is the active ingredient in lye-based relaxers.

Caution!

If misused, all hydroxide relaxers can cause hair loss and skin damage. In addition to monitoring the rate of hair relaxation, be mindful of the client's skin. If pronounced redness or irritation develops at any point during the process, immediately remove the relaxer by thoroughly rinsing the hair with cool water followed by multiple applications of a neutralizing shampoo. Do not scrub the scalp.

Lye relaxers are a mixture of sodium hydroxide, water, petroleum jelly, mineral oil, and emulsifiers. With this chemical relaxer type, lye is absorbed by the hair's proteins, where it breaks the disulfide bonds. The curls are then loosened as the hair fiber swells open. Because lye relaxers process more quickly than other relaxers, you must complete your application promptly and constantly observe the hair while it is processing.

No-Lye Relaxers

Lithium hydroxide, potassium hydroxide, and guanidine hydroxide relaxers are often sold as "no mix–no lye" relaxers. No-lye relaxers—especially guanidine hydroxide—are excellent choices for clients with sensitive scalps. With a pH of 9.0 to 11.0, they are somewhat milder than lye relaxers. However, no-lye relaxers are still considered caustic chemicals known to dry out the hair due to calcium buildup. The latter can be remedied by using a gentle chelating shampoo specifically formulated for mineral removal, followed by a deep conditioning treatment.

NO-LYE VERSUS LYE RELAXER

No-lye relaxers are popular for clients when relaxing their hair at home, whereas most stylists choose lye relaxers. It is common to perform a touch-up service on a client that has been relaxing using a no-lye relaxer at home. A line of demarcation will form when using a lye relaxer on this client, as no-lye leaves a build up of calcium residue on the hair that lye relaxer will not penetrate. Hydroxide relaxers cause the hair to soften and swell leaving soft pliable hair. No-lye relaxers usually cause the hair to feel and look dry after repeated usage. This variation (soft hair versus hard dry hair) will be visible on the hair shaft. Proper consultation is key to selecting the proper chemical. If a client is using a no-lye relaxer, to prevent demarcation lines, you also should use a no-lye relaxer. Suggest the importance of deep cleansing and build up removal to maintain healthy hair.

Base and No-Base Relaxers

Hydroxide relaxers are available in base and no-base formulas. **Base cream**, also known as *protective base cream*, is an oily cream used to protect the skin and scalp during the hair relaxing process. When applying the base cream, ensure it doesn't contact the hair you are relaxing, as this will interfere with the process.

- **Base relaxers** require a separate application of a base cream on the entire scalp, next to the entire hairline, the nape of the neck, and the top and back of the ears, before a relaxer application.
- **No-base relaxers** are formulated with a protective base that melts at body temperature. As the relaxer is applied, body heat causes the base cream to settle out onto the scalp in a thin, oily, protective coating. However, even when using a no-base relaxer, apply base cream on the skin around the entire hairline, the nape of the neck, and the top and back of the ears. It should also be applied to the entire scalp area if the client has a sensitive scalp.

Relaxer Strengths and Formulations

Hydroxide hair relaxers are available in three strengths: mild, regular, and super. The strength difference of all hydroxide relaxers is the concentration of hydroxide.

- Mild-strength relaxers are formulated for fine, color-treated, or fragile hair. This hair does not require hydroxide in high concentration for straightening. Fine hair has fewer disulfide bonds to break, color treated hair is porous, and fragile hair should be handled with care.
- Regular-strength relaxers are formulated for healthy hair with wavy to coily textures. This is the most commonly used strength.
- Super-strength relaxers are formulated for maximum concentration to straighten coarse, highly textured hair.

RELAXER RESULTS

When healthy hair is relaxed, the curl pattern can be safely loosened up to 75 percent and all frizz eliminated. The remaining texture provides the body needed for natural bounce and movement, as well as full-bodied smooth or curly styles and style longevity.

When hair is relaxed 100 percent, it is limp and unable to hold a style. It is considered overprocessed and extremely damaged.

Caution!

Hydroxide relaxers are extremely alkaline. If misused, they can melt or dissolve hair. In fact, a higher sodium hydroxide concentration is used in some depilatories (products used for temporary hair removal). Always perform a strand test before the actual application. Strand testing will help you choose the proper strength and timing, thereby avoiding damage, breakage, or hair loss.

Here's a tip

A relaxer touch-up is a procedure where you only treat the new growth area with relaxer. In many cases, the client will come into the salon with straight styled hair and the new growth is not visible. If this happens you can dampen a small section to see the line of demarcation and then dry it before applying the relaxer.

When performing a relaxer touchup, lightly apply a base cream or petroleum jelly to the rest of the hair to prevent it from coming in direct contact with the relaxer. Ensure the base cream does not overlap the relaxer application, as this prevents the hair from processing properly.

Hydroxide Relaxer Neutralization

After a hydroxide hair relaxer has been sufficiently processed, the hair should be thoroughly rinsed with warm (not hot) water. This is followed by a neutralization step called **hydroxide neutralization**, which is an acid–alkali neutralization reaction. This process neutralizes (deactivates) the alkaline residue left in the hair and properly acidifies the pH of the hair and scalp.

Hydroxide neutralization often includes applying a normalizing lotion after thoroughly rinsing the relaxer out of the hair. This is followed by multiple applications of neutralizing (acid-balanced) shampoo. Using **normalizing lotion** is an *optional* step that lowers the hair and scalp's pH; using neutralizing shampoo is a *required* step that neutralizes and thoroughly removes all relaxer residue. Some neutralizing shampoos produce a color change when the hair's own normal pH is restored.

Caution!

Never place a client under a hooded dryer with relaxer on the hair. Heat is an accelerant and when applied to a relaxer it can result in hair loss and permanent scalp injury. Ensure the hair is properly rinsed before placing a client under a hooded dryer after a relaxer service.

Check In

6. What is lanthionization?
7. What are hydroxide base and no-base relaxers? What makes them different from each other?
8. List the three hydroxide relaxer strengths. What determines the strength of each of these formulas?
9. What happens when you remove 100 percent of the hair texture?

LO 4 Define ammonium thioglycolate (thio) relaxers and how to use them.

Thio Relaxers

Thio relaxers use reduction and oxidation to break the disulfide bonds and then reform them to a more relaxed hair texture. The **ammonium thioglycolate**, or **ATG**, compound is the active ingredient or reducing agent in thio relaxers. This chemical is suitable for clients with highly textured hair who desire straight hair but with texture remaining or if this client does not require as much straightening. If the client requires completely straightened hair, a hydroxide relaxer is a better selection. Proper consultation is necessary to understand the client's expectations and make the proper chemical selection. The client's wave pattern, degree of straightness desired, texture, and density should all be considered when selecting the best chemical and its strength.

Thio relaxers use the same ATG used in alkaline permanent wave solutions, but at a higher concentration and a higher pH value. Thio relaxers also have a higher **viscosity**—the measurement of a liquid's thickness or thinness—than thio solutions used for permanent waves, making them more suitable for relaxer applications.

Caution!

Never apply a thio relaxer over hair that has been treated with hydroxide relaxer. The base chemical in thio relaxer and the base chemical in hydroxide relaxer when combined form a depilatory, resulting in hair loss.

Did You Know?

A reduction reaction involves the addition of hydrogen or the removal of oxygen. In the case of thio solutions, a hydrogen atom is added to each of the sulfur molecules in disulfide bonds.

Reduction and Oxidation

All thio relaxers have a two-part process involving reduction and oxidation, known as redox. The ATG softens and swells the hair and opens the cuticle. This permits the thio solution to penetrate the cortex. Once there, the waving solution breaks the disulfide bonds through a chemical reaction called reduction. Reduction breaks disulfide bonds, and oxidation reforms them.

The chemical process of ATG involves the following:

- In the natural state, disulfide bonds join the sulfur atoms in two adjacent polypeptide chains.
- Thio solution breaks the disulfide bond by adding a hydrogen atom to each of its sulfur atoms.
- The sulfur atoms attach to the hydrogen atom, breaking their attachment to each other.

Focus On

Japanese Thermal Straightening

Japanese thermal straightening, sometimes called thermal reconditioning *or TR, combines a thio relaxer solution with flat ironing* **(Figure 15-5)**. *The service can take several hours and is not always appropriate for extremely curly hair, lightened hair, and color-treated hair. Thermal reconditioning is considered a specialty; many manufacturers require certification in their particular procedure. Japanese thermal straighteners have declined in popularity in North America but are still very popular in Japan.*

Fig. 15-5 Japanese thermal straightening.

NEUTRALIZATION

Thio neutralization relies on an oxidation process to stop the action of the relaxer solution and rebuild the hair into its new form. The most common neutralizers contain hydrogen peroxide or sodium bromate.

Neutralization performs three important functions:

- Any relaxer solution that remains in the hair is neutralized (deactivated).
- Thio neutralization rebuilds the disulfide bonds by removing the hydrogen atoms added by the thio solution.
- Neutralizer rebonds the hair structure and locks the new hair shape into place.

Caution!

Excess water left in the hair before neutralization reduces the neutralizer's effectiveness. Gently blot the hair until it is damp—not dripping wet—before applying the neutralizer.

Low-pH Relaxers

Ammonium sulfate, ammonium sulfite, and ammonium bisulfite are sometimes used as the active ingredient in low-pH relaxers. They do not completely straighten extremely curly hair, and curl reversion is possible. They are commonly used on color-treated hair. Ammonium sulfate, sulfite, and bisulfite relaxers are not compatible with hydroxide relaxers. These mild relaxers range from pH 6.5 to 8.5. They are compatible with ATG relaxers. Most professional relaxer manufacturers use sodium hydroxide as the base ingredient for low-pH relaxers.

Keratin-Based Smoothing Treatments

Keratin-based smoothing treatments, also called *Brazilian keratin treatments*, eliminate up to 90 percent of curl, and provide most hair textures with silky smooth, shiny, and frizz-free results for up to 12 weeks. They are semipermanent and work by coating the entire cuticle in a

protective protein layer that smooths the hair. Their formulas vary, but typically incorporate silicone polymers, amino acids, and formalin (or other formaldehyde-producing agents).

The active ingredients in most keratin smoothers—including methylene glycol, formalin, methylene oxide, paraform, formic aldehyde, methanol, oxomethane, oxymethylene, morbicid acid, or CAS Number 50-00-0—are classified as formaldehyde according to the Occupational Safety and Health Administration (OSHA) Formaldehyde Standard, making them a significant health hazard. Additional chemicals, such as timonacic acid (also called *thiazolidinecarboxylic acid*), can also release formaldehyde during the process. The Environmental Protection Agency (EPA) classifies formaldehyde as a probable human carcinogen, a substance capable of causing cancer in living tissue, under conditions of unusually high or prolonged exposure. Before considering offering keratin smoothing treatments, investigate the potential health risks by visiting www.cancer.gov, as well as the safety measures you must take, as set forth by OSHA at www.osha.gov/SLTC/formaldehyde/hazard_alert.html.

Did You Know?

Given that the pH of water (H_2O) is between 6 and 7, rinsing itself begins the neutralizing process.

Check In

10. What are the differences between the ATG used in thio relaxers and that used in that used in permanent waves?
11. What are the three important functions of neutralizer in thio relaxers?

LO 5 Describe the tools and supplies that are used for relaxing hair.

Relaxer Tools and Supplies

In addition to the relaxer product, here are the tools and supplies that you will need to perform a relaxer service.

- **Applicator brush, hard rubber tail comb, or styling comb** - Use to apply the relaxer. Also use to clear the relaxer with the back or tail of a comb to test the hair relaxation progress. Do not use to section the hair at the scalp.
- **Base Cream (protective barrier cream)** - Use for added skin protection around the hairline, the nape, and the top and back of the ears. Also use on the scalp for sensitive skin. Professional strength products require base cream application to the front and back hairline (exterior), the inside of the head form (interior), and the ears. Milder strength and no-lye relaxers typically require base cream application to the exterior hairline area; no interior base is required. Always follow the manufacturer's directions.

- **Chemical cape** - Use to protect your client and when double-draping.
- **Conditioner** - Use after removing the relaxer from the hair. The conditioner type will be based on your client's hair condition.
- **Disposable gloves** - Must be worn to protect your hands from skin damage, chemical absorption, and possible contact dermatitis development.
- **Neck strips** - Must be used to protect your client from direct contact with the cape.
- **Plastic clips** - Use to keep the hair sectioned. Do not use metal clips because these could cause a chemical reaction with the relaxer.
- **Plastic or glass bowl** - Always dispense the relaxer into a clean plastic or glass bowl.
- **Timer** - Use to track the total processing time and processing steps.
- **Towels** - Use to protect your client throughout the relaxer service.
- **Wide-tooth comb** - Use to detangle and smooth the hair without pulling prior to the service. Can also be used to spread the conditioner after removing the relaxer, but do not allow the teeth to make contact with the scalp. Never comb relaxer through the hair because this could cause hair breakage.

Check In

12. Why should you never comb relaxer through the hair?

LO 6 Outline the safety guidelines and precautions for chemical relaxer services.

Chemical Relaxer Safety Guidelines

Like all chemical services, texture services come with serious responsibilities. Not following safety guidelines, performing texture services you are not qualified to do, or agreeing to perform texture services when the health of the hair is questionable, could cause serious hair damage and severe injuries to the scalp, neck, forehead, or ears. You can greatly minimize these risks by familiarizing yourself with specific safety guidelines.

In this section, we discuss the importance of the following:

- Performing a patch test
- Performing a metallic salts test
- Conducting a thorough hair analysis that includes checking hair porosity and elasticity
- Analyzing the scalp
- Performing a relaxer strand test

Pre-Service Chemical Texture Guidelines

At least two days before a scheduled texture service, perform a patch test to ensure the client is not allergic to the chemical texture product you plan to use for the service. Either then or on the day of the scheduled service, analyze the hair, its elasticity, and the scalp's porosity, and perform a metallic salts tests.

PATCH TEST

A patch test, also called a *predisposition test*, is required before every chemical texture service to determine if that service can be performed safely. In addition to the instructions below, follow all safety guidelines and recommendations for patch testing provided by the product manufacturer and your instructor.

Follow the guidelines in **Chapter 16, Procedure 16-1, Patch Test**, substituting the color product mentioned in the text for the relaxer product you intend to use for the upcoming chemical texture service. This will let you know whether the client is allergic to or reacts negatively to the solution. In the case of skin redness, itching, and so on, the test is considered positive and the service must not be performed. Record all results on the service record card.

On the day of the service, perform strand and skin sensitivity tests to ensure that the solution is the correct one to use on the hair and to detect any sensitivities caused by clients scratching their scalp, brushing their hair, shampooing too close to the service, and so on.

1. Select three test areas on the head.
2. Separate a strand in each area.
3. Apply the relaxer at the base of each test strand, allowing it to make contact with the scalp.
4. Leave the relaxer on the scalp for three minutes. Examine the skin. If there is no skin redness, apply the relaxer to the entire strands and smooth the test areas with the back of a comb or the handle of a brush applicator. Keep the relaxer on the scalp for two additional minutes.
5. Run a neutralizing shampoo (hydroxide relaxer) or neutralizer (thio relaxer) through the test strands. Rinse thoroughly.
6. Check for scalp redness, hair elasticity, and the smoothness of all three strands. If redness or irritation is present, or the hair appears damaged, do not perform the service.
7. Record the results on the service record card.

METALLIC SALTS TEST

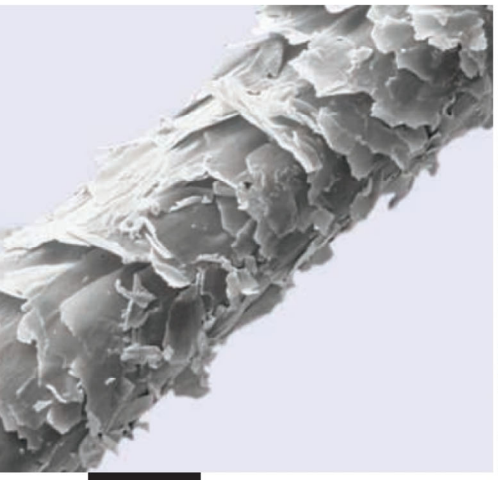
Performing a chemical texture service without first testing for the presence of metallic salts could result in severe hair damage. Metallic salts are metallic compounds typically found in progressive color and some over-the-counter hair dyes that can react to the chemicals used in relaxer and perm products. Metallic salts can also be found in naturally derived hair dyes, such as some henna products.

Perform the following test to check for the presence of metallic salts:

1. In a glass or plastic bowl and using a plastic implement, mix 1 ounce (29.5 milliliters) of 20-volume peroxide with 20 drops of 28 percent ammonia.
2. Immerse at least 20 strands of hair in the solution for 30 minutes.
3. If metallic salts are *not* present, the hair color will lighten slightly and you may proceed with the service. If metallic salts are present, the hair will lighten significantly and rapidly. The solution may get hot and give off an unpleasant odor, indicating that you should not proceed with the service.

Courtesy of P&G Beauty from The World of Hair by John Gray.

Fig. 15-6 Healthy cuticle.



Courtesy of P&G Beauty from The World of Hair by John Gray.

Fig. 15-7 Damaged cuticle.

HAIR ANALYSIS

Performing a strand analysis before the relaxing service lets you know whether the hair is healthy enough to undergo a relaxing service and yields information that will help you decide on the relaxer type and strength to use for the service. Follow the guidelines in **Chapter 7, Hair and Scalp Properties**, on what a hair analysis entails and how to perform it for best results.

Porosity and Elasticity Porosity indicates the condition of the cuticle layer and its ability to absorb and retain moisture. It is determined by the degree the cuticle is raised. A healthy cuticle is compact and lies tight against the hair strand (**Figure 15-6**). It protects the hair from damage and makes it appear smooth and shiny. A damaged cuticle is chipped and does not lie tight against the hair shaft. It cannot adequately protect the hair against damage, so the hair becomes rough, dull, and prone to breakage (**Figure 15-7**). Low porosity hair will be resistant to absorbing moisture; medium porosity hair will absorb a balanced amount of moisture; and high porosity hair may indicate damaged hair. It will be overly porous and absorb moisture easily.

The lower the porosity, the higher the alkalinity needed to lift the cuticle layer and deposit texture solutions within the cortex where relaxing takes place. The higher the porosity, the lower the alkalinity needed to perform this same function. Hair that has a very high level of porosity should not receive chemical texture services. Instead, suggest a salon conditioning treatment series and better home care products. Re-evaluate the hair at monthly intervals to determine if the hair is finally healthy enough for a relaxer service.

Elasticity is the hair's ability to stretch and return to its original length without breaking **(Figure 15-8)**. It is also a reflection of the strength of the side bonds in the cortex. Hair with poor elasticity feels brittle and breaks easily, may not hold a curl or style, and is usually a sign of chemical or thermal abuse. See **Chapter 7, Hair and Scalp Properties**, on page 130, to review how to perform porosity and elasticity tests.

SCALP ANALYSIS

Carefully evaluate the scalp's condition just before any texture service. If the scalp is free of blemishes, abrasions, rashes, infections, or noticeably thin or balding areas, it is considered healthy. If any of the aforementioned conditions are present, politely decline the service.

Fig. 15-8 Performing an elasticity test.

Focus On

Chemical Relaxer Records

- *Always maintain accurate and detailed client records of each client's texture services and the results achieved.*
- *Before agreeing to perform a service, always obtain signed release statements from your clients indicating that they understand the possible service-related risks.*

RELAXER STRAND TEST

Just before performing a relaxer service, or on the day you perform the patch test, take a few strategic test strands to ensure the relaxer is the right strength, the hair remains in fairly good condition, and the hair relaxes as expected. This will save you many unwanted surprises. (**Figures 15-9** and **15-10**).

Fig. 15-9 Sufficiently relaxed strand.

Fig. 15-10 Insufficiently relaxed strand.

Select a strand at the back, and one on each side of the head. Separate each strand from the rest of the hair, apply the relaxer as directed, and monitor the relaxation process. Midway through the recommended processing time, lift each test strand, gently stretch and release the strand, and observe the curl reversion. You can also do this by using the back of a comb to remove the relaxer and then observe the curl reversion. Is the hair halfway there? Almost there? After this point, check the test strands at five-minute intervals until the process is complete.

Relaxer Safety Tips

Refer to the following for helpful safety tips for before, during, and after the relaxer service.

Before Relaxer Service

- Use only plastic or glass bowls and plastic clips when relaxing hair. Do not use metal.
- Apply relaxer to hair that has not been shampooed for one week.
- Apply if the client has fragile hair and avoids swimming in the ocean, soaking in chlorinated hot tubs, and participating in other activities not compatible with fragile hair.
- Decline a relaxer service if the hair has been treated with henna, which interferes with all texture services.
- Decline a relaxer service if the hair has been treated with metallic dyes, which are chemically incompatible with relaxers.
- Establish a treatment program to restore the hair's strength and elasticity before scheduling a relaxer service.

During Relaxer Application

- Precisely apply base cream without overlapping on hair that will be relaxed.
- Wear protective gloves when performing every relaxer service.
- Avoid using two different relaxer types. Do not apply a hydroxide relaxer to hair that has been relaxed with a thio relaxer and vice versa.
- Apply a relaxer formulation appropriate for the client's hair texture and condition.
- Apply to the midshafts, then the scalp area, then the hairline, and finally the ends when performing a virgin relaxer.
- Use your gloved fingers to smooth the relaxer through the hair. Do not use the teeth of a comb.
- Separate the hair in sections using your fingers, the tail of a tail comb, or an applicator brush without touching the scalp.

Caution!

Sodium hydroxide and thio relaxers are chemically incompatible and can cause severe damage—even hair loss—when mixed or overlaid on the hair.

- Never use ***sodium hydroxide relaxers on hair previously relaxed with a thio relaxer.***
- Never use ***thio relaxers on hair previously relaxed with a hydroxide relaxer.***

After Relaxer Application

- Relax hair up to 75 percent of its original wave. Do not relax it to the point it is completely straight.
- Discard partially used relaxer products after the service.
- Follow manufacturer and instructor directions for rinsing out the relaxer and neutralizer; add additional rinsing time if there are lingering chemical scents in the hair.
- Rinse the relaxer and neutralizer out of the hair with warm water; rinse with cool water if the scalp appears irritated.
- Change the client's neck strip and towel when they become wet or come in contact with the relaxer solution.
- Flush the client's eye with cool water if the relaxer or neutralizer solution gets in it. If irritation persists, recommend that the client seek medical attention.
- Avoid performing both a permanent or demipermanent hair color service and a relaxer service in the same day. You can apply a semipermanent the same day as the relaxer service.
- Do not perform a lightener (bleach) service on relaxed hair; do not relax lightened (bleached) hair.
- Trim the ends of the hair.

Caution!

During relaxer services, never become distracted or work on another client's hair at the same time. Losing track of what you are doing, hurrying your application, or leaving the solution on the hair too long could cause severe hair damage, breakage, and hair loss.

Check In

13. What are the risks of not following appropriate guidelines when performing a chemical texture service?
14. Why are test strands important?
15. What is a patch test?

LO 7 Explain how to conduct a thorough chemical relaxer consultation.

Chemical Relaxer Consultation

The consultation is key to discovering whether performing a chemical relaxer is the best decision, if clients are committed to their home care regimen, and whether there are red flags that must be addressed before agreeing or declining to perform the service. When performed correctly, a thorough consultation also lets you know the best relaxer type for the client's hair, and what will be needed to keep the hair healthy and looking fabulous between salon visits. Just before your consultation, have your client complete a client intake form that includes pertinent contact information, medical issues, medications, and so

? Did You Know?

According to a National Institute of Health study, potential risks associated with a relaxer treatment include chemical burns, scalp lesions, scarring, and hair loss. Study aside, improper care for relaxed hair at home can cause hair damage and compromise the service's results.

forth. Review this information before sitting down with your client. Have a service record card ready where you can note important consultation information, services received, results, formulations, and more. Client service records will be used many times as services are repeated in the following months and years. If you use a file card, write neatly and keep the card in good condition. Whether you use digital or paper records, label and sort the files consistently. (Refer to ***Standard Foundations,* Chapter 3, Communicating for Success**, to view client intake, service, and release forms.)

Use the "10-step Consultation Method" section in ***Standard Foundations,* Chapter 3, Communicating for Success**, as your general guide. For questions pertinent to chemical relaxer services, ask your client the following, and then have the client sign a release form to begin the service.:

QUESTION(S) TO ASK YOUR CLIENT	WHY IS THIS IMPORTANT?
1. Are you currently taking any medications? Are you allergic to any specific products or ingredients? Do you smoke?	Smoking and medications may cause relaxed hair to change colors and become fragile and brittle. Medications can also have other adverse effects on the hair. If a client is allergic to an ingredient in relaxers, do not perform the service.
2. Have you had a relaxer service in the past? If you have, do you know what relaxer type you received? How long ago did you receive the service? Were you happy with the results?	You want to know everything the client has put on their hair so you don't add a chemical that is not compatible. Ask for the client's full chemical treatment history.
3. Who performs your relaxer services?	This tells you if the prior relaxer was done professionally or at home.
4. Have you ever experienced hair loss? Are you experiencing any hair thinning? Have you been diagnosed with any form of alopecia?	This informs you if this person is a candidate for a chemical service.
5. Do you suffer from central centrifugal cicatricial alopecia?	C.C.C.A. is a form of scarring alopecia that results in permanent hair loss. The symptoms are burning, tingling "pins and needles", and scalp tenderness. It may also present as crust or pimples and appear inflamed. Hair thinning may or may not be present depending on the alopecia's stage. Look at the scalp to determine if you should recommend the client seeks a dermatologist's help. Do not perform the service or attempt to diagnose your client. Always refer them to a medical professional.

QUESTION(S) TO ASK YOUR CLIENT	WHY IS THIS IMPORTANT?
6. Are you currently or have you ever received a keratin treatment?	Keratin treatments coat the cuticle layer which could affect where you apply the relaxer for retouch services. If all the hair is smooth, it will be difficult to identify the new growth area for touch-up services.
7. When was your last shampoo performed? Have you had a protective style removed within the last week?	There should be one week between the last shampoo and relaxer service. Scalp abrasions and scalp irritation will occur if a shampoo is done too close to a relaxer. Most protective styles involve braiding, and any scalp pulling or twisting can cause scalp abrasions if you apply relaxer too soon. Allow one week in between removal, detangling, and relaxer services.
8. When was the last time you brushed your hair or scratched your scalp? Do you have any sensitive areas?	This informs you if the client may burn easily. Scalp sensitivity helps determine the application order. Apply the chemical in the sensitive area last to prevent scalp abrasions and improper relaxer processing.
9. Do you regularly drink caffeine?	Coffee and caffeinated soft drinks can irritate more quickly due to the increased blood circulation caused by caffeine. Caffeine can also promote sweating which can also causes scalp irritation once a relaxer is applied. Never apply relaxer to wet hair. Allow the client to cool off or dry their hair with a cool blow dryer.
10. Do you apply oils to your hair? How often and what type?	This determines possible issues with relaxer penetration. Some oils serve as a barrier to prevent relaxer absorption.
11. Are you an outdoor enthusiast? Do you regularly spend time swimming or participating in other outdoor activities?	Chlorine can leave build up on the hair shaft that may not allow the relaxer to process properly. Proper build up removal should be done first and may require rescheduling the relaxer procedure.
12. Have you ever had highlighted or blonde hair? How recently did you receive this service?	Highlighted or blonde hair is fragile and requires mild strength relaxers and conditioning treatments.
13. Is your hair currently colored? Do you know what haircolor type was used?	The haircolor used helps you choose relaxer and determines if your client can receive a relaxer service.
14. Have you ever had henna applied to your hair? How recently did you receive this service or apply it yourself?	Relaxer applied to clients with henna-treated hair often produce undesirable results.
15. Are you aware of the risks associated with chemical hair relaxers? Are you willing to provide the proper maintenance your relaxer requires?	It's important for your clients to be aware of all risks associated with a chemical service and the proper maintenance required following the service.

16. Describe your home hair care regimen. Which hair care products are you using? How often do you shampoo and deep condition your hair? Do you wrap your hair before sleeping? Do you flat iron your hair daily?	At home maintenance is key to keeping hair healthy. Knowing how a client cares for their hair helps you determine and suggest the ideal at-home regimen for the best results.
17. Are you open to using the products and home care regimen that I recommend for your newly relaxed hair?	The quality of products used is just as important as the routine.
18. Are you committed to having regular salon treatments and occasional trims, including a light trim on the day of your service?	Regular salon treatments and trims may be necessary to help maintain the health of the hair and the effects of the chemical service.
19. May I analyze your scalp and hair today?	This will determine the best way to achieve the desired results while protecting the hair's health.
20. What do you like least about your natural hair texture? What do you like most?	This will help you determine your client's expectations and inform your styling decisions.
21. How much body would you like your relaxed hair to retain: light wave, moderate wave, or completely straight?	This will help you determine your client's expectations and inform your styling decisions.
22. What do you want your relaxer service to do for your lifestyle and appearance? Faster styling times? Style versatility? Sleek appearance? Frizz-free hair?	This will help you determine your client's expectations and inform your styling decisions.
23. Do you have any questions or concerns you want to share?	Make sure you have answered all of your client's questions and addressed their concerns before proceeding with any service.

Receive complete answers from your client by asking open-ended questions that require more than a "yes" or "no" answer. When you ask the right questions, the answers can be quite revealing. For instance, when clients want straight hair and you know that completely straightening the hair will make it limp and damaged, decline the service unless they are willing to embrace some wave in their hair. If clients are participating in water sports, are using high-heat thermal tools frequently, or are lax about their home care, a relaxer may not be their best option. Likewise, if a client tells you they had a lightening service some time ago but have since darkened their hair with haircolor or henna, be sure to determine if any of the client's current hair is still lightened by doing the math (hair grows about 0.5 inch [1.25 cm] a month). Decline or adjust the service as needed. When the consultation method is complete, have the client sign the release form to begin the service.

Check In

16. What should a consultation accomplish?
17. Just before your consultation, what paperwork should the client fill out?
18. What form should you have ready when consulting with a client?

LO 8 Safely perform virgin and retouch chemical services.

Relaxer Application

Whether the relaxer is a virgin or retouch service, to safely and effectively relax the hair, the application must always follow all the steps outlined in this section. Each step of the texture service has at least one—and sometimes many—safety precautions that you must follow to keep your client safe and satisfied with your services.

Before beginning the relaxer service, make sure you have answered the following four main questions:

1. **Have you completed the client consultation?** Find out exactly what the client desires from the service. Do they want permanent results or temporary? What degree of straightness is the client seeking? Do they want to maintain some texture?
2. **Have you determined your client's wave pattern?** Refer to the visual wave pattern chart for selection ***(refer to chapter 9)***. Some wave patterns respond better to certain chemicals. For example, a client with coily hair will benefit from a hydroxide relaxer versus a thio relaxer to achieve optimum straightness.
3. **Have you determined your client's hair texture?** The hair's fineness or coarseness determines the chemical strength needed.
4. **Have you determined your client's hair density?** This will help with application and determining the length of time required for application and processing.

Virgin Relaxer

Use a **virgin relaxer** application for hair that has not had a chemical relaxer service before. Since the scalp area and the porous ends usually process more quickly than the strand's middle, virgin relaxer application begins on the midshaft, starting 0.5 inch (1.25 centimeters) away from the scalp and includes the entire strand up to the porous ends. Once complete, apply the relaxer to within 0.13 inch (0.3 centimeter) of the scalp. Apply to the scalp and ends only during the last few minutes of processing.

The steps for hydroxide relaxer and thio relaxer are similar, but the neutralizing steps are unique according to which relaxer type is used.

- *When neutralizing a hydroxide relaxer*, you have the option of first applying a normalizing lotion to lower the pH, followed by multiple applications of a neutralizing shampoo (required). Follow the manufacturer's guidelines and your instructor's directions regarding neutralizing the hair.
- *When neutralizing a thio relaxer*, gently blot the hair until it is damp and then work the neutralizer through the hair with your fingers to ensure even saturation. If you leave too much moisture in the hair, it will dilute the neutralizer and cause a less than satisfactory result. Then process and rinse the neutralizer according to the manufacturer's guidelines and your instructor's directions.

Follow the complete steps for the virgin hair relaxer in **Procedure 15-1**.

Ⓟ 15-1: Virgin Hair Relaxer *See page 576*

Relaxer Retouch

Use a **relaxer retouch** application for hair that has received a chemical relaxer service. The application for a retouch relaxer starts 0.25 to 0.5 inch (0.6 to 1.25 centimeters) away from the scalp and includes only the new growth. To avoid overprocessing and scalp irritation, apply the relaxer closest to the scalp during the last few minutes of processing.

As noted previously, the hydroxide relaxer and thio relaxer steps are similar, but the neutralizing steps are unique according to the relaxer used. Follow the steps for performing the relaxer retouch in **Procedure 15-2**.

Ⓟ 15-2: Relaxer Retouch *See page 581*

☑ Check In

19. Where should you begin a virgin relaxer service on the hair?
20. Where should you begin a relaxer retouch service on the hair?

LO 9 Define permanent waving and different types of waving solutions that are used to perform these services.

Permanent Waving

Permanent waving is a two-step process to create body, wave, or curl in the hair **(Figure 15-11)**. The hair is wrapped on perm rods and then undergoes a chemical change caused by applying permanent wave solution (commonly called a perm) and neutralizer. The perm solution's strength is primarily determined by the reducing agent's concentration and the alkalinity degree. This chemical process type permanently alters the hair.

Fig. 15-11 Example of a perm.

Permanent Wave Solutions

There are two perm solution categories: alkaline and acidic. Both swell the hair and open the cuticle allowing the waving solution to penetrate the cortex.

- Alkaline perm solutions are stronger and more suitable for coarse and moisture-resistant hair. Their active ingredient is **ammonium thioglycolate (ATG)**, the same solution used for thio relaxers, except in a lower concentration (strength) and pH value.
- Acidic perms produce far less cuticle layer swelling. They are more ideal for fine, color-treated, and fragile hair. Their common active ingredient is glyceryl monothioglycolate (GMTG).

To help demonstrate the difference between the swelling of the alkaline and acid-balanced hair samples, refer to **Figures 15-12** and **15-13**. In Figure 15-12, the hair has been saturated with an alkaline perm solution (pH 9.4) for five minutes. In Figure 15-13, the hair from the same sample has been saturated with an acid-balanced perm solution (pH 7.5) for five minutes.

Table 15-2 offers brief descriptions of the most commonly used perms.

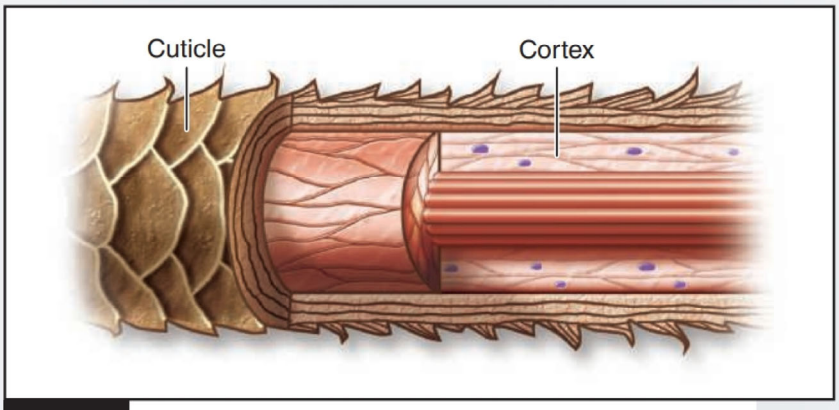


Fig. 15-12 Hair saturated with alkaline waving solution (pH 9.4) for five minutes.

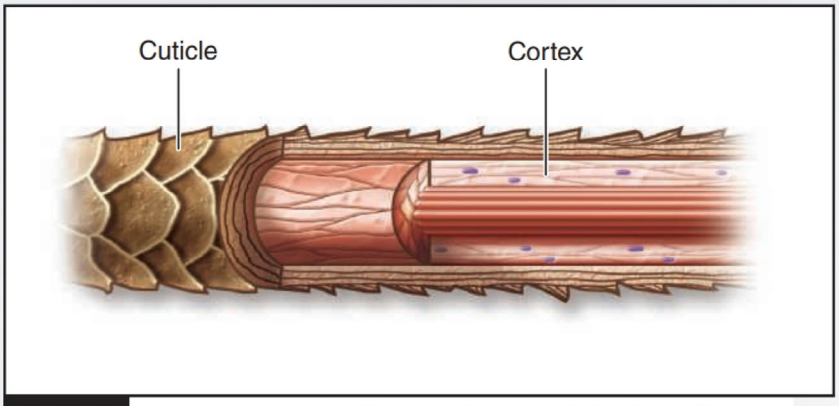


Fig. 15-13 Hair saturated with acid-balanced waving solution (pH 7.5) for five minutes.

Table 15-2

Permanent Wave Categories

PERM TYPE	ACTIVE INGREDIENT	PROCESS	RECOMMENDED HAIR TYPE
Alkaline/cold wave pH: 9.0–9.6	Ammonium thioglycolate (ATG)	Follow manufacturer's instructions	Coarse, thick, or non porous
Exothermic wave pH: 9.0–9.6	Ammonium thioglycolate (ATG)	Exothermic	Coarse, thick, or non porous
True acid wave pH: 4.5–6	Glyceryl monothioglycolate (GMTG)	Endothermic	Extremely porous or very damaged
Acid-balanced wave pH: 7.8–8.2	Glyceryl monothioglycolate (GMTG)	Follow manufacturer's instructions	Porous or damaged
Ammonia-free wave pH: 7.0–9.6	Monoethanolamine (MEA)/ aminomethylpropanol (AMP)	Follow manufacturer's instructions	Porous to moisture balanced
Thio-free wave pH: 7.0–9.6	Mercaptamine/cysteamine	Follow manufacturer's instructions	Porous to moisture balanced
Low-pH wave pH: 6.5–7.0	Ammonium sulfate/ ammonium sulfite/ ammonium bisulfite	Endothermic	Moisture balanced, fine, or damaged

Caution!

Permanent wave solutions' ingredients, strength, and pH differ among manufacturers and vary considerably, even within the same category. Always check the manufacturer's instructions and the product's Safety Data Sheet (SDS) for accurate, detailed information.

Alkaline Waves

Alkaline waves, also known as *cold waves*, have between pH 9.0 and pH 9.6; ammonium thioglycolate (ATG) is the reducing agent. Alkaline waves should process according to the manufacturer's instructions and without heat.

Acid Waves

All acid waves have three separate components: perm solution, activator, and neutralizer. **Glyceryl monothioglycolate (GMTG)** is the main active ingredient in true acid and acid-balanced waving lotions. It has a low pH and is the primary reducing agent in most acid waves. Most acid waves also contain ATG, just like an alkaline wave. Although acid waves' low pH seem ideal, repeated exposure to GMTG is known to cause allergic reactions and skin sensitivities in hairstylists and clients.

TRUE ACID WAVES

True acid waves have between pH 4.5 and pH 7.0. They require heat to process, process more slowly than alkaline waves, and do not produce as firm a curl as alkaline waves do.

You may be wondering how a true acid wave, with below pH 7.0, can cause the hair to swell. Although pH 7.0 is neutral on the pH scale, pH 5.0 is neutral for hair. Acidity increases as alkalinity decreases and alkalinity increases as acidity decreases **(Figure 15-14)**.

ACID-BALANCED WAVES

Acid-balanced waves, are perms with pH 7.0, a neutral pH. They are formulated to process according to the manufacturer's instructions, do not require a hair dryer's heat, process more quickly, and produce firmer curls than true acid waves.

EXOTHERMIC WAVES

An exothermic chemical reaction produces heat. **Exothermic waves** create an exothermic chemical reaction that heats up the waving solution and speeds up the processing.

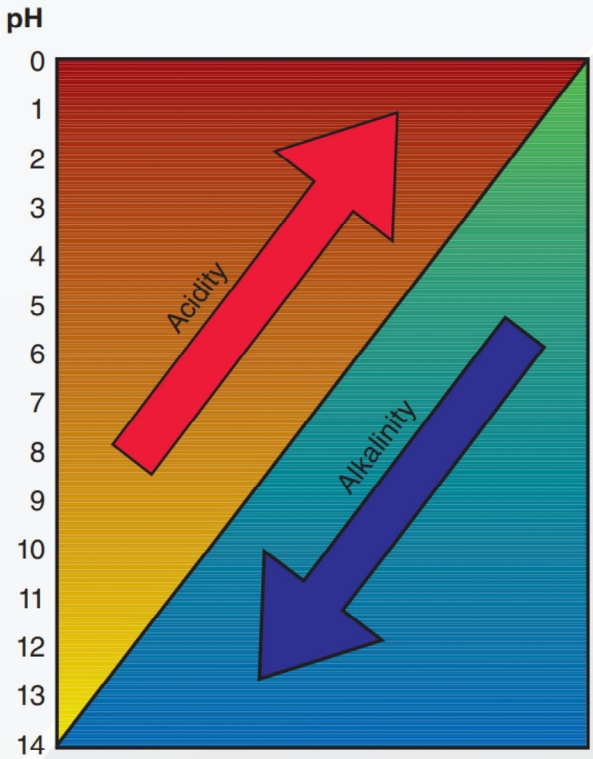


Fig. 15-14 Acidity and alkalinity.

Activity

Test the pH of Product

Using pH-testing strips, test various liquids, including acid wave solution, acid-balanced wave solution, lemon juice, and more. Track and evaluate the results for acidity and alkalinity; share the results with your classmates. Discuss which liquids have a higher or lower pH.

Caution!

Accidentally mixing the activator tube's contents with the neutralizer instead of the perm solution will cause a violent chemical reaction that can cause injury, especially to the eyes. Pay attention and always use with caution!

All exothermic waves have three components: perm solution, activator, and neutralizer. The perm solution contains thio, like a cold wave. The activator contains an oxidizing agent—usually hydrogen peroxide—that must be added to the perm solution immediately before use. Mixing an oxidizer with the perm solution causes a rapid release of heat and an increase in the solution's temperature. The increased temperature increases the chemical reaction's rate, which shortens the processing time.

ENDOTHERMIC WAVES

An endothermic chemical reaction absorbs heat from its surroundings. **Endothermic waves** are activated by an outside heat source, usually a hooded hair dryer. Always follow the manufacturer's instructions.

Ammonia-Free Waves

Ammonia-free waves are perms that use an ingredient that does not evaporate as readily as ammonia, so there is very little odor.

Aminomethyl propanol (AMP) and **monoethanolamine (MEA)** are examples of alkanolamines used in perm solutions as an ammonia substitute. Although these solutions may not smell as strong as ammonia, they can still be just as alkaline. Remember: Ammonia-free does not necessarily mean damage-free.

Thio-Free Waves

Thio-free waves use an ingredient other than ATG, such as cysteamine or mercaptamine, as the primary reducing agent. Although these thio substitutes are not technically ATG, they are still thio compounds.

Although thio-free wave products are often marketed as damage-free, this is not necessarily true. At high concentrations, the reducing agents in thio-free waves can be just as damaging as thio.

Low-pH Waves

Ammonium sulfate, ammonium sulfite, and ammonium bisulfite are ATG alternatives. As a group, they are known as **low-pH waves** with a low pH 6.5 to pH 7. Perms based on sulfates or sulfites are weak and do not provide a firm curl on coarse hair. They are usually marketed as a body wave or alternative wave.

Check In

21. What is the difference between alkaline and acidic waves?

LO 10 Explain the importance of selecting the right type of permanent wave solution for each client and processing the hair correctly.

Perm Selection and Processing

When selecting the best perm for your client, reference Table 15-2 and follow general guidelines for most common perm types, along with recommended hair types for each product. It is equally important to factor in individual hair traits when selecting a perm product. Hair that has been treated with a semipermanent color, which coats the hair, is not the same as permanent "color-treated hair" in terms of perm solutions. Likewise, perms for color-treated hair are not necessarily safe if the hair is also damaged.

Caution!

Performing a perm service on lightened (bleached) hair can cause extreme damage and breakage, put you and your salon in potential legal jeopardy, and damage your career. When asked to perm lightened hair, politely decline the service.

Permanent Wave Processing

A permanent wave solution's strength is based on its reducing agent's concentration. If a mild perm solution is used on coarse hair, there may not be enough hydrogen ions to break the necessary number of disulfide bonds, no matter how long the perm is processed. On the other hand, a strong solution, which releases many hydrogen atoms, may be perfect for coarse hair but too harsh and damaging for fine hair.

In permanent waving, most of the processing occurs within the first five to 10 minutes after the hair shaft is penetrated. The additional processing time recommended by the manufacturer allows the polypeptide chains to shift into their new configuration.

If your client's hair is overprocessed, it probably happened within the first five to 10 minutes, and a weaker perm solution should have been used. If the hair is not sufficiently processed after 10 minutes, a stronger solution should have been used.

OVERPROCESSED HAIR

A thorough saturation with a stronger (more alkaline) solution will break more disulfide bonds, but this does not necessarily translate into more curl. Properly processed perms should break and rebuild approximately 50 percent of the hair's disulfide bonds **(Figure 15-15)**.

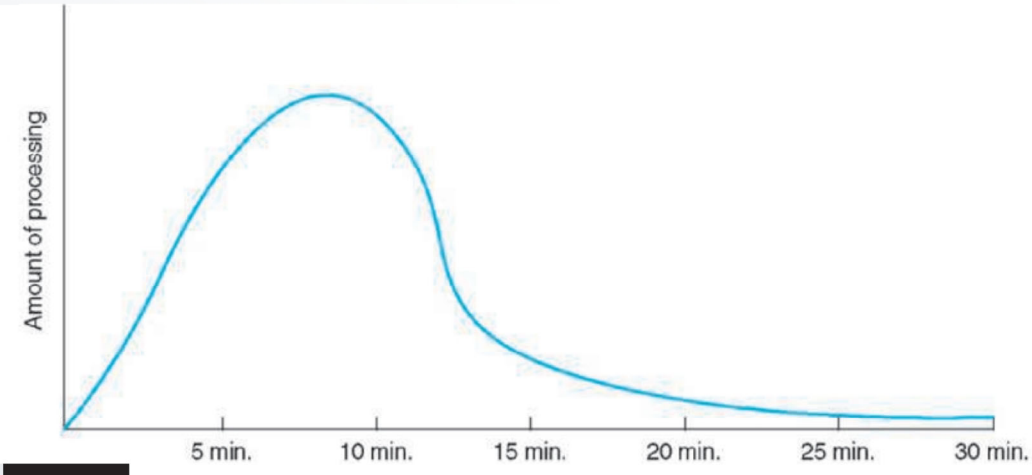


Fig. 15-15 Average processing times.

Here's A Tip

Coarse hair requires a stronger solution, a higher pH, and a more thorough saturation due to the hair structure's density. Always apply the solution slowly and repeatedly until coarse hair looks wet and stays wet!

If too many disulfide bonds are broken, the hair may not hold the desired curl. Since the hair at the scalp is typically the hair strand's strongest area, overprocessed hair is usually curlier at the scalp and straighter at the ends **(Figure 15-16)**. If hair is overprocessed, further processing will make it straighter and incur even more damage.

UNDERPROCESSED HAIR

Underprocessed hair is the opposite of overprocessed hair. If too few disulfide bonds are broken, the hair will not be sufficiently softened. The hair typically has a very weak curl, but it might also be straight. Since the hair at the scalp is stronger than at the ends, underprocessed hair is usually straighter at the scalp and curlier at the ends **(Figure 15-17)**. If the hair is underprocessed, further processing will make it curlier.

Did You Know?

Many clients look for the added texture, fullness, style, and low maintenance that only a perm can provide. Perms help thin hair look fuller, make straight or coarse hair more manageable, and help control stubborn cowlicks. Although people's hairstyles are different, the permanent waving techniques are essentially the same.

Fig. 15-16 Overprocessed hair.

Fig. 15-17 Underprocessed hair.

Check In

22. What is an overprocessed hair trait?
23. What is an underprocessed hair trait?

LO 11 Describe the tools and supplies that are used for permanent waves.

Permanent Wave Tools and Supplies

In addition to your permanent solution, here are the tools and supplies that you will need to perform a perm service.

- **Chemical cape** - Use to protect your client and when double-draping.
- **Conditioner** – May be used after rinsing the neutralizer if directed by the manufacturer.
- **Cotton coil or rope** – Apply around the client's hairline to keep the solution from dripping down the client's face.
- **Disposable gloves** - Must be worn to protect your hands from skin damage, chemical absorption, and possible contact dermatitis development.
- **End papers** – These are necessary to control the hair's ends when winding the hair on the perm rods. Refer to the end paper techniques later in this section.
- **Neck strips** - Must be used to protect your client from direct contact with the cape.
- **Neutralizing bib** - Neutralizer has a thin viscosity that drips when applied to perm rods. To prevent the solution from running onto the client's shoulders and back, or dripping onto the floor, use a neutralizer bib to capture the solution. After wrapping the hair, but before applying the neutralizer, place the bib under the rods at the neck's nape, run the bib's sides along the head's sides, and fasten it at the head's top right next to the hairline. Ensure all rods are inside the bib. Apply the neutralizer solution, ensuring the solution is running onto and not under the bib (**Figure 15-18**). Remove the bib immediately after the neutralizer stops dripping.
- **Plastic clips** – Use to keep the hair sectioned. Do not use metal clips as these could cause a chemical reaction.
- **Plastic tail comb** – Use to section the hair.
- **Pre-neutralizing conditioner** - Some manufacturers recommend applying a pre-neutralizing conditioner after rinsing out the perm solution and before applying the neutralizer.
- **Protective barrier cream** - Use for added skin protection around the hairline, the nape, and the top and back of the ears. Apply after wrapping the hair and prior to applying the cotton coil.
- **Rods** – Use the appropriate rod size and shape as determined by your client's final desired curl. Rod types are discussed later in this section.
- **Roller picks** – Can be used to lift the bands off the perm rods.
- **Shampoo** – Use if the perm manufacturer indicates that a shampoo is necessary before the service. Be sure to avoid irritating the client's scalp.
- **Spray bottle** - Fill with water and use to wet the hair if it dries out during the wrapping process.
- **Tail comb** - Use to part the panels and to create an even smoothness and direction on all base sections before wrapping.
- **Timer** - Use to track the total processing time and processing steps.
- **Towels** - Use to protect your client throughout the perm service.

Fig. 15-18 Neutralizer bib.

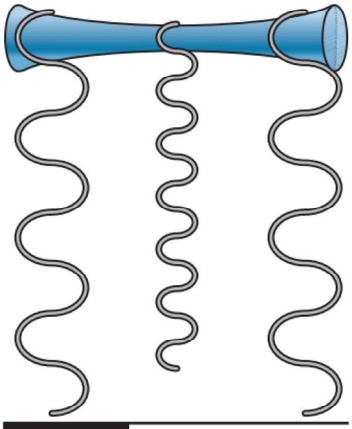


Fig. 15-19 Concave rods.

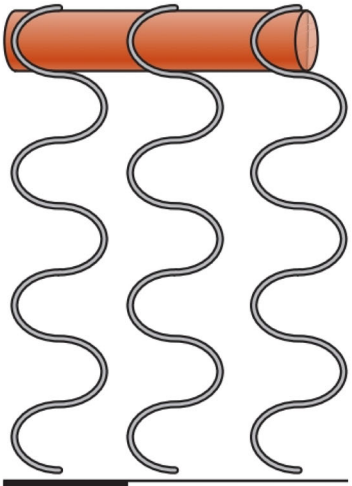


Fig. 15-20 Straight rods.

Rod Types

The rod's size determines the curl's size, and the rod's shape determines the curl's shape. Perm rods are available in various diameters, sizes, and shapes.

- **Concave rods** are the most common perm rod type; they have a smaller diameter in the center increasing to a larger diameter on the ends. Concave rods produce a tighter curl in the center and a looser curl on the stand's sides **(Figure 15-19).**
- **Straight rods** are equal in diameter along their entire length or curling area, producing a uniform curl shape along the strand's entire width **(Figure 15-20)**.

Both concave and straight rods come in different lengths to accommodate different head sections. Short rods, for instance, can wrap small sections where long rods do not fit.

- **Soft bender rods** (flexible foam rods) are usually about 12 inches (30.5 centimeters) long with a uniform diameter along the rod's entire length. These soft foam rods have a flexible wire inside that allows them to bend into almost any shape. Soft bender rods are recommended when clients want a hybrid combination of soft waves and curls for volume, texture, and beach waves **(Figure 15-21)**.
- The **loop rod**, also known as a *circle rod*, is usually about 12 inches (30.5 centimeters) long with a uniform diameter along the rod's entire length. After the hair is wrapped, secure the rod by fastening the ends together to form a loop **(Figure 15-22)**.

End Papers

End papers, also known as *end wraps or perm papers*, are thin, absorbent papers that control the hair's ends when winding the hair on the perm rods. Without them, it would be nearly impossible for the ends to remain straight, maintain an even tension, and uniformly wind the hair around the perm rod.

Fig. 15-21 Loop rods atop soft bender rods.

Fig. 15-22 Loop rods.

End papers should extend beyond the hair's ends and sides to keep them smooth and straight, prevent fishhooks (hair that is bent up at the ends), and allow for swelling along the hair strands' margins. Like the rest of the hair strand, the ends need room to expand as part of the perming process. Do not bunch them together on the end paper. Instead, ensure the ends are lying flat, smooth, and naturally spread across the paper.

? Did You Know?

In the 1950s, old-fashioned rollers were made of wire coils covered with a strong mesh. The rollers were secured with roller picks, also called roller pins. *Today, these same hard-plastic picks are used to elevate rod bands. The picks prevent the bands from pressing on the hair as it swells allowing perm solution to enter the cortex. When placed correctly, roller picks also keep the rods stationary while the hair is being processed and rinsed. Newer roller picks are long plastic strips flexible enough to lift the bands and stabilize several perm rods without exerting undue pressure or tension on the hair* **(Figure 15-23).**

Fig. 15-23 Roller picks.

END PAPER WRAPS

The most common end paper techniques are the double flat wrap, single flat wrap, and bookend wrap.

Fig. 15-24 Double flat wrap.

The **double flat wrap** is a perm wrap in which one end paper is placed under and another is placed over the hair's base panel (subsection) being wrapped. Both papers extend past the hair ends. This wrap provides the most control over the hair ends and helps keep them evenly distributed over the rod's entire length **(Figure 15-24).**

Fig. 15-25 Single flat wrap.

The **single flat wrap** is similar to the double flat wrap but uses only one end paper placed over the top of the base panel of hair **(Figure 15-25).**

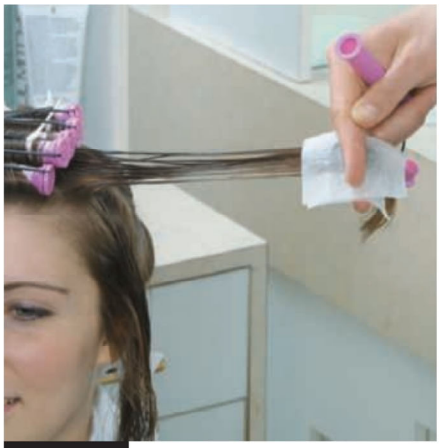


Fig. 15-26 Bookend wrap.

The **bookend wrap** uses one end paper folded in half over the hair ends. The bookend wrap eliminates excess paper and can be used with short rods or very short hair lengths. To give the hair room to swell and produce an even curl, avoid placing it in the paper's fold. **(Figure 15-26).**

Check In

24. Name four different rod shapes and describe what they are used for.
25. What are end papers used for?
26. Describe the three end paper wrap types.

LO 12 Describe the various permanent wave patterns, placements, and results.

Permanent Wave Designs

After studying the previous permanent waving sections and the art of rolling various rod types, it's time to get creative. Different perm designs allow you to create various styles with directional movement and multiple curl formations.

Panel and Base Sectioning

All perm wraps begin by sectioning the hair into **panels**. The panels' size, shape, and direction vary based on the wrapping patterns and the rod's type and size. **Base sections** are subsections of panels into which the hair is divided for perm wrapping; one rod is normally placed on each base section **(Figure 15-27)**. Each base section's size is usually the length and width of the rod.

Each panel that you are not working on should be wound and pinned with the ends tucked inside the hair. This helps preserve the hair's moisture and keeps it in a controlled shape. Just before wrapping each base section, check for dryness and, if needed, rewet using a water bottle. Wrapped hair should be uniformly damp to ensure even perm solution saturation.

The best comb to use for perm panels and base sections is a tail comb with fine teeth to part the panels and comb the hair to create an even smoothness and direction on all base sections before wrapping.

Fig. 15-27 Hair panels and base sections.

Caution!

Wrapping the hair with too much tension can result in an uneven solution penetration, poor curl formation, and hair breakage. Hair should be wound just taut enough to create a smooth, even wrap from ends to scalp.

Fig. 15-28 On-base placement.

Base Placement

Base placement refers to the rod's position in relation to its base section; base placement is determined by the angle at which the hair is wrapped. Rods can be wrapped on base, half off-base, or off-base (see **Chapter 12, Hairstyling,** page 354).

For **on-base placement**, the hair is wrapped 45 degrees beyond perpendicular to its base section and the rod is positioned on its base **(Figure 15-28)**. Although on-base placement may result in greater volume at the scalp area, any increase in volume will be lost as soon as the hair begins to grow. Caution should be used with on-base placement because the additional stress and tension can break the hair.

Caution!

Using a base section wider than the perm rod can create an uneven curl pattern and undue tension on the hair.

In **half off-base placement**, the hair is wrapped at a 90-degree angle or perpendicular to its base section, and the rod is positioned half off its base section **(Figure 15-29)**. Half off-base placement minimizes stress and tension on the hair.

Off-base placement refers to wrapping the hair at 45 degrees below the base section's center, so the rod is positioned completely off its base **(Figure 15-30)**. Off-base placement creates the least amount of volume and results in a curl pattern that begins farthest away from the scalp.

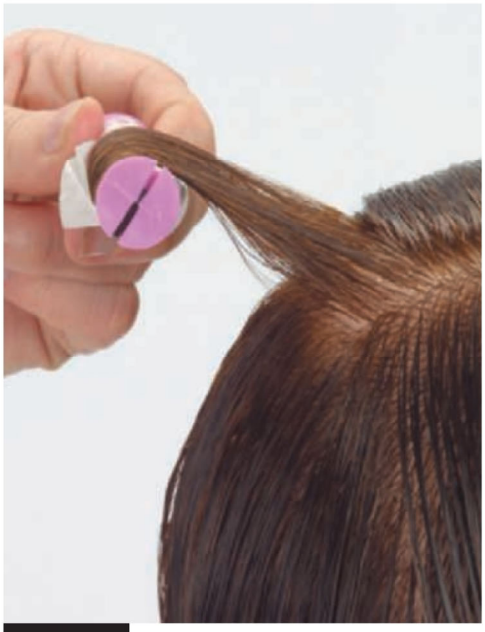


Fig. 15-29 Half off-base placement.

Base Direction

Base direction refers to the angle at which the rod is positioned on the head: horizontally, vertically, or diagonally (**Figures 15-31** and **15-32**). Base direction also refers to the directional pattern in which

Fig. 15-30 Off-base placement.

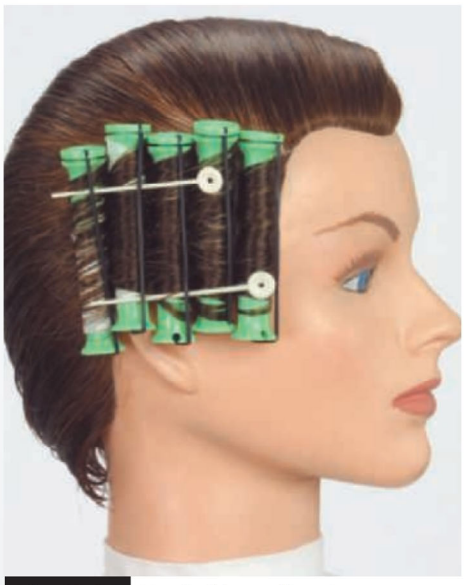


Fig. 15-31 Vertical base direction.

Fig. 15-32 Horizontal base direction.

the hair is wrapped. Although directional wraps can be wrapped backward, forward, or to one side, wrapping with the natural direction of hair growth causes the least amount of stress to the hair and higher quality curls.

Wrapping Techniques

There are two basic techniques of wrapping the hair around a perm rod: croquignole and spiral techniques.

The **croquignole wrap technique** wraps the hair from the ends toward the scalp in overlapping concentric layers **(Figure 15-33)**. Using this method, the hair is wrapped around the rod, with each new layer of hair on top of the previous layer increasing the curl's size (diameter) with each new overlapping layer. This produces a tighter curl at the ends and a larger curl at the scalp. Longer, thicker hair increases this effect.

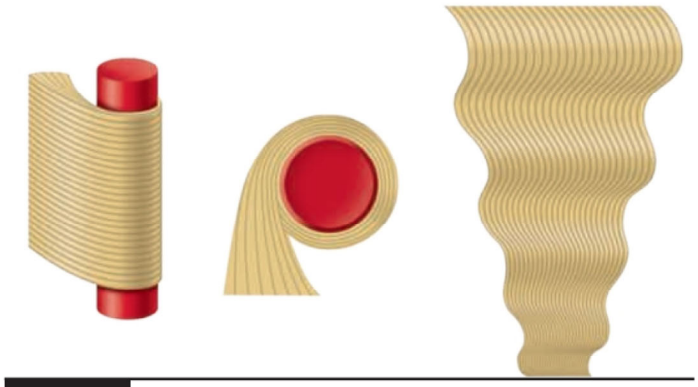


Fig. 15-33 Croquignole perm technique.

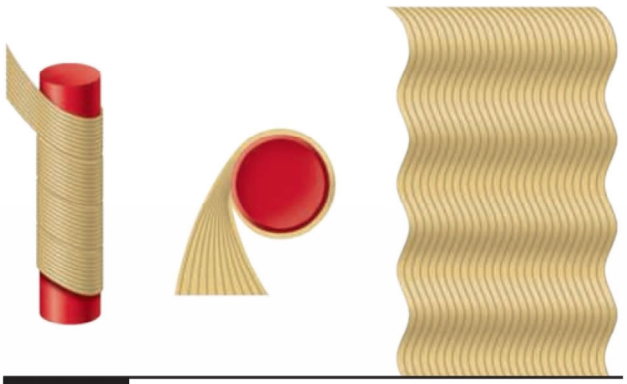


Fig. 15-34 Spiral wrap technique.

The **spiral wrap technique** used in spiral perms wraps the hair around the rods vertically until it fills each rod's length like stripes on a candy cane. Unlike the complete overlap of hair in the croquignole technique, the spiral may partially overlap the preceding layers **(Figure 15-34)**. As long as the angle remains constant, any overlap will be uniform along the rod's length and the hair's strand **(Figure 15-35)**. This wrapping technique causes the curl's size (diameter) to remain constant along the strand's entire length and produces a uniform curl from the scalp to the ends.

Fig. 15-35 Spiral wrap on bender rods.

Here's a Tip

When placing rollers during the service, all bands should be on top or very near the rod's top, preferably with roller picks to lift the bands away from the hair. This is important because waving lotion swells the hair. If the band prevents this from happening in that area, the hair can break, compromising the curl's quality. This is especially true around the front hairline/temple areas.

Fig. 15-36 Basic wrap.

Wrapping Patterns

There are four common patterns of wrapping the rods: basic wrap, bricklay wrap, spiral perm wrap, and a double-rod (piggyback) wrap.

BASIC WRAPPING PATTERN

The **basic wrap**, also known as *straight set wrap*, is a wrapping pattern in which all the rods within a panel move in the same direction and are positioned on equal-sized bases; all the base sections are horizontal and are the same length and width as the perm rod. The **base control** is the perm rod's position in relation to its base section, determined by the angle at which the hair is wrapped **(Figure 15-36)**.

BRICKLAY WRAPPING PATTERN

The **bricklay wrap** is similar to the actual bricklaying technique (see **Chapter 12, Hairstyling,** p. 398). Base sections are offset from each other row by row, to prevent noticeable splits and blend the hair's flow. Different bricklay patterns use different starting points (front hairline, occipital area, or crown) that affect the hair's directional flow. The bricklay wrap can be used with various combinations of panels, base sections and directions, wrapping techniques, and perm rod placements **(Figure 15-37)**.

Fig. 15-37 Bricklay wrap.

SPIRAL WRAPPING PATTERN

Spiral perms utilize the spiral wrap technique in which hair is wrapped in vertical, or near vertical, sections. This allows the permed hair to naturally fall in *ringlets* or *corkscrew curls*. The wrapping technique itself produces a uniform curl from scalp to end. Longer hair (past the shoulder) benefits most from this effect **(Figure 15-38)**.

Fig. 15-38 Spiral perm wrap.

DOUBLE-ROD WRAPPING PATTERN

For extra-long hair, you may need to use a **double-rod wrap**, also known as *piggyback wrap*, in which the hair is wrapped on one rod from the scalp to midway down the hair shaft **(Figure 15-39)**, and another rod is used to wrap the remaining hair in the same direction. This allows for more even curl from scalp to end and better processing solution penetration.

Fig. 15-39 Double-rod (piggyback) wrap.

Partial Permanent Waves

If your client wants a perm but does not wish the entire head of hair to be curled, a **partial perm** may be the answer. Partial perms allow you to perform a perm when some of the hair is too short to roll on rods **(Figure 15-40)**.

Fig. 15-40 Partial perm wrap.

Partial perms can be used for clients who:

- Have long hair on the top and crown but very short hair with tapered sides and nape
- Only need volume and lift in certain areas
- Desire a hairstyle with curls along the perimeter with a smooth, sleek crown

Partial perms rely on the same techniques and wrapping patterns as other perms, as well as these additional considerations:

- To make a smooth transition from the perm section to the non perm section, use a larger rod for the last rod next to an unrolled section.
- Wrap the perm section with cotton.
- To protect the hair outside the perm section, apply a protective barrier cream to this area before applying the perm solution to the rods.

Soft Curl Permanents

A **soft curl permanent** (also called a *chemical curl reformation*) is used to restructure very curly hair into a larger curl pattern. It includes a hybrid chemical process that uses a thio relaxer, also called *rearranger*, to loosen the curly texture, but without the neutralizer step, followed by a perm. The perm portion of the service requires wrapping the relaxed hair in large perm rods or curlers then processing according to the manufacturer's directions. The soft curl perm is also known as the Jheri curl which was invented by hairdresser Jheri Redding. Soft curl perms must follow all safety guidelines for thio relaxers and thio perms. Hair that has been treated with hydroxide relaxers cannot be treated with soft curl perms because the chemicals are not compatible.

? Did You Know?

*The Jheri curl (also known as Jerry curl, or Jeri Curl), invented by hairdresser Jheri Redding, is a hairstyle that transforms textured hair into loose and glossy curls. The look was popularized in the 1980s (**Figure 15-41**). It's achieved by first chemically softening the hair with a solution to loosen the curls, placing the hair in perm rods, rinsing the solution, then applying a neutralizer. The permanent wave process is then followed by daily usage of a curl activator to condition the hair and avoid dryness.*

Aaron Rapoport/Corbis/Getty Images

Fig. 15-41 Example of the Jheri curl.

Check In

27. What are the two basic techniques of wrapping the hair around the perm rod?
28. What is a basic perm wrap?
29. What are panels and base sections?
30. What is a soft curl perm service?

LO 13 Outline the safety guidelines and precautions for permanent wave services.

Permanent Wave Safety Guidelines

Perms may not be as strong as chemical relaxers, but they are still considered caustic chemicals that, when misused, can damage the hair and skin. To avoid risking your client's health and hair, study and understand the guidelines that govern safe permanent wave services. Before beginning any service, conduct three tests:

- Patch test
- Metallic salts test
- Preliminary curl test

Patch Test

It is vital to perform a patch test on a client 24 to 48 hours before a scheduled perm service.

1. Gently cleanse a small area (about quarter size) on the elbow's crook or behind the ear. Rinse the area with water and blot dry.
2. Using a cotton swab, apply a small amount of the perm solution you intend to use. Allow the area to dry.
3. Ask the client to return in 24 to 48 hours. Examine the test area for redness or irritation.
4. If the skin is clear, the test is negative.

Metallic Salts Test

You must also perform a metallic salts test and analyze the hair's porosity, elasticity, and general health. The metallic salts test is covered in this chapter on page 549. Porosity and elasticity tests are outlined in **Chapter 7, Hair and Scalp Properties**.

Preliminary Test Curls

Before the permanent wave service, it is extremely important to perform a few test curls. This is done by selecting areas where the hair appears slightly damaged or coarse so that you can:

- Confirm the correct processing time for the best curl development
- Visualize the results you can expect from the perm solution type selected
- Confirm curl results for the rod size and wrapping technique you are planning to use
- Determine to what degree the hair integrity will be compromised

- Ascertain the hair's health post perm
- Confirm whether the client is satisfied with the curl's shape and hold

Follow the steps for performing the preliminary test curl for a permanent wave in **Procedure 15-3**.

Ⓟ 15-3: Preliminary Test Curl for a Permanent Wave
See page 583

Permanent Wave Safety Tips

Always handle all perm chemicals with the utmost respect. They can work wonders for straight, limp hair—or they can be highly damaging to the hair and skin. The following list provides additional helpful tips to keep you and your client safe.

- Perform a patch test 24 to 48 hours before a service; also perform a metallic salts porosity, and elasticity tests.
- Perform a thorough consultation for every client, every time, before performing a perm service.
- Review the client's intake form and service record card each time before performing a chemical service.
- Do not perform a perm service on lightened (bleached) hair.
- Never leave the client during a perm process.
- Always wear gloves when performing a perm service.
- Gently shampoo the hair (not the scalp) before a perm service.
- If perm solution drips into the client's eye, thoroughly flush the eye with cool water.
- Apply protective cream around the hairline, the neck's nape, and the ears. Apply cotton all around the hairline.
- Remove the cotton after the solution application is complete and no longer dripping.
- Wrap the hair with the appropriate rod size for the desired curl size.
- Have in mind a perm design and how you are going to achieve it.
- After wrapping the perm, inspect each rod for even tension. The bands should be on top of the rod and roller picks inserted to ensure the band is lifted away from the hair and the rod is stabilized.
- Take a test curl before the service and throughout the processing phase.
- Rinse the hair with a gentle warm water stream for the recommended time. Rinse longer if there is lingering odor in the hair.
- Before applying the neutralizer, blot the hair, reapply the cotton, replace the towel used in the double drape, and check for skin redness.
- Use a perm bib to catch dripping neutralizer solution.
- Carefully check the hair condition and the curl quality.
- Prebook clients for a perm check and strengthening conditioning treatment.
- Do not perform an oxidative haircolor service for at least two weeks after a perm service. You can apply a nonoxidative semipermanent or temporary haircolor right after the perm service. Do a color check on a few strands of hair first. Newly permed hair may take darker than anticipated.

Check In

31. What three tests are necessary before providing a perm service?

LO 14 Explain how to conduct a thorough permanent wave consultation.

Permanent Wave Consultation

Now that you've studied the chemistry of permanent waving, learned how to wrap different perm rods, learned creative wraps and patterns, and understand the necessary safety precautions, you are well on your way to conducting a professional perm consultation and performing perm services.

Clients request perm services for many reasons, ranging from adding much needed body to their hair to not having to style their hair at all. While consulting with clients about a perm service, determine if the hair is healthy enough to receive the service and if it is the right service based on the client's expectations and needs. The consultation is also an opportunity to discover whether clients are committed to a home care regimen and periodic appointments to maintain the perm's quality and their hair's health.

Use the "10-step Consultation Method" section in ***Standard Foundations,* Chapter 3, Communicating for Success,** as your general guide. Ask the following questions pertinent to perm services:

1. Are you currently taking any medications? Some meds can alter perm results or cause hair breakage.
2. Have you had a perm in the past? How long ago did you receive this service? Did you experience any adverse reactions like inflamed skin or a rash? This helps determine what type of perm solution to use and whether a perm service is advisable.
3. What do you like least about your current hair texture? What do you like most?
4. Do you want to add more body to your hair?
5. What is your main goal for receiving a perm? Are you looking to achieve curls or waves, or just add body and lift to your hair? This helps with perm and tool selection.
6. Are you willing to style your hair each day? Do you want to wear your hair smooth or curly? Are you willing to commit to styling rituals?
7. Have you ever been an overall blonde or had blonde highlights in your hair? How long ago? This informs which type of perm solution to use.
8. Have you ever experienced hair loss? Are you experiencing any hair thinning? Have you been diagnosed with any form of alopecia? This determines if a permanent wave service is possible.
9. Have you ever had a henna treatment? If you have, how recently?
10. What type of haircolor is on your hair right now? This informs what type of perm to use.
11. Describe your hair care regimen at home. Which hair care products are you using? How often do you shampoo and deep condition your hair?

12. Are you open to using the products and home care regimen that I recommend for your hair?
13. Are you committed to having regular salon treatments and occasional trims, including a light trim on the day of your service?
14. Are you aware of the potential risks of having a perm service?
15. Are you planning to spend time at the beach soon? Do you regularly swim in the ocean or a pool, or participate in outdoor activities? Are you able to abstain from these activities for at least 48-72 hours?
16. May I analyze your scalp and hair today?
17. Do you have any questions or concerns you want to share?

Have clients sign your release form before beginning the service. When discussing the end results, always have images available that show what can be achieved with the client's hair texture. If fine-haired clients share perm pictures of medium or coarse hair, now is the time to discuss realistic results. A perm will add body to fine hair, but will not make it look like a different hair texture. If clients do not grasp what you are telling them, it is best to cancel the perm appointment, offer to cut their hair into a style they like, and teach them how to style their hair using professional styling aids.

Check In

32. What are two key things that your clients must do to help maintain the quality of their perm?

LO 15 Safely perform permanent wave services.

Permanent Wave Application

To safely and effectively perform perm services for your clients, carefully follow the steps outlined in each of the following procedures.

Perm Using Basic Wrap

For this perm, all rods within a panel will be moving in the same direction and positioned on equal-sized bases. All base sections will be horizontal and at the same length and width as the perm rod. Follow the steps for performing the permanent wave using a basic wrapping pattern in **Procedure 15-4**.

Ⓟ 15-4: Permanent Wave Using a Basic Wrap
See page 585

Perm Using Bricklay Wrap

For this perm, the base sections are offset from each other row by row with different starting points determining the hair's directional flow. The bricklay

wrap can be used with various combinations of panels, base sections and directions, wrapping techniques, and perm rod placements. Follow the steps for performing the permanent wave using a bricklay wrap in **Procedure 15-5**.

Ⓟ 15-5: Permanent Wave Using a Bricklay Wrap
See page 589

Perm Using Spiral Wrap

For this perm, wrap in vertical, or near vertical, sections to allow the permed hair to naturally fall in *ringlets* with uniform curl from scalp to end. Follow the steps for performing the permanent wave using a spiral wrap **in Procedure 15-6**.

Ⓟ 15-6: Permanent Wave Using a Spiral Wrap
See page 592

Perm Using Double-Rod Wrap

For extra-long hair, wrap on one rod from the scalp to midway down the hair shaft, and then use another rod to wrap the remaining hair in the same direction to create an even curl from scalp to end. Follow the steps for performing the permanent wave using the double rod (piggyback) wrap **in Procedure 15-7**.

Ⓟ 15-7: Permanent Wave Using a Double-Rod Wrap
See page 595

Soft Curl Perm

For this perm, you will use a thio relaxer to loosen the curly texture followed by a perm that wraps the relaxed hair in large perm rods or curlers. Following the service, consider recommending the use of a processing cap at night for moisture retention. To avoid compromising the curls, hair must not be shampooed for at least 48 hours after the service. Follow the steps for performing the soft curl perm (chemical curl reforming) in **Procedure 15-8**.

Ⓟ 15-8: Soft Curl Perm (Chemical Curl Reformation) *See page 598*

Check In

33. Which perm wrap is ideal for clients with extra-long hair?

Ⓟ Procedure 15-1

Virgin Hair Relaxer

IMPLEMENTS AND MATERIALS

For No-Base Hydroxide Relaxer:

- Hydroxide relaxer product
- Neutralizing shampoo
- Normalizing lotion (optional)

For Thio Relaxer:

- Thio relaxer product
- Thio neutralizer
- Shampoo

GENERAL IMPLEMENTS AND MATERIALS

Applicator brush, hard rubber tail comb or styling comb
Base cream
Chemical cape
Conditioner
Disposable gloves
Neck strips
Plastic clips
Plastic or glass bowl
Timer
Towels
Wide-tooth comb

PREPARATION

Before beginning, perform:

Ⓟ **10-1 Pre-Service Procedure.**

ESTIMATED TIME

35 MIN

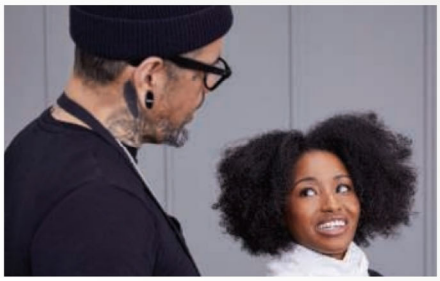
Before Photos



1

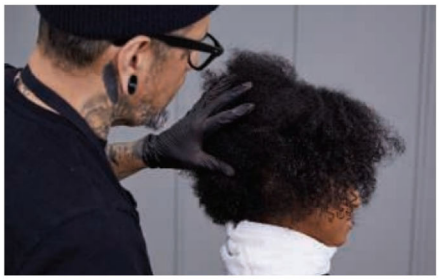
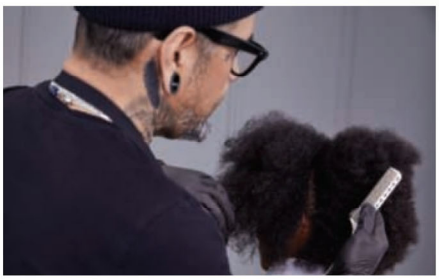
Perform patch test 24 to 48 hours before relaxer appointment.

2



Drape the client for a chemical service. Refer to **Procedure 10-3: Draping.**

3

Perform the hair and scalp analysis. Conduct tests for porosity and elasticity. If the hair fails any of these tests or observations, decline to perform the service.

4

Dry the scalp. Before applying hydroxide relaxers, the hair and scalp must be completely dry and not shampooed within one week prior to the service. If needed, use a cool blowdryer set on low air velocity to remove all hair and scalp moisture. Thio relaxers may or may not recommend that hair, but not the scalp, be shampooed before the service.

5

Put on gloves.

6

Dispense small amount of relaxer into an applicator bowl.

7

Section hair into four quadrants. Without touching the scalp, part from center of the front hairline to center of the nape, and from ear to ear. Clip and secure the sections out of the way.

8

Perform the strand test following manufacturer's guidelines. Process the strand for the designated time, apply water to the strand, and then use a towel to remove all relaxer. Repeat steps as needed to make sure all relaxer is removed. Proceed with the application if the strand test results are favorable.

9

Apply barrier cream around hairline and over ears according to manufacturer's directions.

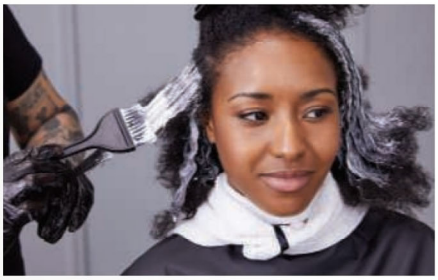
10

Dispense relaxer into applicator bowl. Use the information gathered during the consultation to determine where to begin the application of the relaxer service and the proper timing. Begin the application in the most resistant area, typically in the back right.

11

Apply to midshaft in back right quadrant using applicator method of choice. Typically the bowl and brush method is used. Apply relaxer ¼ to ½ inch (0.6 to 1.25 cm) away from the scalp and up to about ½ to 1 inch (1.25 to 2.54 cm) from the porous ends. Using ¼ to ½ inch (0.6 to 1.25 cm) subsections apply relaxer on top of the horizontal subsection and then underside of the subsection. To avoid scalp irritation, do not allow relaxer to touch the scalp.

12

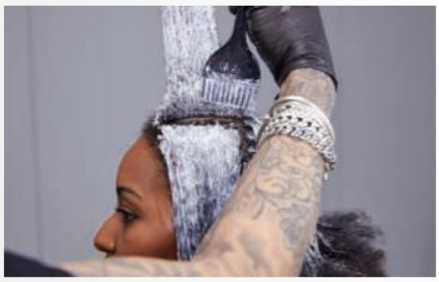


Continue applying to midshaft in back left, front right, and front left quadrants.

13

Apply to scalp in back right quadrant.

14



Continue applying to scalp in back left, front right, and front left quadrants.

15

Apply to porous ends in back right quadrant.

16

Continue applying to porous ends in the back left, front right, and front left quadrants.

17

Smooth each subsection. After the relaxer has been applied to all sections, use the back of a hard rubber comb, tail of a comb, applicator brush, or your gloved fingers to smooth each subsection. Do not comb relaxer through the hair.

18

Check for even results according to timing determined by preliminary strand test. Always process according to manufacturer's directions. Be sure to perform periodic strand tests throughout the process.

19

Rinse the hair. Use warm water to thoroughly rinse and remove the relaxer. Do not heavily manipulate the hair while relaxer is being rinsed. Allow water to rinse down the hair strand. Blot excess water from hair.

20

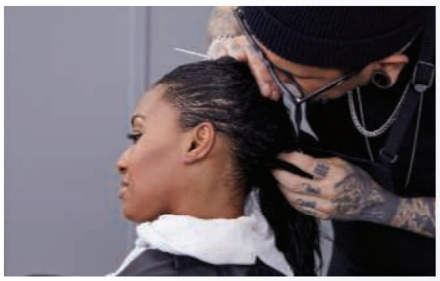
Follow the neutralizing steps for either hydroxide relaxer or thio relaxer.

- Hydroxide neutralizing shampoo—apply and shampoo at least three times with a neutralizing shampoo specially made for hydroxide relaxers. If using neutralizing shampoo with color indicator, the color will change from pink (or other color) to white when all relaxer traces are removed and the hair and scalp's natural pH is restored.
- Thio relaxer neutralization—apply thio neutralizer in ¼ to ½ inch (0.6 to 1.25 cm) sections throughout the hair and smooth the hair with the back of a hard rubber comb or your fingers.

21

Rinse the hair thoroughly.

22

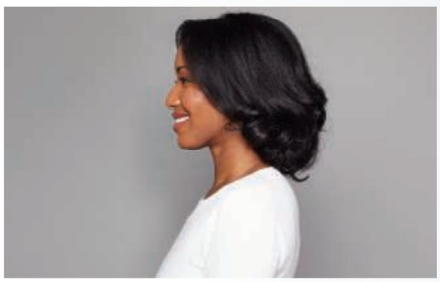


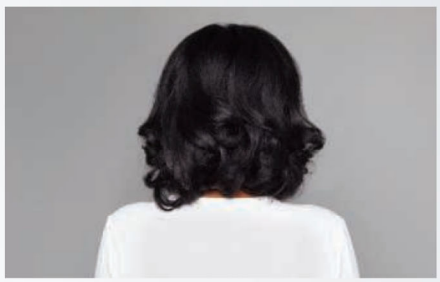
Check the hair. Using all of your senses check the hair for residual relaxer by smelling, looking, and feeling the hair strands. If there is any relaxer remaining in the hair, repeat the shampooing steps as needed until all product is removed.

23

Condition the hair according to manufacturer's directions.

24





Style the hair then present the finished look to your client.

POST-SERVICE

To complete the procedure, perform Ⓟ **10-2 Post-Service Procedure.**

Ⓟ Procedure 15-2

Relaxer Retouch

IMPLEMENTS AND MATERIALS

No-base hydroxide Retouch Relaxer

- No-base hydroxide relaxer
- Neutralizing acid-balanced shampoo
- Normalizing lotion

Thio retouch relaxer

- Thio relaxer product
- Thio neutralizer
- Shampoo

GENERAL IMPLEMENTS AND MATERIALS

- Applicator brush, hard rubber tail comb or styling comb
- Base cream
- Chemical cape
- Conditioner
- Disposable gloves
- Neck strips
- Plastic clips
- Plastic or glass bowl
- Timer
- Towels
- Wide-tooth comb

PREPARATION

Before beginning, perform:

Ⓟ **10-1 Pre-Service Procedure.**

ESTIMATED TIME

20 MIN

1 → **Perform a patch test 24 to 48 hours before the relaxer appointment.**

2 → **Drape the client for a chemical service.** Refer to **Procedure 10-3: Draping.**

3 → **Perform the hair and scalp analysis.** Conduct tests for porosity and elasticity. If the the hair fails any of these tests or observations, decline to perform the service.

4 → **Dry the scalp.** Before applying hydroxide relaxers, the hair and scalp must be completely dry and not shampooed within one week prior to the service. If needed, use the cool blowdryer set on low air velocity to remove all hair and scalp moisture. Thio relaxers may or may not recommend that hair, but not the scalp, be shampooed before the service.

5 → **Section hair into four quadrants.** Without touching the scalp, part from center of the front hairline to center of the nape, and from ear to ear. Clip and secure the sections out of the way.

6 → **Apply barrier cream around hairline and over ears according to manufacturer's directions.**

7 → **Put on gloves.**

8 → **Dispense relaxer into applicator bowl.**

9

Apply the relaxer in the most resistant area. Make ¼ to ½ inch (0.6- to 1.25-cm) horizontal subsections. Apply the relaxer ¼ to ½ inch (0.6 to 1.25 cm) away from the scalp, and only on the new growth. Do not overlap the relaxer onto previously relaxed hair.

10

Continue applying in the back left, front right, and front left quadrants.

11

Smooth each subsection. After the relaxer has been applied to all sections, use the back of a hard rubber comb, tail of a comb, applicator brush, or your gloved fingers to smooth each subsection. Do not comb relaxer through the hair.

12

Process according to the manufacturer's directions. Perform periodic strand tests. Processing usually takes less than 20 minutes, but always follow the directions of the manufacturer and your instructor.

13

During the last few minutes of processing, gently work the relaxer down to the scalp and then around the hairline. Smooth the product with your fingers or the back of a hard rubber comb.

14

Rinse thoroughly with warm water. Blot excess water from hair.

15

Follow the steps for hydroxide or thio relaxers.

- **Hydroxide neutralizing shampoo—**apply and shampoo at least three times with a neutralizing shampoo specially made for hydroxide relaxers. If you use a neutralizing shampoo with a color indicator, the color will change from pink (or other color) to white when all relaxer traces are removed and the hair and scalp's natural pH is restored. Rinse thoroughly and towel blot the hair.
- **Thio relaxer neutralization—**apply thio neutralizer in ¼ to ½ inch (0.6 to 1.25 cm) sections throughout the hair and smooth the hair with the back of a hard rubber comb or your fingers.

16

Process the neutralizer according to the manufacturer's directions.

17

Rinse thoroughly for at least five minutes or until you can no longer detect an odor in the hair. Towel blot the hair.

18

If directed by the manufacturer, apply hydrating and strengthening conditioner, then rinse, blot, and style the hair.

POST-SERVICE

To complete the procedure, perform:

Ⓟ **10-2 Post-Service Procedure.**

Ⓟ Procedure 15-3

Preliminary Test Curl for a Permanent Wave

IMPLEMENTS AND MATERIALS

- Chemical cape
- Conditioner (optional)
- Cotton coil or rope
- Disposable gloves
- End papers
- Neck strips
- Perm rods
- Plastic clips for sectioning
- Plastic tail comb
- Professional permanent wave kit (perm solution, activator if performing an acid wave, and neutralizer)
- Roller picks
- Shampoo
- Styling comb
- Timer
- Towels

PREPARATION

Before beginning, perform:
Ⓟ **10-1 Pre-Service Procedure.**

1

Perform a patch test 24 to 48 hours before the service.

2

Perform hair and scalp analysis, elasticity, porosity, and metallic salt tests on day of service. If hair fails any of these tests or analyses, do not perform the perm service.

3

Drape the client for a shampoo service. Refer to **Procedure 10-3: Draping**.

4

Gently shampoo and towel dry the hair. Avoid irritating the client's scalp. Redrape for a chemical service.

Test Curls

5

Wrap one rod on different areas of the head (top, side, and nape).

6

Wrap a coil of cotton around each rod.

7

Apply perm solution to the wrapped curls. Do not allow perm solution to make contact with any unwrapped hair.

8

Set a timer and process according to the manufacturer's directions.

9

Check each test curl for proper curl development. Unfasten the rod and unwind the curl two to three turns. Do not allow the hair to become loose or completely unwound. Gently move the rod toward the scalp and check the wave pattern.

10

Curl development is complete when a firm S is formed. Different hair textures will have slightly different S formations. Fine hair's wave pattern may be weak, with little definition. Coarse hair's wave pattern is usually stronger and more defined.

11

When the desired curl has been formed, rinse with warm water for at least five minutes. Then blot thoroughly, apply neutralizer, and process according to the manufacturer's directions.

12

Gently dry the hair and evaluate the results. Do not proceed with the perm if test curls are damaged or overprocessed. If the test curl results are satisfactory, proceed with the perm. Do not re-perm these preliminary test curls.

POST-SERVICE

To complete the procedure, perform:

Ⓟ **10-2 Post-Service Procedure.**

Ⓟ Procedure 15-4

Permanent Wave Using a Basic Wrap

IMPLEMENTS AND MATERIALS

- Chemical cape
- Conditioner (optional)
- Cotton coil or rope
- Disposable gloves
- End papers
- Neck strips
- Neutralizing bib
- Perm rods
- Plastic clips for sectioning
- Plastic tail comb
- Pre-neutralizing conditioner (optional)
- Professional permanent wave kit
- Protective barrier cream
- Roller picks
- Shampoo
- Spray bottle with water
- Styling comb
- Timer
- Towels

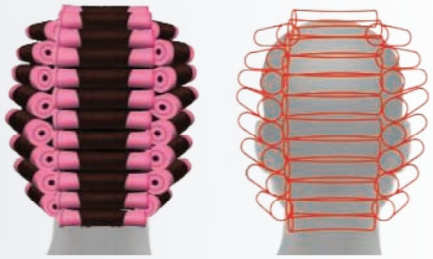
PREPARATION

Before beginning, perform:
Ⓟ **10-1 Pre-Service Procedure.**

ESTIMATED TIME

45 MIN

Perm Wrap Example



Before Photo

1

Perform a patch test 24 to 48 hours before the service.

2

Perform hair and scalp analysis, elasticity, porosity, and metallic salt tests on day of service. If the hair fails any of these tests or analyses, do not perform the perm service.

3

Perform a shampoo service if directed by the manufacturer before the service. Drape the client accordingly and gently shampoo and towel dry the hair. Avoid irritating client's scalp.

4

Redrape the client for a chemical service then perform strand tests per the directions of the manufacturer.

5

Divide the hair into nine panels. Use the rod's length to measure the width of the panels prior to rolling the hair on rods. Use the spray bottle to keep the hair evenly damp as you wrap.

6

Begin wrapping at the front hairline or crown, holding the hair at a 90-degree angle. Make a horizontal subsection the same size as the rod. Using the double flat technique, roll hair down to the scalp in the direction of hair growth and position the rod half off-base.

7

The band should be smooth, not twisted, and should be slightly off the scalp to allow the hair room to soften and swell without breakage. Excessive pressure on the hair may cause band marks or hair breakage.

8

Continue wrapping remainder of first panel and all remaining panels using the same technique.

9

Put on gloves and apply protective barrier cream to the hairline and the ears. Apply a coil of cotton around the entire hairline and offer the client a towel to blot perm solution off the face, if needed.

10

Carefully apply the perm solution to each rod. Ask client to lean forward while you apply solution to the back area, lean back as you apply solution to the middle and front, and lean to each side as you apply the solution to the sides of the head. Avoid splashing and dripping. Apply solution to most resistant area first and last. Continue applying the solution slowly until each rod is completely saturated. Hold the side of the rod as needed for control.

11

Check position of all perm rods and bands. You can insert roller picks to lift the bands off the perm rods. If a plastic cap or bag is used, loosely cover the rods. Do not allow the plastic cap to touch the client's skin.

12

Remove the cotton once the solution stops dripping and check the towels. Replace them if they are wet with solution.

13

Process according to the manufacturer's directions. Processing time varies according to strength of the solution, hair type and condition, and desired results. Use your test strand processing time as a guide. Processing usually takes less than 20 minutes, but always follow manufacturer's instructions.

14

Check frequently for curl development. Unwind the rod and check the S pattern formation described in the preliminary test curl procedure. Check a different rod each time.

15

Rinse the hair. When processing is complete, rinse hair thoroughly with warm water for at least five minutes or until all traces of perm odor are gone. Blot each rod using a cloth or paper towel to remove excess moisture. *Optional:* Some manufacturers may recommend applying a pre-neutralizing conditioner after rinsing and blotting and before applying the neutralizer.

16

Place neutralizer bib around the head, if desired. Refer to your instructor for guidance and if this supply is recommended by the manufacturer. Ensure all rods are inside it. Do not allow it to disturb the position of the rods.

17

Apply the neutralizer. Apply slowly and carefully on each rod and in the same manner as the perm solution.

18

Set a timer for the amount of time specified by manufacturer. Then remove the bib and rinse the hair thoroughly with cool water.

19

Remove the rods then condition the hair if directed by the manufacturer. Then rinse the **conditioner and blot the hair.**

20

Style the hair as desired then present the finished look to your client.

POST-SERVICE

To complete the procedure, perform

Ⓟ **10-2 Post-Service Procedure.**

Ⓟ Procedure 15-5

Permanent Wave Using a Bricklay Wrap

IMPLEMENTS AND MATERIALS

- Chemical cape
- Conditioner (optional)
- Cotton coil or rope
- Disposable gloves
- End papers
- Neck strips
- Neutralizing bib
- Perm rods
- Plastic clips for sectioning
- Plastic tail comb
- Pre-neutralizing conditioner (optional)
- Professional permanent wave kit
- Protective barrier cream
- Roller picks
- Shampoo
- Spray bottle with water
- Styling comb
- Timer
- Towels

PREPARATION

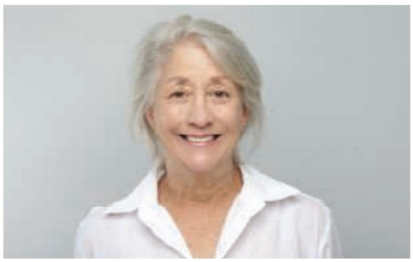
Before beginning, perform:

Ⓟ **10-1 Pre-Service Procedure.**

ESTIMATED TIME

45 MIN

Before Photo



1

Perform a patch test 24 to 48 hours before the service.

2

Perform hair and scalp analysis, elasticity, porosity, and metallic salt tests on day of service. If the hair fails any of these tests or analyses, do not perform the perm service.

3 → **Perform a shampoo service if directed by the manufacturer before the service.** Drape the client accordingly and gently shampoo and towel dry the hair. Avoid irritating client's scalp.

4 → **Redrape the client for a chemical service.**

5 → **Perform strand tests per the directions of the manufacturer.**

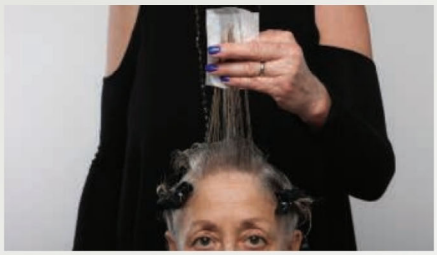
6 →

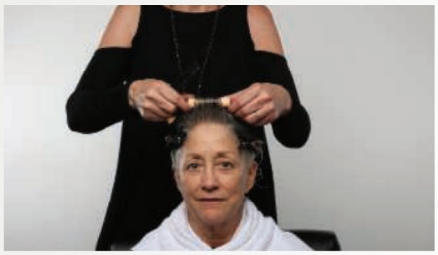
Divide the hair into nine panels. Use the rod's length to measure the width of the panels. Use the spray bottle to keep the hair evenly damp as you wrap.

7 →

Part out a base section parallel to the front hairline that is the length and width of the rod being used.

8 →





Roll the hair. Hold the hair at a 90-degree angle to the head. Using two end papers, roll the hair down to the scalp and position the rod half off-base.

9 →

Create second row directly behind the first rod by parting out a base section starting at the center point of the first rod. Hold the hair at a 90-degree angle to the head. Using two end papers, roll hair down to the scalp and position the rod half off-base. Part out a second section in the second row that also starts at the center of the front rod. Roll the rod in the same manner as in step 8. This is the beginning of your bricklay pattern.

10 →

Optional: **Insert picks to stabilize rods and eliminate any pressure on hair caused by the bands.**

11

On the third row, part out a base section at the point where the two rods meet in the previous row. Complete the third row in this manner. Use this same pattern throughout the entire wrap.

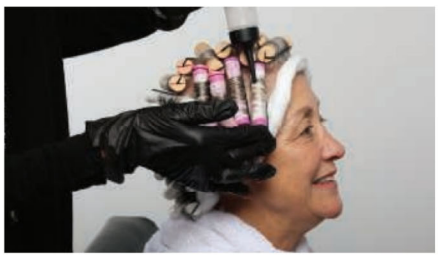
12

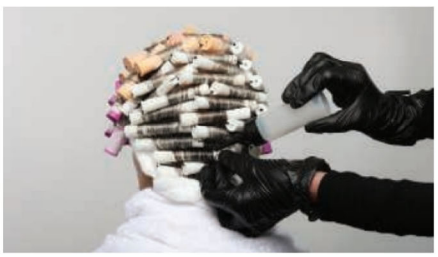
Continue to part out rows back to the crown area. Maintain even dampness as you work using a spray bottle. Extend rows down to side hairline, parting out base sections at the center of the point where the two rods meet in the previous row.

13

After wrapping the sides and top area back to the crown, part out horizontal sections throughout the back of the head and continue with the bricklay pattern. You may need to change the length of the rods from row to row to maintain the pattern.

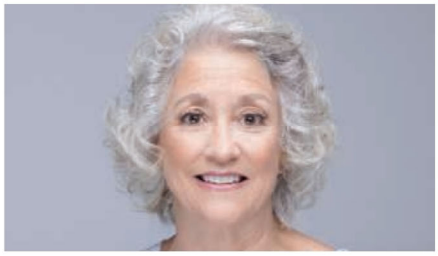
14





Continue with the following steps:
- **Put on gloves and apply perm solution.**
- **Process accordingly.**
- **Rinse solution.**
- **Apply neutralizer.**
- **Rinse neutralizer.**
- **Remove rods.**
- **Condition and then style the hair.**

15



Finished look.

POST-SERVICE

To complete the procedure, perform:

Ⓟ **10-2 Post-Service Procedure.**

Ⓟ Procedure 15-6

Permanent Wave Using a Spiral Wrap

IMPLEMENTS AND MATERIALS

- Chemical cape
- Conditioner (optional)
- Cotton coil or rope
- Disposable gloves
- End papers
- Neck strips
- Neutralizing bib
- Plastic clips for sectioning
- Plastic tail comb
- Professional permanent wave kit
- Pre-neutralizing conditioner (optional)
- Protective barrier cream
- Roller picks
- Shampoo
- Spray bottle with water
- Styling comb
- Timer
- Towels

PREPARATION

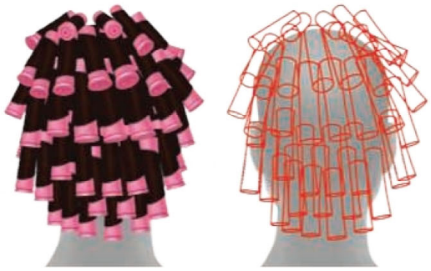
Before beginning, perform:

Ⓟ **10-1 Pre-Service Procedure.**

ESTIMATED TIME

60 MIN

Perm Wrap Example



Before Photo

1

Perform a patch test 24 to 48 hours before the service.

2

Perform hair and scalp analysis, elasticity, porosity, and metallic salt tests on day of service. If the hair fails any of these tests or analyses, do not perform the perm service.

3

Perform a shampoo if directed by the manufacturer before the perm service. Drape the client accordingly and gently shampoo and towel dry the hair. Avoid irritating the client's scalp.

4

Redrape the client for a chemical service then perform strand tests per the directions of the manufacturer.

5

Part the hair into four panels. Part from the center of front hairline to center of the nape, and from ear to ear. Section out a fifth panel from ear to ear in the nape area.

6

Section out the first row along the hairline in the nape area. Comb the remaining hair up and secure out of the way.

7

Part out the first base section and begin rolling the hair. Hold hair at a 90-degree angle to the head. Using one or two end papers, begin wrapping at one end of the rod. Starting the wrap from the right or left side of the rod will orientate the curl in that direction.

8

Spiral the hair. Roll the first two full turns at a 90-degree angle to the rod to secure the ends of the hair, and then start spiraling the hair to the other end of the rod by changing the angle to an angle other than 90 degrees.

9

Roll to the scalp. Continue to spiral toward the other end of the rod. Roll hair down to the scalp, position the rod half off-base, and secure it by fastening the ends of the rod together.

10

Continue wrapping using the same technique, in the same direction, until the first row is completed.

11

Section out the second row above and parallel to the first row. Comb the remaining hair up and secure it to keep it out of the way.

12

Begin wrapping at the opposite side from the side where the first row began. Move in the direction opposite the direction established in the first row.

13

Follow the same process to wrap the second row, but begin wrapping each rod at the opposite end established in the first row. Maintain consistent dampness as you work, misting the hair with water if necessary. Continue wrapping with the same technique, in the same direction, until the second row is completed.

14

Section out the third row above and parallel to the second row. Follow the same wrapping procedure, alternating the rows from left to right as you move up the head. This will alternate the orientation of the curl throughout the head.

15

Complete the wrapping then place picks under all rod bands.

16

Continue with the following steps:

- **Put on gloves and apply perm solution.**
- **Process accordingly.**
- **Rinse solution.**
- **Apply neutralizer.**
- **Rinse neutralizer.**
- **Remove rods.**
- **Condition and then style the hair.**

17

Finished look.

POST-SERVICE

To complete the procedure, perform:

Ⓟ **10-2 Post-Service Procedure.**

Ⓟ Procedure 15-7

Permanent Wave Using a Double-Rod Wrap

IMPLEMENTS AND MATERIALS

- Chemical cape
- Conditioner (optional)
- Cotton coil or rope
- Disposable gloves
- End papers
- Neck strips
- Neutralizing bib
- Perm rods
- Plastic clips for sectioning
- Plastic tail comb
- Pre-neutralizing conditioner (optional)
- Professional permanent wave kit
- Protective barrier cream
- Roller picks
- Shampoo
- Spray bottle with water
- Styling comb
- Timer
- Towels

PREPARATION

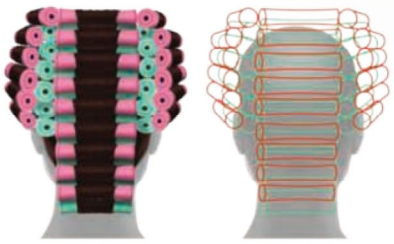
Before beginning, perform:

Ⓟ **10-1 Pre-Service Procedure.**

ESTIMATED TIME

60 MIN

Perm Wrap Example



Before Photo

1. **Perform a patch test 24 to 48 hours before the service.**

2. **Perform hair and scalp analysis, elasticity, porosity, and metallic salt tests on day of service.** If the hair fails any of these tests or analyses, do not perform the perm service.

3. **Perform a shampoo if directed by the manufacturer before the perm service.** Drape the client accordingly and gently shampoo and towel dry the hair. Avoid irritating the client's scalp.

4. **Redrape the client for a chemical service then perform strand tests per the directions of the manufacturer.**

5

Begin sectioning at the front hairline one side of the part. Comb the hair in direction of hair growth. Divide the hair into nine individual panels to match the length of the rod.

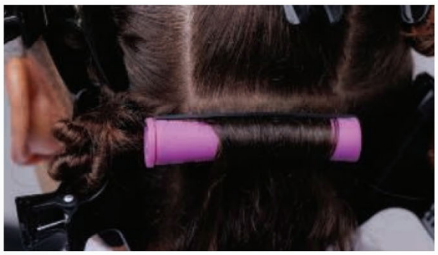
6

Start in the bottom/back section below the occipital bone. Make a horizontal parting the same size as the rod.

7

Place the base rod in the middle of the subsection. Wrap the end of the strand one revolution around the rod while holding it to one side.

8



Roll the rod up to the base area, letting the loose ends follow as you roll.

9

Place end papers on the ends of the strand, position the rod, and roll from the ends toward the base.

10

Secure the end rod on top of the base rod with a roller pick.

11

Maintain consistent dampness as you work, re-wetting the hair with water if necessary. Continue with the same process in any sections where the effect is desired.

12

Optional: **Insert roller picks to stabilize the rods and eliminate any tension caused by the bands.**

13

Continue with the following steps:
-Apply cotton strip barrier around the hairline.
-Put on gloves and apply perm solution.
-Process accordingly.
-Rinse solution.
-Apply neutralizer.
-Rinse neutralizer.
-Remove rods.
-Condition and then style the hair.

14

Finished look.

POST-SERVICE

To complete the procedure, perform:

Ⓟ **10-2 Post-Service Procedure.**

Ⓟ PROCEDURE 15-8

Soft Curl Perm (Chemical Curl Reformation)

IMPLEMENTS AND MATERIALS

- Applicator brush or plastic tail comb
- Chemical cape
- Conditioner
- Disposable gloves
- Shampoo
- Large-tooth comb
- Neck strips
- Neutralizing bib
- Professional permanent wave kit
- Plastic or glass bowl
- Plastic processing cap
- Protective base cream
- Shampoo
- Thio cream relaxer
- Towels

PREPARATION

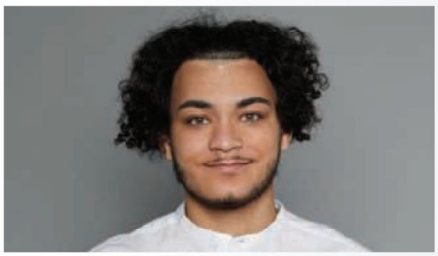
Before beginning, perform:

Ⓟ **10-1 Pre-Service Procedure.**

ESTIMATED TIME

60 MIN

1



Drape client for a chemical service. Refer to **Procedure 10-3: Draping.**

2

Perform scalp and hair analysis, test for porosity, elasticity, and check for contraindications.

3

Perform strand test if needed. Follow the manufacturer's recommendations to determine the proper timing for the curl pattern. Be sure to note timing for the rearranger, strength used, and rod size.

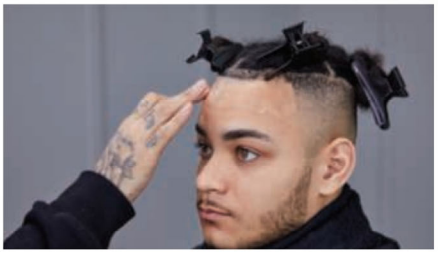
4

Gently shampoo client's hair if recommended by manufacturer then towel dry to remove moisture, or place client under a cool dryer. Gently detangle the hair to prepare for the rearranger.

5

Divide hair into four quadrants. Clip sections out of the way.

6

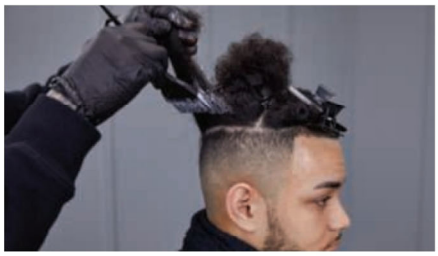


Apply a protective base cream to the hairline and ears then put on gloves.

7

Apply rearranger near scalp and to midshaft in back right quadrant. Begin application in most resistant area, usually at back of the head and nape area. Using an applicator brush or tail comb, select ¼ to ½ inch (0.6 to 1.25 cm) horizontal subsections and apply rearranger right below scalp ¼ to ½ inch (0.6 to 1.25 cm) down the midshaft. Do not apply to the porous ends.

8



Apply on top of the horizontal subsection and then the underside. Do not allow rearranger to touch the scalp until the last few minutes of processing to avoid irritation. Hold brush at a 45-degree angle during application. Continue applying near the scalp and to the midshaft in the back left, front right, and front left quadrants.

9

Apply to the porous ends in the back right quadrant then continue applying in the back left, front right, and front left quadrants. If needed, apply more product until all hair strands are covered.

10

Smooth each section. Use an applicator brush, the back of a hard rubber comb, or your gloved hands to smooth each section while applying to the porous ends, starting in the back right quadrant where rearranger was applied.

11

Process according to manufacturer's directions. During the final minutes of processing, apply the rearranger to the hairline. Then carefully smooth all sections using an applicator brush, your gloved fingers, or the back of a hard rubber comb. For curly hair, you may need to gently detangle the hair.

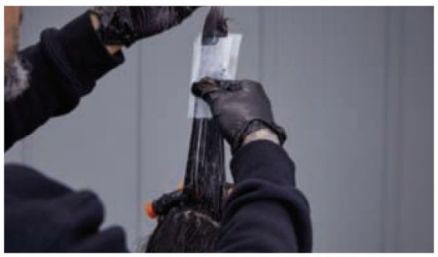
12

Rinse hair thoroughly with warm water to remove all traces of rearranger then towel blot the hair.

13

Apply protective base cream to the hairline and ears.

14

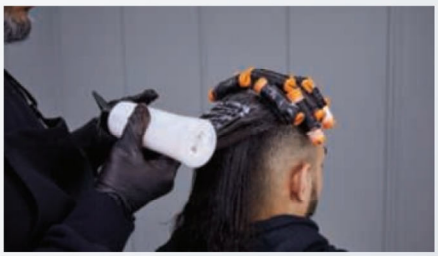


Divide the hair into selected wrapping technique. Keep in mind that the double flat wrapping technique offers the most control. Clip quadrants, unless using a rolling technique like a bricklay that does not require pre-sectioning of quadrants.

15

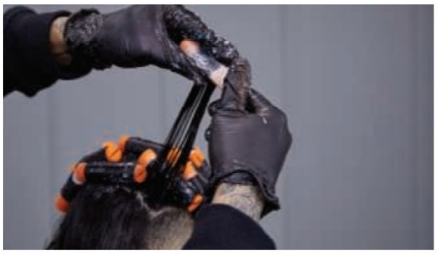
Apply waving lotion to the area to be wrapped.

16



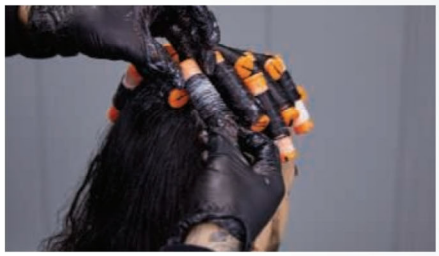
Begin rolling and subsectioning the hair. Apply thio wrap lotion to each base section. Roll the hair on the appropriate-sized perm rods. Suggest starting the wrapping process in the most resistant area.

17



Make a horizontal parting the same diameter and length of the rod. Hold hair at the base at a 90-degree angle.

18

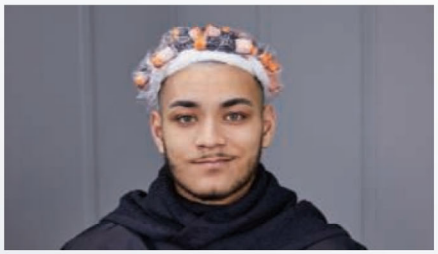


Begin wrapping the hair down to the scalp. Be careful not to twist the bands. Do not place bands directly on the scalp as this will create breakage.

19

Continue wrapping remaining panels. *Optional:* Insert a stabilizer tool like a roller pick to stabilize the rods and eliminate any tension caused by the band.

20



Place coiled cotton around entire head including hairline and neck. *Optional:* Loosely cover with a plastic processing cap if suggested by manufacturer.

21

Process according to manufacturer's directions. A hooded dryer may be used during processing for resistant hair or if a lower pH chemical was selected. Processing time will vary according to strength of the product, hair type and condition, desired results, and strand test results.

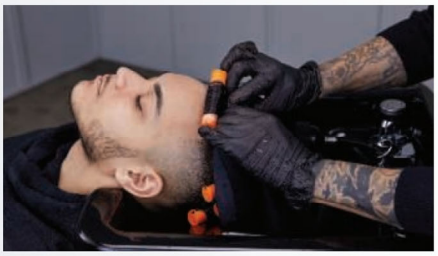
22

Perform test curls. Check for proper curl development at five-minute intervals. Be sure to roll the rod back into place after checking the curl.

23

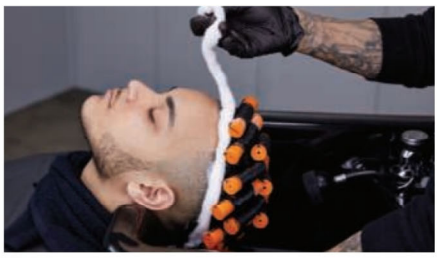
Rinse the hair with warm water when the processing is complete. Rinse thoroughly for at least five minutes.

24



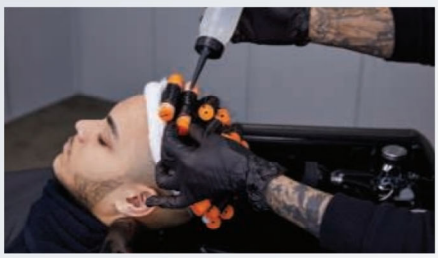
Remove excess moisture by gently towel blotting each rod. Do not rub.

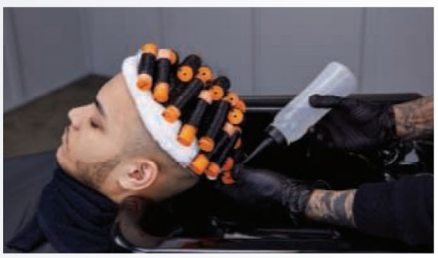
25



Redrape client with fresh towels and cotton around hairline and neck.

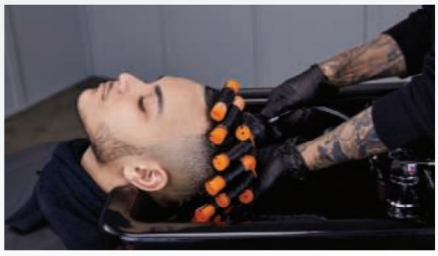
26





Slowly and carefully apply neutralizer to each rod. Avoid splashing and dripping. Make sure each rod is completely saturated. Set timer and neutralize 3-5 minutes or according to the manufacturer's directions. Average neutralization process is 10 minutes without the use of a hairdryer.

27

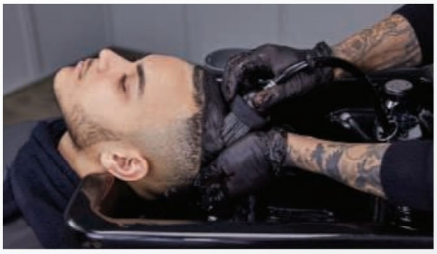


Rinse hair. After neutralizing is complete, thoroughly rinse hair with water for at least three minutes with rods in place.

28 → **Gently towel blot to remove excess water.**

29 → 

Remove rods from the hair.

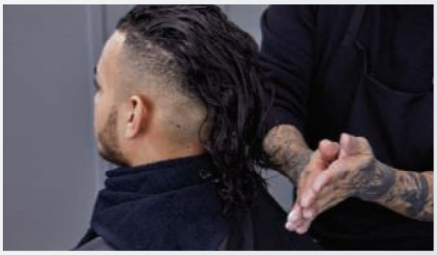
30 → 

Rinse thoroughly with cold water for about 3-5 minutes or longer depending on manufacturer's directions.

31 → 

Towel dry the hair.

32 → **Optional: Apply a hydrating and strengthening conditioner according to manufacturer's directions.** Using a large-tooth comb, distribute the conditioner throughout the hair. Then rinse and towel dry.

33 → 

Apply styling moisturizing products.

34 → 

Work product from scalp to ends.

35 → 

Finger style or comb with large tooth comb and style as desired.

36 → 

Finished look. (Recommend a lotion daily formulated for soft curl reformation to maintain moisture.)

POST-SERVICE

To complete the procedure, perform:

Ⓟ **10-2 Post-Service Procedure.**

Chapter Glossary

acid-balanced waves *(AS-ud BAL-anst wayvz)*	p. 559	perms with 7.0 or neutral pH; because of their higher pH, they do not require the added heat of a hairdryer, process more quickly, and produce firmer curls than true acid waves; always follow the manufacturer's instructions when using
alkaline waves *(AL-kuh-line WAYVZ)*	p. 559	also known as *cold waves*; have pH between 9.0 and 9.6, use ammonium thioglycolate (ATG) as the reducing agent, and process without the addition of heat according to the manufacturer's instructions
ammonia-free waves *(uh-MOH-nee-uh FREH WAYVZ)*	p. 560	perms that use an ingredient that does not evaporate as readily as ammonia, so there is very little odor
ammonium thioglycolate (ATG) *(uh-MOH-nee-um thy-oh-GLY-kuh-layt)*	p. 545	active ingredient or reducing agent in alkaline permanents
base control *(BAYS CON-troll)*	p. 569	perm rod's position in relation to its base section; determined by the angle at which the hair is wrapped
base cream *(bays creem)*	p. 543	also known as *protective base* cream; oily cream used to protect the skin and scalp during hair relaxing process
base direction *(BAYS dy-REK-shun)*	p. 567	angle at which the rod is positioned on the head (horizontally, vertically, or diagonally); also, the directional pattern in which the hair is wrapped
base placement *(BAYS PLAYS-ment)*	p. 567	refers to the rod's position in relation to its base section; base placement is determined by the angle at which the hair is wrapped
base relaxers *(BAYS RE-lax-ors)*	p. 543	relaxers that require a separate application of a base cream before a relaxer application; applied on the entire scalp, next to the entire hairline, the nape of the neck, and the top and back of the ears
base sections *(BAYS SEK-shuns)*	p. 566	subsections of panels into which hair is divided for perm wrapping; one rod is typically placed on each base section
basic wrap *(BAYsik RAP)*	p. 569	also known as *straight set wrap*; perm wrapping pattern in which all the rods within a panel move in the same direction and are positioned on equal-sized bases; all the base sections are horizontal and are the same length and width as the perm rod

bookend wrap *(BOOK END RAP)*	p. 565	perm wrap in which one end paper is folded in half over the hair ends like an envelope, eliminates excess paper and can be used with short rods or very short hair lengths
bricklay wrap *(BRIK-lay RAP)*	p. 569	perm wrap similar to actual bricklaying technique; base sections are offset from each other row by row to prevent noticeable splits and blend the hair's flow
calcium hydroxide *(KAL-see-um hy-DRAHKS-yd)*	p. 542	or $Ca(OH)_2$, active ingredient in a no-lye based relaxer; pH level of a no-lye relaxer is typically lower than a lye-based one; often associated with dryer hair
chemical hair relaxing *(KEM-uh-kul HAYR re-lax-ing)*	p. 540	process or service that permanently rearranges curly hair's structure into a straighter or smoother form
chemical relaxer *(KEM-uh-kul ree-LAX-UHR)*	p. 540	product that removes curl or wave, leaving hair smooth or straight
chemical texture services *(KEM-uh-kul TEKS-chur SER-vicez)*	p. 538	hair services that cause a chemical change that alters the natural wave pattern of the hair
concave rods *(khan-KAYV RAHDZ)*	p. 564	perm rods that have a smaller diameter in the center increasing to a larger diameter on the ends
croquignole wrap technique *(KROH-ken-yohl RAP tek-NEEK)*	p. 568	perm in which the hair strands are wrapped from the ends to the scalp in overlapping concentric layers
double flat wrap *(DUB-ul FLAT RAP)*	p. 565	perm wrap in which one end paper is placed under and another is placed over the hair's base panel (subsection) being wrapped
double-rod wrap *(DUB-ul ROHD RAP)*	p. 569	also known as *piggyback wrap*; a wrap technique whereby extra-long hair is wrapped on one rod from the scalp to midway down the hair shaft, and another rod is used to wrap the remaining hair strand in the same direction
endothermic waves *(en-duh-THUR-mik wayv)*	p. 560	perm activated by an outside heat source, usually a conventional hood-type hairdryer
end papers *(END PAY-perz)*	p. 564	also known as *end wraps or perm papers*; thin, absorbent papers that control the hair's ends when winding hair on perm rods
exothermic waves *(eks-oh-THUR-mik WAYVZ)*	p. 559	create an exothermic chemical reaction that heats up the waving solution and speeds up processing
glyceryl monothioglycolate (GMTG) *(GLIS-ur-il mon-oh-thy-oh-GLY-koh-layt)*	p. 559	main active ingredient in true acid and acid-balanced waving lotions

half off-base placement *(HAF-OFF-BAYS PLAYSZ-ment)*	p. 567	base control in which the hair is wrapped at an angle of 90 degrees or perpendicular to its base section, and the rod is positioned half off its base section
hydroxide neutralization *(hy-DRAHKS-yd new-trull-eye-ZAYshun)*	p. 544	acid–alkali neutralization reaction that neutralizes (deactivates) the alkaline residues left in the hair by a hydroxide relaxer and lowers the pH of the hair and scalp; hydroxide relaxer neutralization does not involve oxidation or rebuild disulfide bonds
hydroxide relaxers *(hy-DRAHKS-yd re-LAX-ors)*	p. 542	used to relax the hair; contains a very strong alkali with a pH over 13; the hydroxide ion is the active ingredient in all hydroxide relaxers
keratin-based smoothing treatment *(KAIR-uht-in SMOOTH-ing TREAT-ment)*	p. 546	also called *Brazilian keratin treatments,* semipermanent treatment that smooths curly and wavy hair textures and eliminates frizz for up to 12 weeks
lanthionization *(lan-thee-oh-ny-ZAY-shun)*	p. 542	process by which hydroxide relaxers permanently straighten hair; they remove a sulfur atom from a disulfide bond and convert it into a lanthionine bond
loop rod *(LUYP rahd)*	p. 564	also known as *circle rod*; tool that is usually about 12 inches (30.5 centimeters) long with a uniform diameter along the rod's entire length
low-pH waves *(LOH-P-H wayves)*	p. 560	perms that use sulfates, sulfites, and bisulfites as an alternative to ammonium thioglycolate
lye relaxers *(LYE re-LAX-ors)*	p. 542	also known as *sodium hydroxide* or *caustic soda*; used to break the disulfide bonds and loosen curls
metal hydroxide relaxers *(muh-TAL HY-drox-ide re-LAX-ors)*	p. 542	ionic compounds formed by a metal (sodium, potassium, or lithium) that is combined with oxygen and hydrogen
no-base relaxers *(NOH-BAYS ree-LAKS-ors)*	p. 543	relaxers that do not require application of a protective base cream
normalizing lotions *(NOR-mul-yz-ing LOH-shunz)*	p. 544	conditioners with an acidic pH that restore the hair's natural pH before the final neutralizing shampoo for hydroxide relaxers
off-base placement *(AWF BAYS PLAYS-ment)*	p. 567	base control in which the hair is wrapped at 45 degrees below base section's center so the rod is positioned completely off its base
on-base placement *(AWN BAYS PLAYS-ment)*	p. 567	base control in which the hair is wrapped at a 45-degree angle beyond perpendicular to its base section, and the rod is positioned on its base

half off-base placement *(HAF-OFF-BAYS PLAYSZ-ment)*	p. 567	base control in which the hair is wrapped at an angle of 90 degrees or perpendicular to its base section, and the rod is positioned half off its base section
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on-base placement *(AWN BAYS PLAYS-ment)*	p. 567	base control in which the hair is wrapped at a 45-degree angle beyond perpendicular to its base section, and the rod is positioned on its base

panels *(PAN-ulz)*	p. 566	perm sections; size, shape, and direction vary based on wrapping patterns
partial perms *(PARSH-ul PUR-muz)*	p. 570	permanent waves that curl only specific areas of the head
permanent waving *(PUR-muh-nent WAYV-ing)*	p. 557	adds wave or curl to the hair; also used to loosen curls; two-step process whereby the hair undergoes 1) a physical change caused by wrapping the hair on perm rods the hair then undergoes and 2) a chemical change caused by the application of permanent waving solution and neutralizer
relaxer retouch *(ree-TUCH ree-LAX-UHR)*	p. 557	application for hair that has received a chemical relaxer service
single flat wrap *(SING-gul FLAT RAP)*	p. 565	perm wrap that is similar to double flat wrap but uses only one end paper, placed over the top of the base panel of hair
sodium hydroxide relaxer *(SOH-dee-um hy-DRAHK-syd ree-LAX-UHR)*	p. 542	also known as lye relaxer or caustic soda; used to break the disulfide bonds and loosen curls
soft bender rods *(SAWFT ben-DUHR RAHDZ)*	p. 564	also known as flexible foam rod; a tool about 12 inches (30.5 centimeters) long with a uniform diameter along the rod's entire length
soft curl permanent *(SAWFT CURL PER-manent)*	p. 570	also called *chemical curl reformation service*; this thio-based chemical process loosens very curly hair into larger soft curls or waves
spiral perms *(SPY-ral PURMZ)*	p. 569	utilize the spiral wrap technique in which hair is wrapped around the rods vertically until it fills the length of each rod like stripes on a candy; as long as the angle remains constant, any overlap will be uniform along the length of the rod and the strand of hair
spiral wrap technique *(SPY-ral RAP tek-NEEK)*	p. 568	used in spiral perms; the hair is wrapped around the rods vertically until it fills each rod's length like stripes on a candy cane
straight rods *(STRAYT RAHDZ)*	p. 564	perm rods that are equal in diameter along their entire length or curling area
thio-free waves *(THY-oh FREE WAYVZ)*	p. 560	perm that uses an ingredient other than ATG as the primary reducing agent, such as cysteamine or mercaptamine
thio neutralization *(THY-oh NEW-truhl-eyez-ay-shun)*	p. 546	relies on an oxidation process to stop the action of the relaxer solution and rebuild the hair into its new form

thio relaxers *(THY-oh ree-LAX-UHRS)*	p. 545	use reduction and oxidation to break the disulfide bonds and then reform them to a more relaxed hair texture, use the same ammonium thioglycolate (ATG) that is used in permanent waving, but at a higher concentration and a higher pH (above 10)
true acid waves *(TROO AS-ud WAYVZ)*	p. 559	have a pH between 4.5 and 7.0 and require heat to process; process more slowly than alkaline waves and do not usually produce as firm a curl as alkaline waves
virgin relaxer *(VUR-jin RE-lax-or)*	p. 556	application used for hair that has not had a previous chemical relaxer service
viscosity *(vis-KAHS-ut-ee)*	p. 545	measurement of a liquid's thickness or thinness