

chapter

1

HAIRCOLOR CHEMISTRY

- Haircolor
- Bleaches
- Hydrogen Peroxide

Revised July 2005

“If prayer had an influence on the outcome of haircolor services, there would be far more successful haircolor services.”

Charles Traina, Evaluator



1

There are many different types of haircoloring products available. They include pigmented shampoos, weekly rinses, semi-permanent, permanent lift/deposit haircolor and deposit-only haircolor. The focus of this chapter is permanent lift/deposit haircolors.



2

The weekly rinse or temporary haircolor is primarily used to add color to gray hair, faded blondes or brassy hair. This haircolor is not generally used to cover gray. It does not have the ability to lighten hair. The color is applied at the shampoo bowl or working station and left in the hair. The color will rub off if applied excessively.



3

Semi-permanent haircolor is not mixed with peroxide. It is simple to use because the color you see is the color you get. It is a direct dye and does not require oxidation for the color to stain the hair. In areas where the hair is more porous, this type of color will show greater intensity. Caution must be exercised when utilizing a semi-permanent haircolor on porous hair; it can stain the hair permanently.



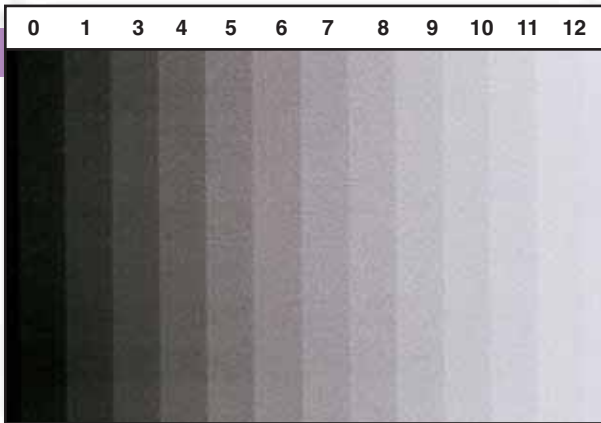
4

Deposit-only haircolor utilizes oxidative and direct dyes, and requires peroxide. The peroxide is generally a low volume oxidative solution. Deposit only/demi-permanent haircolors are longer lasting than semi-permanent haircolor. The major distinction between semi-permanent and deposit only/demi-permanent colors is that peroxide is required with deposit only and demi permanent color. NOTE: Some deposit only haircolors may create a small degree of lift.



5

Permanent (lift/deposit) haircolors are available in a variety of forms: Gels, liquids and creams. They are packaged in tubes, as well as bottles. The majority utilize equal parts of peroxide, although some utilize a one to two ratio of haircolor to peroxide. Permanent haircolor works in basically the same manner; they create a certain degree of lift and deposit. Permanent haircolors are the only haircolors that are formulated to lighten hair.



6

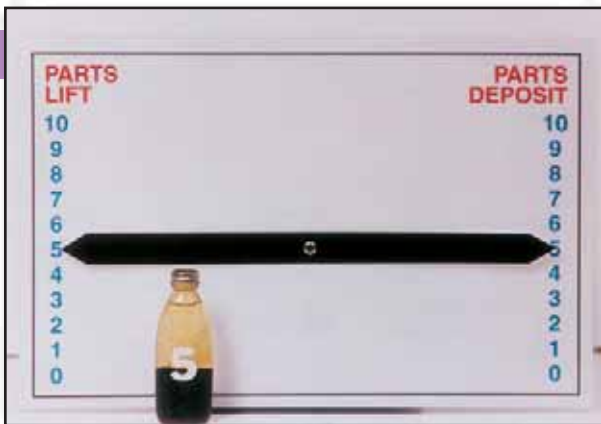
The international system of defining the lift/deposit ratio of haircolor is called the level system. The level system gives the haircolorist an indication of the lift/deposit ratio in a bottle or tube of haircolor. Although most manufacturers of haircolor products utilize the level system, not all manufacturers utilize the same level system. When comparing products that are labeled the same level from two different manufacturers, the haircolorist must be aware that the product could vary as much as two levels, therefore it may not produce the same results.



7

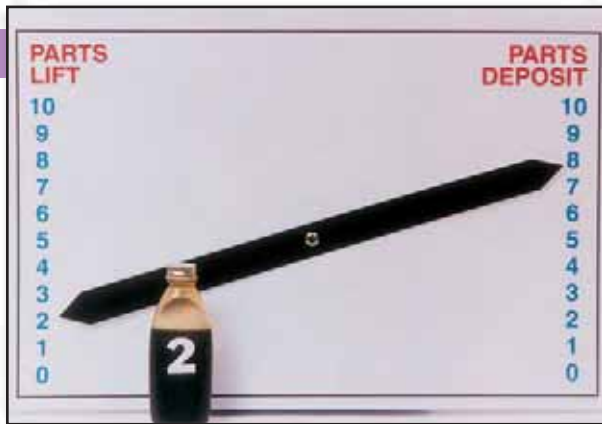
A RULE TO REMEMBER WHEN SELECTING A COLOR IS:

The darker the color, the smaller the number. This may vary depending on the manufacturer. Some start with #0, others with #1. The same variance can be found on the other end of the scale. Some manufacturers choose to use #10 as the lightest haircolor, while others choose to use #12. Permanent haircolor contains ingredients which create lift and color deposit.



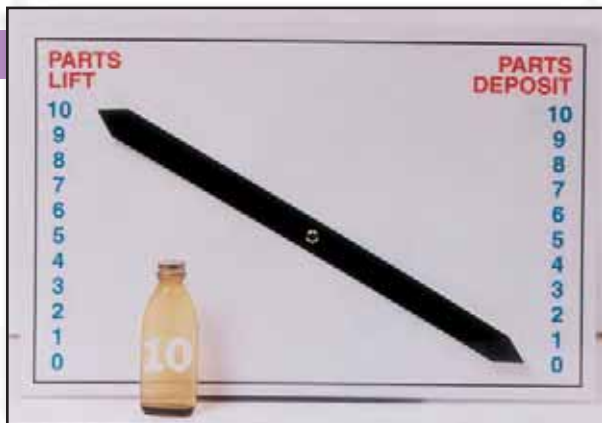
8

The lift/deposit ratio in a container of haircolor is defined by this chart. This chart depicts the relationship between lift and deposit. The parts on the left side of the chart will correspond to the level. The more parts lift the higher the level.



9

A haircolor product with a low number is indicating a small amount of lift and a corresponding greater amount of deposit.



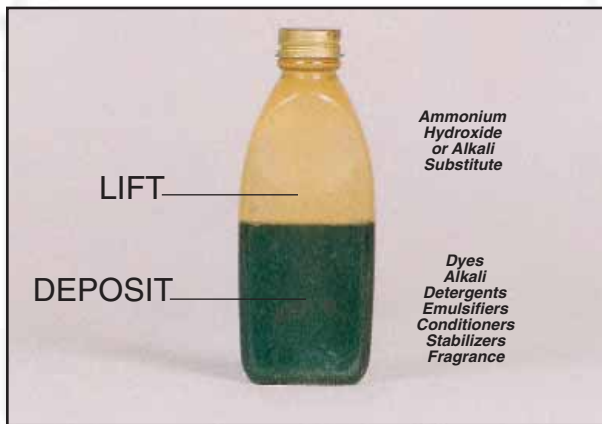
10

The level system is one tool the haircolorist can use to determine what color to choose when formulating for a client. If there is a greater number of levels in a line of haircolor, there is a smaller difference between those levels. In some of the highlift colors there could be as little as one tenth of 1% color deposit. PLEASE NOTE: Level systems will differ among manufacturers



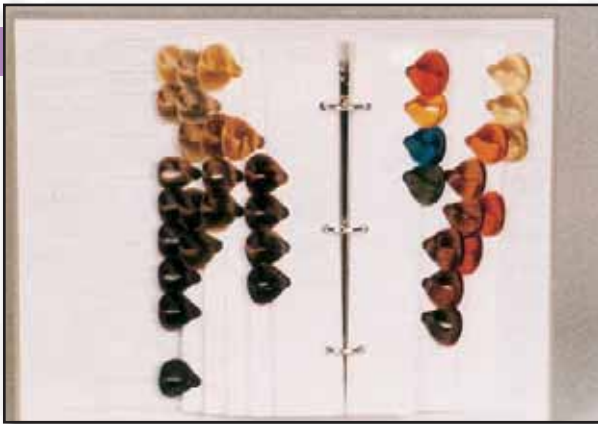
11

Another way of looking at haircolor is the concentration of color deposit as seen in this prop. The level 10 haircolor has the least amount of color deposit. As the numbers decrease, there is a greater concentration of color deposit.



12

Permanent (lift/deposit) haircolor contains dye, alkaline substances, conditioners, stabilizers, fragrance, detergents and emulsifiers. These are all utilized in various proportions to create the vast numbers of haircolors that are available to the haircolorist. The advantage of professional haircoloring over mass marketing haircoloring is greater selection, professional formulation and professional application techniques.



13

The level system only indicates lift/deposit ratio. The tone or shade defines the actual color and is generally listed on the product. Manufacturers often add a letter or series of numbers to identify level and indicate tone. While this information is provided to help the haircolorist determine formulation, the final color is determined by a number of factors that the colorist must consider: Category of natural haircolor, presence/amount of gray hair, porosity and condition of the hair. The colorist cannot rely on level and tone indicators from a manufacturer alone to accurately predict the final color.



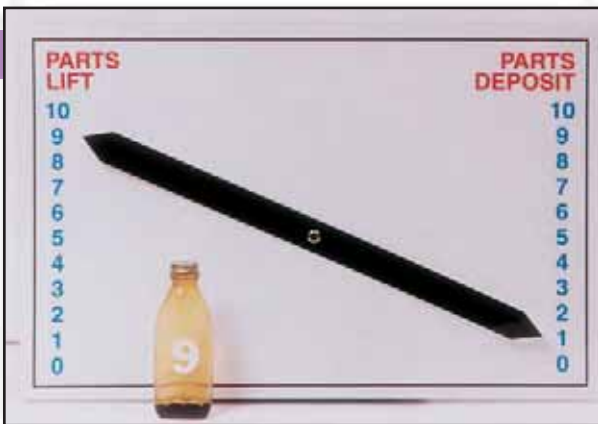
14

A variety of terms are used to describe the tone of a haircolor. Neutral, natural, drab, gold, ash, smoky, red, and auburn red; to mention a few. It is important to know the degree of concentration of the tone. For example: The color identified as gold could be a very intense yellow gold, or have slightly more gold than a neutral. Working with the color and making swatches will help the haircolorist recognize the actual color.



15

Hydrogen peroxide is the catalyst that causes permanent haircolor to work. A qualified haircolorist should be able to utilize various volumes of peroxides. Twenty (20) volume peroxide is the typical developer used in most cases. Clients with sensitive scalps may not be able to withstand additional activity from higher volume peroxide.



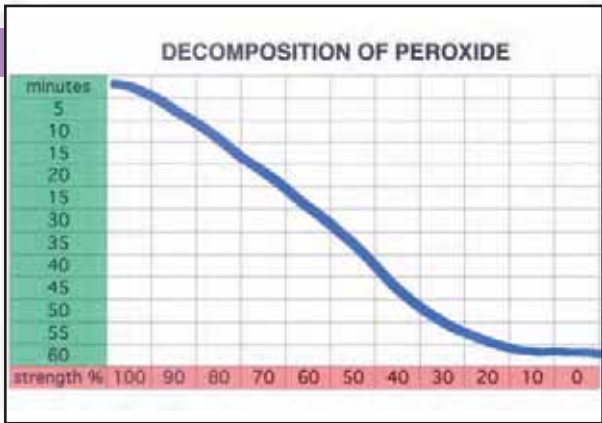
16

Higher volumes of peroxide are utilized when a greater degree of lift is desired. As the volume of peroxide increases, the color deposit diminishes. The opposite occurs when the volume of peroxide is lowered.



17

When haircolor is mixed with peroxide, a chemical action takes place. The higher the level of color (more lifting action), or the higher the volume of peroxide, the more aggressive the chemical reaction. The lower the level of color (more color deposit), or the lower the volume of peroxide, the less aggressive the chemical reaction. When first mixed, the chemical reaction is most active. When the formula is applied to hair, the peroxide and ammonia begin to dissipate. The color remaining in the bowl or applicator bottle is oxidizing at a slower rate than the product applied to the head.



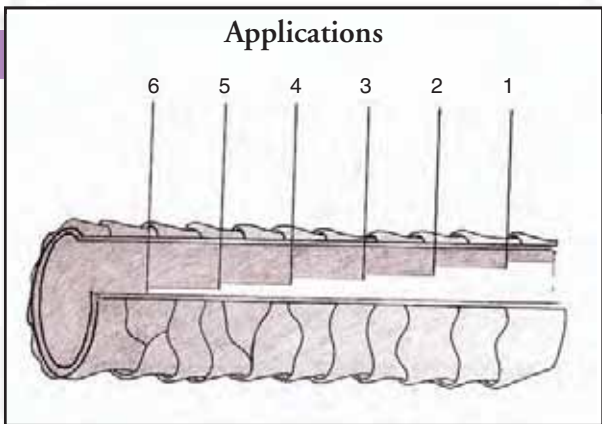
18

Hydrogen peroxide affects the lifting and depositing cycle of the haircolor process. The majority of the lifting occurs during the initial stages of the application and will continue to a lesser degree during the entire haircoloring process. This graph illustrates how the peroxide decomposes after mixing with bleach or haircolor. This occurrence will differ slightly depending on the level of color.



19

The amount of color deposit is attributed to the amount of color in the formula. If coverage of gray hair is desired and does not occur, it is possible the level of color being used does not contain enough color deposit. There isn't enough color in the higher level of tints to cover gray hair completely. The level of color being used should be the first consideration when gray coverage is poor. If there is ample color in the formula and the gray hair is still not being covered, the hair itself would be considered resistant.



20

An alkali contained in the color product swells the cuticle and allows the haircolor to penetrate. The combination of hydrogen peroxide with an alkali creates a chemical reaction, which breaks down the melanin and develops the dyes. Depending on the level of color, the color will penetrate further into the hair on subsequent applications.



21

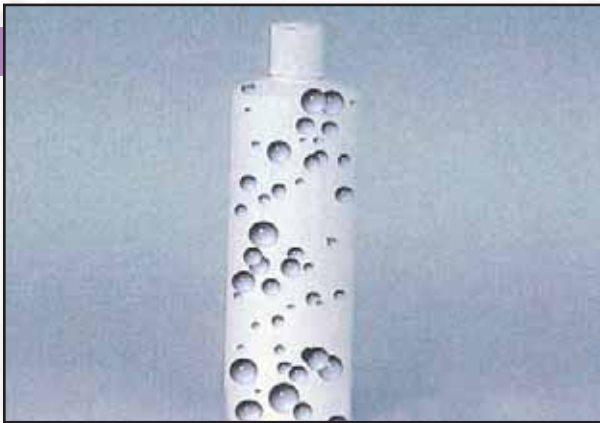
Hydrogen peroxide in combination with an alkali is responsible for releasing peroxide free radicals. The peroxide and alkali break apart the melanin causing it to diffuse and give the hair a lighter appearance. The peroxide is primarily responsible for dissolving the melanin



22

It is important to know the relationship between volume and percentage when discussing peroxides. Hydrogen peroxide manufactured for haircolor use is labeled according to strength. In the United States, peroxide strength is stated as a numeric value followed by the word “volume”; e.g. 20 volume peroxide. In other countries such as England and Canada, peroxide strength is measured and labeled by percentage; i.e. 6% peroxide.

3% - 10 volume	6% - 20 volume
9% - 30 volume	12% - 40 volume



23

Soap bubbles are used to illustrate one volume of peroxide. One volume is a container filled with air. This is considered to be one volume of oxygen.



24

These bubbles simulating oxygen are forced to the bottom of the glass by compressing the oxygen with a ram. This would make one volume of peroxide.



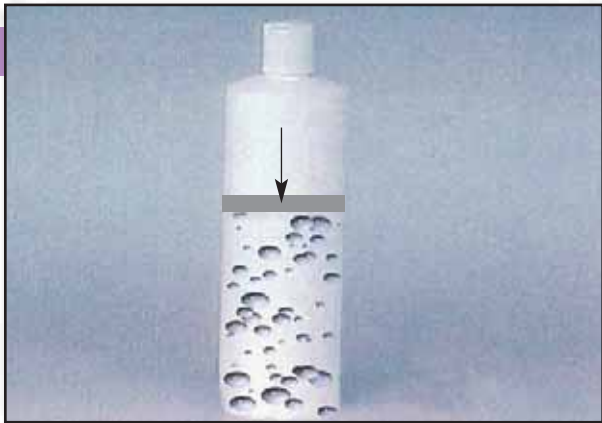
25

This simulated bottle of peroxide would represent one volume of peroxide with the oxygen squeezed to the bottom.



26

This is the same container, once again filled with bubbles representing oxygen in place.



27

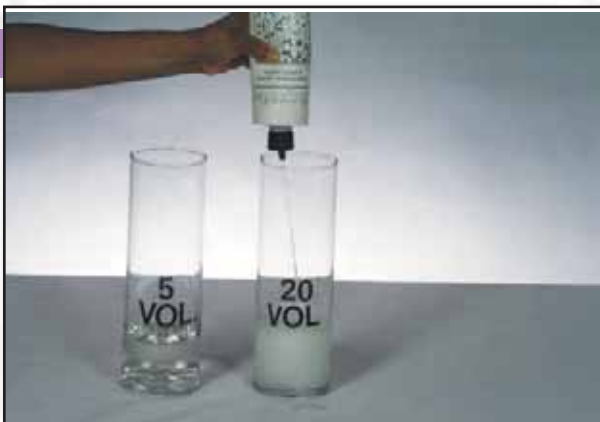
The ramming process is repeated again, pushing the ram down to the bottom of the glass. This gives two volumes of oxygen. If this is done twenty times, you squeeze twenty volumes of air into this glass. This gives the container 20 volume peroxide or 6% of the container is peroxide.



28

All of the oxygen that was squeezed into the bottom of this container takes up 6 percent of the container, thus the term 6% peroxide. Three (3)% is 10 volume, 6% is 20 volume. For every additional 3% add 10 volume.

NOTE: This is not the method used to actually make peroxide. This prop is used only to aid the reader to better understand the volume/percent ratio.



29

The oxygen attempting to escape is what makes peroxide an unstable solution. The more oxygen in the container, the more unstable the solution. The maximum amount of oxygen in peroxide is 35%, 130 volume. There are no laws which regulate the volume of peroxide a cosmetologist may use.

Pour 4 ounces of 20 volume peroxide into one glass. Pour 4 ounces of 5 volume peroxide (1 oz. of 20 volume peroxide and 3 oz. of water) into the second glass. The contents of both glasses appear the same.



30

In the previous exercise, the difference in strengths of peroxide was explained. This is another example of how different volumes of peroxide react. The physical appearance of varying strengths of peroxide is identical to water, making it impossible to identify its strength by sight alone. In this exercise, an equal amount of a product that releases oxygen (contains catalyze) is added to the peroxide. This additive will decompose the peroxide, releasing all of its oxygen.



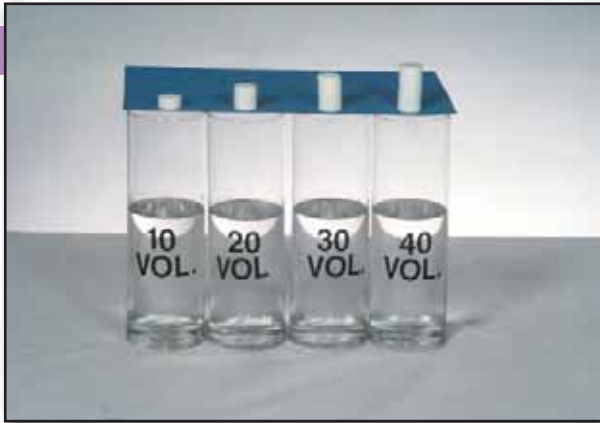
31

All of the oxygen is now escaping from the liquid. This gives an indication of the strength of the peroxide. Notice the bubbling action that is taking place. The more bubbles, the more activity in the product. Both of these volumes will stop working at the same time. The 20 volume peroxide generates more activity than the 5 volume peroxide.



32

The difference between 5 volume and 20 volume peroxide is apparent when the peroxide is completely decomposed. The 20 volume peroxide has much more activity, which can clearly be seen. This exercise helps gain a better insight on how peroxide decomposes.



33

Utilizing Alka-Seltzer, another prop has been devised to indicate how peroxide decomposes. The Alka-Seltzer are stacked into piles. Each pile indicates the percentage of peroxide for that volume. 10 volume peroxide is 3% so there is 3 tablets. 20 volume is 6% so there are 6 tablets, all the way to 40 volume which is 12%, so there are 12 tablets.



34

An equal amount of water is placed into each of the glass containers as marked. The Alka-Seltzer is then put into the containers at the same time and the tablets start to dissolve.



35

The action of the simulated volumes of peroxide can be seen in this prop. The 40 volume peroxide reacts with much more intensity than does the 30, 20, and 10 respectively.



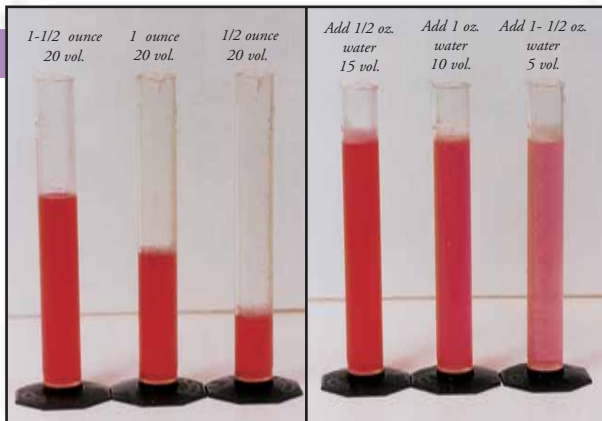
36

All of the peroxides stop working at the same time. The 40 volume does not continue working twice as long as the 20 volume, but works twice as strong. Further explanation of how peroxides affect lifting action will be demonstrated later in this chapter.



37

Lift/deposit action of a haircolor may be altered by the use of a higher volume peroxide. If a haircolor is formulated to be utilized with 20 volume, the lifting action is increased as much as one level by increasing the volume of peroxide to 30 volume. This also, affects the deposit of color; the more lifting action, the less color deposit.



38

The strength of peroxide may be decreased by diluting it with distilled water. The formula for diluting peroxide is:

- 1 part 20 volume peroxide
- 1 part water (0 volume = 10 volume peroxide)

When mixing equal parts add the two volumes together and divide by two. Example:

- 1 part 40 volume
- + 1 part 20 volume
- 60 volume divided by 2 = 30 volume

A hydrometer may also be used to measure the volume of liquid peroxide.



39

Heat affects lifting action in the same manner that higher volumes of peroxide affect haircolor. The addition of heat to a color formula increases the lifting action. As a result of the lifting action, it is important to remember that color deposit will be reduced; Powder bleach is applied to this strand and will process at room temperature for 30 minutes.



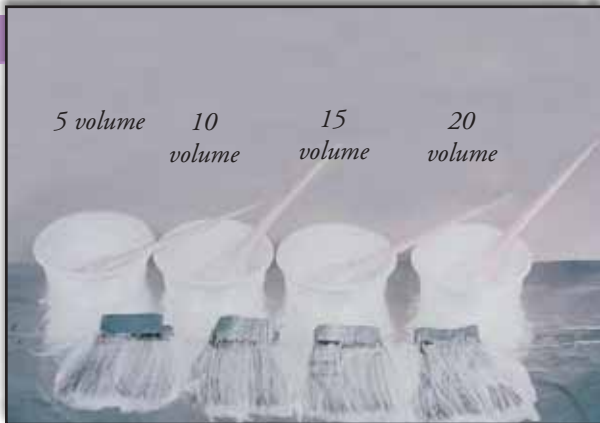
40

For this strand, a new mixture of bleach was mixed at the same strength and allowed to process for 30 minutes. We added heat while the hair was processing. The temperature was raised to 80 degrees with the use of a heat lamp.



41

The same process was repeated with five different swatches. The temperatures were raised with the heat lamps to 80, 90, 100, and 110 degrees. Each strand was allowed to process for 30 minutes, with the same strength bleach mixture. The result of this experiment shows the degree of lightness achieved by the various degrees of heat. The heat settings on the typical hair dryer are; cool-80 degrees, low-90 degrees, medium-100 degrees, and high-110 degrees.



42

Another experiment shows how lightening action is affected by the various volumes of peroxide. Each of the batches of bleach were mixed with 5, 10, 15 and 20 volume peroxide. Each batch of bleach was mixed with exact proportions. Each group of 4 swatches were saturated with bleach.



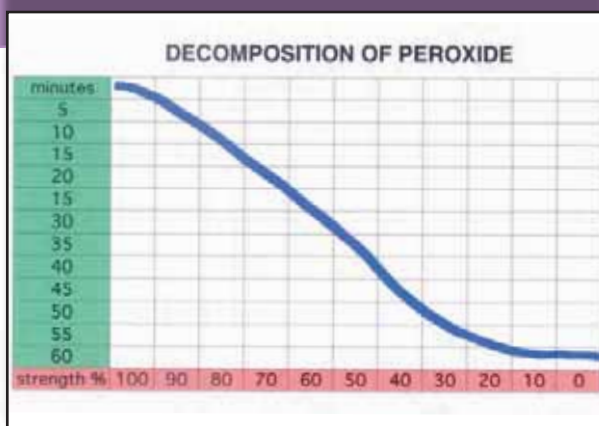
43

The swatches were covered with foil and allowed to process. One of the swatches from each group were shampooed at intervals of 15 minutes, 30 minutes, 45 minutes and 60 minutes.

	15 Min.	30 Min.	45 Min.	60 Min.
20 Vol.				
15 Vol.				
10 Vol.				
5 Vol.				

44

This shows the result of that experiment. Note how the strands become closer together in color as time increases. As the processing times increase, the bleaching slows down considerably. The graph on the next page explains how this process occurs.



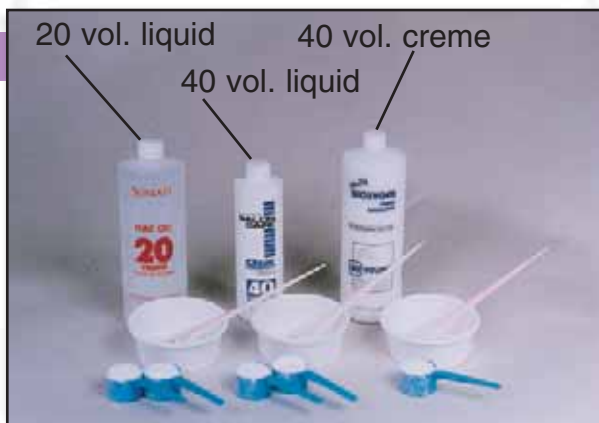
45

The longer the bleach is on the hair, the slower bleaching action becomes, regardless of the starting strength of peroxide. The strength of peroxide has a greater effect on the bleaching action initially; then slowly it diminishes. Powder bleach will lighten the hair even if mixed with water.



46

A foil packet is utilized when lightening selected strands of hair to keep the strands isolated. This method serves to confine the bleach mixture, keeping the product moist and active for a longer period of time. Without foil or other material to isolate the bleach on the hair, the bleach will dry out and stop working.



47

In this exercise, powder bleach was used to show differences in bleaching action. When using creme peroxide versus liquid peroxide, less bleach powder is used in the mixture. We generally mix bleach to consistency rather than measure. If a higher volume creme peroxide is used, greater bleaching action will not be achieved because less bleach is used. The bleach powder is the stronger of the two ingredients and determines the bleaching action.



48

This exercise shows the differences in using the various volumes of peroxides. Three sets of swatches were processed with three different formulas of bleach mixed as follows:

1. One part 20 volume liquid peroxide to two parts powder bleach.
2. One part 40 volume liquid peroxide to two parts powder bleach.
3. One part 40 volume creme peroxide to one part powder bleach.



49

The swatches were removed at 30 minutes, 60 minutes and 90 minutes. One of the swatches processed for four hours. Once again the processing times resulted in the color coming closer together the longer the bleach was on the hair. The swatch bleached for four hours was not a great deal lighter than the 90 minute swatches.



50

The same type of exercise was performed using a high-lift tint. The purpose of this experiment was to determine how long high-lift tints stayed active and to determine the difference between the proportions and volumes of peroxides. The batches were mixed in the following manner:

1. High-lift tint with equal parts of 20 volume peroxide.
2. High-lift tint with double parts of 40 volume peroxide.



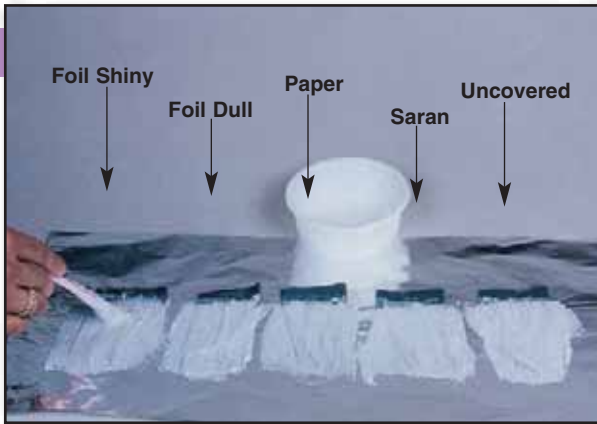
51

The swatches were thoroughly saturated and allowed to process.



52

The first set of swatches were removed after 30 minutes, the second set after 60 minutes and the third set after 90 minutes. The color of the three groups of swatches became closer the longer the tint stayed on the hair. It is apparent that tint formulas continue lightening the hair over a long period of time. The swatch that processed for four hours is evidence of this. Most of the lightening action created by the various volumes of peroxide occurred with the first 30 minutes.



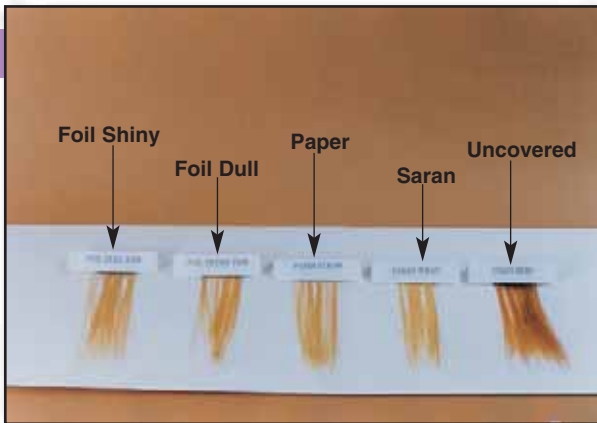
53

The length of time a bleach continues to work is affected by how rapidly the alkali and the peroxide dissipates. If the solution is contained in a foil packet, between papers, or cellophane wrap the bleaching action will continue to stay active over a longer period of time. Once bleach mixture becomes dry, it no longer continues to work.



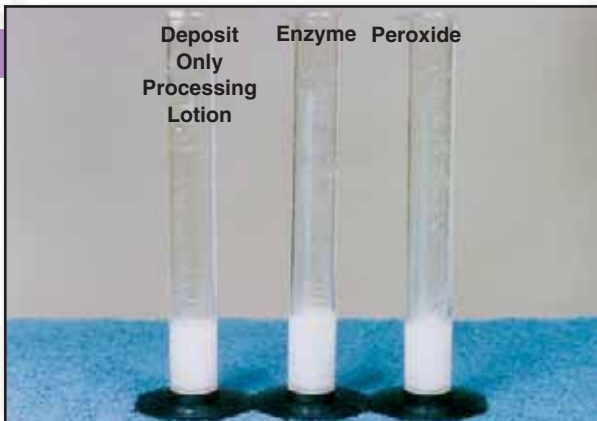
54

The materials used to form packets seems to be irrelevant. As long as the bleach is enclosed in a manner to keep it from drying out, the bleach will continue working. Here, various strands were enclosed in shiny side foil, dull side foil, papers, saran and one was left uncovered.



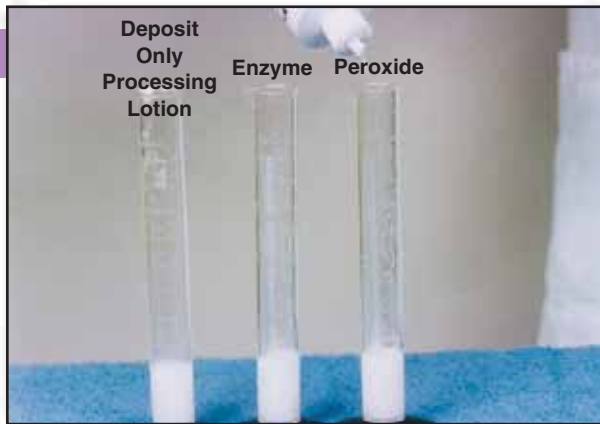
55

The result of the hair strands being bleached in various forms of materials is irrelevant. The only swatch that is visibly not as light, is the swatch left uncovered. The same bleach was applied to all of the swatches and processed for the same amount of time.



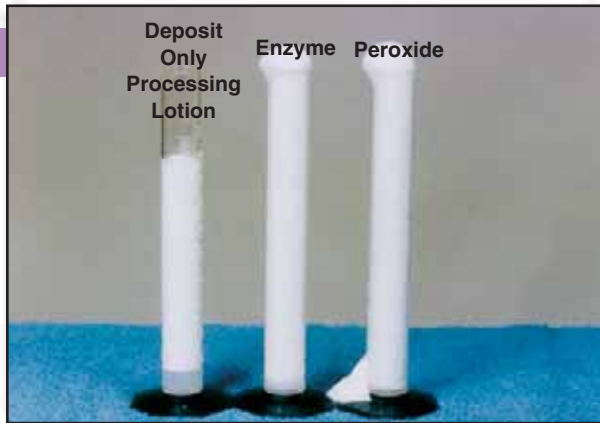
56

A comparison was made with enzymes, 20 volume peroxide and a deposit only processing lotion. The purpose was to determine the amount of oxygen in each of these products.



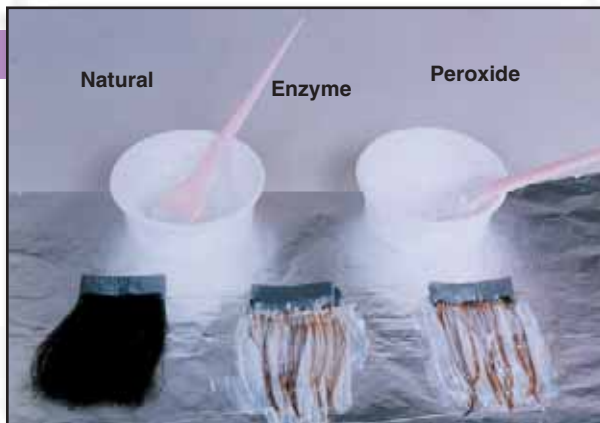
57

A product containing catalyze was poured into the beakers. The amount of foaming action will determine how much oxygen is present in each of these products.



58

The results of this test are apparent: The 20 volume has the most oxygen followed by the enzyme. The deposit only catalyst has the least amount of oxygen.



59

To further compare the enzyme, we mixed the enzyme and 20 volume peroxide with powder bleach. Each was allowed to process for 30 minutes



60

The result shows that the enzyme strand is slightly lighter than the 20 volume peroxide. The reader will reach his/her own conclusion from this exercise.



61

Many of the tools printers use are helpful to understand haircolor formulation. Printers have to deal with similar problems as haircolorists in their work. They are applying inks which are transparent, to colored papers. The color of paper being used effects the final color. The colored paper is therefore placed below the ink color to determine how the ink will look various colors of paper.



62

Another printer's tool contains thousands of colors and the formulas, containing percentages of each of the primary colors used to achieve each color. The name of this system is called 'Pantone' colors. All ink manufacturers adjust their inks to the 'Pantone' system. How much easier it would be if the haircolor industry could standardize their haircolors. Learning the color wheel is important information, it would be more pertinent to our industry if the percent of primary colors in the various haircolors would be taught



63

The American Board of Certified Haircolorists provides a do it yourself color chart. You may color prepared swatches with the haircolors you use most often. This exercise will help the haircolorists better understand how a haircolor will react on given hair types.



64

This chapter should encourage every Board Certified Haircolorist to take the time to perform individual experiments. Learn about the products you work with. By doing so, you will be better prepared to deal with critical decisions when working on your clients hair.

chapter

10

PERFORMANCE EXAMINATION

- Preparation and Layout
- Mandatory Tasks
- Optional Techniques
- Unacceptable Procedures

*“Learn, formulate, execute,
experience, learn, formulate,
execute, experience. You will never
learn all there is to know”*

Ty Isobe, Evaluator



1

The candidate will proceed to their assigned station that matches the team registration number. Lay out all of the materials necessary to perform the mandatory techniques as well as all of the optional techniques. Display the swatches. Any tools or materials that will not be used during the examination should be placed under the table. Deductions will be made under organization for reaching under the table during the examination. You will also receive deductions for using notes for reciting formulas



2

All candidates will perform the same tasks on the right side of the mannequin. All tasks will be carried out without an assistant. An off the scalp powder bleach is recommended so the evaluators may clearly see the application. Candidates will not be evaluated on the finished result. Proceed in the following order:

- Right rear, weave and slice. The candidate may start at the nape or crown.
- Right front highlight retouch.
- Left front assigned optional technique. Tone on tone or gray reduction.
- Left rear assigned optional technique. High-low lighting, reverse highlight or bleach retouch.



3

On the right side of the mannequin, the mandatory tasks shall be completed by placing the hair in any type of foil, paper or plastic that the candidate desires. Although the candidate may utilize a variety of tools when working in the salon, for this examination you must use one of the accepted methods.

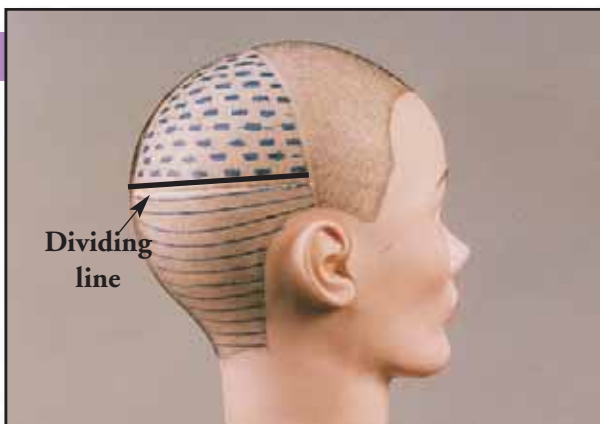
Do not come to the test site with the anticipation of doing the same work as you do in the salon. We ask that you follow the prescribed method outlined in this chapter for the mandatory techniques. *(continued)*





3 (continued)

The candidates are being evaluated on following instruction as well as workmanship. If the methods prescribed in the chapter for the mandatory techniques are not familiar, it would be in the candidate's best interest to practice until he/she is comfortable and the application is smooth. The candidate is being tested in the psychomotor skills, therefore the use of hairpainting, frosting cap, Spatula and Super Streak cups will not be allowed for the mandatory tasks.



4

On the right rear quadrant the candidate will perform a weave and a slice. A medium weave will be performed on the top portion of the right rear quadrant. A fine slice will be performed on the bottom right rear quadrant. There is a dividing line between the weave and slice to indicate where they both should take place. Observe the number of sections to be bleached and come as close as possible to duplicating them. The dividing line is not in the same position on each of the mannequins. **NOTE:** The weave and slice may be started in any order.



5

A medium weave is described as one-eighth of an inch sections with one-quarter of an inch subsections. There must be enough natural hair between the hair being bleached to create a distinct separation. (See #12) The hair left natural between highlighted sections must be greater than the hair being lightened. Apply the bleach as close as possible to the scalp without bleeding.



6

This packet would receive a poor rating because of the inconsistency and application. The size of the strands are inconsistent as well as the application of bleach.

Deduction: APPLICATION
CONSISTENCY



7

This packet would receive no deductions even though the strands are slightly inconsistent. If all packets were of this ranking, the candidate would receive an excellent score for consistency.

Deduction: NONE



8

Each packet containing bleach will be separated by one quarter of an inch of natural hair. In portions of the quadrant it will require more than one packet to go from one edge of the quadrant to the other. Keep the packets in line rather than using a brick laying pattern.



9

If the candidate follows directions and leaves the proper amount of hair between the packets, there will be ample space to apply the necessary number of packets to receive an excellent score. You are encouraged to go through the performance examination using a conditioner as a bleach and making notes of your timing.

Deduction: NONE



10

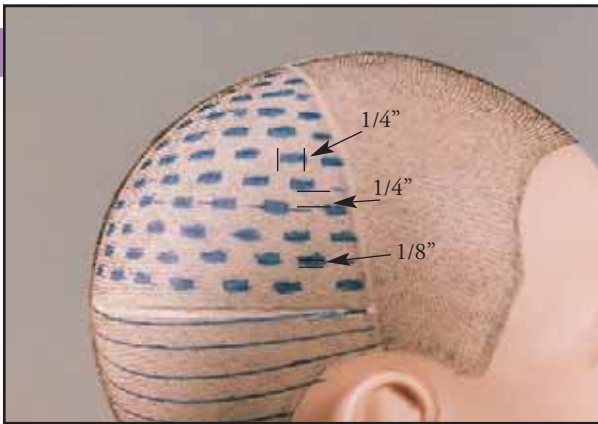
Leaving too much hair between packets would not allow the candidate to have the correct number of packets for a good or excellent score.

Deduction: FOLLOWS INSTRUCTIONS
CONSISTENCY



11

Here the upper portion of the right rear quadrant is completed with foil packets. The candidate may also start the foil application at the nape and work upward toward the crown. There is a ridge between the slice and weave sections. If there is an odd amount of hair between the weave and slice after completing your first portion, it may be pinned out of the way before proceeding.



12

SLICING PROCEDURE

On the lower portion of the quadrant the slice technique will be performed. The slice technique requires the candidate to take a section of hair that is as thin as possible. The thinner the better. The lines indicate the hair to be lightened, the spaces between indicate the distance between the packets. The number of sections indicated on this mannequin is 12 sections. Not all mannequins are alike.



13

SLICE TECHNIQUE

The slice technique would require the sections to be thin and consistent. This degree of consistency is acceptable.

Deduction: NONE



14

This slice too thick. The slice should be as thin as possible.

Deduction: FOLLOW DIRECTIONS



15

The bleached sections are separated by one quarter inch of hair left natural. The entire lower portion of the quadrant must be completed before proceeding to the weave slice section.



16

The candidate may also start the slicing procedure at the bottom of the section and work up. When the weave and slice techniques are completed move to the next task. Do not wait for the evaluators to tell you to proceed, go directly to the highlight retouch quadrant.



17

HIGHLIGHT RETOUCH TECHNIQUE

The right front quadrant of the mannequin is utilized for the highlight retouch. The candidate must have prepared the mannequin in advance as detailed in the chapter 'PREPARING THE MANNEQUIN.' When retouching the highlights in this section, an attempt should be made to maintain the same degree of blonde.



18

The retouching of highlights is one of the most challenging aspects of haircoloring. The proper decisions made during this process will insure the client of healthy hair and the haircolorist a faithful client. It is for this reason the highlight retouch is a mandatory technique for the examination. Avoiding all of the previously bleached hair and bleaching all virgin hair as in this photograph is discouraged. If this behavior is repeated throughout this section it would result in a major deduction.



19

The evaluators will be checking the manner in which the candidate avoids the previously lightened hair. The evaluators understand avoiding the previously lightened hair entirely is nearly impossible, but much can be done to retain the integrity of the hair. The amount of overlapping shown here is acceptable, also the small amount of virgin hair on the ends would not draw deductions.



20

With each section of hair placed in the packet there is a decision to be made. Evaluating the entire section will give the evaluators a sense of how carefully the bleach was applied. This packet is also acceptable.



21

In this foil, the virgin hair is all bleached with a small section of previously bleached hair avoided. This behavior shows sensitivity to the client's hair. The candidates need to demonstrate to the evaluators the ability to utilize "stagger" technique. The "stagger" technique is defined as "staggering" the bleach application in the packet and not stopping the bleach at the first sign of previously bleached hair.



22

When folding the packet, caution should be taken to not have previously bleached hair that has been avoided, come in contact with bleach being applied. The previously bleached hair was first avoided, then when folding the packet the hair was folded into the bleach.



23

Here the previously bleached hair has been avoided and only the new growth bleached. This is a method used on clients in order to minimize a blonde build-up. This is a technique that is encouraged.



24

Repeating this application throughout the quadrant would be a major deduction. This pattern repeated would result in blonde scalp and darker ends.

When the right side of the mannequin is complete move directly into the optional techniques. An evaluator will allow the candidate to draw the optional techniques.



25

OPTIONAL TECHNIQUES

The left side of the mannequin will be utilized for two of five optional techniques. These techniques are: Gray reduction, high low lighting, bleach retouch, tone on tone and reverse highlighting.



26

GRAY REDUCTION

The left front quadrant shall be used for the gray reduction. This section is 75% gray hair. For gray reduction optional technique, the candidate will be asked to reduce the amount of gray hair by 25%. Thus when completed, the quadrant should appear to be 50% gray. The photo shows 10 fine slices. This would receive a good score.



27

Gray reduction is accomplished by isolating sections of hair with a fine weave and darkening the hair in the packet. The candidate should formulate as though the client is in the dark brown category.



28

Here is another method of accomplishing gray reduction by utilizing papers and fine slices. The dark color should be applied as close to the scalp as possible without touching the scalp.



29

Deductions will be made for large chunky streaks, color applied too far from the scalp and inconsistent application of color.



30

TONE ON TONE

Another task you may be asked to complete on the left front quadrant is tone on tone. For the purpose of the examination, the tone on tone is described as coloring all of the hair two different colors. Tone on tone may be accomplished in a number of ways. When completed the gray hair should be completely covered with the darker color and there will be another complimentary tone of hair. The colors used should be at least two levels apart.



31

The tasks on the left side of the mannequin may be completed with any tools or technique desired. The difference between gray reduction and tone on tone is that gray reduction adds dark strands of color through the gray hair matching the natural pigmented hair, while tone on tone covers all of the gray hair utilizing two different colors. This tone on tone a level 7 color is used in the packets, then a level 4 golden brown was applied around the packets.



32

The tone on tone in this photograph is accomplished by first applying a light brown haircolor throughout the strand, applying the cups and placing bleach in the cups. This will produce a light brown haircolor with golden highlights. The darker color may be applied first, as in this method or it may be applied around the packets as in the previous technique.



33

Your two optional techniques may be accomplished in any order you wish, however it is recommended you first do the rear quadrant. If the front quadrant on the left side is done first, you are left working between two rows of foils and it can be somewhat awkward.



34

HIGH-LOW LIGHTING

The high-low lighting technique is used for a variety of situations. For the client whose hair is growing out from a too blonde look, either single or double process blonde. The client whose hair has become too blonde from multiple highlights, wants to remain blonde but disguise the demarcation line.



35

High-low lighting is utilized to restore a look of naturalness to the hair. The left rear quadrant has the look of bleached hair that has grown out for two months. The candidate is asked to restore the haircolor to a natural looking highlighted effect. This is accomplished by highlighting the new growth while adding darkness to some of the bleached ends. The candidate may utilize any tool or method of accomplishing this task.



36

The high low lighting technique used here is being completed with the use of foils. When utilizing the high low technique, you are attempting to maintain as much of the new growth such as you would in a highlight. In these situations the client desires to have their natural hair grow out and only highlight their hair. In order to receive a good score the candidate must place no less than seven highlight packets and seven low light packets.



37

Some of the foils in the high-low quadrant contain bleach at the new growth. Other foils contain color from the demarcation line to the ends. Some of the pale yellow hair has been left untreated between each of the packets. When doing the high low lighting you can start at the nape or at the crown. First you do a highlight, then you leave some untreated hair, then you apply a low light, then leave some untreated hair. Continue this process until at least seven highlights and seven low lights have been applied.



38

REVERSE HIGHLIGHTING

Reverse highlighting is for the client who is tired of coloring their hair and wants to return to their natural color. Some of the existing blonde is isolated in order to give the client a highlighted effect.



39

Reverse highlighting differs from high-low lighting. In reverse highlighting, the virgin haircolor at the scalp is not preserved. Sleeves are being used here to isolate some of the blonde hair. The formula used to darken the lightened ends should reflect the fact there is no red undertones in the hair.



40

To accomplish the reverse highlighting in this instance the blonde hair was isolated in foil with a thick conditioner. Color was then applied to the new growth and the blonde ends. For the examination, make certain the hair being isolated is also colored from the scalp to the demarcation line. If conditioner is used to isolate the blonde hair, red food color should be used. The food color is furnished by the examination committee.



41

The result should be the same as if the hair has been highlighted in reverse. Thus, the name reverse highlighting. The degree of lightness or darkness is determined by the amount of blonde hair isolated, as well as the depth of the color being used.



42

Bleach retouch will be another task the candidate may be asked to perform. Evaluators will be looking for the method of application, the amount of overlapping, amount of bleach used and neatness of the application. The bleach may be applied in whatever manner the candidate prefers, Applicator bottle or brush and bowl are both acceptable. Care should be taken to not get bleach on the other quadrants.



43

Questions will be asked of the candidate on whatever optional tasks are drawn. At the conclusion of the assigned tasks, the candidate will step away from the mannequin and raise his/her hand until recognized by the timekeeper. Do not leave the room **unless given permission.** *(This is an option of the evaluator captain).* Do not clean up until you return to pick up your mannequin. The evaluators will indicate when your mannequin may be picked up. The time required to remove the packets and evaluate the mannequins is determined by the number of candidates.

Note: None of the procedures in the performance examination require the mannequin be shampooed and dried. All of the evaluation will be done during the procedures and when the packets are being taken down.