

Developed by Western Massachusetts Coalition for Occupational Safety and Health

Funded by

The Toxics Use Reduction Institute

Rresentation Overvie chemical Hair Relaxie

• Hair Relaxing Process

• Health and Safety Concerns

• Health and Safety Precautions

Safer Alternatives

# **Products Used** In the Chemical Relaxing Process

Chemical Hair Relaxer

• A Neutralizer

• A Conditioner to stabilize the hair

• A Petroleum Cream to protect the client's scalp

## **Preparing Your Client**

Do not use relaxer or perm if:

- Scalp has abrasions, irritations, or open sores.
- There is a presence of metallic salts (lead, silver and copper), or compound henna.
- Hair has been lightened.
- If they have had an allergic reaction to previous relaxers.



# **Preparing Your Client**

- Do a strand test.
- Ask client to remove glasses, contact lenses and neck jewelry to prevent a chemical reaction to the metal and to avoid chemicals getting trapped behind the lenses.
- Give client a chemically resistant cape. You can put a towel around the client's neck in the collar of the cape for added protection.





#### **Preparing Your Client**

- Do not shampoo client prior to using sodium hydroxide which can burn and irritate scalp.
- Base Formula Apply petroleum cream to scalp to protect it from the corrosiveness of the Sodium Hydroxide.



- No-Base Formula Apply a barrier cream around hairline, over the ears.
- Place a coil or ban of cotton around the entire hairline.

# **Protecting Your Client**

• Keep solutions out of eyes and ears and off of skin.

• Do not scratch scalp with nails or comb.

• Do not use heat which will open pores of client and cause injury.

Selecting A Relaxer

There are three types of hair relaxers:

• Sodium Hydroxide

strongest very hazardous

• Ammonium Thioglycolate

fairly strong significant health risk

• Acid-Based with Bisulfates

least strong least health risk

#### Selecting A Relaxer

All types of relaxers are used as:

- an alkali to *soften* and *swell* the cuticle,
- to allow solution to *penetrate* the cortex,
- and *break-down* the disulfide bonds. *The disulfide bonds contribute to the curliness of the hair.* When they are *broken, the hair becomes straighter.*



Milady's Standard: Textbook of Cosmetology, 2000

#### **Selecting Relaxer -** *Sodium Hydroxide*

- Has the highest pH: 12 14
- Used for very curly hair
- Cannot be followed by a permanent wave



#### Two formulas:

o Base: uses petroleum cream to protect scalp
o No-Base: doesn't use petroleum cream as it is milder

### Relaxer Health Hazards Sodium Hydroxide (Lye)

• Problem

highly alkaline and corrosive

- Health Effects
  - burn skin and scalp
  - cause blindness
  - irritant to skin, eyes, respiratory system
- Alternative Product
  - Bisulfates



Lye Based Product

### **Selecting Relaxer - Ammonium Thioglycolate**

- Has a lower pH and is somewhat milder than Sodium Hydroxide.
- Not strong enough to very curly hair unless followed by a Thio-perm with large perm rods.
- Ammonium Thioglycolate is the same product that is used in *Cold Waving* with a heavy cream or gel.
- Is a respiratory, eye and skin irritant. Is extremely corrosive, can burn skin & eyes on contact.

### **Selecting a Relaxer** – *Acid-Based Relaxer*

• Uses Bisulfates.

 Although, it has a lower pH and is milder than Thioglycolate and Sodium Hydroxide, it still has very harsh chemicals such as CaOH, and needs to be used with caution.

May not address extremely curly hair.

### Selecting A Relaxer Other Ingredients of Concern

- *Calcium Oxide* corrosive, can burn eyes and skin on contact
- *Cetyl Alcohol* respiratory, skin and eye irritant
- Isopropyl Alcohol respiratory, skin and eye irritant
- *Camphor* skin irritant
- *Ammonium Hydroxide* (*Ammonia* ) eye, skin and respiratory irritant, corrosive, can burn eyes and skin on contact

#### **Selecting A Relaxer** *Other Ingredients of Concern*

- **Propylene Glycol** skin and eye irritant
- Sodium Peroxide prolonged exposure can burn and ulcerate skin and eyes
- *Titanium Dioxide* skin irritant, causes tumors in animals
- *Hydrogen Peroxide* skin, eye, and respiratory irritant, skin and eye burns
- *Boric acid, perborate, or borate* central nervous system effects, kidney damage if swallowed

# Beware of Selecting What Appears to be a Less Hazardous Relaxer



Example of a No-Lye **Product** 

Check ingredients to determine what else is in it!

# Beware of Selecting What Appears to be a Less Hazardous Relaxer



Designed for use on the sensitive scalps of children.

What are the ingredients?

Is it less hazardous?

## Beware of Selecting What Appears to be a Less Hazardous Relaxer



### No lye, lithium hydroxide relaxer with Vitamin E

#### Is it less hazardous?

## Applying the Relaxing Lotion

• Determine if a conditioner filler is needed before the relaxer can be applied.

• Apply relaxer for appropriate length of time.



#### **Chemical Hair Relaxing Process**



- FIGURE 25.8b All H bonds broken and most S bonds broken.
- FIGURE 25.8c Neutralizer returns hair to its normal pH.
- FIGURE 25.8d Straightened hair.

### **Rinsing Relaxer Solution Out**

- Use warm water, hot water will open pores and irritate scalp already sensitized by chemicals.
- Thorough rinsing is important to remove the chemical from the *internal hair structure*, not just the *surface*.



#### Shampoo With Neutralizing Shampoo After Relaxer

- Neutralizers chemically *rebond* the broken disulfide bonds and *harden* the hair into its new form.
- They are at an acidic pH to *counteract* and *stop* the alkaline processing action.
- Use neutralizers with *hydrogen peroxide* instead of *bromates* which are poisonous if swallowed or entered through skin.



Milady's Standard textbook of Cosmetology, 2000

### Shampoo With Neutralizing Shampoo

- Be sure to have gloves on.
- Comb through hair to saturate hair completely.



- Time the neutralizer as directed to allow the hair to rebond and harden.
- Shampoo again to bring down pH.

### Finishing Up the Hair Relaxing Process

• Apply and rinse conditioner.

• Clean-up.

• Discard unused products properly.

• Sanitize equipment and tools.

## Using and Storing Chemical Relaxers

- Try to use up all the product in one container before opening another.
- Do not add anything extra or dilute the products unless directions instruct you to.
- Keep them stored away from acids and oxidizers (e.g., Peroxide).
- Try to store them in a room that is ventilated.