

Lecture-17

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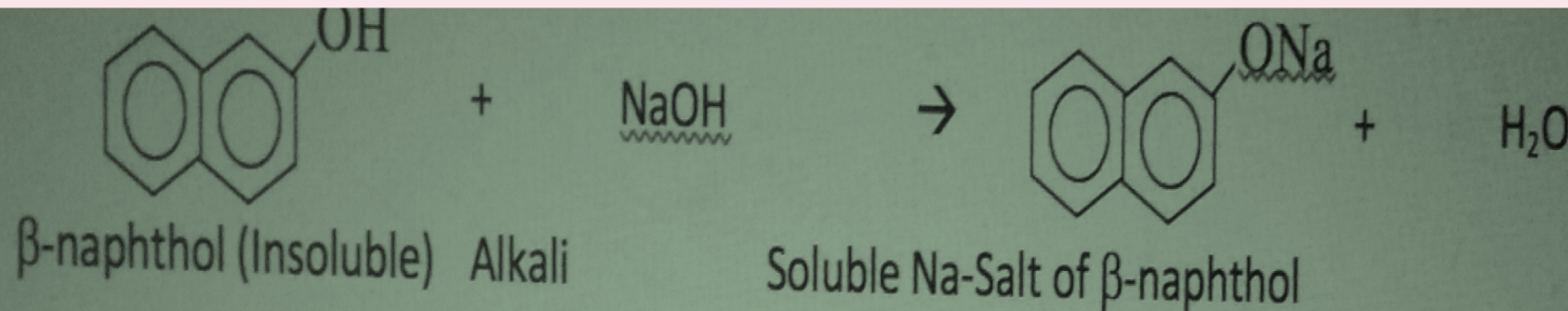
Chemicals Used for Naphtholation

1. Naphthol:

Naphthol is the coupling component, which reacts with di-azo components and this azoic color is formed.

2. Alkali:

Naphthol is not easily soluble in water. So alkali is used to convert naphthol to soluble Na-Naphtholate. Thus alkali makes naphthol substantive to cotton fiber.



Chemicals used in Dyeing with Problem & Stripping Process (Continued)

Chemicals Used for Naphtholation (Continued)

3. Common Salt:

Common salt (NaCl) is used as an electrolyte to increase substantivity of naphthol to fiber.

4. Formaldehydes:

In the bath, Sodium Naphtholate shows the tendency to be converted to free naphthol by oxidation process. Formaldehyde prevents that tendency. But, formaldehyde is not used for all time. Only in the cases where naphthol solution has to keep for long time formaldehyde is used.

Problems in Dyeing with Azoic Dyes

1. Uneven Shade:

The reasons for uneven shade are:-

- a) Faulty liquor movement
- b) Faulty fabric movement during naphtholation
- c) Improper naphtholation
- d) Improper Hydro extraction

2. Naphthol Migration:

The naphthol in fabric goes to base solution of the bath and reacts with base other than in the fabric. This is called naphthol migration. This occurs due to:-

- a) Improper selection of naphthol
- b) More moisture in fabric.

3. Slow Coupling Reaction:

The reasons for slow coupling reactions are:-

- a) Improper selection of base to mix with naphthol
- b) Wrong range of pH in bath i.e. more acidity.

Chemicals used in Dyeing with Problem & Stripping Process (Continued)

Problems in Dyeing with Azoic Dyes (Continued)

4. Affinity of Base towards Cellulose:

Azoic base should have affinity towards naphthol. But sometimes it shows affinity towards cellulose. This hampers dyeing.

5. Blinding Effect:

In case of rayon dyeing a blinding effect may occur due to—

- a) Presence of excess alkali during naphtholation.
- b) Improper value of pH
- c) Presence of alkaline group in coupling bath.

This blinding effect may be prevented by using alkali blinding agent (e.g. alum)

6. Pigment on Fiber Surface:

The reasons for this are:-

- a) Unfixed dye on fiber surface (Unreacted naphthol)
- b) Improper washing after dyeing.

This can be prevented by—

- a) Using blinding agent for alkali
- b) Curing process.

7. Naphthol Decomposition:

Atmospheric CO₂ may decompose naphthol. It can be prevented by using salt solution with naphthol.

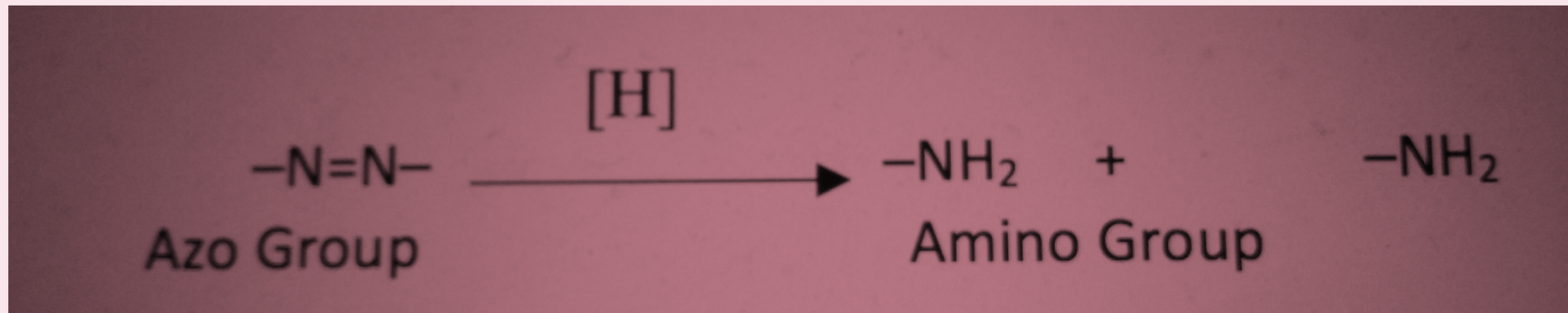
Chemicals used in Dyeing with Problem & Stripping Process (Continued)

Stripping of Azoic Color

The removal of dye from dyed material is called stripping. Stripping of azoic dye is carried out due to following reasons:-

- a) For uniform shade.
- b) For faulty dyeing.

Stripping of azoic dyes is done in reduction process. By reduction the azo group is converted to two colorless amino groups which go out from fabric is washed.



Chemicals used in Dyeing with Problem & Stripping Process (Continued)

Difference between Azo dyes & Azoic Dyes

Azo Dyes	Azoic Dyes
1. Contain soluble azo group	1. Contain insoluble azo group
2. Readymade dyes	2. Not readymade dyes
3. Don't require diazotization and coupling reaction	3. Require diazotization & coupling reaction
4. Don't produce so bright shade	4. Produce bright shade
5. Don't have good wash fastness	5. Wash fastness is good
6. Simple dyeing and printing	6. complicated dyeing and printing process
7. Less costly	7. More costly
8. No ice is used	8. Ice is used
9. One bath process	9. Two bath process.

