

Lecture-12

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graph TD; A[Lecture-12] --> B[Contents]; A --> C[What is Sulphur Dye]; A --> D[Properties of Sulphur Dye]; A --> E[Reasons of Popularity for Producing Black Shade];
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Contents

What is Sulphur
Dye

Properties of
Sulphur Dye

Reasons of
Popularity for
Producing Black
Shade

Sulphur Dye & its Properties

Sulphur Dye?

Dye-S-S-Dye

Water insoluble Sulfur dye molecule

Sulphur dyes are highly coloured, water insoluble compounds and have to be converted into water soluble substantive forms (leuco forms) before application to the textile materials.

This conversion is carried out by a treatment with a reducing agent like dilute aqueous Na_2S .

Since this leuco form of sulphur dye is substantive to cellulosic materials, these are absorbed on the fibre surface.

Then, these are converted into original water insoluble form by the oxidation. This oxidation is carried out by “airing” (exposure to air) or by using an oxidizing agent like Na-dichromate ($\text{Na}_2\text{Cr}_2\text{O}_7$).

Sulphur Dye & its Properties (Continued)

Sulphur dyes are So Called?

Dye-S-S-Dye

Water insoluble Sulfur dye molecule

The dyes are so called as they contain sulphur linkage within their molecules,

But dissolved in a solution of sulphide which acts as a reducing agent, breaking the Sulphur linkage and converting the molecules into simpler components which are soluble in water and substantive towards cellulose.

Sulphur Dye & its Properties (Continued)

Properties of Reactive dyes (Continued)

- Sulphur dyes have Sulphur linkage within their molecules.
- Sulphur dyes are highly colored water insoluble dyes. Some dyes are partially soluble in water.
- They have no direct affinity towards cellulosic fibres. To make them substantive they are to be converted in to soluble leuco form by treating them with reducing agent.
- Sulphur dyes have good light fastness with rating about 4. This light fastness may be improved by an after treatment with metallic salt.
- These dyes have excellent wash fastness with rating about 3-4. This good wash fastness is due to its larger molecular size & insolubility in water.
- They are not applicable to wool due to strong alkaline condition.

Sulphur Dye & its Properties (Continued)

Causes for the popularity of producing black shades with sulphur dyes:

- 1) Low cost
- 2) Fair to good light fastness
- 3) High Wash fastness
- 4) Easy to apply
- 5) Low energy required
- 6) Chemical resistance is moderate to good.
- 7) Wide range of shades especially on heavy, durable shades on apparel fabric.



**Thank
You!**