

# Lecture-20

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# Disperse Dye with It's Properties & Classification

## Disperse Dyes?

The term 'disperse dyes' have been applied to organic coloring substances which are free from ionizing groups, are of low water solubility and are suitable for dyeing hydrophobic textile materials from colloid dispersion.

It is a special class of dyestuff which is used for dyeing man-made fibers eg acetate, polyamide, polyesters etc.

The dye is so called because it is non soluble, non ionic dye and molecularly dispersed, farther dispersing agents are used with the dye. The size of the dye molecule is very small.

# Disperse Dye with It's Properties & Classification (continued)

## Properties of Disperse Dyes

- Disperse dyes are nonionic dyes. So, they are free from ionizing group.
- They are ready made dyes and are insoluble in water or have very low water solubility.
- They are organic coloring substances which are suitable for dyeing hydrophobic fibres.
- Disperse dyes are used for dyeing man made cellulose ester and synthetic fibres specially acetate and polyester fibres and sometimes nylon and acrylic fibres.

# Disperse Dye with It's Properties & Classification (continued)

## Properties of Disperse Dyes (Continued)

- Disperse dyes have fair to good light fastness with rating about 4-5.
- The wash fastness of these dyes is moderate to good with rating about 3-4.
- Of all dyestuffs disperse dyes are of smallest molecular size.
- Generally disperse dyes are derivatives of azo, anthroquinone, nitro and quinine groups.

# Disperse Dye with It's Properties & Classification (continued)

## Classification of Disperse Dyes

### According to Fastness Property:

Group A: These dyes have excellent dyeing properties and good fastness properties.

Group B: These dyes are excellent in high temperature and for carrier dyeing with moderate fastness.

Group C: These dyes are moderate for carrier and high temperature dyeing with higher fastness property than group B dyes.

Group D: These dyes are of excellent fastness to heat but for dyeing properties on carrier method.

# Disperse Dye with It's Properties & Classification (continued)

## Classification of Disperse Dyes (Continued)

### According to Energy Requirement:

Low energy dyes: These dyes are used to dye with carrier. For dyeing 77°C temperature is required. They have extremely poor resistance to sublimation.

Medium energy dyes: These dyes are used to dye mostly in between temperature 104°C-110°C which provides better sublimation fastness than that of low energy dyes.

High energy dyes: These dyes are used to dye at temperature above 129°C and are suitable for continuous dyeing. They provide all round fastness properties.



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