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Have you ever wondered what produces such brilliant colors in numerous industrial applications? The answer is simple; all the hues and shades come from various dyes. One of the earliest samples of dyed fibers have been found in the republic of Georgia in a prehistoric cave that is likely to date back to 36000 BP. There have been extensive proofs of dyeing since the prehistoric times in India and Phoenicia. William Henry Perkin discovered the first human made dye in 1856.

Natural dyes are derived from sources such as roots, berries, wood, fungi, bark, lichens and leaves. There are different types of dyes depending upon their chemical properties. Vat dyes are one of the most commonly used dyes when it comes to coloring in the textile industries. In the section below, let us go through some of the properties of these dyes.

Understanding what is a vat dye.

This large class of dyes is, generally, water insoluble, derivatives of indigo and Anthraquinone. These dyes, used in textile industry, are utilized to dye fibers in the solvent form. The dye is the oxidized to its original form after this.

These dyes are generally given the name as the process of dyeing takes place in a vat or a bucket in order to achieve an even color all over the garment. Most fibers such as cotton and wool can be colored with these dyes. These dyes are generally soluble if a reducing agent is added to the mixture. This means that they are soluble in their oxidized forms.

How is coloring done using Vat Dyes?

The process of coloring with a vat dye involves immersing the fiber repeatedly in the dye bath, after which, it is dried in the air. Indigo is one of the perfect examples of this class of dyes, which changes its color from yellow to green and blue as bit, when exposed to the air. There are also a few varieties of these dyes, which require light in order for the process of oxidation to take place. Those dealing with these dyes need to know that the process depends on various chemical properties that include those of pH control, oxidation and reduction. The reduction process generally targets the Keto dye of the Vat dye molecule.

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