

How to Write a Review Paper

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Classifications, properties, recent synthesis and applications of azo dyes

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ABSTRACT

In this work, we have presented a detailed review of the different classifications of azo dyes as a function of the number of azo groups and the application functional groups. This is an attempt to cover different properties of these dyes such as reactivity, toxicological and environmental and their use in the following we have summarized some recent synthesis of azo dyes and the mechanism of azo dye synthesis. Finally, we review the progress of analytical methods and its application to the synthesis of azo dye.

1. Introduction

Azo dye represents a largest production volume of dye chemistry today, and their relative importance may even increase in the future. They play essential role in the production of the dye and printing industry. These dyes are synthesized from a simple method of diazotization and coupling. Different routes and modifications are made to obtain the desired color properties, yield and particle size of the dye for required application [1].

synthesis of azo dye using these are [1], [2] reduction of nitro aromatic derivatives to aniline moieties, reduction of nitro aromatic groups by Zn/Ac, oxidation of primary amines by peracetic acid, protonation of hydroxamates, condensation of hydroxyl and primary, modification of primary amines with nitro aromatic, etc.

The azo group may be located in benzene ring, naphthalene, or other heterocyclic or in variable aliphatic groups [3]. There are essential to give the color of the dye, with their double of different moieties.

Various Methods for Removal of Dyes from Industrial Effluents - A Review

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Abstract

Abstract: To explore most suitable and efficient method for the removal of dyes from textile effluents. **Methods:** **Natural Adsorbents:** In this paper, detailed information of research work carried out by many researchers related to various methods for the removal of various dyes especially Methylene B, Methylene Blue, Crystal Violet, Methylene Green and Solochrome dye present in textile effluent have been compiled and compared to find out cheap and effective method by calculating their percentage removal. **Efficient Adsorbents:** It has been found that among all the methods reported so far, Adsorption process shows promising results and overcome almost all the demerits of otherwise efficient methods like advanced oxidation and electro-coagulation etc. in terms of high cost and design problems. In the use of natural adsorbents and agricultural/industrial waste materials especially modified flyash, red mud, activated rice husk, vermiculite modified alumina, bentonite clay as adsorbents is recommended for the removal of various dyes since they are of low cost, low cost, easily available and have great affinity for dyes. Moreover agricultural/industrial waste often poses a disposal problem. In their use (after chemical treatment) as adsorbent is environmental friendly. **Applications Recommendations:** This review paper would be helpful to find the most promising method for the removal of various dyes from the textile effluent considering the merits and demerits of each method. Much work has been done to explore the most effective and cheap method for the removal of dyes, recently but not under the range of operating conditions. In future, more methods need to be explored to study and check removal of dyes from real textile effluent at the industrial level as the dye effluent also contains other harmful pollutants. Attention is to be paid to develop cheaper and more efficient adsorbents from the agricultural/ industrial waste with some modification which would be cost effective. Moreover, management of exhausted adsorbents is also to be taken care of.

Keywords: Biodegradable, Biosorbent, Various Dyes, Coagulation, Adsorbent Extraction and Removal of Dyes

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