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精细化工国家重点实验室被写入Ullmanns百科全书

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Ullmanns百科全书全称《Ullmanns工业化学百科全书》(Ullmann's Encyclopedia of Industrial Chemistry)，是应用化学和化学工程领域中历史最悠久、具有重要影响的综合性参考书。为了更新近年有关领域的产业状况，该全书开始了第七版全面修订工作。我校张淑芬教授被作为染料领域知名专家(a renowned expert)受邀重写或修正偶氮染料(Azo Dyes)和活性染料(Reactive Dyes)等专章内容。

Reactive Dyes		ULLMANN'S ENCYCLOPEDIA OF INDUSTRIAL CHEMISTRY	
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1. Introduction

The most important distinguishing characteristic of reactive dyes is that they form covalent bonds with the substrate that is to be colored during the application process. Thus, the dye molecule contains specific functional groups that can undergo addition or substitution reactions with the $-OH$, $-SH$, and $-NH_2$ groups present in textile fibers \rightarrow Textile Dyeing. 2. Dyeing of Cellulose Fibers, Chapter 1. Dyeing with Reactive Dyes.

CROSS and BRYAN first succeeded in fixing dyes covalently onto cellulose fibers in 1895 [1], but their multistep process was too complicated for practical application. Early work by SCHROEDER with sulfonyl chloride-based dyes was unsuccessful [2], but GENDLER later did succeed in fixing derivatives of isatoic anhydride onto cellulose fibers [3].

An alternative approach is to modify the fibers themselves and then introduce the coloration. For example, cellulose can be reacted

with 4-nitrobenzylidimethylphenylammonium hydroxide or 3-nitrobenzylloxymethylpyridinium chloride, followed by reduction, diazotization, and coupling to a dye [4]. Another process, invented by HALLER and HICKENSDORF, involves treating the cellulose with cyanuric chloride in an organic solvent and then reacting the product with an amino group-containing dye [5].

The first industrially important reactive dye systems were developed for wool, and took advantage of the chloroacetyl amino [6] and the chlorosulfonate groups [7]. Vinylsulfonyl- and 2-sulfoxyethanesulfonyl groups were found to be applicable to both wool and cellulose. HEYNA and SCHUMACHER patented some of the first dyes of this type in the 1940s [8, 9], and vinylsulfone dyes continue to be of great importance.

The dyes described in [8] entered the market for wool in 1952 under the trade name Remalan, followed a year later by the Cibalan dyes from Ciba-Geigy, which

张淑芬教授在活性染料(Reactive Dyes)专章中介绍了近年中国染料行业的生产规模,增加了更先进、安全、节能减排的染料产品类型,和近年出现的纤维数码喷墨打印技术。该部分内容的补充一方面强调了染料行业正在向高效、安全、清洁的生产和应用方向发展,另一方面展现了中国染料行业作为世界染料行业第一方阵的排头兵,不仅产量居世界第一,行业的科技进步也必将在世界染料行业产生推动性影响。同时,张淑芬教授将大连理工大学精细化工国家重点实验室的名字以作者单位写入Ullmanns工业化学百科全书,彰显了实验室在国际染料领域的学术影响。

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