化學混凝色之研究

許偉智、魏漣邦

E-mail: 9122301@mail.dyu.edu.tw

摘 要

在本研究中，將對三種染料(REACTIVE RED 141, ACID BLUE 62, AND DIRECT YELLOW 86)溶液進行添加兩種無機混凝劑PAC、ALUM及三種不同分子量的陽離子高分子聚電解質的脫色研究。 根據本研究的結果，可以獲得以下之結論： 1、陽離子高分子聚電解質對染料脫色是有效的。 2、PAC的脫色效率較ALUM為佳。 3、染料結構上的磺酸基越多，則其脫色效率越好。 4、添加過量陽離子高分子聚電解質會發生再穩定現象，使得陽離子高分子聚電解質有狹窄的最佳加藥劑量範圍。然而比起添加無機混凝劑的劑量，陽離子高分子聚電解質的添加劑量少許多。 5、在高PH值條件下對無機混凝劑或是添加界面活性劑對陽離子高分子聚電解質都會明顯造成脫色效率低落。 6、陽離子高分子聚電解質可與無機混凝劑依序混合添加去除水中染料顏色，此混合添加方式對脫色來說是具有綜合效應的。

關鍵詞 : 化學混凝、混凝劑、染整廢水、陽離子高分子聚電解質

目錄

參考文獻

1. BENEFIELD L. D., JUDKINS J. F. JR. AND WEAND B. L., PROCESS CHEMISTRY FOR WATER AND WASTEWATER TREATMENT, 1981. 2. CHANG, C. N., LIN, J. G., CHAO, A. C., AND LIU, C. S., " MODIFIED NERNST MODEL FOR ON-LINE CONTROL OF THE CHEMICAL OXIDATION DECOLORING PROCESS,"WATER SCIENCE AND TECHNOLOGY, 34（3）, PP.151-157, 1996. 3. CHENG, C. N., YU, R. F., CHAO, A. C., AND SEISHU TOJO. , "ON-LINE MONITORING AND CONTROL OF THE TEXTILE WASTEWATER COLOR REMOVAL PROCESS,"WATER SCIENCE AND TECHNOLOGY, 30（3）, PP. 265-274,1994. 4. CORREIA, V. M., JUDD, S. J., AND STEPHENSON, T., "CHARACTERIZATION OF TEXTILE WASTEWATER - AREVIEW,"WATER　TECHNOLOGY, 15（10）, PP. 917-929,1994. 5. CROLL, B. T., ARKELL, G. M. AND R. P. J. HODGE, "RESIDUES OF ACRYLAMIDE IN WATER", WATER RESEARCH, VOL.8, PP.989~993, 1974. 6. KAEDING, U.W., DRIKAS, M. AND P. J. DELLAVERDE, "A DIRECT COMPARISON BETWEEN ALUMINUM SULFATE AND POLYALUMINIUM CHLORIDE AS COAGULANTS IN A WATER TREATMENT PLANT", WATER SUPPLY, VOL.10, NO.4, PP.119~132, 1992. 7. LETTERMAN, R. D. AND R. W. PERO, "CONTAMINANTS IN POLYELECTROLYTES USED IN WATER TREATMENT", JOURNAL OF AWWA, PP.87~97, NOVEMBER 1990. 8. LIN, S. H., AND PENG, C. F., "CONTINUOUS TREATMENT OF TEXTILE WASTEWATER BY COMBINED COAGULATION, ELECTROCHEMICAL OXIDATION AND ACTIVATE SLUDGE,"WATER RESEARCH, 30（3）, PP.587-592, 1996. 9. LIN, S. H., AND PENG, C. F., "CONTINUOUS TREATMENT OF TEXTILE WASTEWATER BY COMBINED COAGULATION, ELECTROCHEMICAL OXIDATION AND ACTIVATE SLUDGE,"WATER RESEARCH, 30（3）, PP.587-592, 1996. 10. LIN, S. H., AND PENG, C. F., "TREATMENT OF TEXTILE WASTEWATER BY ELECTROCHEMICAL METHODS,"WATER RESEARCH, 28（2）, PP. 277- 282,1994. 11. LIN, S. H., AND PENG, C. F., "TREATMENT OF TEXTILE WASTEWATER BY CHEMICAL METHODS FORREUSE,"WATER RESEARCH, 31（4）, PP.868-876, 1997. 12. NARKIS, N., GHATTAS, B., REBHUN, M. AND A. J. RUBIN, "THE MECHANISM OF FLOCCULATION WITH ALUMINUM SALTS IN COMBINATION WITH POLYMETRIC FLOCCULANTS AS FLOCCULANTS AIDS", WATER SUPPLY, VOL.9, PP.37~44, 1991. 13. SHAUL, G.M., DEMPSEY, C.R., AND DOSTAL, K.A., "FATE OF WATER SOLUBLE AZO DYES IN THE ACTIVATED SLUDGE PROCESS," EPA/600/S2-88/30, WATER ENGINEERING RESEARCH LAB, 1998. 14. SINGER, P. C. AND S. D. CHANG, "CORRELATIONS BETWEEN TRIHALOMETHANES AND TOTAL ORGANIC HALIDES FORMED DURING WATER TREATMENT", JOURNAL OF AMERICAN WATER WORK ASSOCIATION (RESEARCH AND TECHNOLOGY), PP.61~65, AUGUST 1989. 15. STUMM, W. AND MORGAN, J.J., CHEMICAL ASPECTS OF COAGULATION, J. AMER WATER WORKS ASSOC., 54, PP.971-994. 16. STUMP, V.L. AND J.T. NOVAK,

"POLYELECTROLYTE SELECTION FOR DIRECT FILTRATION", JOURNAL OF AWWA, NO.71, PP.338~342, 1979. 17. TAMBO N. AND KAMEI T., "COAGULATION AND FLOCCULATION ON WATER QUALITY MATRIX", WAT. SCI. TECH., 37(10), 31-41,1998. 18. TUNAY, O., KABDASLI, J., EREMEKTAR, G., AND ORBON, D., "COLOR REMOVAL FROM TEXTILE WASTEWATER,"WATER SCIENCE AND TECHNOLOGY, 34（11）, PP.9-16, 1996. 19. WILOCK, A., BREWSTER, M., AND TINCHER, W., "USING ELECTROCHEMICAL TECHNOLOGY TO TREAT TEXTILE WASTEWATER: THREE CASE STUDIES AMERICAN DYESTUFF REPORTER,"AMERICAN DYESTUFF REPORTER, 81（AUG）, PP.15-22, 1992. 20. ZHU, H., DANIEL W., AND S. J. STANLEY, "IMPROVING REMOVAL OF TURBIDITY CAUSING MATERIALS BY USING POLYMERS AS A FILTER AID", WATER RESEARCH, VOL.30, NO.1, PP.103~114, 1996. 21. 王登楷，（2001），「以高級氧化程序處理染整廢水之光反應器設計研究」，碩士論文，大葉大學環境工程所。 22. 甘佳欣，（2001），「以次氯酸去除染整廢水色度之反應動力學研究」，碩士論文，國立中山大學。 23. 張敏超，（1992），「染整廢水之混凝與脫色」，化工資訊，6月，PP. 56-65。 24. 淡江大學土木研究所，(1991)，「事業廢水特性調查與分類」，行政院環保署委託研究報告。 25. 廖志祥、康世芳、洪鴻斌、柏雪翠，（1997），「使用 H2O2/UV 高級氧化程序處理難分解染料製造廢水」，第二十二屆廢水處理技術研討會論文集，台北，PP.179-186。 26. 廖寶玫，（2000），「淨水程序中添加高分子凝聚劑對混凝與加氯處理效應之研究」，博士論文，國立中央大學環境工程所。 27. 蔡騰龍，（1983），「高分子聚合物於水處理之應用」，正文書局出版。 28. 蔡騰龍，（1984），「聚電解質與淨水處理」，正文書局出版。 29. 魏漣邦、張敏超、楊耿豪、許楹昇，(2000)，「化學混凝脫色最佳組合劑量之研究」，第二十五屆廢水處理技術研討會論文集，PP.674-678。