



**“Gh. Asachi” Technical University of Iasi, Romania**

---

## **DECOLORIZING OF PULPING EFFLUENTS BY AMMONIUM LIGNOSULPHONATE OXIDATION**

**Maurusa Ungureanu<sup>1\*</sup>, Viorica Dulman<sup>2</sup>, Valentin I. Popa<sup>1</sup>**

<sup>1</sup>*“Gh. Asachi” Technical University of Iasi, Faculty of Industrial Chemistry, Department of Inorganic Technology, Bd. D.Mangeron 71 A, 700050, Iasi, Romania,*

<sup>2</sup>*“Alexandru Ioan Cuza” University, Faculty of Chemistry, Department of Analytical Chemistry, Iasi 6600, Romania*

---

### **Abstract**

This paper presents the results of studies concerning the oxidative degradation of ammonium lignosulphonate (LS) in the presence of Fenton reagent ( $\text{Fe}^{2+}/\text{H}_2\text{O}_2$ ) and ammonium persulfate – silver ions systems ( $\text{S}_2\text{O}_8^{2-}/\text{Ag}^+$ ).

From data obtained, it was found out a more pronounced efficiency of  $\text{S}_2\text{O}_8^{2-}/\text{Ag}^+$  system, discoloration of samples being completed for an LS concentration of 0.63 mg/mL. These results could be also explained by comparing the content in aromatic hydroxylated compounds, which is significantly lower in the case of Fenton reagent, for the same concentration of LS.

The transformations that occur was furthermore evidenced by UV spectroscopy, which allow the quantitative determination of lignin remaining aromatic units based on absorbance reduction at 280 nm, by conductometric characterization of solutions containing oxidized samples, and by turbidity measurements which gives indications concerning the ability of degraded products to precipitate with  $\text{Ca}^{2+}$  ions.

It was also established the optimum conditions like pH, temperature, sample / oxidant ratio, that enable a rapid discoloration of samples.

*Keywords:* decolorization, oxidative degradation, ammonium lignosulphonate, Fenton reagent,  $\text{S}_2\text{O}_8^{2-}/\text{Ag}^+$  system

---

---

\* Author to whom all correspondence should be addressed: 71A Mangeron Blvd., 700050, Iasi e-mail [meungur@ch.tuiasi.ro](mailto:meungur@ch.tuiasi.ro), Phone: 040-232-278683, Fax: 040-232-271311