



**"Gheorghe Asachi" Technical University of Iasi, Romania**



---

## **ENVIRONMENTALLY FRIENDLY TECHNIQUES FOR CHEMICAL PULP BLEACHING**

**Grigore Crăciun<sup>1</sup>, Gheorghe Duțuc<sup>1</sup>, Alexandru Botar<sup>1</sup>, Adrian Cătălin Puițel<sup>2</sup>,  
Dan Gavrilescu<sup>2\*</sup>**

<sup>1</sup> „SOMES” Pulp and Paper Mill, Bistritei Str. 63, Dej, Romania

<sup>2</sup> „Gheorghe Asachi” Technical University of Iasi, Department of Natural and Synthetic Polymers, 71 A Dimitrie Mangeron Blvd. 700050 Iasi, Romania

---

### **Abstract**

In the last decades there has been a rapid evolution of techniques for production of bleached pulp. Much of these processes have been environmentally driven. New techniques have been developed in order to replace chlorine-based reagents in producing bleached pulp. Reducing the environmental impact of pulp production can be attained by using non-pollutant bleaching reagents like oxygen and related compounds.

This paper deals with present findings and general trends in environmentally-sound chemical pulp bleaching. Most used environmentally-friendly reactants for pulp bleaching are presented emphasizing their role in a bleaching sequence. Oxygen, hydrogen peroxide, ozone, peracids and polyoxometalates are identified as among the most important reagents that can bleach pulp without affecting the environment. Environmentally-friendly pulp bleaching techniques which include a combination of oxygen, ozone, hydrogen peroxide and other non-chlorine chemicals are presented. Options for mill scale environmentally-friendly pulp bleaching are included.

*Key words:* bleaching, chemical pulp, environment, impact

---

\* Author to whom all correspondence should be addressed: [gda@ch.tuiasi.ro](mailto:gda@ch.tuiasi.ro)