



Academicth

INTERNATIONAL WORKSHOP
ADVANCES IN CLEANER PRODUCTION

“CLEANER PRODUCTION TOWARDS A SUSTAINABLE TRANSITION”

Confection and Evaluation of Properties of Polyurethane Plaques with Waste Recovery from Surfboard Fabrication

BARCELOS, R. L.^d, CUBAS, A. V.^{a*}, AGUIAR, A. R.^b, SILVA, L.^c; LERIPIO, A. A.^d,
MAGNAGO, R. F.^a.

a. Environmental Engineering, Universidade do Sul de Santa Catarina (UNISUL), Palhoça, SC, Brazil, CEP 80137-270.

b. Production Engineering, Universidade do Sul de Santa Catarina (UNISUL), Palhoça, SC, Brazil, CEP 80137-270.

c. Laboratory of Research on Materials, Post-Graduate Program in Science and Engineering of Materials, University of the Extreme South of Santa Catarina (UNESC), Criciúma, SC, Brazil, CEP 88806-000.

d. Administration, University of Vale do Itajaí (UNIVALI), Biguaçu, SC, Brazil, CEP 88160-000.

**Corresponding author, ana.dutra@unisul.br*

Abstract:

This study allowed information to be obtained regarding the most important aspects which affect the production process of polyurethane (PU) surfboards in Florianópolis, Santa Catarina State, Brazil. It was observed that the main residue from the production process is PU solid waste. The intended reuses of this solid residue it as raw material for the manufacture of new polyurethane sheets for making surfboards. Polyurethane sheets were prepared by incorporating different percentages of the PU waste collected, with two particle sizes (9 mesh and crude), into the matrix. The results showed that the mechanical properties the tensile strength of the sheets are influenced by the particle size and the percentage of PU incorporated. The degradation of the material begins at 200 oC and thus this material is stable in environmental temperature for use surfboards. Finally, in addition to the experimental results, it is noted that the production process of surfboards in Santa Catarina has sought ways to reuse their waste, aiming at cleaner production.

Keywords: *Productive process. Polyurethane. Waste. Recycling.*