



10th INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“TEN YEARS WORKING TOGETHER FOR A SUSTAINABLE FUTURE”

Reuse of post-consumer polyethylene terephthalate in the construction industry

MARQUES, D. V.^{a*}, BARCELOS, R. L.^b, MAGNAGO, R. F.^a

a. Universidade do Sul de Santa Catarina, Palhoça

b. Faculdade de Tecnologia Senac, Tubarão

**Corresponding author, marques.diegovmarques@gmail.com*

Abstract

There is an increasing demand for polyethylene terephthalate from the beverage sector like in water, oil, and soft drink packaging, which implicates the need to give a suitable destination to waste PET bottles. In order to attribute value to this material, more and more new means of re-use are being sought. For that purpose, we carried out a bibliographic study on new insulating materials for buildings with use of PET residue and an estimation of its potential to replace Expanded Polystyrene (EPS) used as thermal and sound insulation for slabs. We found polyurethane composites with the incorporation of 35% and 45% of PET and alumina trihydrate, which may be an option as a thermal and sound insulation because they meet the Brazilian standards, presenting adequate behavior in the horizontal burning rate test and mechanical compressive strength. It was estimated that between 14 to 18 tons of PET were recycled in Brazil in 2012. Of the total Brazilian production of PET in 2012, a production between 14 and 18 thousand tons of PET was estimated. The incorporation of PET into a new material increases the percentage of recycling and provides gains for the environment and society, thus reducing the amount of waste and contributing to cleaner production dissemination.

Keywords: *Recycling, Polyethylene terephthalate, Polyurethane, construction industry.*
