

## ANTIMICROBIAL ACTIVITY OF TRICLOSAN AND CHLOREXIDINE INCORPORATED INTO CELLULOSIC AND ASBESTOS REINFORCED CEMENT COMPOSITES

ALEXANDRA A. P. MANSUR, HERMAN S. MANSUR

*Department of Metallurgical Engineering and Materials - Federal University of Minas Gerais Rua Espirito Santo, 35/316, Belo Horizonte/MG, Brazil, CEP: 30.160-030  
e-mail: hmansur@demet.ufmg.br*

---

### ABSTRACT

Cellulose reinforced cement products are more susceptible to water induced damages and biological attacks compared to asbestos cement composite materials. The goal of this research was to compare microbial activity in two composites: one reinforced with cellulose modified fibers and another with asbestos fibers. These materials were prepared with and without (reference) incorporation of triclosan and chlorexidine as antimicrobial agents during manufacturing. Bacterial growth inhibition (*Staphylococcus aureus* and *E. Coli.*) was evaluated in agar plate and using visible light spectroscopy. Also bacterioscopy and pour plate techniques were used to identify the presence of bacteria or mold growth in the material. The composites were evaluated at ages of 14 days and 120 days. For early ages, inhibition of microorganisms growth was verified independent from the presence of any type of antimicrobial agents attributed to high pH of cement products. For long-term aged composites the impregnated drugs did inhibit bacteria growth.

### KEYWORDS

Biological attack, cellulose fibers, asbestos, triclosan, chlorexidine.