

**THE FIFTH YUGOSLAV MATERIALS
RESEARCH SOCIETY CONFERENCE**

YUCOMAT 2003

**Programme
and
The Book of Abstracts**

**HERCEG NOVI,
September 15-19, 2003**

Organized by:

YUGOSLAV MATERIALS RESEARCH SOCIETY

and

INSTITUTE OF TECHNICAL SCIENCES OF THE SASA

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**PHYSICO-CHEMICAL PROPERTIES OF POLYMERIC AND COMPOSITE
BIORESORBABLE BARRIER MEMBRANES**

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Bioresorbable barrier membranes are widely used in dentistry and maxillofacial surgery. When the membranes are placed over bony defects and closely adapted to the surrounding bone face, an environment that prevents invasion of competing nonosteogenic cells from the overlying soft tissues can be created. The purpose of the present study was to establish whether there is an influence of production of different polymeric and composite membranes on physico-chemical properties, synthesised in our laboratory.

Physico-chemical properties were analyzed by differential scanning calorimetry (DSC), scanning electron microscopy (SEM) with energetic dispersive spectroscopy (EDS), inverse gas chromatography (IGC) and tensile strength test (TST).

Membranes with poly-l-lactides of 100000 and 430000 g/mol molecular weight have shown the highest degree of crystallinity. Membranes with poly-l-lactides of the greatest molecular weight have shown the highest tensile strength value, as expected. Surface microstructure, depending on the parameters of processing, was perforated with smaller or larger pores. Composite membranes with hydroxyapatite have a brittle fracture while determining tensile strength test, unlike polymer membranes whose fracture is classical for polymers.

Biocompatibility is in the direct connection with surface free energy. Consequently, obtained surface free energy values indicate good biocompatibility of bioresorbable barrier membranes.