

 **raMat 2015**

9TH INTERNATIONAL CONFERENCE ON MATERIALS SCIENCE & ENGINEERING

March 5-7, 2015

**BOOK of
ABSTRACTS**

**Transilvania University of Brasov -
ROMANIA**

**Faculty of Materials Science and
Engineering**



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Coordinated by:
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METALLOGRAPHIC TECHNIQUES FOR NEW MEDICAL DEVICES

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Abstract: Metals have a diverse application in the medical field as implantable, load-bearing replacement components and surgical instrumentation: fracture fixation, screws, cables, joint replacement, surgical instruments, etc. [1]. The field of metallography plays a significant role in the quality control of metals used to manufacture medical implants. Metallography is used to examine

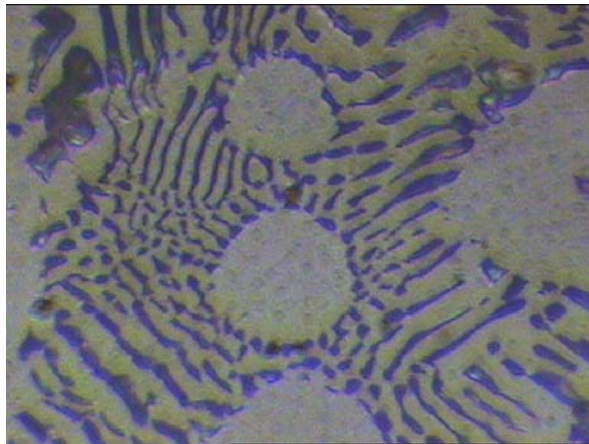


Fig. 1 – Dental alloys structure

raw materials prior to fabrication of the devices and systematic examinations during and after specific processing steps to insure the devices will be safe and effective when used in patients.

The medical practice in traumatology and orthopaedics requires for metallic biomaterials to have certain mechanical properties, from the beginning of the operating period, as well as during and after the surgery. Microstructure descriptions are related to the mechanical properties of metals and alloys under study, and this can be done using the metallography science [2].

Different nickel based dental alloys and titanium alloys (Ti-5Al-4V, Ti-6Al-4Fe, Ti-6Al-7Nb, Ti-15Ta, Ti-25Ta etc.) are presented. Preparation steps of metallographic specimens (sectioning, mounting, grinding, manual and automatic polishing, etching) and microexamination are described. Information on the heat treatment [3], characteristics and constituents of the alloys and representative micrographs are presented (see Fig.1).

Selective references:

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