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## The changes in properties in dental cobalt alloy with recycling material addition

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**Background:** Despite the development of implants, fixed partial dentures remains one of the most functional and economical restorations. To produce this type of dentures are used casting cobalt alloys. The published literature and the practice of dentists pointed out that the quality of these type of restorations may affect the use remelted alloys for the casting. The use of “recycled” material is a common practice lowers the cost of dental laboratories. Literature data report that the remelted alloys can have different properties from brand new alloys, but opinions of the authors are divided. The aim of this study was to investigate the effect of recycled material on the mechanical properties as well as chemical and phase composition of dental cobalt alloy.

**Materials:** Wironit Extrahard (Bego co.) CoCrMo dental alloy was used. Induction melting, and disposable alloy with a composition of 100, 50 pct of new material was applied.

**Results:** Mechanical characteristics such as hardness, tensile strength, bending strength are different for the new material and a material containing recycled alloy. The chemical composition differences was also occurred - first of all in carbon content which value is lower for the samples containing 50% of new alloy than for the 100% of new material. There was no microstructural changes.

### Biography

Karolina Beer - Lech graduated of Mechanical engineering at the Lublin University of Technology and Cracow University of Technology. She is currently working on a PhD in materials engineering. Her interests include biomaterials, especially dental materials.

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