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## Book of Abstracts

## THE POLYMERS FILLED WITH CARBON NANOTUBES AS NEW MATERIALS IN STOMATOLOGY

*L.Elbakyan, I.Zaporotskova, N.Polikarpova*

*Volgograd State University, 400062, Volgograd, Russia*

*\*e-mail: [irinazaporotskova@gmail.com](mailto:irinazaporotskova@gmail.com)*

Quick-hardening plastic are widely applied in stomatology to correction of artificial limbs, repair of artificial limbs, production of orthodontic devices, etc. The strong place is taken by quick-hardening plastic also among sealing materials. However service life of the orthodontic device from quick-hardening plastic less than duration of active orthodontic treatment. Therefore it is necessary to offer new ways of increase of operational characteristics of these plastic.

Possibility of creation of a new composite polymeric material on the basis of the quick-hardening «Carbodont» plastic used in stomatologic practice is considered. «Carbodont» is a composite sealing material on the basis of acrylic polymers [1]. The carbon nanotubes possessing record mechanical characteristics are considered by many authors [2] as an effective remedy of increase of strength properties of composite polymeric materials. The way of reinforcing of «Carbodont» plastic by carbon nanotubes for receiving stronger and durable polymeric composite is offered. Measurements of strength characteristics of the received new polymeric materials are executed. Theoretical researches of process of interaction of carbon nanotubes with polymer components was conducted. Quantum-chemical calculations are executed within the MNDO method and molecular cluster model. Conclusions are drawn on expediency of use of the created materials for needs of stomatology.

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- [2] Long Xie, Feng Xu, Feng Qiu, Hongbin Lu, and Yuliang Yang. *Macromolecules*. **2007**, V. 40, p.3296.