# Nanocomposites and nanomaterials

## Absorption properties of SiO₂ and "KERN-DP" anisotropy automated system

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A non-destructive method for the technological control of $SiO_2$, nanomaterials structure defects by measuring internal friction (IF) and the elastic module E was developed. The defect of IF $\Delta Q^{-1}/Q^{-1}_{sk}$ in $SiO_2$ on fig. 1 and US attenuation coefficient α from the oscilloscopegrammas of corresponding impulses polarization $V_{P[001]}$ in $SiO_2$ skeleton before and after the satiation $V_{P[001]}^{H}$ from ln of amplitudes relationship $A_1$, $A_2$ ($A_0$ – without specimen) and were determined.
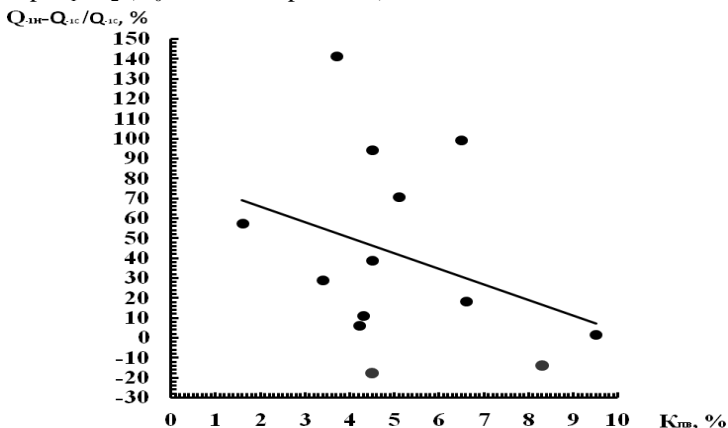


Fig. 1. Dependence the defect of internal friction $\Delta Q^{-1}/Q^{-1}_{sk}$ in $SiO_2$ from the open porosity coefficient $K_{PO}=V_{PO}/V$.

The automated system of the anisotropy ultrasound measurings data treatment of velocities is built on windows principle. The structure of database is developed on language of mySQLinformation, physical properties, the special procedures of data management are developed.

Thus, the measuring of internal friction background $Q^{-1}_0$ after different heat, mechanical, radiation treatments gives information about the changing of the thermoelastic strains fields $\sigma_i$ in $SiO_2$, nanomaterials.