The Features of the Formation a Thin Silicon Oxide Layer on the Surface of Silicon Carbide in the Oxidation in Ozone Pairs

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One of the most important factors which determining the reliability of functional devices based on MOS - structure, is the quality of the insulating oxide, which is located between the locking electrode and the semiconductor. In this regard, the using of SiO_2 is very attractive, not only due to its dielectric properties, but also because of its capability of growing SiC on the surface of standard methods of oxidation.

In the present study the morphological properties of SiO_2, which obtained by SiC oxidation into ozone and oxygen was compared.

On the Figure 1 the AFM images of the SiO_2/SiC structures surface, obtained by oxidation under temperature 1000°C in ozone pairs (Figure 1a) and in the oxygen vapor (Figure 1b) was shows.

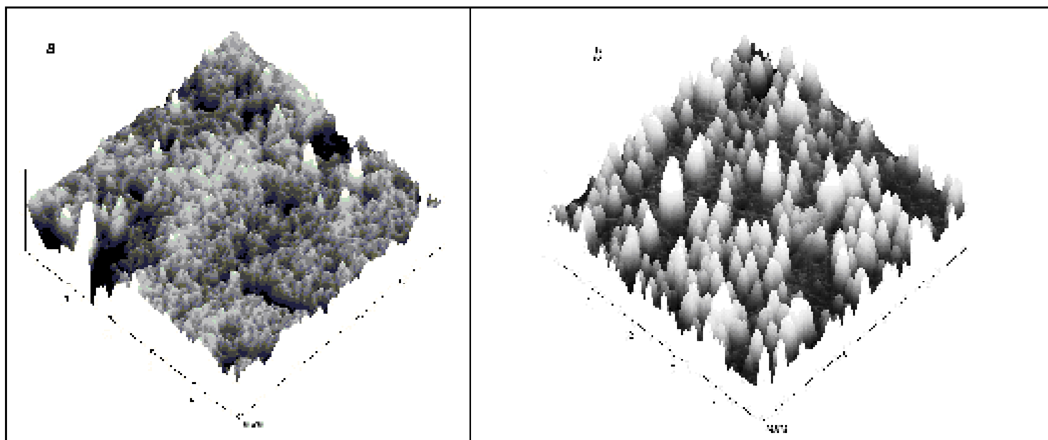

Figure 1. AFM images of the of SiO_2/SiC structures surface. *a* - oxidation in ozone pairs, *b*- in oxygen vapor.

As seen from Figure 1, the oxidation of silicon carbide an the ozone pairs allows to form the SiO_2 layer with a smoother surface than in the case of silicon carbide oxidation an oxygen vapor. An increase in temperature oxidation to 1100°C in both cases leads to a smoothing of the microrelief of the oxide layer. AFM data correlate with the data obtained from the transmission spectra of SiO_2/SiC structures.

Thus, from the above morphological studies of the SiO_2/SiC surface structures, it can be concluded that the oxide layer which is formed in the ozone vapor is better than in the oxygen pairs.