

Photodesorption of H₂O molecules from a glass surface and spectral distribution of its efficiency

Tagirov R., Iskhakova E.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

An experimental arrangement based on an elliptical illuminator has been developed to determine the efficiency of desorption of H₂O molecules from a glass surface. The target is the inner surface of a glass tube welded to a PMI-2 manometric converter. The necessary range of the radiation pulse from an IFP-2000 lamp is separated by a pile of filters from a large collection of colored glass. The energy in a pulse is measured by an evacuated calorimetric detector of cylindrical shape that reproduces the irradiated surface. We have plotted the spectral curve of the efficiency, taking as i_0 the total light flux that penetrates the surface of the glass target. It was found that the red limit of photodesorption of molecules from the surface of glass of the molybdenum group is situated at 470 ± 25 nm, and the absolute maximal value of the efficiency at $\lambda = 330$ nm reaches $2 \cdot 10^{-4}$ mol./photon. The desorption of the molecules is deduced to be essentially photoelectronic in nature. © 1981 Plenum Publishing Corporation.

<http://dx.doi.org/10.1007/BF00891587>
