HIGH-TEMPERATURE OXIDATION AND DESTRUCTION OF METAL FILAMENTS IN AIR

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S u m m a r y

The high-temperature oxidation and the thermal destruction of electrically heated tungsten and molybdenum filaments in air are studied experimentally. The temperature histories of filaments are obtained, and the successive stages of oxidation are defined. It is shown that the phase transition points of oxides determine the limits of these stages. The filament destruction conditions are established: the temperature in and the diameter of the filament central zone, the electric current corresponding to the filament failure, as well as the burning time. The behavior of oxide particles in an electric field is studied.