The nature of the contact material is important for the characteristics of electric arcs and particularly for the electronic emission. Work functions of new industrial materials made with silver alloys and silver oxide alloys are not known at present. An experimental set-up is described which allows work function measurements from room temperature up to 700 K. The Fowler method was used for the measurement of the work function by the photoelectric effect. As a first application of the experimental device, work functions of metals (Ag, Cu, Ni, Sn and Zn) were determined. Furthermore, the influence of industrial surface treatment such as the application of electric arcs and repeated mechanical shocks on the Ag contact work surface was studied by SEM to observe their effect on electron work function. Breaking arcs in air cause a remarkable increase in the work function of the silver contact material by progressive formation of silver oxides