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The effect of surface modification of In₂O₃ films by rhodium atoms deposited by electron beam sputtering on the XP spectra is considered. The surface coverage with rhodium ranged from 0 to 0.1 ML. It was shown that the main changes in the XP spectra occur in the Rh3d region and are caused by the dimensional effect of rhodium particles. With an increase in the surface coverage with rhodium, Rh particles grow from an atomically dispersed state to relatively large clusters. As the particle size increases, its electronic structure tends to approach the state corresponding to the bulk Rh. Such a process is accompanied by a decrease in BE Rh3d_{5/2} by 0.3–0.6 eV, which behaviour depends on the surface structure of the used In₂O₃ films.