Application of the Particle BackScattering Method for the Certification of the Oxide Protective Coatings at the Surface of Al Alloys, O.V. BESPALOVA, V.S. KULIKAUSKAS, E.A. ROMANOVSKY, Institute of Nuclear Physics of Moscow State University; A.M. BORISOV, O.N. DUNKIN, A.V. EPELFELD, V.G. SUKHAREV, MATI-Russian St. Technology University - Oxide coatings at the surface of Al alloys are widely used as the wear-, heat- and corrosion-resistant, electric-insulating coatings. For the certification the analysis of the coatings was carried out by Rutherford (RBS) and Nuclear (NBS) Backscattering methods. RBS-spectra were measured using 1.5 MeV alpha-particle beam of the Electrostatic Generator EG-8 of the Institute of Nuclear Physics (INP) and NBS-spectra - using 7.8 MeV proton beam of the INP cyclotron. The industrial Al alloys with oxide coatings were used as the targets. The coatings were prepared by the Surface Treatment at Electrolytic Plasma (STEP). It results in the formation of the ceramic-like coatings with the high exploitation properties. The concentration profiles of the light elements were obtained by NBS up to 160 microns depth with the depth resolution of 0.7 micron. RBS analysis allowed to detect the low concentrations of the alloying elements Cu and Mg and electrolyte ingredients Si and Na.