



ION MICROPROBE ANALYSIS OF METALLIC PIGMENTS

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Metallic paints consist of metallic flakes dispersed in a resinous binder, i.e. a light-element polymer matrix. The spatial distribution and orientation of metallic flakes inside the matrix determines the covering efficiency of the paint, glossiness, and its angular-dependent properties such as lightness flop or color flop (two-tone). Such coatings are extensively used for a functional (i.e. security) as well as decorative purpose.

The ion microbeam analysis of two types of silver paint with imbedded metallic flakes has been performed to test the ability of the ion microbeam spectroscopic methods on this type of samples. The average sizes of the aluminium flakes were 23 (size distribution 10-37) and 49 (size distribution 34-75) micrometers, respectively. The proton beam with the size of 2x2 micrometers at Ljubljana ion microprobe has been used to scan the surface of the pigments. PIXE mapping of Al $K\alpha$ map shows lateral distribution of the aluminum flakes, whereas the RBS slicing method reveals tomographic image of the flakes in uppermost 5 micrometers of the pigment layer. The flake distribution in the larger layer depths has been accessed by RBS analysis in a point mode.