

Test method for determining phosphate ions in organic products and soil using blister cells

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Abstract

A test method for the determination of phosphates in environmental objects has been developed, the determination of phosphate ions can be carried out in the field, the analysis of one sample is carried out for 10-15 minutes. Color characteristics can be monitored both visually and using color processing programs for smartphones such as ON Color Measure or Light Analyzer. Variants of compositions of a series of placers are proposed for visually blister colorimetric determination of phosphate ion concentrations in a blister cell (tablet for tablets) containing a mixture of reagents. The placers allow the quantitative determination of phosphates in various objects without preliminary preparation of reagent solutions. The application of reagents to the surface of silica gel makes it possible to isolate all reagents until a chemical reaction occurs. Each component in a separate placer is isolated, stable for 6 months. Test systems are recommended for semi-quantitative visual testing and for the quantitative determination of the content of phosphate ions in solutions. The composition and application conditions of crystalline substances - reagents capable of providing a sufficiently high acidity with the addition of a few drops of a solution and a reducing agent suitable under blister conditions have been optimized. Visual-colorimetric reaction is carried out under conditions when the volume of the added solution is 2-3 drops. In the environmental objects of the Belogorsky district of the Republic of Crimea, the concentrations of phosphate ions in water samples, soil of carbonate chernozem, biomass of cellulose-containing waste of lavender after extraction of lavender essential oil grown by organic farming were determined. The phosphate content was estimated by the visual blister method in the samples and standard methods, and good convergence of the analysis results was shown.

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