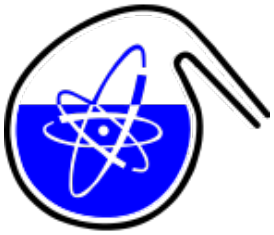

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Influence of various organic solvents on the performance of a newly designed scintillation cocktail

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The paper describes the influence of various organic solvents on the performance of a newly designed scintillation cocktail. The work mainly focuses on the sample load capacity of the scintillation cocktail in connection with the solvent component to be able to accept the largest possible volume of different types of samples, especially aqueous ones. Previous research has dealt with the ideal composition of the detergent component, which has a major influence on the sample load capacity, however, the solvent component also has a significant impact. The paper discusses properties of the individual components of the scintillation cocktail. New primary and secondary phosphors are discussed that show very promising results for use in liquid scintillation. One of the significant advantages of the proposed scintillation cocktail is the use of only the primary phosphor without the need for a secondary one. Individual properties characterizing the performance of the scintillation cocktail were tested, namely luminescence properties, alpha/beta discrimination ability, sample load capacity, quenching resistance, detection limit, FOM and detection efficiency.

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