



National Institute of Standards & Technology

Certificate

Standard Reference Material 869

Column Selectivity Test Mixture for Liquid Chromatography

(Polycyclic Aromatic Hydrocarbons)

Standard Reference Material (SRM) 869 is an acetonitrile solution of three polycyclic aromatic hydrocarbons (PAHs): benzo[a]pyrene (BaP), 1,2:3,4:5,6:7,8-tetrabenzonaphthalene (TBN, alternate name, dibenzo[g,p]chrysene), and phenanthro[3,4-c]phenanthrene (PhPh) (see Figure 1 for structures). A unit consists of five ampoules, each containing approximately 1.1 mL of the test solution. This solution is a new type of SRM intended for certifying the performance characteristics of reversed-phase liquid chromatography (LC) columns, rather than for providing quantitative levels of the individual constituents. SRM 869 is intended primarily for characterizing LC column selectivity for the separation of PAHs. Depending on the elution order of the three components, column selectivity can be predicted for complex PAH mixtures (particularly isomeric PAHs). Even though the primary use of this mixture in the past has been to characterize columns for PAH separations, applications to the assessment of column selectivity for other classes of compounds, such as carotene isomers, have also been demonstrated. The concentrations and relative 254 nm uv-detector responses of the components are listed in the Appendix in Table 1 as an aid to the user.

Notice and Warnings to User.

Disclaimer: Certain commercial equipment, instruments, or materials are identified in this certificate to specify adequately the experimental procedure. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the materials or equipment identified are necessarily the best available for the purpose. Tabulations of commercial LC columns are not intended to be all inclusive.

Storage: Sealed ampoules, as received, should be stored in the dark at temperatures between 10-30 °C.

Toxicity: This test mixture contains small amounts of polycyclic aromatic hydrocarbons, some of which have been reported to have mutagenic and/or carcinogenic properties; therefore, care should be exercised during handling and use. Use proper methods for disposal of waste.

Expiration of Certification: This SRM is valid for its intended use for three years from the date of purchase. Should the certification become invalid before then, users will be notified by NIST. Please return the attached registration form to facilitate notification.

Preparation and analytical determinations were carried out at the Center for Analytical Chemistry, Organic Analytical Research Division, by L. C. Sander and S. A. Wise.

The coordination of the technical measurements leading to certification were performed under the direction of L. C. Sander, S. A. Wise and W. E. May.

The support aspects involved in issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by R. Alvarez.

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