

## DEMONSTRATION OF HOMOGENEITY IN THE PREPARATION OF PULVERISED SOLID-MATRIX MATERIAL FOR PERFORMANCE TESTING PROGRAMS

Stan Morton, Morton Research Group

drmorton20@gmail.com

Velinda Herbert, EPA

Performance-Evaluation programs may include solid as well as liquid matrices. Acceptable performance in these programs can be necessary for continuance in contract-driven programmatic requirements. The in-house preparation and verification of liquid, air-particulate filters and swipe method-evaluation material, is relatively straight forward. In contrast, the in-house preparation and verification of solid (i.e., soil, cement, crushed building materials, and asphalt) method-evaluation matrices are more challenging. At issue is the uncertainty associated with the resultant homogeneity of the prepared material. Without assurance that the sample is homogeneous to some predetermined concentration, the results of subsequent analyses for the nuclide of interest are, at best, difficult to interpret. The cost to procure well characterized source-material from an external supplier is often prohibitive, and should be reserved to evaluate the final version of the method. This paper describes a relatively simple device to homogenize a solid matrix with respect to the added nuclide(s) of interest. Results are provided that demonstrate a relative standard deviation of 1 – 2% in 100 gram samples.