

Trip Blanks

Trip blanks are a required quality control element for Volatile sampling and analysis. Trip blanks should be regarded as one of the most critical aspects of the sampling regime. Processed accurately, a trip blank becomes your guarantee that your primary samples were not contaminated during transportation. This is especially important when chain of custody (COC) samples are involved.

A trip blank is a sample of analyte-free media collected in the same type of container that is required for the analytical test, taken from the laboratory (or other point of origination) to the sampling site and returned to the laboratory unopened. (NOTE: Trip blanks are also required for soil samples submitted for TPH-gasoline range organics and purgeable organics analyses. These trip blanks should be prepared in the same manner as an aqueous trip blank.) A trip blank is used to document contamination attributable to shipping and field handling procedures (i.e., diffusion of volatile organics through the septum during shipment and storage). A trip blank may also serve to detect contamination from containers (i.e., bottle blank). This is more important when non-certified sample containers are used. The Central Laboratory supplies only certified containers for VOA collection.

VOA samples from different locations may be placed in the same cooler to reduce the number of required trip blanks (i.e., one for VOA samples and one for TPH/BTEX samples) provided that the samples are wrapped or containerized (e.g., Ziploc® bag or metal can) separately. NOTE: Even when VOA samples are containerized separately, each of the three vials submitted for a site must be labeled appropriately (location ID or sorting number) to prevent misidentification. The trip blank is then submitted for analysis as any other sample. A separate fieldsheet must be completed for the trip blank and the trip blank must be recorded on the Chain of Custody (COC) form as any other sample, when applicable.

If the trip blank has detectable quantities of the analytes of interest, the implication is that it is possible that any positive results in the sample may be due to contamination; either by accident or by design. Conversely, if the trip blank does not have reportable quantities of the analytes of interest, then one can safely conclude that the samples were not contaminated during transportation or sampling, and the values reported are actually found in the environmental sample.

The following include acceptable sources of analyte-free media for trip blanks:

- well water with charcoal filtration,
- nonchlorinated bottled water which has been charcoal filtered, and
- laboratory grade deionized water - ASTM Type II which has been charcoal filtered

The most reliable source is well water or distilled water that has passed through an activated carbon filter. Activated carbon is used to remove free and combined chlorine and organic contaminants from water. The Central Laboratory simply passes well water through a wide bore buret packed with baked, activated charcoal (an approx. 1-ft. column of charcoal should provide sufficient contact area). The charcoal is replaced about every three to four months.

We recently found that Deerpark® brand spring water in clear plastic bottles proved to be an acceptable trip blank source (even without charcoal filtration). Other brands of spring water may be acceptable; however, please stay away from those bottled in the opaque milk jug-type containers. They may contribute phthalate contamination. Some regions have access to distilled/deionized water systems with carbon filtration cartridges. Please remember to service the carbon filtration cartridges regularly.

Tap water is generally NOT acceptable. Trihalomethane, chlorinated compounds and other interfering artifacts are predominant in tap water. Bottled waters may exhibit similar problems. Please keep in mind that even when contaminants are not target analytes, they may contribute to the background noise and miscellaneous unidentified peaks that are present in the chromatograms.

If you have questions regarding the preparation and handling of trip blanks, please contact [Anne Chandler](#) (Organics Branch Manager) or [Dana Satterwhite](#) (QA/QC Coordinator) at (919) 733-3908.