



C.L.A.M. Disk Materials and Construction



At this time, all C.L.A.M. disks are manufactured using high density polypropylene. This is the same material used to construct all of the disposable SPE extraction cartridges, disks, and syringes used in the laboratory for over 15 years. The HDPP is resistant to organic, chlorinated and aromatic solvents as well as all acids and bases. The use of the HDPP has not showed evidence of **leaching** except for low levels of phthalates, or **partitioning** of analytes into or off its surface, and is the material of choice for most all the cartridge housings for EPA SPE methods and sample cleanup techniques. The disks interior design uses HDPP media supporting screens, dispersion baffles, and glass pre-filtration filters to ensure an inert environment. The disks are then plugged with Luer-Lock plugs to insure their integrity. After deployment the plugs are re-installed for shipment to the laboratory insuring a sealed environment.

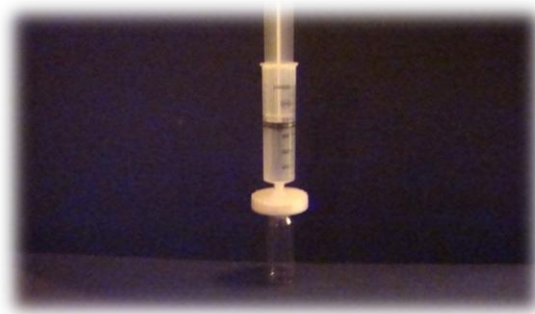
Conditioning for Deployment and Surrogate Additions

The disks need to be washed and conditioned prior to deployment. The washing and conditioning steps are as follows:

- The disks are first washed with the elution solvent - usually 50 ml DCM, by forcing it slowly through the disk with a luer-lock glass syringe into waste.

- The disks are next conditioned by forcing 50ml of methanol through the disks as done in the first step with DCM. The methanol is left in the disk for 2 minutes allowing time to condition the media.
- The final conditioning step before for deployment is passing 50 ml of DI water using the same syringe through the disks, and capping with the red luer plugs until ready to field deploy.
- If field surrogates, PCR's, or matrix spikes are to be added the spiking compounds can be added as follows:

Surrogate and Spiking Instructions



- The spiking solution should be made up in a water soluble solvent such as methanol or acetone at a concentration that would use no more the 100 ul of solution per spiking addition.
- About 40 ml of water in the syringe is spiked, pushed through the disk and followed by an additional 60 ml DI rinse water to set the spike onto the media.
- The disk can then be capped and is ready to be deployed into the field.

Elution of the Aqualytical Oasis HLB Disk

It is essential to remove the water within the SPE disk for the final elution after being field deployed. The disk, with its enhanced filtration media, will retain 5ml or more of water even after vacuum drying. We have found the following method to be simple and effective to remove the water and fully dry the disk to receive the elution solvent. The procedure simply displaces the water in the disk with methanol, and then elutes the disk with DCM. All elutant is collected and partitioned with DI water in a small separatory funnel. The funnel is lightly shaken and allowed to settle removing the methanol from the DCM, which is then collected, concentrated and then analyzed. (see steps below)

- With glass syringe elute 50 ml of methanol through the disk into a 250- ml Separatory funnel.
- The next step is to pass 50 ml of DCM using the same syringe through the disk into the receiving separatory funnel, followed by an additional 25ml of DCM, and two 50 ml syringe volumes of air or a nitrogen purge through the disk into the separatory funnel clearing most of the solvent from the disk.
- Add 100 ml DI water adjusted to pH 2 to the separatory funnel, swirl and shake lightly for 30 seconds. This step just removes the methanol from the DCM and partitions it into the water phase.
- Allow to settle, then draw off the bottom DCM phase into a concentration vessel, and repeat by extracting with and additional 50 ml of DCM.
- The total of the DCM extract can be concentrated by KD, nitrogen blow down, or by any other solvent reduction method to produce a final extract volume.
- The volume of extracted solvent can be exchanged to fit the analysis type, such as; hexane for 8081A using ECD, or DCM for GC/MS or GC/MS/MS analysis. The extract can then be concentrated to the desired volume required for detection requirements.

