

Biotage® ACT Plate Adapter

Protect Your Samples from Cross Contamination During Evaporation

Biotage® ACT (Anti Cross Talk) Plate Adapter is a novel (patent pending) solution to the not widely publicized phenomenon of hot spot cross contamination, or cross talk, during evaporation.

The Problem

There are many potential causes of sample cross contamination in any clinical or forensic toxicology assay, particularly with the increasing use of the high throughput, low volume 96-well plate format for sample preparation. One recently identified area of concern is during **evaporation**. During the evaporation stage, a proportional amount of analytes present in an extracted sample can contaminate surrounding wells by being carried with the volatilized solvent. When analyte concentration in the “hotspot” well is considerably higher than the analyte concentration in the surrounding wells the potential exists for extraneous analyte signal in adjacent and/or surrounding wells, thus leading to false positives which could pose severe consequences in any assay.

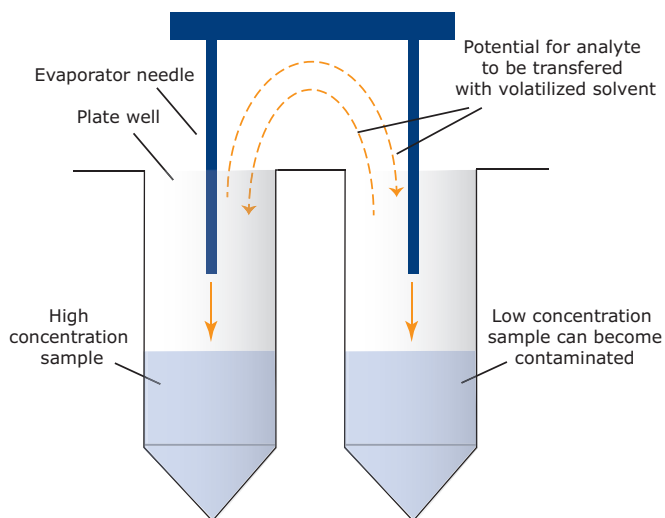
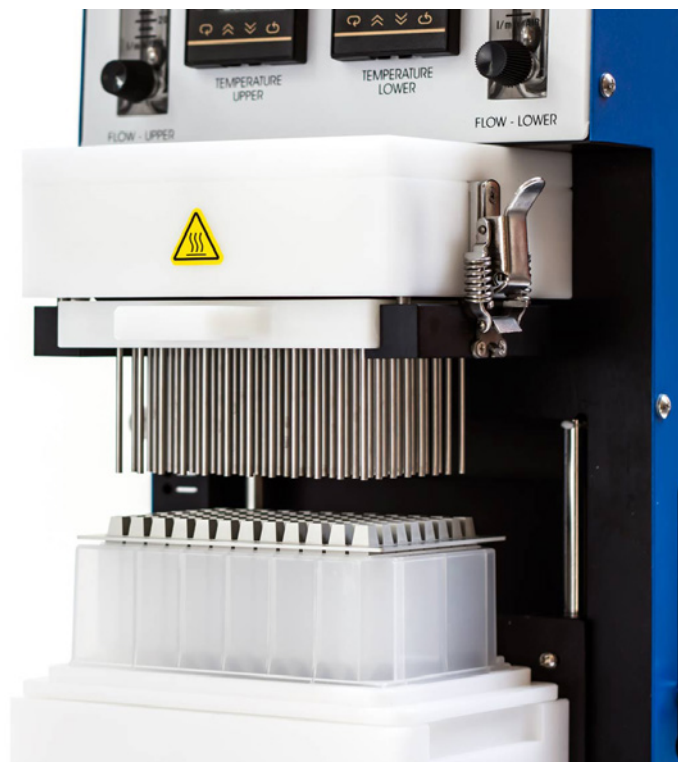


Figure 1. Mechanism for 'hot spot' cross talk during evaporation resulting in carry-over from high-concentration sample wells to low-concentration wells, which show up as false positives.



The Solution

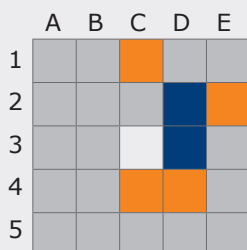
Biotage® ACT Plate Adapter fits on top of the 96-well collection plate, and the adapter 'chimneys' direct the gas flow into the wells during evaporation. Evaporation gas and solvent vapours are directed away from sample tubes, eddies are reduced, and the adapter reduces the open surface area of the top of the tubes/wells, lessening the likelihood that material can re-enter and contaminate adjacent tubes/wells.

The simple but effective design prevents cross talk on evaporation, decreasing the risks of falsely elevated results. Its high specification anodized aluminum construction allows it to be reused, and it is easily cleaned between runs to prevent any potential carry over.

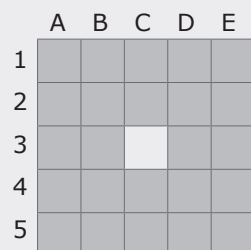
Reducing Cross Talk Using Biotage® ACT Plate Adapter

To evaluate the effect of Biotage® ACT Plate Adapter on evaporation derived cross talk, the following experimental design was used:

A single well (position C₃) of a 96-well plate was spiked at a very high concentration with marker compound (amphetamine, 2 µg/mL) reflecting a high level positive sample. Surrounding wells were spiked at the method LOQ. The concentration of amphetamine in the surrounding wells was measured using LC-MS/MS following evaporation with and without the use of Biotage® ACT plate adapter.



Map of amphetamine concentration after evaporation **without Biotage® ACT Plate Adapter.**



Map of amphetamine concentration after evaporation **using Biotage® ACT Plate Adapter.**

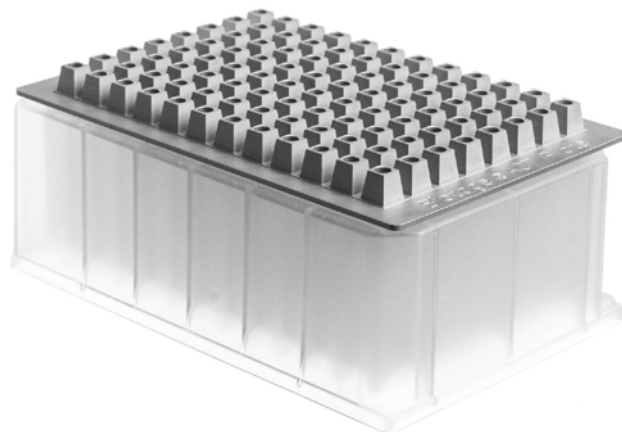
Key

- White (position C₃)** = high level spike
- Dark Blue** = amphetamine concentration measured at >10 x LOQ reflecting gross cross contamination
- Orange** = amphetamine concentration measured at >2 x LOQ reflecting low level cross contamination
- Grey** = amphetamine concentration measured at LOQ reflecting no cross contamination

In the data presented above, samples evaporated using Biotage® ACT Plate Adapter display complete absence of cross talk. Conversely samples evaporated without Biotage® ACT Plate Adapter show false positive results with concentrations > 10 times the LOQ.

Ordering Information

Part Number	Description	Quantity
414355SP	Biotage® ACT Plate Adapter	1
121-5202	Collection Plate, 1 mL Square	50
121-5203	Collection Plate, 2 mL Square	50



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Part Number: PPS384

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