

DIVERSIFIED LABORATORY SOLUTIONS THAT ADVANCE BUSINESS GOALS



Kentucky Division e-Newsletter

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DETERMINATION OF 1,4-DIOXANE IN COSMETICS

Determination of 1,4-Dioxane in Cosmetics

*Authored by Dr. Kim W. Baughman, Director of Development,
Microbac Laboratories, Inc.*

Recent studies have been released concerning the presence of trace levels of **1,4-dioxane in various cosmetics products**, including: shampoos, bubble baths, lotions and creams. This compound has long been an environmental concern and there is increasing interest in measuring the levels in consumer products.



The FDA has been evaluating the potential risk of 1,4-dioxane in cosmetics products since the 1970s and, over this period, levels have actually decreased. The FDA has not considered it to be a major health hazard, primarily because the levels are relatively low and because 1,4-dioxane is only in contact with the skin for short periods because of its rapid evaporation rate. Regardless, heightened consumer awareness has brought this issue to the attention of manufacturers and the response has been to increase the testing and reporting of levels in various products.

Dioxane can be formed during this step. The FDA has provided guidance to manufacturers advising them how to minimize the formation using a process called "vacuum stripping" at the end of the polymerization step.

Dioxane has traditionally been determined in water and soil using a purge and trap – gas chromatography / mass spectroscopy (GC/MS) method. The purge and trap sample concentration is not as amenable to cosmetics samples, therefore, most analyses are performed using some form of heated headspace sample introduction into the GC/MS. Detection limits of 1 µg/g (full scanning mass spectroscopy) can be achieved using this method.

Scientists at **Microbac Laboratories, Inc.** have developed a single headspace method for use with a broad range of product types: lotions, creams, shampoos and bubble baths. The method has proven to be versatile and provides accurate results.

For more information about our testing and research capabilities, please contact Microbac Laboratories.

JUST A REMINDER . . .



On the morning of Monday, September 14th, we will have very few staff available for phone calls and personal attention at the Louisville laboratory. Microbac staff will be visiting MSD's 120 MGD Morris Forman treatment plant. This is part of Microbac's program of continuous education for our personnel, and we want as many as possible of our people to see this excellent example of a modern, well-run, high-tech treatment plant.

So, if we are a little slower than usual answering the phone, that's the reason. The smarter we are, the more we can help with whatever requirements you have. Thanks for your patience. If you have any special needs for that Monday morning, please let us know as much as possible ahead of time, so we can address them.

CONGRATULATIONS ARE IN ORDER FOR . . .

Lauren Rollins, in addition to being a flexible wet chemistry analyst and microbiologist for the Microbac Louisville division, is now also a certified analyst for drinking water. Lauren recently successfully completed training for "Certified Microbiology Laboratory for Drinking Water Analyses in the Commonwealth of Kentucky".

Megan Rothgerber has also completed the "Certified Microbiology Laboratory for Drinking Water Analyses in the Commonwealth of Kentucky" training, impressively finishing top of the class! In addition, Megan is well-versed in wet chemistry, microbiology, sample receipt and front office assistance.

Congratulations for a job well done ladies!

QUOTES

"The fishermen know that the sea is dangerous and the storm terrible, but they have never found those dangers sufficient reason for remaining ashore." -- Vincent van Gogh (1853–1890)

"Always do right. This will gratify some people, and astonish the rest." -- Mark Twain (1835–1910)

"A person who never made a mistake never tried anything new." -- Albert Einstein, (1879-1955)



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