

INTERTEK ALLENTOWN REPORT

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REPORT NUMBER

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TEST PLAN : QUOTE

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NOTEBOOK REFERENCE

ASA-026493

COMPILED BY

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July 30, 2026





List of revisions

VERSION	DATE	REVISION DETAILS	AUTHOR
1	July 30, 2026	Original Report	Kate Willis

Approvals

Reviewed and Released By

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Project Name

Analysis of Household Products for Determination of Residual 1,4-Dioxane

Project Description

Determination of residual 1,4-dioxane by headspace gas chromatography with flame ionization detection (HS-GC-FID).

Summary and Conclusions

Summary of results are presented in Table 1.

Table 1. GC Analysis Summary

Sample	1,4-Dioxane (ppm)
Surfactant Matrix	N.D. < 1.0
Lipid Emulsion Matrix	N.D. < 1.0

Note* N.D. indicates non-detect in the sample. (<) indicates the response is less than the limit of quantitation of the method

Samples

Surfactant Matrix

Lipid Emulsion Matrix

Samples Received on: June 09, 2026

Samples Tested on: July 22-27, 2026

Standard

Reference standard information available upon request.

Experimental

Headspace analysis was used for the determination of 1,4-dioxane. The sample was prepared as received using a 1.0 gram aliquots in a 10mL headspace vial. Compound identifications was completed using retention time matches to known reference materials. Quantitation of analytes of interest was achieved using standard addition quantitation technique.

Using this technique, a known amount of analyte is spiked onto the sample matrix at various levels and the increase in response is measured. The analysis utilized an Agilent 6850 gas chromatograph with flame ionization detector and a 60-meter J&W 624 capillary column. Injections were performed using an Agilent 7697A headspace autosampler system with a 1mL injection volume.



Discussion and Observations

The results of the analysis are provided in Table 1. Positive peak identification was concluded based on retention time match to a known reference standard. The results are shown in parts per million by weight (ppmw). The linear calibration curves all had a correlation coefficient (R^2) of ≥ 0.995 . Figure 1 and 2 display the calibration curves used for quantitation. Figure 3 displays stacked sample and spike chromatograms.

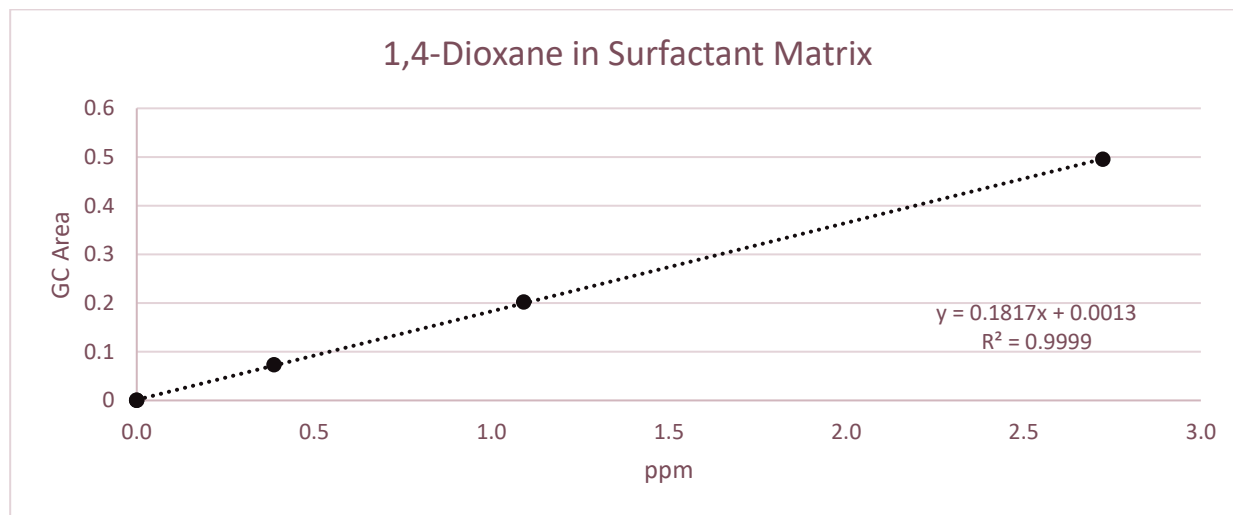


Figure 1. Calibration of 1,4-Dioxane in Surfactant Matrix

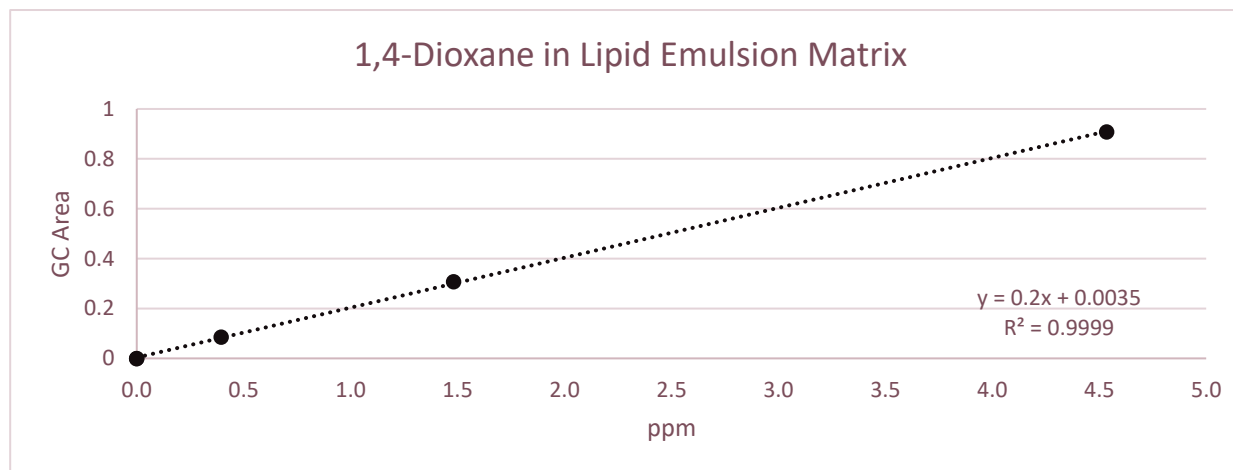


Figure 2. Calibration of 1,4-Dioxane in Lipid Emulsion Matrix

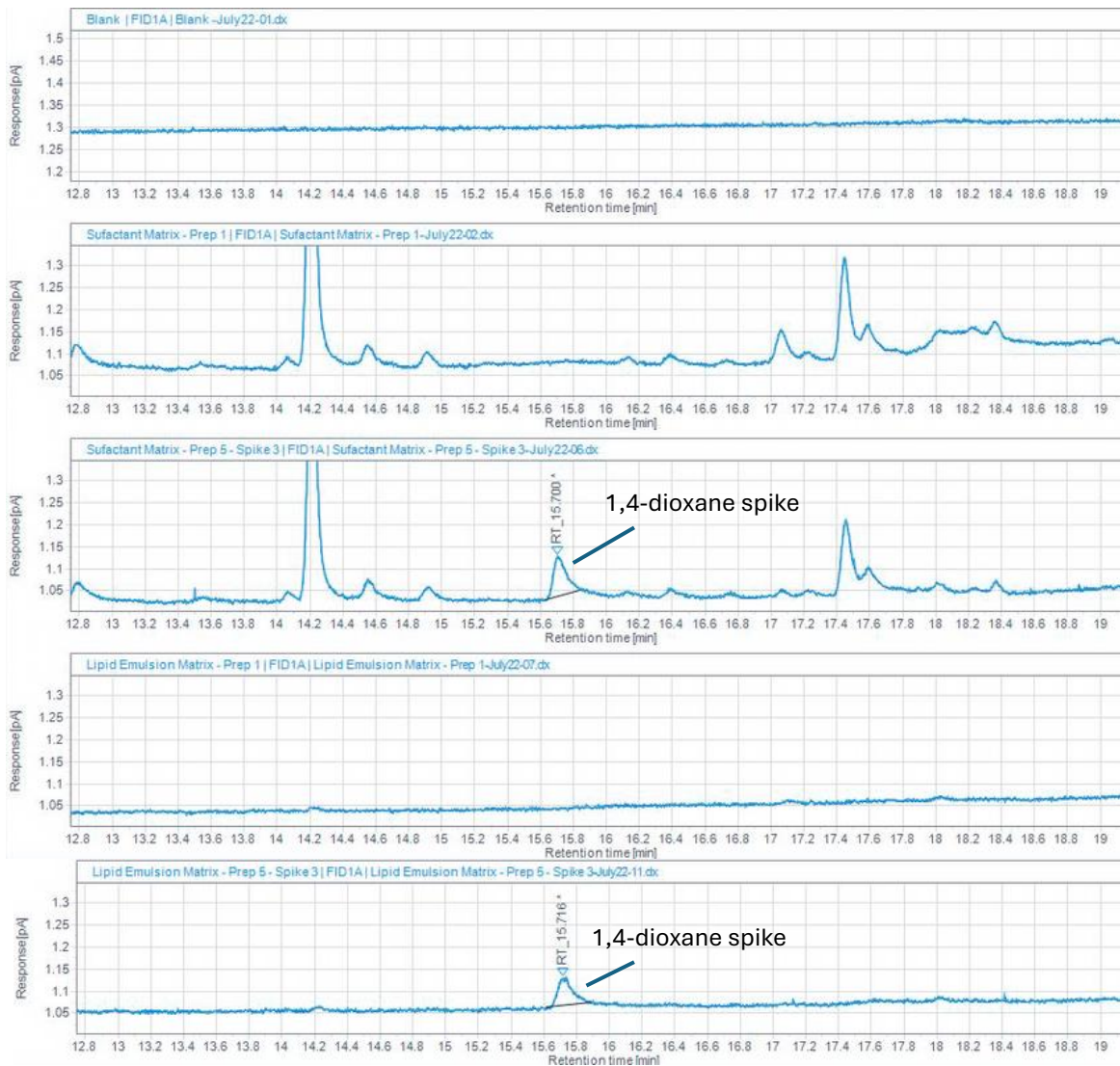


Figure 3. Stacked chromatograms of blank, samples and respective spikes.

End of Report