



Why Test For 1,4-Dioxane?

1,4-Dioxane is now regulated in New York – and more states are expected to follow.

Originally identified as a contaminant in groundwater, 1,4-dioxane is a probable human carcinogen (IARC Group 2B) and a by-product of ethoxylated ingredients commonly used in cosmetics and personal care products.

Current Limits (New York):

- Household & Personal Care: ≤ 1 ppm
- Cosmetics: ≤ 10 ppm
- Regulations are expected to become more stringent

Product Matrix Capabilities

Water-Soluble Matrices

- Shampoos
- Cleansers
- Hair Gels
- Facial Serums

Water-Insoluble Matrices

- Lotions
- Sunscreens
- Lip Balms

Certified Laboratories Solution

Validated GC-MS Method for Cosmetics & Personal Care

- Limit of Detection (LOD): 0.5 ppm
- Detects trace contamination far below regulatory limits
- Robust across complex matrices
- Fast, reproducible, and defensible data



**Validated GC-MS:
The Precision Leader**
Features a 0.5 ppm
detection limit

Full optimized for complex cosmetic matrices

Instrumentation

- Gas Chromatography–Mass Spectrometry (GC-MS)
- Single quadrupole GC-MS (VOC analysis)
- Electron Ionization (EI)
- Selected Ion Monitoring (SIM) – enhanced sensitivity
- Headspace injection – isolates volatile compounds

What To Look For In A Test Report

- Quantitative result (ppm) with LOQ
- “Not Detected” clearly defined (<0.5 ppm)
- Validated GC-MS method reference
- Clear chromatogram / identification
- Retesting recommendations for high-risk products

Why Independent Testing Matters

- Supplier CoAs often:
 - Exclude 1,4-dioxane
 - Use higher detection limits (>1–10 ppm)
- Risk of:
 - Product recalls
 - Regulatory penalties
 - Brand damage

Independent testing ensures traceable, defensible data

Why Traditional Methods Fall Short

- USP <467> (GC-FID): LOD ~380 ppm – Not sensitive enough
- EPA 8270: Requires complex modifications – Inconsistent results
- Complex cosmetic matrices (oils, surfactants, emulsifiers) – Interference risk

Validated in line with ICH Q2(R2)



Ensure compliance. Protect your brand.

Partner with Certified Laboratories for 1,4-dioxane testing with 0.5 ppm sensitivity. Contact us to submit samples or request a quote > QR code.

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