

State of California

Memorandum

To: **Department of Pesticide Regulation**
Madison Le
Deputy Director
Environmental Monitoring Branch

Date: 09/30/2026

Place: Sacramento

From: **Department of Food and Agriculture**
Natalie Krout-Greenberg
Director
Division of Inspection Services

Subject: Notification of Decision to Recall and Void Methyl Bromide, Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene Data.

The Center for Analytical Chemistry (CAC) has determined to recall and void the data generated between October 24, 2025, and June 30, 2026, for three volatile organic compounds (VOCs): Methyl Bromide, Cis-1,3-Dichloropropene (Cis-1,3-D), and Trans-1,3-Dichloropropene (Trans-1,3-D). These data were generated using a gas standard cylinder that was subsequently found to contain significantly lower standard concentrations than certified. Air samples measured against this standard resulted in inaccurately reported values. CAC evaluated the available evidence and used science-based approaches to determine whether the affected data could be reliably corrected or reconstructed. CAC ultimately concluded that the results could not be reconstructed with sufficient certainty to meet its requirements for reportable analytical data of known and documented quality and therefore determined that the affected data should be recalled and voided.

Background:

In mid-July 2026, the CAC became aware that the accuracy of laboratory results for three volatile organic compounds (VOCs) – Methyl Bromide, Cis-1,3-D, and Trans-1,3-D – that had previously been provided to the California Department of Pesticide Regulation (DPR) may have been compromised. This concern arose following the observation of unusually large isomeric ratios of Cis- and Trans-1,3-D in calibration standards as well as analytical sample results, which were inconsistent with expected patterns. 1,3-D consists of two isomers, Cis and Trans. The ratio between these two isomer concentrations was found to be higher than what was historically observed. Following communication and coordination with DPR, the CAC immediately initiated an investigation to determine the source, nature, and potential impact on the reported data, as required by the CAC Branch Procedure, BP-6. Additionally, upon completion of the investigation, CAC implemented enhanced laboratory protocols to minimize the likelihood of future incidents of this nature. These enhanced protocols have been put in place in a stepwise fashion for samples analyzed on July 16, 2026, and forward.

Investigation and Findings:

The CAC's investigation started in July and continued through September. It focused on three areas: the nature of the standard degradation, the impact to the reported results, and exploring scientific approaches to correct the impacted data. Based on the investigation, the CAC determined that the amount of these VOCs in the original standard cylinder (Linde Gas Standard Restek Part # 34421) was substantially lower in July 2026 than the standard concentrations certified by the manufacturer. The available evidence indicates that this loss is associated with the development of surface activity, chemical and physical interactions between the standard gas and the inner-wall surfaces

of the cylinder. Other causes such as leaks and preparation errors were investigated and ruled out.

The CAC has conducted additional investigations and has had multiple discussions with the vendor (Linde/Restek COA). Despite these efforts, neither the specific cause of the development of cylinder surface activity nor the precise extent to which the activity has affected individual VOC components can currently be established with sufficient certainty. The CAC is also unable to ascertain the exact type of cylinder interactions (physical, chemical adsorption) or other types of interfacial interactions that may be at play.

Evaluation of Previously Reported Data:

Throughout the period of investigation and evaluation of the data, the CAC explored the possibility of correcting the data.

Methyl bromide:

The standard evaluation conducted by CAC using a secondary source indicated a degradation of approximately 18 percent as of July 24, 2026. However, CAC is uncertain about when methyl bromide loss in the standard started and at what statistically significant rate. The reported data indicated a measurement uncertainty of up to 32 percent.

Trans-1,3-D:

The standard evaluation conducted by CAC using a secondary source indicated a degradation of approximately 96% as of July 24, 2026. As part of its investigation into whether the affected data could be reliably reconstructed, CAC evaluated the observed loss pattern and correlated it to an exponential decay pattern, consistent with what would be expected based on surface activity of the standard within the cylinder. CAC applied a model

retrospectively to estimate values for samples analyzed. The observed loss behavior exhibited an exponential pattern, with a coefficient of determination of $R^2 = 0.83$. Because the reconstructed values depend on assumptions regarding the degradation mechanism and its progression over time, CAC ultimately determined that the corrected values do not provide the level of quantitative certainty required for reportable analytical results.

Cis-1,3-D:

The standard evaluation conducted by CAC using a secondary source indicated a loss of approximately 63% as of July 24, 2026. The data pattern of loss, when evaluating normalized data trends, did not correspond to the loss of the Cis component in the calibration standard. This discrepancy has made it impossible to establish a reasonable correction factor.

Assessment and Data Disposition:

Because CAC cannot establish with sufficient certainty when the standard loss began, the precise magnitude of its effect on each analyte throughout the affected period, or a reconstruction methodology that satisfies CAC's quality requirements, the resulting uncertainty exceeds the level CAC considers acceptable for reportable data that is fit for purpose.

The cylinder was placed into service on October 24, 2025, and CAC cannot pinpoint a specific point in time when the degradation can be confidently said to have begun. Accordingly, CAC is voiding all results generated using that cylinder from October 24, 2025, through June 30, 2026.

Implemented Lab Process Improvements for Future Analysis:

To strengthen CAC's process and increase confidence in future analysis and the analytical results, the CAC has implemented the following improvement measures in a stepwise fashion effective July 16, 2026:

1. A new standard was procured for sample analysis between July 1, 2026, and July 15, 2026.
2. Using blind spike samples from the client to independently evaluate the process and identify any potential issues without introducing bias, regularly.
3. Analyzing routine batches using two independent standard sources to provide an additional check on accuracy and precision.