

SEMI C16-0299 (Withdrawn 1110)

GUIDE FOR PRECISION AND DATA REPORTING PRACTICES

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NOTICE: This document was balloted and approved for withdrawal in 2010.

1 Purpose

1.1 To provide a minimal set of guidelines for precision and data reporting practices for data supporting a Process Chemicals or Gases SEMI Specification.

2 Scope

2.1 This guide applies to data collected to support establishment of a SEMI Process Chemicals or Gases Specification or verification of performance to such a SEMI Specification.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards and Documents

3.1 SEMI Standards

SEMI C1 — Specifications for Reagents

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

4 Terminology

4.1 None.

5 Standards

5.1 For each standard used in the study, the following should be reported:

5.1.1 Preparation method before analysis (e.g., dilution, evaporation).

5.1.2 Sample matrix.

5.1.3 Concentration.

5.1.4 n = number of determinations made on the standard.

5.1.5 The average of the n determinations.

5.1.6 The standard deviation of the n measurements (if $n > 1$).

5.1.7 Range of values observed (if $n > 1$).

5.1.8 Traceability of the standard.

5.1.9 If standard was produced internally, how was it produced.

6 Samples

6.1 For all reported sample results, including recovery studies, use as many of the reporting requirements for standards as are applicable.

7 Detection Limits

7.1 If a detection limit is reported, the specific method or published variant by which the detection limit was obtained, should be named. The level of the lowest standard used in determination of a detection limit should be reported.

8 Internal Standards

8.1 For procedures calling for concentration of an analyte by cryogenic trapping, acid extraction, distillation, hydrolyzation, etc., a recovery study as per Method Validation (see SEMI C1) is required. For a method to be viable, a recovery in the range of 75% to 125% is recommended.

9 Calibration Models

9.1 The span of the calibration data should include the relevant specification.

9.2 The form of the calibration model (line through origin, line, etc.) should be stated. The assumption of linearity, underlying reliance on two point (zero and span) calibrations for analytical instruments, should be justified by reporting the basis for such an assumption.

9.3 A list of which standards were used to develop the calibration model should be provided.

9.4 Information on which fitting technique was used (i.e., regression using ordinary least squares, weighted least squares, partial least squares) should be provided.

9.5 Identify which, if any, transformations were applied to the calibration data prior to the fitting of the calibration model.

9.6 Identify which response was modeled to establish calibration (i.e., peak area, peak height, response factor).

9.7 A list of the types of standards employed (i.e., internal standards, external standards, method of standard addition) should be provided.

9.8 Report how the calibration data is incorporated in producing the results of an analysis (i.e., zero and span correction, graph).

10 Method Precision

10.1 An estimate of method precision should be provided at the level of the specification. Any known interferants or factors which may affect method precision should be stated.

11 Summary

11.1 Since only a minimal set of guidelines is provided, those using this guide are encouraged to provide more detail or use more stringent guidelines than those suggested.

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