

SEMI C49-1110

GUIDE FOR TRIMETHYLBORATE

This Standard was technically approved by the Liquid Chemicals Global Technical Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on August 27, 2010. Available at www.semi.org in November 2010; originally published in 1995; previously published November 2005.

NOTICE: This Standard or Safety Guideline has an Inactive Status because the conditions to maintain Current Status have not been met. Inactive Standards or Safety Guidelines are available from SEMI and continue to be valid for use.

1 Purpose

1.1 The purpose of this Document is to standardize requirements for trimethylborate used in the semiconductor industry and testing procedures to support those standards. This Document also provides a guide for grades of trimethylborate for which an industry need has been identified. In the case of a guide, the test methods may not have been developed or may not have been statistically validated at this time.

2 Scope

2.1 The scope of this Document covers a grade of trimethylborate used in the semiconductor industry.

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 Limitations

3.1 None.

4 Referenced Standards and Documents

4.1 SEMI Standards and Safety Guidelines

SEMI C1 — Guide for the Analysis of Liquid Chemicals

4.2 ASTM Standard¹

ASTM D5127 — Standard Guide for Ultra-Pure Water Used in the Electronics and Semiconductor Industries

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

5 Terminology

5.1 None.

6 Properties (for information only)

Table 1 Properties for Trimethylborate

Chemical Formula	C ₃ H ₉ BO ₃
CAS Number	121-43-7
Density at 20°C	0.915 g/mL
Boiling Point	68.7°C

7 Requirements

7.1 The requirements for trimethylborate for Tier A are listed in Table 2.

¹ ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA; Telephone: +1.610.832.9585, Fax: +1.610.832.9555, <http://www.astm.org>

8 Grade 1 Procedures

8.1 This section does not apply to this chemical.

9 Grade 2 Procedures

9.1 This section does not apply to this chemical.

10 Grade 3 Procedures

10.1 This section does not apply to this chemical.

11 Grade 4 Procedures

11.1 This section does not apply to this chemical.

12 Grade 5 Procedures

12.1 This section does not apply to this chemical.

13 Tier A Procedures

13.1 Standardized test methods are being developed for all parameters at the purity levels indicated. Until standardized test methods are published, test methodology shall be determined by user and supplier. The Liquid Chemicals Global Technical Committee requires analytical method validation according to SEMI C1, 'Method Validation'.

14 Tier B Procedures

14.1 This section does not apply to this chemical.

15 Tier C Procedures

15.1 This section does not apply to this chemical.

16 Tier D Procedures

16.1 This section does not apply to this chemical.

Table 2 Impurity Limits and Other Requirements for Trimethylborate

<i>Previous SEMI Reference #</i>	<i>C7.21 -95</i>
	<i>Tier A</i>
	<i>(Guide)</i>
Assay (B(CH ₃ O) ₃)	99.95% min.
Water (H ₂ O)	25 ppm max.
Aluminum (Al)	5 ppb max.
Antimony (Sb)	5 ppb max.
Arsenic (As)	5 ppb max.
Barium (Ba)	5 ppb max.
Boron (B)	5 ppb max.
Cadmium (Cd)	5 ppb max.
Calcium (Ca)	10 ppb max.
Chromium (Cr)	5 ppb max.
Copper (Cu)	5 ppb max.
Iron (Fe)	5 ppb max.