

SEMI S7-96

SAFETY GUIDELINES FOR ENVIRONMENTAL, SAFETY, AND HEALTH (ESH) EVALUATION OF SEMICONDUCTOR MANUFACTURING EQUIPMENT

NOTICE: This entire document was revised in 1995.

1 Purpose

1.1 The purpose of this document is to provide guidance to the equipment manufacturer or supplier, the evaluator, and the user to define responsibilities and to ensure the objective evaluation of designs and equipment.

1.2 Preservation of employee safety and conformance to environmental regulations are important criteria when selecting semiconductor manufacturing equipment. A basic expectation is that the equipment manufacturer will design and build inherently safe (to the operator, facility, and environment) equipment and will provide documentation that the equipment has been evaluated against a specific set of criteria, verifying conformance thereto.

1.3 A safety evaluation is important for a variety of reasons, including: operator safety, equipment reliability, conformance to regulatory (e.g., OSHA, EPA, local fire and building codes) and insurance requirements. These are intended to ensure a safe and environmentally responsible workplace.

2 Scope

2.1 This document defines the requirements for ESH evaluation of equipment design and operation.

2.2 These guidelines include:

- Purpose
- Scope
- Referenced Documents
- Terminology
- Codes, Regulations, and Standards
- Requirements for Third Party Evaluators
- Contracting with an Evaluator
- Documentation Provided to the Evaluator by the Supplier
- Evaluation Methods
- Contents of Reports
- Provision of Reports to Potential Users

2.3 The evaluation program is designed to be used in addressing the ESH aspects of new, refurbished, or resold process tools prior to the tool being delivered to the user.

2.4 The evaluator may be within the supplier's organization. As some equipment suppliers do not maintain a comprehensive ESH equipment evaluation program in-house, third party contractor(s) may be used. In either case, the evaluator should meet the requirements listed in Section 6.

NOTICE: This safety guideline does not purport to address all of the safety issues associated with its use. It is the responsibility of the users of this safety guideline 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 Standard

SEMI S2 — Safety Guidelines for Semiconductor Manufacturing Equipment

3.2 ANSI Standard¹

ANSI Z34.1 — Third Party Certification Program

4 Terminology

4.1 Definitions

4.1.1 *supplier* — the party providing the equipment to, and communicating directly with, the user. It may be the manufacturer or an equipment representative or distributor. The supplier has the responsibilities of obtaining the required information from the manufacturer or other sources and of providing it to the evaluator.

4.1.2 *user* — the purchaser of semiconductor manufacturing who will use the equipment.

5 Codes, Regulations, and Standards

5.1 Semiconductor equipment should conform to the applicable codes, regulations, and standards. The evaluation should include accordance with the codes, guidelines, and the local regulations of potential users. To assist in this, the supplier should provide the evaluator with a list of jurisdictions in which the supplier intends to market the equipment.

6 Requirements for Third Party Evaluators

6.1 The evaluator should have at least five years' experience in the semiconductor equipment or fabrication or similar industry and:

1. be established in accordance with ANSI Z34.1, Third Party Certification Program; or
2. consist of individual(s) who are registered or certified professional(s) in the discipline(s) in which the evaluations were performed; or
3. consist of individual(s) with baccalaureate or higher degrees in related technical discipline(s) (engineering or science).

NOTE 1: In the United States, the United Kingdom, and several other countries, the “baccalaureate” or “bachelor of science” degree is awarded upon completion of a technical course of study, typically of four years, at a college or university. It is the degree prerequisite for professional registration in most U.S. states and for study towards a master’s degree or doctorate.

7 Contracting with an Evaluator

7.1 The supplier initiates the evaluation by providing a “scope of work” to the evaluator. This scope should define the services to be provided, including the standards and guidelines that will be used to evaluate the equipment and the responsibilities of each party.

7.2 The evaluator is responsible only to the supplier.

7.3 Changes made to the equipment to bring it into accord with codes, regulations, and guidelines are the responsibility of the supplier.

8 Documentation Provided to the Evaluator by the Supplier

8.1 Any previous evaluations of equipment related to the included documents, with all appropriate documentation.

8.2 Material Safety Data Sheets (MSDS's) for all chemicals used in the maintenance of the equipment and for those used in baseline and known, user-intended processes.

8.3 When information is known for user intended or baseline process(s), the evaluator should be provided the estimated consumption of raw materials and the amount(s) of by-products generated as described in Section 20.2.1 of SEMI S2.

8.4 Copies of the equipment's installation, maintenance, and operation manuals.

8.5 Copies of any hazard analysis or safety reviews of the subject equipment.

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