

SEMI S10-1296

SAFETY GUIDELINE FOR RISK ASSESSMENT

1 Purpose

1.1 This document provides a method for assessing the risk associated with any hazard and for ranking different hazards according to the risks they present. The method can be used to differentiate between those hazards which are acceptable and others which require further mitigation to reduce their risk to acceptable levels.

2 Scope

2.1 This method is applicable to hazards associated with semiconductor facilities, processes, and manufacturing equipment. It is used to evaluate the risks presented by identified hazards and provides consistent basis for prioritizing corrective action and allocating of limited resources according to the risks those hazards present.

3 Referenced Documents

None.

4 Terminology

4.1 *hazard* — A condition that is a prerequisite to a mishap.

4.2 *likelihood* — The expected frequency with which a mishap will occur. Usually expressed as a rate (e.g., events per year, per product, per wafer processed).

4.3 *mishap* — An unplanned event or series of events that results in death, injury, occupational illness, damage to or loss of equipment or property, or environmental damage.

4.4 *risk* — The expected losses from a mishap, expressed in terms of severity and likelihood.

4.5 *severity* — The extent of the worst credible loss from a mishap caused by a specific hazard.

5 Procedures

5.1 *Mishap Severity & Likelihood* — Risk assessment first requires evaluating the expected severity and likelihood of occurrence for the mishap that results from the hazard. Examples of mishap severity and likelihood groups are presented in Tables 1 and 2.

For example, the risk assessment for a hazard that can credibly result in disabling injury and may occur once a year would be 2C (Severe/Possible), while a moderate hazard that is likely to occur more than five times per year would have a risk assessment of 3A.

NOTE 1: No standardized criteria for severity or likelihood groupings exist; users should develop groupings that are consistent with their own organization's hazard control objectives and safety policies.

NOTE 2: Likelihood and severity may vary, depending on the activity phase (e.g. operation, maintenance or service.)

5.2 *Risk Assessment Matrix* — Once a hazard's risk is determined, decisions can be made about whether the risk is acceptable or whether further mitigation is necessary. The Risk Assessment Matrix (such as the example shown in Figure 1) is a tool for making this judgment in a consistent, repeatable way.

The risk assessment categories tend to group together hazards with similar loss potentials (e.g., rare catastrophic loss and a frequent minor loss). The contours shown in Figure 1 are not standardized and users should define the matrix to suit their specific risk assessment criteria.

Besides establishing the risk assessment category for a single hazard, the matrix can be used to compare and prioritize different risks. This makes it easier to identify and concentrate resources on hazards having the greatest risk. The matrix can also be used to determine the effectiveness of alternative risk reduction strategies so that cost effective hazard reduction can be implemented.

Table 1 Severity Grouping

<i>Severity Group</i>	<i>People*</i>	<i>Equipment/Facility*</i>	<i>Property*</i>
1 - Catastrophic	One or more fatalities.	System or facility loss.	Chemical release with acute, lasting environmental or public health impact.
2 - Severe	Disabling injury/illness.	Major subsystem loss or facility damage.	Chemical release with temporary environmental or public health impact.
3 - Moderate	Medical treatment or restricted work activity (OSHA recordable).	Minor subsystem loss or facility damage.	Chemical release triggering external reporting requirements.
4 - Minor	First aid only.	Non-serious equipment or facility damage.	Chemical release requiring only routine cleanup without reporting.

Table 2 Likelihood Grouping

<i>Likelihood Group</i>	<i>Expected Rate of Occurrence*</i>
A - Frequent	More than five times per year.
B - Likely	More than once per year, but no more than five times per year.
C - Possible	More than once in five years, but no more than once per year.
D - Rare	More than once in ten years, but no more than once in five years.
E - Unlikely	No more than once in ten years.

* These descriptions are for example only. Use measures that are appropriate for your specific application.

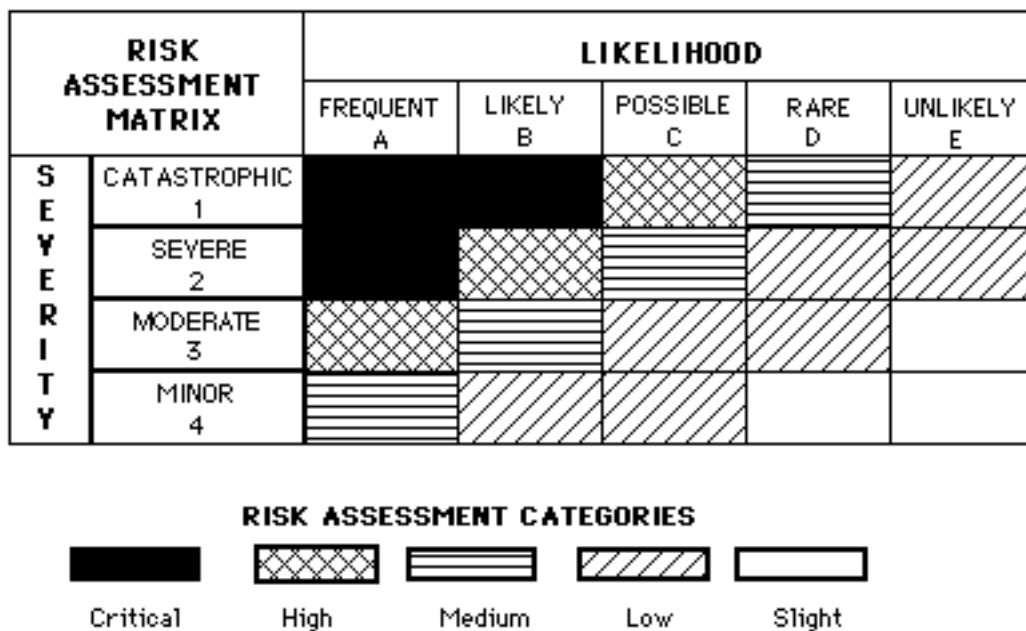


Figure 1
Sample Risk Assessment Matrix