



Application

- The development and advancement of new technologies, should be accompanied with advances in methods for testing device properties, performance, and reliability, and their relationship to optimizing manufacturing methods.
- Needs for test methods and instrumentation should be identified, prioritized, and road mapped.
- The development of standards, calibration facilities, and standard reference materials takes time. Standards organizations such as SEMI and ASTM, and NIST, and other agencies such as NSF can work with academic and industrial groups to identify cross-cutting and precompetitive needs.

Research Needs

Scientific/technological problems and barriers:

- Development of new test methods
- Instrumentation development
- Determine needs for calibration facilities
- Device performance testing
- Examples of current needs identified or under consideration by SEMI include
 - Standard test method for electroosmotic and electrophoretic flow properties.
 - Standards for defining the detector sensitivity and resolution of separations .
 - Properties database(s), e.g. conductivity and permittivity vs. frequency.

Advantages

Impact:

- Enables the accurate comparison of performance between device technologies and research groups.
- This knowledge will be needed for the coordination and development of test and certification protocols with federal regulatory agencies, such as FDA, etc.
- Early awareness of standards and calibration requirements so that industrial needs are met in advance.

Metric(s) of Progress

- Identification of metrology needs.
- Prioritization of needs.
- Guidance for federal agencies, such as NIST, for planning work, facilities, and external investment.
- Technology and metrology road mapping.
- Development of standards to support cross cutting and/or precompetitive measurement needs.

Resource requirements: TBD