As a world leader in compliance testing and certification since 1872, TÜVRheinland® offers you the expertise and attention-to-detail you need to guarantee customer satisfaction. We’ll help you bring your products to global markets — quickly, economically and with a worldwide-recognized mark.

Solutions for the Semiconductor Industry
Safety assessment according to SEMI® guidelines is a growing global requirement for semiconductor manufacturers. Equipment buyers are demanding third-party assessment according to SEMI guidelines, which have been established to ensure a standard of safety throughout the industry and worldwide. The SEMI S2 Guideline covers a large range of safety and health provisions, including regulatory requirements, electrical, mechanical, fire, chemical, radiation, noise, and ergonomics hazards; emergency shutdown, ventilation, and exhaust specifications; hazard warnings and more.

TÜVRheinland’s worldwide team of highly qualified engineers and industrial hygienists provide comprehensive, single-source SEMI S2 and S8 assessment and CE Marking services.

SEMI S2 Assessments
SEMI S2 Assessments TÜVRheinland® engineers and certified industrial hygienists can perform this risk-based assessment on-site. Our team members are heavily experienced in electrical/mechanical safety, chemical exposure assessments, ventilation, noise, ionizing radiation, non-ionizing radiation, lasers, environmental impact assessments, and other areas of expertise required by the SEMI S2 Guideline.

SEMI S2 Mark
TÜVRheinland® is the first company to offer an internationally recognized, third-party SEMI S2 mark for approved semiconductor manufacturing equipment. SEMI recognizes this mark as an official document that denotes third-party compliance with the SEMI S2 standard and safety guidelines. This new mark not only increases product acceptance by assuring buyers and industry members that our customers have produced safe and compliant products, but it also provides a distinct marketing advantage when bidding on jobs.

SEMI S2 — CE Marking — NRTL Listing — Field Evaluation Service (FES)
While assessing your machinery to the SEMI S2 Guideline, our team can simultaneously perform cost-effective testing and certification to meet the requirements of the CE Marking for the European Machinery, Low Voltage and EMC Directives as well as performing a NRTL listing or issuing a Field Label. CE Marking, which is necessary for exporting products to the European Union, can be obtained as part of your SEMI S2 assessment, providing you use a European Notified Body, such as TÜVRheinland®. TÜVRheinland® is a National Recognized testing Laboratory (NRTL) accredited by OSHA and could issue listing to various US standards.

SEMI S23 Conservation Requirements
“Guide for Conservation of Energy, Utilities and Materials Used by Semiconductor Manufacturing Equipment” is becoming a purchase requirement for most device manufactures. S23 describes the quantification of energy, utilities & materials consumption, as well as measurement and monitoring together with ongoing target settings for improvements. Measured utilities and materials include: exhaust; vacuum; cooling water; clean dry air; nitrogen; deionized water; heat-load removal; and electricity. TÜVRheinland® has a full range of SEMI S23 testing capability for semiconductor manufacturing equipment.

SEMI F47: Voltage Sag Standard
The SEMI F47 standard calls for industry equipment to be certified to tolerate various voltage sag durations as deemed safe and practical by the Semiconductor Industry Association.

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SEMIF47: Voltage Sag Standard
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TÜVRheinland® can now provide on-site SEMI F47 testing in North America, Asia and Europe. Portable test equipment used at the customer site can test equipment running at up to 100 amps per phase (continuous). In addition to providing compliance assessments, the test equipment records up to 14 analog channels connected to points inside the customer’s equipment during the sag. The data provided in this manner permits quick, simple fixes during sag immunity testing.

Ventilation Systems Assessments
TÜVRheinland® has the expertise to conduct ventilation system assessments utilizing vapor visualization, air velocity measurements, and tracer gas studies of hazardous gas enclosures using sulfur hexafluoride gas (SF6). Vapor visualization is used to assess the effectiveness of ventilation systems for wet stations, diffusion furnace scavengers, parts cleaning hoods, and spin coaters. Air velocity measurements are normally done for gas cabinets, diffusion furnace scavengers, parts cleaning hoods, and supplemental exhaust systems. Tracer gas analysis is a primary method used to assess gas cabinets, glove boxes, ovens, and gas boxes. Tracer gas analysis for SEMI S2 assessments is performed according to SEMI F15 guidelines, which have recently been incorporated into SEMI S6.

Chemical Exposure Assessments
TÜVRheinland’s certified industrial hygienists can conduct testing in accordance with the National Institute for Occupational Safety and Health (NIOSH) and U.S. Federal OSHA guidelines to determine airborne levels of chemicals around processing equipment utilizing hazardous production materials (HPMs).

Testing capabilities include:
• Measurement with direct reading instrumentation for real-time worst case exposure analysis
• Integrated sampling with pumps and diffusive monitors for short term (STEL) and full shift time-weighted average exposure analysis

Sampling results are compared with applicable exposure levels from OSHA (PEL, STEL, ceiling), ACGIH TLVs (TWA, STEL, ceiling), Canadian regulatory limits, and company-specific internal exposure limits. For SEMI S2, results are compared to the applicable Occupational Exposure Limit (OEL).

Our Services and Expertise Includes:
• Machinery and Low Voltage Directive.
• Measurement according to the EMC directive, including EMC Mobile service for large-sized equipment.
• Assistance in TCF preparation; issuing of certificate of conformity.
• Flexible assessment of conformity based on the New Approach concept.
• Full lineup of staff members to satisfy customers’ stringent needs.

TÜVRheinland® is the world leader in independent testing and assessment services. The $1.2 billion corporation is comprised of an international network of 11,000 employees at over 300 locations in 60 countries and serves most industry sectors and markets worldwide. With North American headquarters in Newtown, Conn., TÜVRheinland® has additional offices throughout North America.

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