

January/February 2010 Issue Preview

Featured Articles

Orbital Welding Issues for High-Purity Semiconductor Applications

(KEY WORDS: Orbital Welding; SEMI Standards)

This article will examine orbital welding issues including types of weld heads and power supplies, single pass vs. multipass welds, clean welding environments, inert gas purging technology, sulfur content of Type 316L stainless steel, weld criteria for high purity applications and the use of test coupons for quality assurance. These issues will be discussed in terms of the two SEMI standards that apply to orbital GTA welding in semiconductor fluid distribution systems: SEMI F78-0304 Practice for Gas Tungsten Arc (GTA) Welding of Fluid Distribution Systems in Semiconductor Manufacturing Applications, and SEMI F81-1103 Specification for Visual Inspection and Acceptance, which details weld acceptance criteria.

Spray Nozzle Design for Rapid Cooling of Gas Streams

(KEY WORDS: Gas Quenching; Spray Nozzle Design)

Rapid cooling or quenching of gas streams is used in a number of essential applications in the petrochemical industries. The selection and sizing of spray nozzles are the most critical decisions in the system design. Optimized gas-quenching systems can reduce quench vessel size, reduce atomization energy consumption, and minimize the risk of unexpected downtime.

Using Wireless Sensors for Cylinder Monitoring: A Case Study

(KEY WORDS: Wireless Monitoring; Gas Cylinders)

How non-invasive sensors can monitor key cylinder characteristics such as pressure and weight to reduce downtime and man-hours. A detailed look at the technology, implementation, costs, and savings in a 150mm fab with a capacity of 30,000 wafer starts per month.

Alternative Method for Steam Generation for Thermal Oxidation of Silicon

(KEY WORDS: Steam Generation; MEMS Fabrication)

Thermal oxidation of silicon is an important process step in MEMS device fabrication. Thicker oxide layers are often used as structural components. Pyrolytic steam (generated from combustion of hydrogen and oxygen) has been the default process for generating oxides. It was almost impossible to get their volume hydrogen storage on site increased which put a limit on process expansion that required hydrogen. Replacement of existing pyrolytic process eliminated hydrogen and allowed for rapid ROI and significant annual cost savings. Data collected over 14 months will compare replacement of their pyrolytic torches with new technology. Data will include improved growth rate, wafer uniformity, etch rate, reflectivity and uptime.

Reviewing the Specs for Stainless Steel in the Photovoltaic Industry: Executive View
(KEY WORDS: Photovoltaic Manufacturing; Stainless Steel)

A major technology company discusses helping customers determine the necessary specification for stainless steel components used in photovoltaic (PV) manufacturing.

2010 Golden Gas Award Nominees (Partial list for entries received before December 1, 2009: Deadline for all entries is January 15, 2010)

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