SESHA New England Chapter Mini-Conference

August 1, 2019 Axcelis Technologies, Beverly, MA

Mini-Conference Agenda

	Presentation	Speaker
8:00 AM	Registration Open	
8:05 AM	Networking / Breakfast	
8:45 AM	Opening Session, Welcome by New England Chapter President	Emily Kenney EHS Engineer, Analog Devices
8:50 AM	Opening Session, SESHA President	Steve Roberge VP, EHS and Facilities, Axcelis
9:00 AM	Energetic Materials, Update on the SEMI S30 guidelines	Eugene Ngai, Chemically Speaking LLC; Steve Trammell, BSI Group; Matt Wyman, KFPI; John Visty, Salus Engineering; Mark Fessler, ASM Eric Sklar, Safety Guru, LLC
10:30 AM	Networking Breaks & Exhibition	
11:00 AM	LOTO Design Challenges	Mark Fessler, Global Director of Product Safety, ASM
11:45 AM	Lunch, Exhibition, and Networking	
1:00 PM	Safety Interlock Design Challenges	Mark Fessler, Global Director of Product Safety, ASM
1:45 PM	Building a High Performance EHS Organization	Paul Connor, Director of Global EH&S for the Electronic Materials Business Group of DuPont
2:30 PM	Networking Break	
2:45 PM	Testing the Responsiveness of Fire & Gas Technologies to Small Silane Leak Scenarios	Matt Wyman Managing Director & CTO, KFPI
3:30 PM	Global New Chemicals Regulations	Jessie M. Kneeland, Ph.D. Gradient
4:15 PM	Accident and Incidents	
4:30 PM	Closing	

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Mini-Conference Exhibitors

DOD Technologies, Inc.
Innovative Life Safety Systems & Services

KFPi
MICROELECTRONICS FIRE & SAFETY
www.kfpi.com

CS CLEAN SOLUTIONS

Trinity Consultants

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INDUSTRIAL PROTECTION IPP PRODUCTS, INC.

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Presentation Abstracts

9:00 AM: Energetic Materials, Update on the SEMI S30 guidelines

Steve Trammell, Principal Consultant / Manager at BSI Group and Matt Wyman, Managing Director & CTO, KFPI

We will review the various requirements and challenges of implementation of the newly approved SEMI S30 Safety Guidelines on Energetic Materials. Because of the complex hazards associated with energetic materials, SEMI S30 was written as new type of SEMI Standard requiring alignment and joint collaboration of various different equipment and suppliers from chemical delivery through the tool process to exhaust/abatement to ensure a complete "soup to nuts" solution at the end user. In this panel discussion we will step through many of the primary sections and new requirements of this standard and give each the panelists time to comment on the how the implementation affects them.

11:00 AM: LOTO Design Challenges

Mark Fessler, Global Director of Product Safety, ASM

The complex term "CoHE" is more commonly referred to as "Lock-Out/Tag-Out" or "LOTO" but they are not the same. CoHE is a wide-ranging term describing the use of procedures, techniques, and specific equipment designs to prevent unintentional energizing or the release of stored hazardous energy, which can lead directly to harm. LOTO is simply one of the most common administrative methods in which to do this.
Common Examples of Hazardous Energies In Semiconductor Industry

- Distributed Electrical (high voltages, high currents)
- Stored Electrical (capacitors, batteries)
- Pressurized Liquids (hydraulic, pumped)
- Compressed Gases (liquefied, or pressurized)
- Electromagnetic Radiation (X-Ray, RF, IR, UV, lasers)
- Static Magnetic Fields (permanent magnets)

- Gravitational Energy (e.g. suspended, hinged loads)
- Kinetic Energy (moving robots, linear drives, gears)
- Thermal / Cryogenic Energy (hot, cold temperatures)
- Chemical Energy (heat of reaction, fire, explosion)
- Stored Mechanical Energy (springs, elastic seals)

Unfortunately, due to the semiconductor equipment design and fab layouts, certain LOTO procedures can be inconvenient, complicated and slow. Based on a previous semiconductor industry survey related to the Lockout/Tagout, the equipment suppliers, the end-users (fabs), and the third party evaluators have each highlighted obvious differences of opinion related to the semiconductor industry's LOTO practices.

This SEMI survey's results helped the SEMI EHS Committee to justify the formation of a SEMI Task Force to address these important LOTO interpretation inconsistencies from a global perspective. The webinar will focus on key topics to be considered to improve our CoHE / LOTO guidance. It is the hope

that new text of SEMI S2 can be clarified, and other important design and administrative considerations to prevent foreseeable misuse during maintenance/service task.

1:00 PM: Safety Interlock Design Challenges
Mark Fessler, Global Director of Product Safety, ASM

ASM International has recently developed new design engineering training material to help our many new, young design engineers understand product safety compliance requirements, with a focused attention to proper safety interlock design. Incorporation of proper safety interlock circuits is one of the most important engineering controls to help prevent harm from various hazard scenarios. To properly design these circuits requires a fundamental understanding of the written requirements within SEMI S2 Section 11 and the Machinery Directive Section 1.2.1, as well as the other standards which these 2 umbrella documents reference to. This presentation will review some of the important design decisions that must be made when creating a new safety interlock, and also address alternative paths to compliance when the primary, most straight forward path is not possible due to other existing design constraints. The presentation will introduce ASM's approach to help "fill in the gaps" for design engineers on how to make safety interlock component selections, and protective enclosure designs, when alternate design paths exist.

1:45 PM: Building a High Performance EHS Organization
Paul Connor, Director of Global EH&S for the Electronic Materials Business Group of DuPont

For over 30 years, Paul has been involved with more than 23 acquisitions and mergers in the electronics industry. The process of integrating and building new Environment, Health and Safety organizations is not a "one size fits all" approach (which happens too frequently) and depends on the specific type of business model. An approach will be described to help understand how to define your company's EHS risk management tolerance/ targets, understand your business model, delineate critical success factors and then build a successful organization. The organization must then operate to deliver both EHS value as well as creating business value.

2:45 PM: Testing the Responsiveness of Fire & Gas Technologies to Small Silane Leak Scenarios
Matt Wyman, Managing Director & CTO, KFPI

Over the past many years Silane has been tested and studied to try to understand characteristics of this complex chemical. The results of these tests have demonstrated that silane, although classified as a pyrophoric gas, can release an automatically catch on fire, release and result in a delayed explosive reaction, or release with no ignition depending upon the leak release rate. With all these varying leak scenarios, what testing has been done to verify the fire and gas detectors used throughout the semiconductor industry will actually detect each and every potential leak scenario? This is exactly what KFPI and ASM set to find out. In this presentation, we will compare what the safety codes and standards require for silane in terms of gas detection, fire detection, and exhaust ventilation and then compare them to what technologies actually responded to leak scenarios of all types under different exhaust rates within silane gas cabinet. Review of the leak testing videos and results will provide some shocking results.

3:30 PM Global New Chemicals Regulations

Jessie M. Kneeland, Ph.D., Gradient

Registering new chemicals is a complex process, and differs around the world. Understanding common concepts (*e.g.*, exemption types, tiered data requirements, chemical inventories) can make a multi-jurisdiction market-entry strategy easier to design and implement. This presentation will review commonalities and differences among key chemical control laws around the world (US, EU, AsiaPac), including how to determine what type of registration is needed, what data are required to complete the process, and typical costs and timelines to get new chemicals approved. In particular, we will highlight some trends in global chemical regulation and how they may affect businesses developing and using novel chemistries in the semiconductor industry.