AIChE Susquehanna Local Section – April 2022 Meeting

"Gas Detection Solutions for the Measurement of Ammonia Concentrations"

Date/Time: Monday, April 11, 2022 / 6:30-8:00 pm

Program: In this Zoom meeting, we will have a presentation on Ammonia detection methods by **Sarah Rajasekera**, Segment Marketing Manager at MSA Safety (www.msasafety.com).

In October 2021, Chemical Engineering magazine published the article "Monitoring Ammonia and Other Toxic Gas Hazards" upon which this presentation is based.

Meeting participants are eligible for a 1-hr Professional Development Hour (PDH). Request a Certificate at peter.kabatek@gmail.com. The meeting will be hosted by Peter Kabatek, Susquehanna Local Section Chair.

Agenda:

6:30 – 6:45 pm	Attendee Introductions, Speaker Introduction
6:45 – 7:45 pm	Presentation by Sarah Rajasekera
7:45 – 8:00 pm	Q&A, Feedback, Concluding Remarks

Abstract: The large-scale growth of ammonia usage in recent years has elicited a surging demand for sensitive, selective, and accurate detection methods in industrial applications to ensure personnel safety and to minimize plant exposure. The hazardous, toxic, and combustible dangers of ammonia can pose a significant risk if inadvertently leaked and can have devastating consequences, including catastrophic explosions, fires, and loss of life at the plant level, with damage potentially extending to nearby communities.

When considering sensors or measurement systems for use in occupational exposure assessment, there can be several competing types from which to choose for a specific application. For many industrial hygienists, a best practice for plant safety is to follow a multi-sensor layered approach with strategic detection positioning that provides a highly secure web of coverage to guard against accidental gas releases while minimizing false alarms.

Selecting the right sensor(s) for a particular application can be difficult and requires an understanding of the conditions in which they will be operated (e.g. settings prone to humidity, temperature swings, interferant gases) as well as the specific benefits and limitations of each sensor type. Several performance characteristics should be evaluated and prioritized prior to purchasing a sensor like sensitivity, response time, selectivity, calibration requirements, and limits of detection, to name a few.

This comparison study reviews the most commonly used ammonia detection technologies relying on spectroscopy, electrochemistry, catalytic combustion, and acoustics and examines their respective operating principles, and advantages and disadvantages in relation to various applications requiring measurement of certain

concentrations, e.g., less than 25 ppm for early leak detection in refrigerated rooms would not be suitable for catalytic bead sensors, as they are not sensitive enough. This session also highlights the latest developments in ammonia detection technology aimed at meeting current and anticipated future needs to support safety in ammonia plants and related facilities.

Speaker Bio: As Segment Marketing Manager of Fixed Gas and Flame Detection at MSA Safety, Sarah Rajasekera oversees the Go-to-Market (GMT) strategy and tactical implementation of marketing initiatives for optimal revenue growth and demand generation in northern North America.

Naturally drawn to the meticulous and methodical requirements of research and development, Sarah started her career as a Chemist at PPG where she investigated properties of novel battery cathode coatings for electric vehicles. While there, she was twice recognized for her scientific insight, keen appreciation of company needs, and commitment to project demands.

Sarah now leverages her technical acumen in a business-oriented manner to evaluate data-driven strategies, marketing data, and economic patterns in a broad range of markets, including the oil, gas, and petrochemical industry, HVAC, and chemical manufacturing. An avid writer, her credits include contributions to industry-leading magazines like Chemical Engineering, Petro Industry News, and Process Cooling.

Sarah holds a B.S. in Chemistry from Carnegie Mellon University. Outside of work, she is active in the classical music realm where she won the Young Artist Award in Piano (2019), allowing her the prestigious opportunity to perform at Carnegie Hall.

Zoom Info.: When: April 11, 2022, 06:30 PM Eastern Time (US and Canada)

https://aiche.zoom.us/j/97831105442?pwd=UkYvVUdkdkxLTkplWW0xOVlhLzF5QT09

Meeting ID: 978 3110 5442
Passcode: 291227

Audio by Computer or Telephone Audio

888 475 4499 US Toll-free
877 853 5257 US Toll-free

This meeting may be recorded for future playback.

Save this meeting to your Outlook calendar using the iCalendar attached.

AIChE Susquehanna LS Meeting Website:

https://www.aiche.org/community/sites/local-sections/susquehanna/events/