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**RASIRC Demonstrates Hydrogen Peroxide/Water Results in Highest Quality Growth and Film Characteristics for Metal-Oxide Dielectric ALD**

***Company shares comparative study results for ALD precursors at 236th ECS Meeting***

San Diego, Calif – October 13, 2019 – RASIRC will present a metal-oxide dielectric ALD comparative study that examines growth and film characteristics for $H_2O_2/H_2O$ mixtures, $H_2O$ and ozone at ECS Meeting held in Atlanta, Georgia October 13-17. The presentation will review common precursor chemistries and discuss collaborative research on oxidants, specifically hydrogen peroxide reactivity.

The mission of The Electrochemical Society (ECS) is to advance theory and practice at the forefront of electrochemical and solid-state science and technology, and allied subjects. ECS biannual meetings are a forum for sharing the latest scientific and technical developments in electrochemistry and solid-state science and technology. Scientists, engineers and industry leaders from around the world attend the technical symposia, poster sessions, and professional development workshops.

"ALD of dielectrics requires new precursor chemistries. Most recent development efforts have focused on new Organometallic, Organosilicon and Organoaluminum precursors. RASIRC research, however, focuses on oxidants, such as, hydrogen peroxide reactivity. Due to enhanced reactivity, hydrogen peroxide allows for lower deposition temperatures and achieves distinct properties in the resulting film when compared to other oxidants," saidDr. Daniel Alvarez, Jr., RASIRC Chief Technology Officer.

Alvarez will be presenting "*Dielectric ALD with Hydrogen Peroxide: Comparative Study of Growth and Film Characteristics for Anhydrous $H_2O_2$, $H_2O_2/H_2O$*

*Mixtures, $H_2O$ and Ozone*" during the Atomic Layer Deposition Applications 15 session in Room 214 on Wednesday, October 16 at 10am.

Mr. Su Min Hwang of Professor Jiyoung Kim's group at the University of Texas Dallas will present a talk entitled, "*Comprehensive Study on Vapor-Phase Surface Cleaning of Cu Films Using Anhydrous $N_2H_4$.*" This presentation will take place in Room 209 during the 16th International Symposium on Semiconductor Cleaning Science and Technology session at 5:20pm on Tuesday, October 15. The work describes key advances for Cu cleaning utilizing RASIRC BRUTE® Hydrazine product.

Alvarez will be available throughout the conference to answer questions and discuss RASIRC product line.

**About RASIRC Products**

BRUTE Hydrazine enables uniform nitride deposition for Silicon and early transition metals at low temperature. BRUTE Hydrazine may also be used as an atomic hydrogen source, where metals such as Ru, Cu, and Co may be cleaned and reduced. Hydrazine gas is generated in situ and is virtually water free. Brute Hydrazine has been formulated for a relatively high flash point for safer handling.

RASIRC Peroxidizer® provides high volumes of reactive $H_2O_2/H_2O$ mixtures for high throughput ALD. This reactive gas generator is ideal for spatial ALD coatings that require high speed deposition at reduced temperatures.

BRUTE Peroxide is a novel oxidant that improves nucleation density at film interfaces when compared to other oxidants. Surface functionalization is denser and initiation is faster using anhydrous hydrogen peroxide gas compared with alternatives. This enables better selectivity and less damage to metal surfaces in ASD processes.

Additional RASIRC products include the RainMaker® Humidification System (RHS) and the Hydrogen Peroxide Steamer (HPS). The RHS generates water vapor for oxidation applications and the HPS provides surface cleaning, preconditioning, gap fill curing, and residual carbon removal.

**About RASIRC**

RASIRC specializes in products that generate and deliver gas to fabrication processes. Each unit is a dynamic gas plant in a box—converting common liquid chemistries into safer and reliable gas flow for most processes. First to generate ultra-high purity (UHP) steam from de-ionized water, RASIRC technology can now also deliver hydrogen peroxide gas and hydrazine gas in controlled, repeatable concentrations. RASIRC gas delivery systems, humidifiers, and closed loop humidification systems are critical for many applications in semiconductor, photovoltaic, pharmaceutical, medical, biological, fuel cell, and power industries. Call 858-259-1220, email info@rasirc.com or visit http://www.rasirc.com.

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