



**Contact: Andrea Roberts, A•R Marketing, Inc**  
**(858) 451-8666; [mediacontact@rasirc.com](mailto:mediacontact@rasirc.com)**

**FOR IMMEDIATE RELEASE**

**RASIRC Founded to Produce Pure Steam Products**

*Delivers and purifies critical liquids and gases, initial focus on steam and pure condensate*

**San Diego, Calif. – February 28, 2006** – RASIRC<sup>®</sup>, innovator of steam purification technology, has established operations and completed development of its first products. RASIRC products generate high flow, ultra pure water vapor that is contaminant free. Ultra pure steam is a fundamental requirement in many industries. The company was founded by Mr. Jeffrey Spiegelman, former president and founder of Aeronex, Inc, a company that designed and manufactured gas purification systems.

“Until now, there has been no economical way to produce clean steam. RASIRC was founded to develop and deliver products that do just that,” said RASIRC president Jeffrey Spiegelman.

“Although industrial applications have used steam for centuries, live steam purification hasn’t been possible due to difficulties in material stability, effectivity, and throughput. RASIRC technology addresses multiple market segments.”

High purity steam is the foundation of the medical and pharmaceutical industries. Its uses include sterilization of almost all components used in medicine, surgery, and pharmaceutical engineering. In addition, almost all the water used for making drugs begins as steam and is condensed back into a liquid. In medical and pharmaceutical applications steam is generated in metallic boilers from de-ionized (DI) water. The resulting steam is loaded with dissolved metals, silicates, and atmospheric gases. These contaminants then become part of condensate water made from this pure steam. How these metallic and other contaminants interact with the drug efficacy and living systems is unknown, but not expected to generate positive outcomes, thus the advantage of ultra pure steam.



In the semiconductor industry steam is commonly used as the source gas for generating oxide films on semiconductor wafers in diffusion and rapid thermal processing. Traditionally, water vapor in semiconductor applications is generated by combustion of oxygen and hydrogen. However, limitations include 500°C operation, purity, particle formation, flow response time, cost, and most significant, the occasional explosion from burning hydrogen in pure oxygen. RASIRC technology reduces costs, improves quality, and dramatically improves safety.

Next generation films used in atomic layer deposition (nanotechnology) will require ultra pure steam for formation of the high K layer. Clean steam can also effectively remove contaminants that are not possible with de-ionized water from next generation structures and are not practical with supercritical CO<sub>2</sub>. The move to immersion lithography will require water that is absolutely pure and bubble free.

The power industry depends on steam to provide the driving force for turbines that generate electricity. Dissolved silicon can deposit on the turbine blades shortening their life and reducing efficiency. Extensive chemical treatments are required to keep the water clean enough for power plant usage. Direct steam purification could lower overall costs, improve efficiency, and increase turbine up-time. The ability to separate metallic impurities from water could reduce nuclear waste by concentrating contaminants in cooling water.

Fuel cells depend on hydrogen, oxygen, and water vapor. Contamination in any of these process gases can lead to poisoning of the membrane catalyst and degradation of the proton exchange membrane (PEM). In addition, proper hydration of the PEM is critical for the performance of the fuel cell. RASIRC high temperature humidifiers allow 100% saturation of hydrogen and air up to 120°C operation. RASIRC headquarters are in San Diego, California.

### **About RASIRC**

RASIRC was established March 7, 2005 to develop products that purify and deliver ultra pure liquids and gases, with a primary focus on water vapor. The RASIRC technology includes the first steam purification technology ever brought into the semiconductor market. This technology reduces cost, improves quality, and dramatically improves safety. The pure steam generated by



RASIRC products is of critical importance for many applications in the semiconductor, pharmaceutical, medical, biological, fuel cell, and power industries. For more information, contact Jeffrey Spiegelman at +1 858-259-1220, or e-mail [info@rasirc.com](mailto:info@rasirc.com).

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**Contacts:**

RASIRC  
Jeffrey Spiegelman  
11760 Sorrento Valley Road, Suite E  
San Diego, CA 92121  
Phone: 858-259-1220  
Fax: 858-259-0123  
E-mail: [js@rasirc.com](mailto:js@rasirc.com)  
[www.rasirc.com](http://www.rasirc.com)

A R Marketing, Inc  
Andrea Roberts  
PO Box 501528  
San Diego, CA 92150  
Phone: 858-451-8666  
Fax: 858-683-2083  
E-Mail: [mediacontact@rasirc.com](mailto:mediacontact@rasirc.com)