

ASI TODAY

A newsletter for customers of Analytical Sensors & Instruments Ltd.

Fall 2004

From the President's Desk



Peter Cai, President

Dear Customers & Friends:

Year 2004 has been very exciting to ASI, as well as to Aurora, our branch in Shanghai. Both companies have been overwhelmed by tremendous growth in sales, technology, capability, and staff.

This year, ASI has had seven consecutive record-breaking months since January. At the end of July, ASI and Aurora achieved close to 50% and 60% in sales growth respectively over the same period of last year.

This year, both teams have added several more high level employees in our R&D and Engineering departments to enhance our efforts to develop new products for our customers.

Our goals at ASI are to develop different types of sensors and other non-sensor

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WOW! What a year.

2004 has been a great year thanks to our many loyal customers. During that last year we have been developing several new product lines and improving the ASI general electrode look. While it is long overdue, ASI will be releasing a new electrode cap, that will enhance the appearance of the electrode and also has new shielding capabilities that better protect the sensor's output. The first version of the cap can be seen at the bottom of this page, but the final version will have a slight variation. Since the new electrode cap has not yet been released, ASI has placed the 2004 ASI catalog on hold until photography of all of our products with the new cap can be completed. We expect that the catalog will be released in the last part of the fourth quarter, and will be the 2005-2006 ASI catalog.

ASI is also currently reengineering our industrial product line, designing new robust products and redesigning older products. The most recent redesign is the model 61 industrial electrode. This is our standard 3/4 inch insertion/submersible electrode.

Our current design is molded in



polypropylene, but we will begin offering a Ryton version by the beginning of 2005. In addition, we are designing a model 62 electrode that is also a 3/4 inch insertion/submersible electrode with an improved body constructed from Kynar with a large body handle that is easier for handling and provides increase reference electrolyte volume. We will also be releasing a new Twistlock design electrode constructed of Kynar with a similar body style to the model 62 in 2005.

In addition to improving our electrode designs, ASI has been busy developing new products to add to our portfolio. The first product that we have been developing is a low cost electrode arm (top right). We know this is a mature market and that there are lots of options for manufacturers of the electrode arm, but ASI is interested in making an electrode arm that is affordable to every company. Since our objective is to be the manufacturer, we want to pass along as much profit level as possible to our customers.

Look to see this new product available by the beginning of 2005.

Another complementary product that ASI is developing is a magnetic stirrer. Like the electrode arm, there are many options for stirrers on the market, but our objective is always to offer a very competitive product at a lower cost. The ASI stirrer will be available in the first quarter of 2005.

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Hello, I am pleased to announce that you have a new author for the Chemist Corner. I am George C. Barone III, Ph.D. and I come to ASI with thirteen years experience in developing sensors and measurement systems for the blood gas and electrolyte medical diagnostic device industry. I have worked for Roche Diagnostic Corporation, AVL Scientific, Instrumentation Laboratories, Mallinckrodt Sensor Systems, and for Radiometer Copenhagen. Prior to that I received a Ph.D. degree from the University of Cincinnati in analytical/electrochemistry under Professor William R. Heineman. I have also received a M.S. from Purdue University under Professor Peter T. Kissinger.

My industrial career has focused on the development and optimization of electrochemical and optical sensors for pH, CO₂, O₂, Na⁺, K⁺, Ca⁺⁺, Cl⁻, glucose, BUN, hematocrit, hemoglobin, and SO₂ in fresh, undiluted human whole blood. I have worked on many systems that measure whole blood at the point of care. Although I am very new to ASI, hired in June of 2004, I am very excited about the prospects and opportunities here. My first tasks and goals involve the stabilization of our manufacturing processes to deliver even more consistent and reliable products than you are used

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Interesting note:

The reference electrode half-cell is the most important part of most electrodes. Without a good reference, your sensing element (pH, ORP, ISE) will not function properly. It is important to know the sample that you are testing to insure that you get the right reference for your application.

to receiving. Concurrently I will be focusing on completing the new product development efforts that my predecessor was working on. I will target the Ion Selective Electrodes that have been the most problematic for our customers and create a comprehensive method for building longer lasting and optimized ISE electrodes.

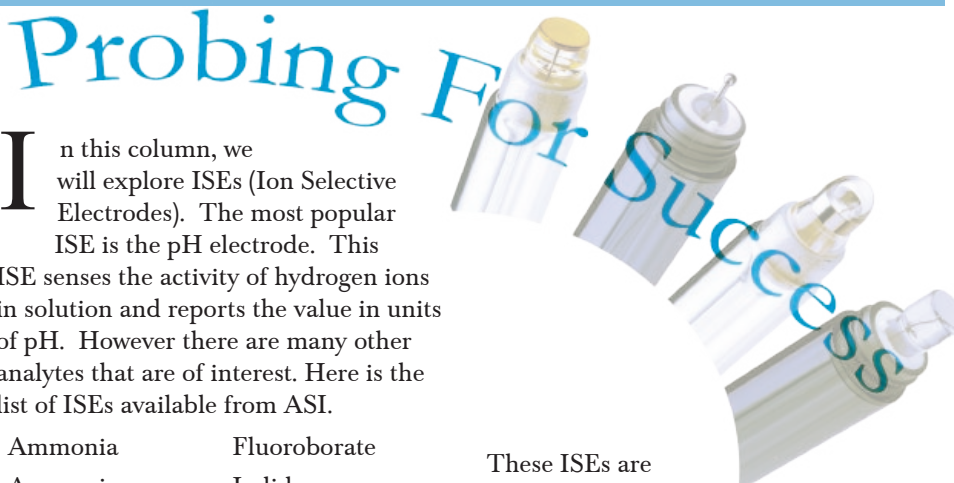


Dr. George Barone & TT Han
Research Chemists

I will also be responsible for customer support as well. Speaking of which I want to remind some of you and let the others know that in searching the literature it was found that solid state lead electrodes need to be polished and conditioned every day they are in use. This is very important for you to keep up the quality of the electrodes we supply to you, by polishing and conditioning them before use.

I would also like to introduce my new assistant, TT Han. TT recently joined me at ASI to aid in the manufacturing of the many solutions that we make at ASI and to aid me in the testing and development of our sensors. TT's E-mail address is than@asi-sensors.com.

I am excited about this new opportunity at ASI and I look forward to working with you very soon. If you have any questions or comments please call or E-mail me at (281) 565-8188 extension 122 or gbarone@asi-sensors.com. I look forward to hearing from you and writing to you in the next newsletter.



In this column, we will explore ISEs (Ion Selective Electrodes). The most popular ISE is the pH electrode. This ISE senses the activity of hydrogen ions in solution and reports the value in units of pH. However there are many other analytes that are of interest. Here is the list of ISEs available from ASI.

Ammonia	Fluoroborate
Ammonium	Iodide
Bromide	Lead
Cadmium	Nitrogen Oxide
Calcium	Nitrate
Carbon Dioxide	Nitrite
Chloride	Potassium
Chlorine	Silver
Cupric	Sulfide
Cyanide	Surfactant
Fluoride	Sodium
	Thiocyanate

These ISEs are used in a similar way as the pH electrode. The sample is prepared, the electrode is calibrated and the measurement is taken. Also, titration endpoints can be determined with many of the ISEs in a similar way that acid and base titrations are performed using the pH electrode as the endpoint detector. Some popular methods using ISEs are : the determination of fluoride in drinking water; measuring chloride in surface waters; determining ammonia in water and wastewater; and the determination of calcium in foods.

In 2003, ASI has seen significant growth in many areas. Our favorite area, beyond sales, is the addition of new talent to the ASI corporate office in Sugar Land. In recent months, since our last issue, we have added three new talented individuals.

Don Miller joined ASI last month and accepted the position of OEM accounts manager. Don has worked for many analytical companies over the last 6 years in capital and consumable products companies. During the next few weeks Don will be sending out greeting letters to all of his accounts. Please join us in welcoming Don to the ASI sales force, as we expect great things from him in the months to come. If you have any questions, Don is ready for your call at extension 150 or E-mail (dmiller@asi-sensors.com).

Dr. George Barone joined ASI in June, accepting the senior research chemist position at ASI. He is taking Dr. Maria

Berrocal's position at ASI, since Maria has left ASI after the birth of her child in August. George has a degree in Electrochemistry from the University of Cincinnati. Read more from George in this issue's Chemist Corner.

John Puh joined ASI in June as well, taking the position of production engineer. His duties include aiding Steve Zelenak, our Director of Engineering, and aiding Frank Zheng, our Director of Production. John will be working hard to



*Don Miller - OEM Accounts Manager;
Dr. George Barone - Research Chemist;
John Puh - Production Engineer (from
left to right)*

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investigate production processes that slow manufacturing, seeking opportunities to increase productivity, help lower costs of manufacturing and aiding the engineering department with product

design. In addition, John speaks Chinese and is able to aid ASI engineering with conversion of information to our Shanghai facility, Aurora Scientific Instruments (ASI China). John is available by phone at ASI in Sugar Land at extension 133, or by E-mail at jpuh@asi-sensors.com.

We are proud of these new employees and the contributions that they have already made to the organization. Welcome to ASI.

Probing for Success ...

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Typically, an ISA (ionic strength adjustor) or buffer is used when calibrating and measuring with ISEs. This allows one to determine the concentration of the species of interest in samples with varying backgrounds.

Next, ISEs can be automated to provide data in FIA (flow injection analysis) methods as well as on line determinations.

Also, ISEs are portable. If the sample cannot be conveniently transported back to the laboratory, the electrode and portable meter can be used on site to make the measurement in the field. ISEs offer fast, accurate and low cost means for making a variety of measurements in almost any aqueous sample.

If you have a question about an ISE or an ISE method, contact ASI. We'll help determine if an ISE is appropriate for your application.

Dennis Finch
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Glass & plastic pH, ORP, Conductivity, Dissolved Oxygen, Ion Selective, Carbon Dioxide, Ammonia, Sodium, & Chlorine Electrodes for Lab, environmental and process use. 400 different solutions for e-chem products. Custom printing, caps, bodies, designs and packaging. Stir plates, micro stirrers, electrode arms, lab clamps and over 150 other lab related products.

With all of these options, we are sure that we can design a product that meets your needs and improves your bottom line. Why wait - call today and get the ASI difference.



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From the President's Desk

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products for our customers' needs. And, we are also determined to further develop Aurora's skill and technology, so that Aurora could directly work with our customers to take on their projects for new products. That would speed up our customers' out-sourcing process in LCR (Low Cost Region).

Look forward; we have forecasted positive growth for the remainder of this year. We attribute this exciting growth to all your supports. May the Lord bless all of us.

Peter Cai

Peter Cai
President

If you're looking for business as usual, keep looking...we are knee deep in the trenches supporting our customers. Are you satisfied with your OEM e-chem sensor and lab products provider?

- Research**
- Engineering**
- Tooling**
- Molding**
- Manufacturing**
- Assembly**
- Service**

