South Bay Technology, Inc.

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After graduating from UCLA in 1954 with a degree in Chemistry, R. E. (Dick) Henriks went on to work in the Materials Department at Hughes Aircraft. There he supervised the department and was in charge of their fledgling crystal growth facility. At the time he left Hughes in 1961, he supervised all aspects of their silicon and germanium production. His responsibilities included crystal growth, orientation, cutting and polishing. After leaving Hughes, Dick subsequently managed silicon production facilities at Monosilicon and set up a crystal growth facility at Futurecraft before starting his own company.

In 1963 R. E. Henriks and Associates was formed to serve as an independent representative for companies producing materials and equipment for the semiconductor industry. As the business grew, Dick looked for ways to expand and subsequently purchased South Bay Technology Group - for $15,000.00. South Bay Technology Group had been headquartered in a garage in Torrance, CA. Torrance and its neighboring cities are collectively known as the South Bay - hence the company name. The company had been a part-time venture by Paul Helndselman who worked alone to build, ship, market and service a wire saw. This saw, the Model 716 Wire Saw was designed for cutting semiconductor crystals.

After acquiring the company, Dick completely redesigned the wire saw and, in 1965, the Model 850 Wire Saw was announced. It featured a contoured cast aluminum base and an abrasive recirculating system. Next was the Model 250 2-Axis Gonlometer which allowed x-ray orientation and the subsequent cutting of the oriented crystals on the wire saw.

As the Model 850 Wire Saw grew in popularity, customers looked to South Bay Technology Group, and Dick's expertise, to produce the additional equipment necessary for polishing these fragile crystals. In the late 1960's, South Bay Technology Group introduced the Model 450 Crystal Facing Instrument for damage free electrolytic polishing of crystals. More products followed including the Model 750 Acid Saw and the Model 650 Low Speed Diamond Wheel Saw. The company incorporated in 1969 as South Bay Technology, Inc. and continued to expand.

Over time, new applications for the wire saw were developed which carried its popularity into areas far different from its intended application as a semiconductor slicing instrument. One very popular application was for initial slicing of thin sections to be used for TEM. In 1970, South Bay Technology introduced the Model 550 Single Vertical-Jet ElectroPolisher which offered tremendous advantages over the more traditional twin-jet systems. Other TEM related products followed and today South Bay Technology boasts the TEM-Prep™ System for the complete preparation of TEM samples. The TEM-Prep™ System includes equipment for initial thinning, dimpling, disc cutting, electrolytic thinning, chemical thinning and ion beam thinning including the new SoniCut™ 380 UltraSonic Cutter and the Tripod Polisher™.

In 1990, South Bay Technology completed the first phase of a planned expansion and moved into a new 16,000 square foot, $1.5 million facility. This new facility has been designed to optimize production of the current product line while providing room for anticipated expansion into new product lines. An enlarged applications laboratory provides an opportunity for customers to personally evaluate equipment and for the technical staff to continue research into new and better sample preparation techniques.

From producing a single product in a garage shop in 1963, South Bay Technology has developed into a company with over 50 major products and customers in over 70 countries. The company has remained a "family business". In fact, when you call SBT, you may very well be speaking to a member of the family - as Dick's wife, Yvonne; daughter, Monica Pflaster; son, David; son-in-law, Scott Pflaster and daughter-in-law, Terese are all SBT employees! If you don't reach a family member, you will definitely be speaking to another dedicated and valued employee. Dick Henriks is still actively involved with the business and works hard to ensure that each product that goes out the door meets his high quality standards. ■

Low Pressure Nitrogen Purge Stops Oil Contamination

Ronald A. Vane, XEI Scientific, Redwood City, CA

Oil contamination in SEMs is a common problem. It manifests itself as dark spots and carbon buildup in low KV scans and oil condensation on EDX detector windows. While one of the most common sources of this contamination is oil backstreamed from the roughing pump, other sources include pump oils, lubricants, seals, fingerprints, and the samples themselves. Depending upon severity, this effect ranges from a minor irritation to a very major problem.

Historical solutions to this problem have included turbomolecular pumps (TMP), cryopumps, drag pumps, traps, better pump oils, cooler running roughing pumps, double diffusion pumps and fractionating diffusion pumps. Many of these solutions have proved to be costly, require much maintenance and/or have not been very effective.

As utilized in the semiconductor industry to keep systems clean, a low pressure Nitrogen purge which creates viscous flow vacuum conditions will flush out contaminates from the SEM chamber into the roughing pump. When the SEM is not in use, Nitrogen is leaked into the chamber during the roughing cycle to create the purge and flushing action. The Nitrogen flow gives an active cleaning action that removes oil and other contamination. When contaminations evaporate, the short mean free path and Nitrogen flow minimizes the possibility of redeposition on other surfaces. During SEM operation, a foreline trap prevents oil from backstreaming in the roughing line.

A properly designed Nitrogen purge system stops oil condensation on thin window X-ray detectors almost immediately. Carbon buildup on specimens and dark spot formation typically disappears in several months. For further information on such a system designed by XEI Scientific, telephone (205)844-4830 or FAX (205)844-1645. ■