



1st Floor News

A periodic update on company happenings, new products and developments at NiCoForm, Inc.

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Our Milestones

This is only the sixth newsletter in thirteen years of NiCoForm's existence. Time does indeed fly, when a team is building the foundation of a young company. So, let's try to condense the past seven years of NiCoForm's progress into one short column.

From the start, our goal was to serve the engineering community by tailoring the properties of electroforms to the tasks they were meant to perform. In 2006, the US PTO registered our trademark NiColoy®. Most of



NiCoForm Team at the Annual Company Picnic

NiCoForm's dynamic and static electroforms are now made with these high performance nickel alloys. NiColoy® development continues today, as various applications require diverse material properties - some greater stiffness and wear resistance, others - enhanced elasticity and greater endurance limit, etc. To assure product quality, we use tensile, hardness, and ductility testing to monitor the alloy's mechanical properties. Programmable Logic Controllers (PLC) maintain, and a

Bruker spark spectrometer helps us verify NiColoy®'s composition.

Our product mix is diverse. It includes **precision seamless bellows, catheter tip-forming dies, microfluidic molds, miniature optical housings and IR radiation shields.**

With a Mazak lathe, a Fadal mill, and an Elox EDM (all CNC), manual mills and lathes, and a SmartScope computerized inspection system, we are able to machine and inspect most mandrels and electroforms in house. Our bellows are inspected using a fast Pfeiffer leak tester, and a precision Zwick/Roell spring rate tester.

In 2010 NiCoForm introduced a new copper electroforming chemistry. This enabled us, among other things, to simplify the design and fabrication of improved waveguides for the National Radio Astronomy Observatory. We also won a contract, and are currently producing sophisticated baffles for the European Space Agency's mission to Mercury, BepiColombo - a testament to our unique capabilities no other company could match.

In our fourteenth year, sixteen employee-strong, NiCoForm is confidently looking into the future, fulfilling our mission:

"To become the world's leading manufacturer of diversified electroformed products, making the name NiCoForm synonymous with electroforming excellence".

Another Expansion Completed

Back in 1999, NiCoForm consisted of an old plating tank donated by Reflexite Corp., an assortment of solution-filled plastic tupperware, and two desks in 950 sf of space on the 5th floor. Three years later, we doubled our space, adding a small machine shop and a front office. In two more years, we had our first CNC lathe and a 1st floor machine shop. By 2010, the entire 5th floor was taken up by electroforming tanks, pumps, filters and a small inspection area, and it was time to expand again. The 7,000 sf space on the 1st floor of our building was available, and the electroforming



General View of Electroforming Area

relocation project got kicked off. Almost 2 years and over \$100,000 later, our state of the art electroforming facility features PLC-controlled tanks with composition, level and temperature controls. The brightly lit, air conditioned facility is designed to operate 24/7, and is equipped with electronics, which will alert key personnel by e-mail and text

messages in case of a malfunction. The operation is almost completely closed loop, recycling all plating solutions, plating rinse waters, and rejected electroforms. As a result, no polluting chemicals are sent down the drain, and the truly 'green' plating tanks never require any additions. We electroform or plate our proprietary NiColoy® alloy, Nickel (matte, bright, and black), Copper and Gold. Light absorbing black and highly reflective bright gold coatings are applied to some of our cold shields.

Miniature Optical Housings

NiCoForm began producing miniature optical housings back in May of '06. Who would have thought that this product line would grow to account for nearly 20% of our sales in 6 short years. The original part NiCoForm was asked to produce was rather large and of simple design; square bodied with a round end, some cross holes for good measure, and the material was NiColoy® with a matte finish. If we look at what NiCoForm is producing today, we see a wide variety of parts



The small housing in this photo is just 1/8" tall

ranging in size from .005" diameter tubes to micro housings with multiple facets, angles, and windows. To fulfill our customer's needs, NiCoForm has mastered high volume production and developed methods of mandrel texturing and its own Black Nickel plating. Current plans include developing an alternative method of post machining these small delicate components. Late in 2013, NiCoForm will be introducing in-house LASER micro-machining capabilities to reduce processing costs and increase yields.

And with that, will have the opportunity to expand the product line, and potentially the customer base, into the medical device industry.

NiCoForm Then and Now

The year was 2005, and the last (#5) issue of '5th Floor News' just got published. NiCoForm had eight employees, and under \$500,000 in annual sales. In 2012, our sales will top



Precision electroforms are being inspected with the Smart Scope

\$2 MM, as our employee count stands at sixteen, two interns, and cat Mitzy.

Back then, the machine shop with two machinists was equipped with a 30-year old CNC lathe, and a couple of manual machines. Today, the 4-person CNC Group has a recent model CNC lathe,

mill, and the latest generation CAM package. On the manual side, we have an EDM machine, a few lathes, grinders, and an assortment of other



Office Manager Diane and cat Mitzy hard at work

machines.

In 2005, the engineering office and front desk were on the 5th floor, next to the electroforming area.

Today, our Office Manager, three Engineers and the IT Leader work in a 2,000 sf, well-lit 2nd floor space, complete with a small library and a conference area. In 2005, we had no inspection department. Nowadays, the department is led by a green belt in Six Sigma. It occupies a large room with several inspection stations, abundant natural lighting, and precision computerized inspection equipment.

The 6-person electroforming group is now led by an engineer. It includes two chemists who cooperate closely with electroforming technicians. Not only do they maintain production chemistries, but continually work on enhancements to our ever-evolving processes.

Now you know why it took six years for **5th Floor News** to become

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