



## 5<sup>th</sup> Floor News -

a periodic lighthearted update on company happenings, new products and developments at NiCoForm, Inc. on the 5<sup>th</sup> floor of 72 Cascade Drive in Rochester, NY



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*Taking the Stress out of  
Electroforming*

# 1 Winter 2000

### In this issue:

- ✓ **NiColoy™** - electroforming bath for hardness, strength and elasticity
- ✓ **Improved Adhesion** to hardened tool steels
- ✓ **Fun with Parts** - some interesting projects we were recently involved in
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### NiColoy™

**W**hy do we use alloys, after all? - Because they have better properties than pure metals.

We at NiCoForm, Inc. have made it our mission to develop electroforming processes producing metals with enhanced engineering qualities.

Hence **NiColoy™** - our proprietary electroplating system and the nickel-cobalt alloy thus produced. This deposit is harder, tougher, more elastic ('springier') and has a better corrosion resistance than electroformed nickel.

Components electroformed with NiColoy™ are ideal for applications requiring a high strength-to-weight ratio (springs, bellows, thin-wall waveguides, rotor blades, impellers, etc.). In mold and tool repair, NiColoy™'s higher hardness benefits wear-intensive applications. Despite its strength, NiColoy™'s machineability is similar to that of hardened 420 stainless steel.

This electroplating system is available for licensing. Please direct your inquiries to NiCoForm, Inc., 72 Cascade Dr., Rochester, NY 14614. Phone 716/454-5530, Fax 716/454-5167, e-mail [platerb@nicoform.com](mailto:platerb@nicoform.com).

### Adhesion Matters

**W**hile most start-ups get going without a hitch, we had our share of difficulties the first year of existence. The most challenging one, as some of you are painfully aware, was inconsistent adhesion to hardened tool steels, especially S 7. The all-out effort to solve this problem included a massive literature and Internet search. In hundreds of laboratory tests numerous samples were plated, examined and machined. Finally, late in the year we developed an original pre-plating cycle assuring an excellent bond between the plated layer and the underlying metal, be it A 2, 420 stainless steel, P 20, H 13 or S 7.



**Y**efim and Chris are marveling at the strength of adhesion as the vise bites the dust while they are adhesion testing a sample.

Thanks are due to all our

customers who helped by providing material samples, machining plated parts and offering moral support.

### Fun with Parts

**I**n this column we will be offering a glimpse of how electroforming and heavy electroplating helped in solving problems not unlike those you might be facing today or tomorrow (so, please take note ☺).



**T**hreads on these S 7 inserts were worn .010" undersized. Of the two options our customer had, repairing the inserts was by far faster than making new ones. In two days, the threads were selectively plated up with NiColoy™ while the rest of the components were masked and therefore remained unchanged.



to machine thin and deep highly polished cavities that shape tips of plastic catheters. Electroforming these components (some as narrow as 0.04" ID and about 1" long) out of .030-.040" thick NiColoy™ on permanent stainless steel mandrels (see photo) instead of machining saves time, labor and allows production of as many identical molds from one mandrel as necessary.

The 'PolyOn' coated H 13 sleeves in the next photo were .015" shorter than the print dimension when the customer called. Three days later the parts were returned to Pro-Mold, Inc., flanges plated up with .020"+ of NiColoy™ so they could precision grind them back to the required size.



The white part in this picture was produced in a mold with an electroformed core and cavity. One of the parts from an existing 4-cavity mold (in the background) served as a mandrel (original) for this electroforming project. The new and old molds produce essentially identical parts. Electroforming the core and cavity was significantly less expensive than it would cost to machine them.



Here is a development that eliminated days of EDM machining and fine polishing. A local catheter manufacturer used

Do you have an existing mold or a part with a complicated geometry you would like to duplicate?

## Odds and Ends

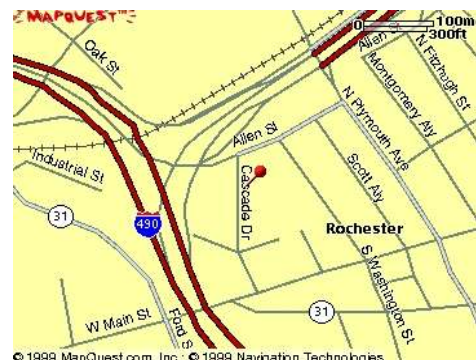
Want to learn more about NiCoForm, Inc.? Need to request a quotation or place an order with us? Have a product you think can be produced faster, better cheaper by electroforming? Now you can download the Order/Quotation form from our web site by going to [www.nicoform.com](http://www.nicoform.com). Fill the form out, fax it over to us and receive a response or quotation within one business day. Or send us e-mail with your questions, requests and suggestions. Address your messages to [platerb@nicoform.com](mailto:platerb@nicoform.com).

Please help us make up our mind on what high lubricity and wear resistant coating to develop. We can either implement a version of the nickel-PTFE coating some of you are familiar with, or develop a nickel-boron nitride (BN) deposit. The first coating is limited to about 500°F, the second one, according to published data, can withstand over 1500°F. It is also harder and more lubricious than Ni-PTFE. Developing it, however, will require a greater effort and may take longer than implementing the PTFE-based one. Which composition do you think we should work on: Ni-PTFE or Ni-BN? Please let us know by mail, phone or fax. Thank you.

## How to Reach Us

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