making Custom Alloys

Hirsch Metals uses large quantities of scrap to manufacture custom nonferrous solders and alloys for a range of specialized applications.

By Anne Claire Broughton

What do industries such as electronics, automotive, plumbing, jewelry, stained glass, pewter, railroad and electric utilities have in common? They all require custom solders and alloys produced by companies such as Hirsch Metals, Boca Raton, Fla.

Hirsch Metals buys millions of pounds of metals annually as raw material for the company's seven custom solder and alloy manufacturing facilities in the U.S. and Canada. About half of that is scrap purchased from consumers, scrap dealers and brokers. "We buy solders, babbits, lead, tin and zinc," says Ron Hirsch, president. "We buy them in solid form and drosses, for our own facilities' use. By doing that, we offer the secondary markets a higher price because we're going from them to the end user, who is the best source for return."

The company's specifications are exacting, so all scrap that is purchased is carefully analyzed to determine its content and to ensure it is of the proper quality. "We analyze, in-house, every bit of scrap that comes in, so if the material is not as represented, we inform the generator as soon as we know," he explains. "But in general, our sources are aware of what we require, and it goes fairly smoothly."

(Left) Ron Hirsch, president of Hirsch Metals.

(Opposite page, left) The family of metals that Hirsch Metals manufactures and trades.

Hirsch advises other scrap dealers who might want to sell scrap to his company to focus on careful separation of materials. "Sorting materials, identifying what everything is, and keeping it all segregated will reduce their processing costs, make a better package, and allow us to pay them more," he says.

Some industries – such as electronics, stained glass or costume jewelry – often can't use a scrap-based product. For example, the jewelry industry can't use it because it is not compatible with a commonly used spin casting process called centrifugal casting. "If they have scrap in the product they can have high porosity," says Hirsch. "They have to have a virgin or near-virgin product to plate and polish, because it has to look as good as precious metal jewelry, which is for the most part virgin."

But many industries, such as automotive, actually prefer using secondary material. Why do they prefer scrap? "Because of cost, because they can take it, because it doesn't hurt their process, and because some of the impurities such as arsenic actually enhance the tightening of the grain structure of their metals," says Hirsch. "Some of the low-grade babbits that come to us are a function of low-RPM machines that don't require high tin or genuine babbit type products."

Another example is the bullet manufacturing industry. "They are looking for a certain purity of lead which isn't necessarily grade-A – it could be an antimonial lead product," says Hirsch. "With bullets, they're not so concerned about the cosmetic look of the end tip as they are about the hardness and the fact that it functions properly in a trajectory."

STRATEGIC ADVANTAGE

Hirsch Metals got its start through a combination of inventiveness, vision, persistence, and necessity. Before founding Hirsch Metals in 1981, Hirsch was a salesman for Federal Hewett Metals, Detroit, the largest manufacturer of solders and babbits at that time in the Midwest. Federal Hewett was a successful company until it began growing too fast and ended up going out of business around the time of the automotive recession in the early 1980s. At that time, Hirsch decided to go solo.

"The mother of invention is necessity," he says. "I had planned on attending the University of Michigan Law School, but I had no money to go forward. I decided to try to take the sales that I had booked with Federal Hewett and then job them out to other manufacturers to get the customer satisfied."

Hirsch Metals' next job was manufacturing pewter for Franklin Mint, and once that began to take off, the company continued buying raw materials to produce alloys for large customers in the automotive, industrial and manufacturing sectors. What set Hirsch Metals apart from the beginning, says Hirsch, was its policy of certifying that alloys were up to specification by providing a certificate of assay. "As far as I know, we were the first ones to verify that we were giving the customer what they wanted – what they paid for," he says.

Hirsch started the company with two primary purposes – to buy raw materials and send them into manufacturing plants, and to subcontract the making of wire and ingot and send it out to customers.

"By owning the raw material and controlling the production costs, I

reasoned, you could deliver a product economically," he explains. "And at the same time, you could save the customer money, because you could pick a plant that was geographically close to the customer. So you had a strategic advantage in competing. And if you could buy raw materials correctly and cheaply, you could in effect compete with the majors, and do it globally."

Although auto manufacturers and large companies like IBM had been subcontracting since the 1960s, this was the first time the concept was applied to this particular facet of the metals industry, according to Hirsch. "In other words, instead of just brokering metals — which is a beautiful business in itself — this took on a different level of sophistication, because we became involved in the production and distribution of raw materials throughout the world," he says.

Hirsch's business strategy was clearly successful. Today, Hirsch Metals sells its products world wide , to customers in North America, Puerto Rico, Costa Rica, Mexico, Canada, Saudi Arabia, Egypt, Germany and South Africa. "We sell and export stained glass solders and pewter to those markets," says Hirsch. "The need for good, U.S.-quality solder takes precedent over transportation costs, even overseas. Solder that has no quality is worthless, no matter how cheaply it is sold."

Of the seven manufacturing plants that produce solder and alloys for Hirsch Metals, two are located in Ohio, one in Michigan, one in Iowa, one in Philadelphia, one in Toronto, and one in Wallingford, Connecticut. Hirsch metals has excellent relationship with the owners of these facilities. "Most — if not all — of these relationships are, in spirit, cooperative partnerships," says Hirsch.

In addition, the company has procurement offices in Boca Raton, Florida; Philadelphia; Southfield, Michigan and Raleigh, North Carolina. There are 11 direct employees, but close to 213 counting the seven manufacturing subcontractors.

One of the benefits of owning your own company is the freedom to move the operation to another locale. Hirsch relates the story of turning 40 and deciding to move to a warmer climate, near friends and relatives, and still in the same time zone so that friends from Michigan, Ohio and Pennsylvania could easily visit. Although the company's administrative offices were relocated, the manufacturing plants with which it subcontracts are the same.

ADAPTABILITY IS KEY

Hirsch Metals competes with very large companies, which are mostly privately owned and run in the $40 million to $80 million range in annual sales. "The largest in the industry is Cookson-Fry-Alpha," says Hirsch. "They have about 50 percent of the market in a lot of cases."

The specialty alloy business is extremely mature, he adds, and Hirsch Metals has an advantage in being smaller and more adaptable. "This is the most mature industry I can think of," he says. "There's only so much manufacturing growth likely to happen in the United States in the future. As manufacturing begins to decline in the U.S., as it has been in the past 15 to 20 years, and you enter the post-industrial age, the U.S. is going to change, and this business is changing. If you don't adapt, you'll die."

Markets are currently fairly soft for the materials Hirsch Metals deals in. This is actually harder on the larger players in the industry because of their large, fixed overhead, says Hirsch. "In my case, since I have only a small piece of the pie, I can only get larger — I can't go any smaller," he says. "It's much easier to grow than it is to reduce. On the other hand, when you are competing in a smaller pie in a very mature industry, people have a tendency to trade dollars to keep their boat afloat, and we don't do that. We must make a profit on everything we sell to sustain ourselves."

Another thing that sets Hirsch

Metals apart from its larger competitors is its ability to provide more personalized service. "We produce a very good product and we're a very service-oriented company," says Hirsch. "Also, the people who work in this company are caring and competent and have tremendous follow-through. And our customers like what we're doing. For instance, we have a new low drossing characteristically formulated bar (LDC) extrusion process that produces 25 percent less dross than a casted bar, which is remarkable.

Quality is also a high priority for Hirsch Metals. The company is in the process of becoming ISO 9002 certified. "We have a manual that must be followed by every one of our subcontractors or cooperative manufacturing facilities," says Hirsch. "They must follow procedures. They must take representative samples of everything that's shipped out, and we have to keep them for five or six years. Every customer gets a certificate of assay with every shipment, showing specification compliance or whether there was a deviation, and where it is. We also offer free solder pot analysis to our customers."

Hirsch Metals does regular inventory counts, checks the standards of the chemicals in the laboratory to make sure they are up to standard, and checks the scales. "We do an audit to ensure that the product that's being made with our name on it is correct, just as IBM would," says Hirsch. "We will be ISO 9002 certified in a very short time. We are already supplying ISO 9000 and ISO 1000 - we are exporting today to companies that are recognized as the leaders of their industries, and we are actively conforming to what their requirements are, which has made it easier for us to then apply for certification."

TECHNICAL ASSISTANCE

Although Hirsch Metals is a relatively small company, they are able to conduct extensive research and development work, as well as offering in-depth technical support to customers. Two experts in the field, Dr. Ralph Woodgate and Dr. Chris Milnes, consult with the company on a daily basis, according to Hirsch.

"Dr. Ralph Woodgate is the author of *Handbook on Machine Soldering* for wave soldering and hot air leveling, which is an electronic process," says Hirsch. "He's one of the most noted authorities in the electronic industry... Dr. Chris Milnes, previously with Federal Hewett, is the protégé of Nick Pocock, who was at one point considered one of the top five metallurgists in the world. Dr. Woodgate and Dr. Milnes interact with customers and make recommendations to improve their processes."

Most of the company's customers no longer have in-house process engineers because they can't afford them, says Hirsch, so it is increasingly the responsibility of a manufacturer supplying raw materials to know their customer's process, anticipate any problems, and help solve those problems.

"You not only have to supply them with the material — on a just-in-time-basis — but you also have to handle their problems and recycling issues," Hirsch explains. "Unless you have solutions that are cost-effective, you will not survive. But this is not standard in the industry - it turns out that Hirsch metals is providing these services in a greater fashion than just about anybody else. Most of the manufacturers are not as customer-oriented. They're usually touting something they're selling and are not in tune with the customer to the same degree that we are."

The company's R&D efforts have also been productive. For example, although some lead-containing solder will always be needed for soldering materials such as electronic components, Hirsch metals has developed a lead-free pewter series in response to concerns about the environmental effects of lead.

"As soon as there is an alternative, we immediately bring it to the fore," says Hirsch. "And we try to experiment with alternatives to give our customers what they need. We do things in our own laboratory or we ask a customer to try a new material in their process and see how it works. We have the privilege of working closely with our customers to come up with new and creative solutions for the environment and for recycling and for making the best use of their raw materials. We also come up with alternative raw materials that might be helpful to them if they have tensile, shear strength or costing requirements."

Hirsch Metals also provides consulting service for customers to solve a variety of problems. "Here's a simple example — in the radiator industry they use air blowers to blow the remaining metals off the radiators, so it's airborne," says Hirsch. "We suggested they take a metal tube, put it on a standard vacuum cleaner and vacuum it to reduce airborne metals. We also came up with solutions for lead free body solder — Dr. Milnes was principal in doing that. And we've come up with new no-clean paste for applications in BGA assembly and for other industrial applications."

The company also consults with with generators of scrap to assure the material is being prepared in a way that is usable, he adds.

DIVERSIFICATION

The goal of Hirsch Metals is to eventually become Hirsch Industries, according to Hirsch. The company will diversify into other metals and into other industries. "We're going to branch out into metals, chemicals and fluxes, and we're going to grow in other industries, such as electronics, that I think are going to grow and be viable businesses for the future. We're also going to work in tandem with the growth of Internet and software technology. By that I mean we're going to not only address the manufacturers of the hardware, but we're going to try to cultivate software which complements metals."

The company is currently working on developing a software package. "We also think there's a great market for new ways of communicating and getting more up to date information more quickly," he adds.

For example, as more companies have personal computers, there is an opportunity for suppliers to publish product prices and shipping times on the Internet, saving customers several phone calls.

"They could just pull up the screen and pick the price and the length of time they think they could handle before the shipment's made, type it out and send it over, have it processed, and they won't have to waste time," says Hirsch.

Ultimately, Hirsch Metals will continue to compete in a tough industry because of its strong corporate philosophy of treating people well. Despite the growth of larger corporations in the metals industry, the bottom line is still relationships between individuals, says Hirsch. "People still do business with people, not corporations," he says. "People still want to know that the person on the other end of the phone cares about what their needs are, and they want to feel they've been treated fairly."

Hirsch adheres to the Golden Rule when dealing with customers and suppliers: "You have to do unto others as you would have them do unto you," he says. "You have to treat people graciously and judiciously, and do what you say you're going to do. Deliver."

The author is editor of Recycling Today.