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Sioux Rubber & Urethane implementation of ISO 9000:2000

By Bob Coacher, CIRAS

Founded in 1984 in Sioux City, Iowa, Sioux Rubber & Urethane specializes in the application of rubber and urethane to industrial parts and components. Common examples of rubber and urethane application are tumbling barrels, cyclones, pump and fan housings, impellers, hoppers, chutes, and tanks. The rubber and urethane applications protect against chemical attack, impact damage, sliding abrasion damage, and noise problems.

Joe Wren, plant manager for Sioux Rubber & Urethane, contacted CIRAS Account Manager Bob Coacher to request assistance in implementing an ISO 9000:2000 Quality Management System. Wren and other members of the senior management decided to learn more about ISO after several customers encouraged the company to seek certification.

Coacher asked CIRAS Industrial Specialist Merle Pochop to provide an initial overview of ISO 9000, including ISO requirements and the benefits of defining and implementing a quality management system, to the company's management team. The team's immediate response was to make quality a priority; Pochop was asked to develop an implementation plan, which the management team committed to support.

With his office and production staff, Wren began the operation of identifying the key processes responsible for ensuring that all products met quality requirements and that customer expectations were being met or exceeded. This entailed documenting the key process, and then ensuring that the processes were put in place and understood by all using them. Pochop provided coaching assistance as



Employees trimming rubber on a plate prior to being placed in a vulcanizer

the company developed and implemented its quality system.

A key component to the ISO quality-based system is the implementation of management reviews and continuous improvement measures to ensure customer satisfaction. Putting these components in place drives improvement and involves all employees in better serving their customers.

In July 2005, the company successfully became ISO 9000:2000 certified.

"Because of all the work that is involved in the application, auditing, and ongoing auditing requirements, it is unusual for a company of our size to obtain ISO 9001:2000 certification. But we believe that this certification is important because it serves as a way to confirm to our customers that we are doing everything that can be done to ensure that our products meet their quality requirements. Without the assistance of Merle and CIRAS, we probably wouldn't have gotten through the process," commented Wren.

For more information, contact Bob Coacher at 515-419-2162; coacher@iastate.edu, or Merle Pochop at 712-274-0048; pochop@iastate.edu.



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CIRAS Mission Statement

The mission of CIRAS is to enhance the performance of Iowa industry through education and technology-based services.

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The Center for Industrial Research and Service (CIRAS) provides education, research, and technical assistance to Iowa industry through partnerships with Iowa's universities and community colleges, government agencies, and professional associations. Assistance is supported in part by the DoC/NIST Manufacturing Extension Partnership, the DoD Procurement Technical Assistance Program, and the DoC/EDA University Center Program.

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Iowa's Advanced Manufacturing Strategic Roadmap

By Ron Cox, CIRAS

The Iowa Department of Economic Development (IDED) recently funded the Battelle Memorial Institute to undertake a study of manufacturing in Iowa and to propose recommendations to maintain and expand the advanced manufacturing sector. Using Battelle's broad definition of advanced manufacturing, 45 percent of manufacturing employment in Iowa is considered advanced.

The report is available on the IDED Web site at www.iowalifechanging.com.

Similar to other reports on manufacturing, Battelle recommends that Iowa manufacturers innovate and rapidly move new processes and products to market. Specifically, the report recommends that Iowa

- raise the profile of the advanced manufacturing sector
- leverage the presence of the state's large OEMs
- create a robust support infrastructure for advanced manufacturing

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BATTELLE'S PROPOSED STRATEGIES AND ACTIONS

ACTION	DESCRIPTION	PRIORITY
Strategy 1—Raise the profile and support of Iowa manufacturers		
Action 1	Appoint a manufacturing advocate in the governor's office	Critical
Action 2	Create a statewide Iowa Advanced Manufacturers' Council	Critical
Action 3	Target Iowa Values Fund investments to support the development of the advanced manufacturing sector	High
Strategy 2—Increase the capacity and collaboration of manufacturers and leverage the purchasing and R&D power of the state's major OEMs		
Action 4	Leverage the purchasing, R&D, and marketing strengths of Iowa's major manufacturing OEMs through the strengthening of a series of vertical manufacturing supply-chain initiatives	Critical
Action 5	Create manufacturing clusters among targeted segments of Iowa's manufacturing firms that are producing similar or related products	High
Action 6	Expand Iowa's Manufacturing Extension Partnership	High
Action 7	Create a large-scale, statewide Lean Manufacturing Institute	High
Action 8	Organize a set of working conferences and subsequent support services targeted at the small and medium-sized firms that exist in Iowa's outlying, non-metropolitan counties	High
Strategy 3—Encourage innovation of Iowa manufacturers		
Action 9	Scale up rapid prototyping efforts of the Iowa Business Council	High
Action 10	Provide matching grants for new product and process development	Critical
Action 11	Encourage use of the Small Business Innovation Research/Small Business Technology Transfer Program to stimulate innovation in the supplier base	High
Strategy 4—Support the creation of a series of manufacturing workforce attraction, recruitment, and development initiatives		
Action 12	Increase the capacity of the community college system to respond to manufacturing workforce needs	Critical
Action 13	Create a community college application tools and advanced manufacturing equipment fund to support the purchase of appropriate manufacturing-related training materials	Critical
Action 14	Build multi-county leadership teams to inform teachers, guidance counselors, school administrators, parents, and especially students in middle and high schools about the opportunities of careers in manufacturing	High
Action 15	Undertake a significant long-term campaign to attract individuals from out of state willing to become manufacturing employees in Iowa, targeted initially at the state's outlying counties	High

Best practices for the chemical industry in Iowa

By Rudy Pruszko, CIRAS

A new CIRAS report on energy conservation measures could yield significant savings for the chemical manufacturing industry. Funded by a grant from the Iowa Energy Center, the report contains hundreds of best practices for saving money by reducing energy consumption. Many of the suggestions are specific for chemical manufacturers.

Adopting best practices in manufacturing operations is key to maintaining a sustainable competitive advantage. The new CIRAS report provides an exceptional opportunity to optimize manufacturing operations by tapping into the experiences of peers and industry professionals.

CIRAS Field Specialist Rudy Pruszko authored the report using information collected from multiple sources, including the U.S. Department of Energy, Iowa Energy Center, industry experts, and Iowa chemical companies. The 125-page document contains best practices in four broad categories: process heating systems, process steam systems, chillers, and pumps and motors. Each category has several components. For example, the section on process heating systems is further segmented into best practices for reducing exhaust gas losses, reducing air infiltration into furnaces, and optimizing heat transfer equipment design, to name a few. In addition, best practices are discussed from both supply and demand sides of the systems considered. An example of the supply side of a system would be the addition of waste heat boilers to a process heating system that can be used to produce steam. This additional steam capacity may be sufficient enough to shut down or reduce the load on existing high-energy-consuming boilers. An example of the demand side of a system would be installing a variable speed drive on the motor to adjust the pump operation to meet a variable demand system and therefore reducing energy cost and improving process flow.

Some of the reported best practices are common sense reminders. For example, best practices for proper furnace maintenance include the following tip: Keep heat transfer surfaces on indirect heat generation furnaces clean and free of deposits and soot. Others are lessons learned from years of practical experience, like this suggestion for minimizing the use of throttling and bypass controls on pumps and motors: Installing a control valve or bypass valve may be a better alternative to other control methods, such as using adjustable speed drives.

Chemical manufacturing was a natural choice for the project. It is the state of Iowa's third largest industry, trailing only food processing and machine manufacturing in total gross state product (GSP). There are approximately 395 chemical manufacturing plants in the state, employing over 7,427 people. The chemical industry contributes \$2.955 billion to Iowa's GSP, which is 14 percent of the

total manufacturing GSP. Approximately 80 percent of these chemical companies are involved with agricultural fertilizers, pesticides, or other agriculture-related chemicals. The remaining companies produce a variety of manufactured chemical products, ranging from paint to pharmaceuticals.

As suggested by its size, the chemical manufacturing industry is also one of the state's most energy-intensive enterprises. Rising fuel costs have motivated the industry to refine energy efficiency in an effort to control costs and maintain competitiveness. The best practices contained in the CIRAS report will augment current conservation methods, ensuring an even higher level of efficiency.

Mike Strobe, an Iowa State University research graduate assistant, and Trevor Gilbertson, an Iowa State undergraduate student working for CIRAS, worked with Pruszko on the project. Completed in November 2005, the report is being distributed to chemical companies in Iowa and will also be available at ISU county extension offices and from CIRAS. In addition to best practices, it includes a list of resources for additional information on chemical best practices and chemical industry assessment tools developed by the U.S. Department of Energy.

For more information on the study or to obtain a copy of the final report, contact Rudy Pruszko at 563-557-8271 ext 251; rpruszko@iastate.edu.

Business, Breakfast, and More

Network with small business owners, corporate buyers, and potential clients; establish contacts with federal and state area representatives; and visit with local business service programs that can assist in business growth.

The May 4th "Business, Breakfast, and More" event will begin at 7:30 a.m. at the Des Moines Downtown Holiday Inn, 1050 Sixth Avenue. At 9:30 a.m. Tom Koopmeiners, U.S. Army Corps of Engineers, will conduct a seminar on how to do business with the corps.

For more information on this event, please contact Kathy Bryan at 515-289-0280; kathyb@iastate.edu.

Materials experts ready to assist

By Robert Mills, Communications Specialist, IPRT

The Chantland Company of Humboldt, Iowa, is a premier manufacturer of material handling systems, including pulleys and industrial rollers such as those used in baggage handling equipment in airports. The company works with clients to build components and systems that meet stringent standards for quality and durability.

When a customer reported failures of a Chantland roller component in the field, Jim Shimon, quality manager at the company, turned to IPRT's materials group for assistance. The company had worked with experts at CIRAS on other projects and was familiar with IPRT's expertise.

In the case of the failing rollers, the customer was experiencing "catastrophic" failures of the Chantland product, according to Shimon. In each instance, a shaft through the roller was breaking off at the point where the roller end plate was welded to the shaft. "The customer felt we were at fault by providing faulty welding at this point," Shimon says.

Shimon thought differently, however. "We had examined the returned rollers, and to us it appeared as though there may have been a problem with the material itself, as the welds appeared to be in solid contact with the substrate," he says. "However, we had no way in-house to prove our point." He turned to Paul Berge, a metallurgist with IPRT,



Failure of a large pulley brought the Chantland Company of Humboldt, Iowa, to IPRT for help with discovering its cause. The pulleys are used in applications such as baggage handling equipment in airports.

About IPRT Company Assistance

IPRT's materials experts are part of IPRT Company Assistance, which provides access to world-class expertise and equipment to help Iowa manufacturers and entrepreneurs address technical problems and R&D needs. IPRT is a network of scientific research centers at Iowa State University and has been assisting companies from all corners of Iowa since 1987. Each year IPRT helps about 200 firms—from one-person start-ups to Fortune 500 corporations—solve scientific and engineering problems.

Since 1993, metallurgists in IPRT's materials assistance group have worked to solve the materials problems of Iowa companies. With a staff dedicated to working with Iowa companies, the group completes over 50 projects each year, many in concert with CIRAS. IPRT's materials scientists provide short-term assistance—up to 40 hours—on non-routine materials problems.

In addition to materials, IPRT Company Assistance also has expertise in nondestructive evaluation and helps arrange contract research projects with Iowa companies. Like the materials group, the NDE experts focus on short-term technical assistance, while the contract-research group facilitates research projects with experts from Iowa State and the Ames Laboratory.

for assistance. "From previous experience, I knew I could count on Paul to give us a factual technical account of what was going on with the shaft breakage issue we were experiencing," Shimon says.

Berge did an in-depth evaluation of the components. Because Chantland's customer thought the welding was the problem, Berge paid particular attention to welded areas. "I got Dave Rehbein involved in this because he's our weld inspector here at Ames Laboratory," Berge says.

Berge and Rehbein concluded that the problem was actually two-fold. For one, the material specified was a

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Biobased products program enters fourth year

By Krysta Nibe, CIRAS

As CIRAS enters the fourth year of a cooperative agreement with USDA on the Federal Biobased Products Preferred Procurement Program (FB4P), completion nears on a final federal rule that features the first six designation items. The FB4P was originally defined by the Farm Security and Rural Investment Act of 2002 and sets forth the requirement that federal agencies must give preference to biobased products when those products meet certain standards. Following approval of the act, USDA enlisted the help of CIRAS at Iowa State University to coordinate and develop the program.

According to Marvin Duncan, a senior agricultural economist in the Office of Energy Policy and New Uses, “the final rule for the first six items is in the clearance phase.” Once it clears, the rule will be posted in the federal register. If there are no reactions to the rule within 30 days of its posting, it will go into effect. At that point, federal agencies will be encouraged to purchase biobased products that fall under the designation items.

While federal agencies will have that opportunity within the next few months, “agencies officially have up to one year to make changes to their buying habits and to begin procuring biobased products,” Duncan said. “However, we do believe that in some cases agencies will begin to purchase biobased products immediately.” These government purchases could be a boost for the biobased product manufacturers who have become involved in the program.

FB4P final rule issued

Agriculture Secretary Mike Johanns announced the issuance of a final rule designating the first six items that must receive special consideration when making purchases by all federal agencies under the Federal Biobased Products Preferred Procurement Program, created by the 2002 Farm Bill.

The final rule designates six items, which are generic groupings of biobased products. The items are: mobile equipment hydraulic fluids; biobased roof coatings; water tank coatings; diesel fuel additives; penetrating lubricants; and bedding, bed linens, and towels. Two of these items—water tank coatings and bedding, bed linens, and towels—have fewer than two suppliers of the biobased products that fall within these items. Consequently, federal agencies will not have to give these items preference in procurement until there are two or more suppliers.

Additional information on the final rule and the program may be obtained by contacting Marvin Duncan, USDA, mmduncan@oce.usda.gov or by visiting the www.fb4p.com Web site.

This final rule includes mobile equipment, hydraulic fluids, roof coatings, diesel fuel additives, penetrating lubricants, water tank coatings, and bedding, bed linens, and towels. “In order to determine what items USDA includes in a ruling, we look at a variety of factors and weigh those in order of importance,” Duncan said. Those factors include the amount of market and manufacturer information available for an item, whether there are enough test results to support it, and the potential demand for agriculture products and manufacturing in rural America that will occur from designating the item. In addition, CIRAS Industrial Specialist Steve Devlin noted, “the voluntary nature of this program makes manufacturer participation a critical factor in our efforts to collect the necessary information and biobased content samples to support the process.”

Even as manufacturers’ enthusiasm and participation in the program continue to grow, some are beginning to question the amount of time it has taken for the program to be implemented. One small company in Ohio, Renewable Lubricants, has submitted over 30 products for content testing. “This program has taken a lot of time and patience to see it to the point it is today,” President Jacquelin Garmier said. “However, we feel that once the program is up and running, we will see quite a lot of business from the government.” Other companies echo Garmier’s sentiments about the time it has taken the program to move forward. USDA and CIRAS understand manufacturers’ concerns over program delays. “I don’t think anyone fully realized the complexities involved in setting up a program of this size and potential impact,” said Devlin. Also, according to Duncan, many major roadblocks including a language problem with the initial act have been resolved, which should help to simplify future rulings. In fact, in addition to the final ruling, there are numerous proposed rules in process that will designate additional items. “CIRAS anticipates submitting upwards of 80 items within the next year,” Devlin said. “We feel that once the first rule is finalized and posted in the federal register, manufacturers will see FB4P progress quite quickly.”

Despite the slow nature the program has taken over the past three years, some manufacturers believe the wait is worth the time and money. Luis Del Valle, global marketing director for Cargill Industrial Oils and Lubricants in Minneapolis, Minnesota, believes that this program has helped his division gain some ground in marketing their products. “The FB4P has provided a structure for determining what constitutes a biobased product,” he said. “It will also give us a marketplace within the federal government, and we are very excited about that.”

However, in order to build the federal marketplace for biobased products, Kim Kristoff, president of Gemtek Products in Phoenix, Arizona, believes part of the FB4P funding should be spent for educating procurement officials about biobased products. “We need to get purchasers aware of our products and educated about how to buy them,” he said. “We need to focus on changing the purchasing policies within government

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Biobased products program enters fourth year

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organizations.” While USDA and CIRAS efforts have been limited to product testing for item designation thus far, additional activities are in development to educate federal buyers, according to Devlin.

Beyond the potential increase in sales, there are other benefits of participating in the FB4P. “This program is an opportunity for companies to demonstrate the benefits and uses of biobased products on a national level, which can help manufacturers increase market penetration and production runs, allowing lower overall costs,” Duncan said. “Also, state and local governments are noticing this program and becoming very interested in adopting something similar. Manufacturers could then potentially sell their products to those entities as well.”

In addition to opening new marketplaces for biobased products, Kurt Brannian of SoyClean in Brooklyn, Iowa, sees other opportunities from the creation and success of the FB4P. “This program is bound to change people’s thinking about biobased products and will help the country move from a petroleum-based economy to a more renewable one,” he said. “We believe a biobased economy will be better for the whole country and particularly Iowa and the Midwest.”

As implementation continues, government entities will have a wide selection of manufacturers and products to choose from. Much of this information will be made available to procurement officials and the public on the FB4P Web site. Currently CIRAS has identified 587 biobased product manufacturers producing over 3,400 individually branded products that could receive preferred procurement status. Of those manufacturers, 116 have submitted product samples for biobased content.

As developers and supporters of the FB4P look ahead, they see promise in the program’s potential for the biobased industry. “This program has been developed in a very logical and systematic way that will lead to success,” Del Valle said. “The USDA has spent a lot of time consulting with industry about products, specifications, and biobased content requirements. This will help further the success of the program.”

CIRAS continues to work closely with the USDA so that product manufacturers might see an increase in their business as a result of FB4P. However, without the support and cooperation of manufacturers, this program will have a difficult time succeeding. “We continue to urge manufacturers to participate by submitting product information, as their engagement will help us make this a strong and effective program,” Devlin said.

For more information, please visit the FB4P Web site at <http://www.FB4P.com>.

Materials experts ready to assist

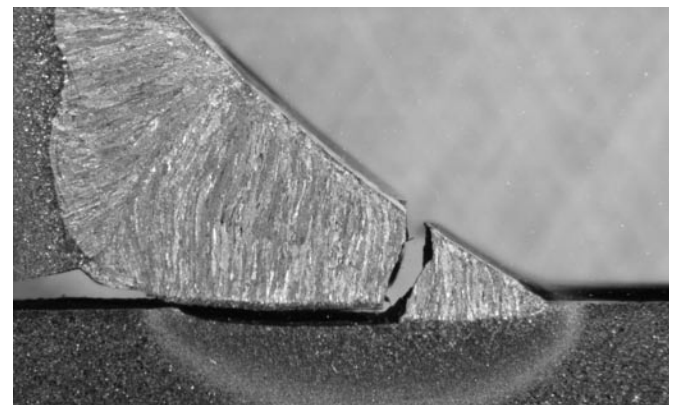
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type known as “free-machining” steel. Although easy to machine, free-machining steel has a grain structure and thus acts like wood and fractures more easily along the grain. Berge explains that this type of steel should not be used in an application that might experience high stresses. “You get into trouble if you make shafts out of this material,” he says.

The problem was compounded by the fact that the welding technique used was not appropriate for the material, a medium-carbon steel. “It gets a little tricky when you start to weld on medium-carbon steels because you have to avoid forming ‘martinsite,’ a brittle form of steel,” Berge says. This brittleness also contributed to the shaft’s failure.

Via a teleconference, Berge and Rehbein explained their findings to Shimon as well as to Chantland’s customer and recommended using a different kind of steel. “We were able to help out by mediating this situation as a third party with no vested interest,” Berge says.

Armed with this information, Chantland was able to remedy the situation. The company worked with the customer to modify the product, including choosing a material better suited to the application’s demands. “The fact that Paul would take the time to participate in a



When a pulley made by The Chantland Company to customer specifications was failing in the field, the company called in IPRT’s materials experts for assistance. Using state-of-the-art equipment to take a close look at the failed components, IPRT helped Chantland find the cause and work out a solution with its customer.

teleconference with us and our customer to explain his work was the single biggest contributor to our saving this customer,” Shimon says. “It not only helped us resolve the immediate problem, but proved that the failures were a material issue rather than related to our production capabilities,” Shimon says. “This helped us retain this customer’s faith and business.”

For more information, contact IPRT Company Assistance toll free at 877-251-6520, iprtinfo@iastate.edu, or visit the Web at www.iprt.iastate.edu/assistance.



Jack Payne: New extension leader

Iowa State's new extension leader has ambitious goals for CIRAS. Jack Payne, who began his duties January 15, sees CIRAS as a leader in helping to ensure healthy environments and economies for the citizens of Iowa and beyond. It's a goal CIRAS is uniquely poised to achieve, he says.

"From its inception, CIRAS has been a forward-thinking organization that has enjoyed a long history of success and has brought economic growth to Iowa," Payne adds. "It is a key player in fulfilling extension's mission and will only gain strength and relevance as we continue to explore the global and knowledge economies."

A 20-member search committee chose Payne for extension's top post—vice provost for extension and outreach—citing his extensive experience at several of the nation's leading land-grant institutions as well as experience in resource management in the private sector. He most recently held multiple appointments at Utah State University, Logan, including vice president for university extension, director of the Utah Cooperative Extension Service, dean of continuing education, and tenured professor in the College of Natural Resources.

Payne succeeds Stanley Johnson, who held the position of vice provost for extension from 1996 until his retirement in December 2005. The vice provost administers University Extension, which includes business and industry programs and continuing education and communications services that provide delivery of off-campus credit and noncredit courses, conferences, and continuing education offerings. Payne also serves as director of cooperative extension, which has programs in agriculture and natural resources, communities and economic development, families, and 4-H youth development.

The high standards set by Iowa State University attracted Payne to his current position. He was also impressed with the scope and diversity of the program, the quality of the people, and the national prominence of ISU Extension, particularly in the areas of economic development and leadership.

"I'm pleased to be part of a team that holds such high standards and had committed to putting legs on their motto, 'Becoming the Best,'" he says.

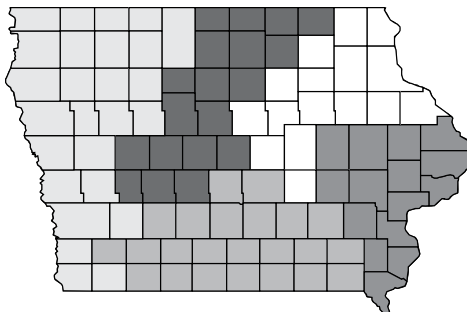
Prior to joining Utah State in 2001, Payne oversaw the start-up of The American National Fish and Wildlife Museum, Springfield, Missouri, serving as its first CEO and president. He also spent 10 years with Ducks Unlimited Inc., serving as national director and western states director of the private lands program (1990–1996), acting executive director of Ducks Unlimited de Mexico (1996–1999), and national director of conservation (1996–2000).

Payne was at Texas A&M University, College Station, from 1985 to 1990 as an associate professor and extension wildlife specialist in the Department of Wildlife and Fisheries Sciences and as an adjunct professor in a wildlife research institute. He also was an assistant professor and extension wildlife specialist at The Pennsylvania State University, University Park, from 1983 to 1985.

Payne earned a bachelor's degree in biology from Temple University, Philadelphia (1969), and both a master's degree in fisheries science (1979) and a doctorate in wildlife science (1983) from Utah State University, Logan.

New account territories

Account managers provide initial manufacturing needs assessments and also explore and match resources to client needs. The state of Iowa has been divided into five account managers' territories. Currently CIRAS has four account managers covering the five territories. Their contact information follows.



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Root cause analysis for problem-solving procedure

By Merle Pochop, CIRAS

Compliance with ISO 9001 requirements is becoming more complex as registrars who oversee company activities insist that the practice of root cause analysis be properly conducted when completing corrective and preventive actions. Such activities need to be recorded in order to demonstrate continuous improvement in company processes, one of the core requirements of corrective action in the practice of ISO 9001.

The situation that many times arises is that the requirement for determining the root, or underlying cause, of the problem is delegated to first-line or supervisory personnel who have limited practice or experience in organized problem-solving procedures. Too often, the stated solution to a problem and the action taken do not truly address the basic reason why things did not go right in the first place. Thus, in a matter of weeks or months, the same problem is back with the attendant need for rework, scrapping of parts, or dealing with supplier and/or customer issues. In short, improvement has not truly occurred.

Eaton Corporation's Hydraulics Division of Spencer, Iowa, is an ISO-certified company. As a part of their continuing actions to improve performance, auditing and review activities found that in certain cases corrective action request reports did not show what appeared to be an effective determination of the basic cause for the discrepancy noted. To re-emphasize the use of proper determination techniques to more effectively analyze problems revealed during audits and day-to-day activities, Eaton's Senior Quality Engineer Mike Carpenter and QA Coordinator Clara Van Laar decided to provide internal quality auditors and associated supervisors and staff with a practical workshop on use of tools for root cause analysis.

To provide an even broader perspective, Eaton decided to have the class conducted by outside personnel and turned to ISU-CIRAS for assistance. Merle Pochop suggested that a hands-on workshop using actual circumstances experienced at the Eaton Spencer facility would be more effective. Approximately 70 people were identified for training. To involve this many employees, it was decided to provide the training in four one-hour workshops with 18–20 people in each. Some time between training days was scheduled to be able to make adjustments in the presentation if initial assumptions regarding training activities did not match revealed needs.

Pochop worked with retired CIRAS member Don Brown to prepare a workshop outline and coordinated with Carpenter and Van Laar to include a number of cases from Eaton's internal improvement activities. These cases were excerpted in order to eliminate, as much as possible, the issue of personalities and focus instead on the circumstances of the corrective action request itself.

Presented in September and October 2005, the workshops concentrated on using the problem-solving tools of definition, flowcharting, Ishikawa fishbone diagramming, and the 5-why's analysis tree. More sophisticated tools are available, but the aforementioned activities are more commonly used.

During the workshop, participants were divided into teams and directed to deal with the actual circumstances of the cases taken from Eaton experience. Each team used each analysis tool as they were discussed; some tools were more effective for certain cases than others. The purpose for insisting on the use of in-plant situations and requiring participant activity was to impart practical—not just theoretical—knowledge.

Comments from the participants following the workshop were universally positive. The tools presented as part of the training had been used in earlier training programs, although these opportunities did not encompass a large base of workers. For this reason, the techniques were not widely known and, consequently, not widely used.

Root cause analysis or problem-solving procedure is increasingly a basic tool for industry. The techniques are flexible and can be adapted for use in conjunction with statistical process control for identifying and eliminating out-of-control occurrences and for improving process capability. Activities included in the workshops at Eaton are those most commonly used and those most adaptable to routine situations.

According to feedback from the Eaton team, this training has provided the skills and tools for driving to the root cause, so issues don't reoccur. Prior to this training, actions were not always getting to the root cause, with some only touching the surface and not finding the true source.

For more information on root cause analysis, please contact Merle Pochop at 712-274-0084; pochop@iastate.edu.

How To Do Business with State Governments

"How To Do Business with State Governments" is the topic of a meeting to be held June 30th in Sioux City. This meeting will be co-sponsored by Procurement Technical Assistance Centers in Iowa, South Dakota, North Dakota, and Minnesota.

For more information on this event, please contact Kathy Bryan at 515-289-0280; kathyb@iastate.edu.

Continued from page 3

- tap into the expertise of the state's higher education institutions to encourage and facilitate innovation

Four strategies comprised of 15 action items are recommended in the Battelle report to increase the competitiveness and growth potential of Iowa's manufacturing sector (see table on page 3). Each item is listed as either a critical or high priority.

CIRAS is engaged in a number of activities that are aligned with Battelle's recommendations. These include the John Deere supply chain initiative, support for the BOWA Development Association (www.biowa.us), management of the Manufacturing Extension Partnership for Iowa, support for several lean manufacturing initiatives, and product and process technical assistance.

The full Battelle report can be accessed online at <http://ided.iowalifechanging.com/downloads/Iowaadvvmfgroadmap.pdf>.

For additional information regarding the Battelle report or if you have input you would like to share with the Advanced Manufacturers' Council, contact Ron Cox at 515-294-9592; rcox@iastate.edu, or Gail Kotval with IDIED at 515-242-4896, business@iowalifechanging.com. ■

Advanced Manufacturers' Council

The Advanced Manufacturers' Council membership includes representatives from Iowa manufacturers and Iowa universities and business associations. Peter Hong of Positech chairs the council. CIRAS Director Ron Cox represents Iowa State.

Accumold

Al-Jon

Lennox

Positech

Rockwell Collins

Rosenboom Machine and Tool

Vermeer Manufacturing

Iowa Association of Business and Industry

Iowa Business Council

Iowa UAW

Des Moines Area Community College

Iowa State University

University of Iowa

University of Northern Iowa

2006 Advanced Manufacturing Conference

CHANGING FACES/FACING CHANGES: THE FUTURE OF ADVANCED MANUFACTURING IN IOWA

The 2006 Advanced Manufacturing Conference will provide a forum to bring together Iowa manufacturers and the Iowa academic community to discuss the latest advances in manufacturing technologies, emerging career opportunities, and changing workforce needs in the state's manufacturing industry sector. This two-day conference offers in-depth programs that enable attendees to innovate, profit, and succeed in the highly competitive global manufacturing market.

KEYNOTE SPEAKERS:

Ted Fishman, Author, *China Inc.: How the Rise of the Next Superpower Challenges America and the World*

Leo Reddy, CEO, Manufacturing Skills Standards Council (MSSC)

Clay Jones, Chairman, President and CEO, Rockwell Collins

DATE: May 16-17, 2006

LOCATION: Kirkwood Community College, main campus, Cedar Rapids, IA

TUITION: \$145 before April 14, 2006
\$195 after April 16, 2006

To register, call 800-332-8833
or 319-398-1022
or visit www.foryourlifetime.com

For more information please contact Kim Johnson with Kirkwood Continuing Education at 319-398-5525 or at kim.johnson@kirwood.edu.

UNI Materials Innovation Service

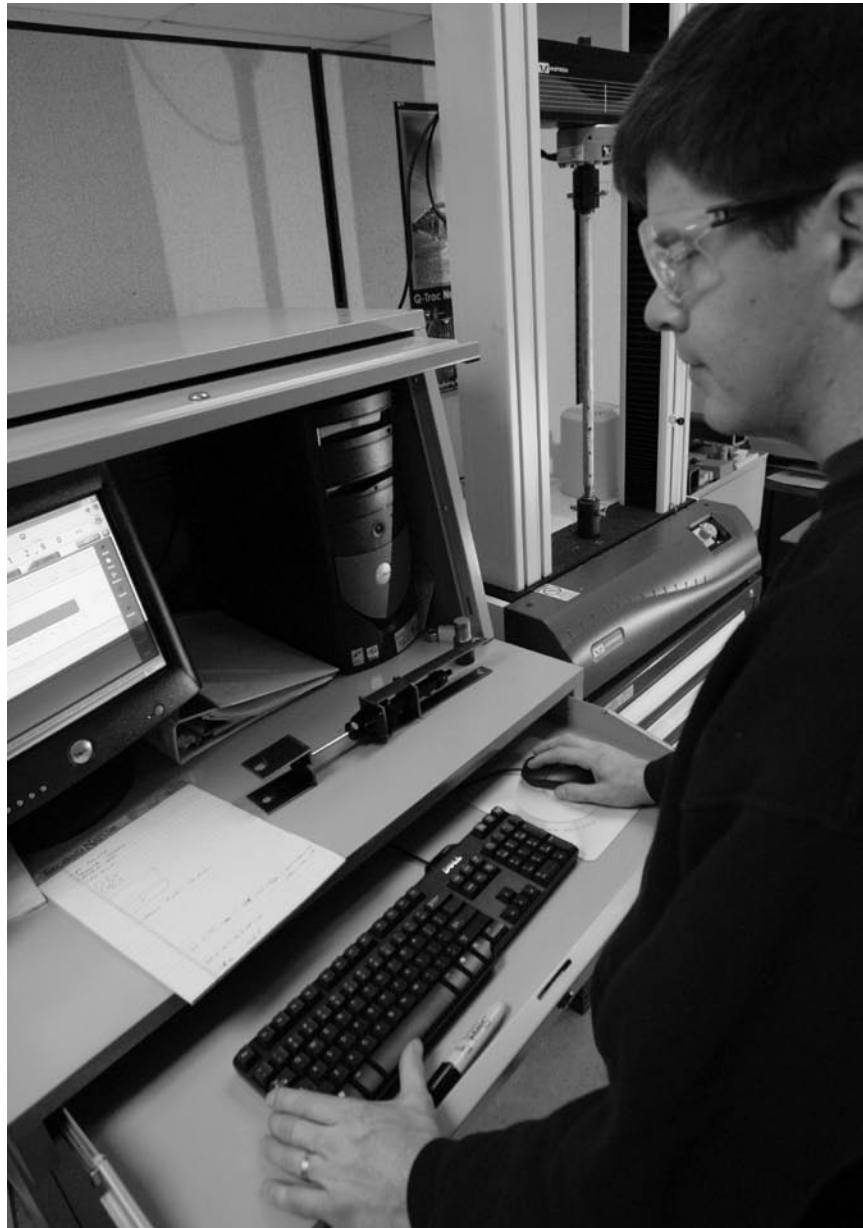
By Jeffrey Rose

Created in 1998 as a joint venture of the University of Northern Iowa's Recycling and Reuse Technology Transfer Center and Recycle Iowa, the Materials Innovation Service (MIS) promotes by-product re-utilization, recycling, and reuse efforts throughout the state of Iowa through a creative university-industry partnership that offers a wide range of affordable testing services to businesses interested in the development of recycled content products. MIS also provides technical assistance to manufacturers wishing to re-engineer or re-tool their operations to include recycled content and in the development of innovative recycling/reuse process technologies that help turn waste into resources. This program complements recycling market development efforts by assuring that technical resources are available to assist businesses in diversifying their product lines, thus expanding the market for recycled materials and continued economic development.

Typical MIS projects involve a business or entrepreneur that has an idea or product that uses recycled materials. The client may need assistance manufacturing a prototype. MIS has a full machine shop to assist in this endeavor and can also assist with physical and mechanical testing. This is especially helpful for clients who have developed a prototype but now must answer questions about their materials properties.

Frequently there is a need to test a product that has no testing standard and does not fit the equipment typically used in testing. MIS works with clients to design, develop, and manufacture testing standards and apparatuses to fit their individual needs.

Materials Innovation Service has been working since 2003 on a number of projects with Plastics Recycling of Iowa Falls. The company's unique process turns waste into commercially viable products. MIS assisted Plastic Recycling with testing their recycled plastic material to ensure adequate mechanical and physical properties. These tests included flexural, compression, and artificial weathering of recycled mixed-plastic products manufactured at their Iowa Falls facility. The results have helped determine what products can be made from the material and helped ensure the longevity of their product. MIS has also designed and built a testing apparatus to determine mechanical properties on a control access bollard made out of recycled plastic for use on bike trails. This device, designed to prevent automobiles from entering park areas and the bike trails, folds to provide access to maintenance equipment. In case of an emergency the bollards can be pushed over by an emergency vehicle, allowing for quick response and no damage to the vehicle.



One great outcome of the work MIS has performed with Plastic Recycling is the partnership with Standard Golf, another MIS client. Standard Golf had been looking for environmentally friendly products to add to their product line. The program coordinator for MIS directed them to Plastic Recycling, and after a few meetings Standard Golf and Plastic Recycling developed a hazard stick that uses 99 percent recycled plastic. The product can now be found throughout the world, not only for use in golf, but also in facilities management and home use. This initial partnership has also led to additional products that are in the R&D stages to be produced by Plastic Recycling of Iowa Falls and Standard Golf.

If you would like more information about Materials Innovation Service, contact Jeffrey D. Rose at 319-273-7499; jeff.rose@uni.edu. ■

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WebWatch

CIRAS has assembled a bioindustry team to help businesses and communities develop, market, and use agricultural crops for the production of biobased products and energy. Efforts in this area will help decrease America's dependence on a hydrocarbon-based economy and develop new markets for agricultural products.

CIRAS staff provides assistance in three broad bioindustry categories:

Biodiesel—CIRAS hosts educational events and conferences and also works with companies on technology transfer and commercialization of new bioprocessing technologies.

Biorefining—Several opportunities are available including assistance in developing supply networks, creating university-business partnerships for research purposes, preparing grants and securing funds for joint university-industry partnerships that explore new bioprocessing technologies or new crops for use in bioprocessing, and analyzing potential economic and social impacts of new bioprocessing systems in Iowa communities.

FB4P—CIRAS can assist biobased product manufacturers with submitting products, product information, and company information to the program; help manufacturers test their products for biobased content; and facilitate analysis of biobased products for environmental and economic impacts. (For more on FB4P, see article on page 6.)

The screenshot shows the CIRAS website interface. At the top, it says 'IOWA STATE UNIVERSITY University Extension' and 'Center for Industrial Research and Service (CIRAS)'. There is a search bar and navigation links for 'Staff', 'Contact Us', and 'Advanced Search'. A left sidebar contains a list of services: Industry Services, Bioindustry, General Info, Biodiesel, Biorefining, FB4P, Energy, Engineering, Management, Practices, Procurement, Productivity, Quality Management, Industrial Research, Economic Development, Online Courses, Hiring Students, Visitors, About CIRAS, and Iowa Manufacturing. The main content area features a map of Iowa with a cursor over one of the counties. Text next to the map says: 'Find your county on the map above to determine which regional account manager can best assist you in your area. Move your cursor over the regions to view the county names and the associated account manager's name and phone number—click on the county to view all the account.' There is also a small photo of people in a meeting and a sign-up link for CIRAS News.

Visit our Web site at www.ciras.iastate.edu for more on what CIRAS and its partners can do for you.

www.ciras.iastate.edu

CIRAS News is published quarterly by the Center for Industrial Research and Service and edited by the CIRAS publications team. Design and production is by Engineering Communications and Marketing, Iowa State University. Contact John Van Engelenhoven at 515-294-4475 or jve@iastate.edu with questions and comments regarding the newsletter.

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