

Welcome

By Amanda Radice, Newsletter Editor, FSRG

Welcome and thank you for taking time to catch up with the Ferris State Rubber Group (FSRG) Newsletter. The intention of our newsletter is to keep our corporate sponsors, our future employers and anyone else who might be interested informed about what is happening here at Ferris State University.

We wish to thank all of our past and present corporate sponsors for their generous support of our organization. If your organization would like to help support our group by becoming a corporate sponsor please send \$100.00 annual dues to the address on this newsletter. By being a corporate sponsor you will be recognized as such on the official FSRG web site with a direct link to your own company web site, receive the first invitations to attend FSRG events and have priority when scheduling a time and date to come and talk about what your company has to offer and possible recruiting of rubber students.

At this point, we would like to encourage you to check out our web page, ferrisstaterubbergroup@yahoo.com, and check out the things coming up in our calendar. We are hosting a Tire Drive to raise money from the community – many thanks to Alternate Fuels LLC. for all their help with that. We will have an informational table at the Cleveland Expo in October. Many of you may also be aware that we are co-hosting a Rubber and Plastics Career Fair with the student group of Society of Plastics Engineers. We want to represent Plastics and Rubber as potential degrees for hundreds of high school students who will be visiting Ferris's campus.

We, the rubber students at Ferris State University, are interested in hearing from you, the members of the rubber industry, and learning from you. If anyone is interested in giving us a presentation about rubber industry topics please contact professors Auggie Gatt at (231) 591-5337 or Matthew Yang at (231) 591- 5263.

Rubber Laboratory Improvements

By Auggie Gatt, Professor

Many additions and improvements were completed in our lab this summer. Our technician Brian Pacholka, really had his hands full and did a great job getting everything ready for the start of the fall term.

We upgraded our 1A mixer with a new dust stop lube system and a rebuilt 30" mill which was rebuilt by Rubber City Machinery and is equipped with belly bars and an air brake for safety. Both Desma injection presses were upgraded with new PLC controls with the help of Michigan Rubber. This now gives us 3 presses, which we own and are not subject to being removed due to a consignment agreement. Mr. Yang has a new toy in the form of a TGA to be used in our 223 testing class.

Additionally, Brian installed an air operating system for the discharge door on our original BR mixer. The 20" mill and hot feed extruder were relocated and Federal-Mogul donated a nice compression-transfer press. We also received a lot of raw material thanks to generous donations from many companies. Five years into the program and we have yet to pay for any materials. We really need to thank these donors whenever we see them!

Over \$250,000 was spent in the lab. These improvements will make for better learning experiences and, hopefully, help in our recruiting efforts. We should be proud of our lab and make the most of it!

Mr. Yang demonstrates how to use the new DSC and TGA.

Emerging LIM Technology

By Ryan D. Cutler

Today's volatile and competitive market place requires rubber molders to cut both material and operating costs to remain ahead of the competitor. Many North American molders have been following the latest trends in Europe and are starting to add Liquid Injection Molding (LIM) to their repertoire of capabilities. This process utilizes liquid silicone rubber that exhibits excellent physical properties over a wide range of temperatures along with UV and chemical resistance. These qualities make it feasible to mold a myriad of parts utilizing LIM technology that would otherwise be molded using either high consistency silicone or other organic rubber in a conventional molding process such as injection or compression molding. Liquid Injection Molding is used extensively in the medical industry because the silicone used does not come into contact with the outside environment and silicone is biocompatible with the human body.

The aforementioned qualities aren't what make the process more profitable than any other process. It is by the use of cold runner molds and direct injection nozzles or valve gated nozzles that virtually no scrap is produced. Any professional in today's rubber industry knows that the majority of a part's total cost is tied up in material. The high precision tooling used in LIM eliminates scrap material loss and results in higher profits. Operating costs are drastically reduced because most well designed LIM work cells are fully automated through the use of ejectors and robotics, thus resulting in no direct labor. One disadvantage with this process is that it takes a good deal of patience and attention to detail for the process to run as intended.

I personally had hands on experience with LIM through an internship with Freudenberg-NOK. It was intriguing to me that the molding process was so lean, precise and unlike anything I had ever come in contact with before. Although we do not learn about the molding of liquid silicone rubber at Ferris State University, I was able to use my knowledge obtained there regarding the rheology of rubber, tooling, and the injection press to quickly understand what was happening without much training from my supervisor. I was then able to assist in the improvement of each molding cell because I now felt comfortable and had a "LIM" mindset. While this is only one instance of a successful internship it is an example of how undergraduate students from the rubber engineering technology program at Ferris State University have the technical competence to hit the ground running within any rubber molding environment.

A Word from a Rubberhead

By Todd Kamyszek, Vice President, FSRG

Three years ago when I started in the rubber program the mention of a rubber group meeting put a funny grin on my face, the interesting thing is that I still get that funny grin not because of the associations that come to mind from the name but because of the rubber junkies that show up to the events. Also known as rubber heads or rubbernecks, these individuals led me to wonder how in the world can someone be so into rubber? Three years later I find myself crawling under cars to look at rubber parts and holding a rubber part in my hands trying to figure out what it is, how it is made, and how I can make it better.

Once again the West Michigan Rubber Group will be holding their fall technical meeting on the campus of Ferris State University. For the past few years the National Elastomer Center has been the home of the technical seminar. This meeting is beneficial to both students and industry members, giving each a better understanding of new industry developments along with exposure to the education received by rubber students at Ferris.

It's because of the acceptance the rubber program has received from groups like the West Michigan Rubber Group, the Rubber Manufacture's Association, the Rubber Division of the American Chemical Society, along with the rubber industry that the students at Ferris are very excited about their future in the rubber industry.

Thanks to the Industry for Support

By Matthew Yang, Professor

I am really very grateful to have so much support from the rubber industry in so many different ways. We have received a variety of rubber and chemicals donated by the industry, enough to last one year, for our hard-working students to get their hands dirty and sticky and to become skillful rubber technologists. Our feedback to the rubber industry is to ensure the quality of our education. The other way of showing our appreciation is to present the results of our work. We have taken advantage of having West Michigan Rubber Group annual technical meeting held at Ferris to present latex technology and TPV processing in the past two years.

DuPont-Dow Elastomers has been sponsoring two special studies each year. Steve Colins and Dustin Greiner, two of our recent graduates, took the challenge last year. They did great jobs in finishing the studies of TPV and curing systems for roofing application of Nordel MG™. With strong support from DDE, we are planning to present new studies in the coming Rubber Division meeting in Grand Rapids next spring. I have been in numerous technical meeting. Kathy and Abraham, you are going to have a lot of fun. We are also in the final stage of planning a special study with Rhein Chemie. Russ Kraft, our graduate, is coordinating this project.

Again, we are given a spot by WMRG to present our continuous work on TPV in the coming November annual technical seminar.

Is there other better way to show our friends in the industry how much we enjoy using the equipment and materials donated by them?

Rubber and Plastics Career Fair

By Kathy Frank, President, FSRG

The first Ferris State University Rubber and Plastics Career Fair will be held on the FSU campus October 17, 2003. More than 200 high school students will attend and learn about rubber and plastics, meet several company representatives who will display products created by rubber or plastics technologists and tell students about careers they can choose. They will observe laboratory demonstrations, hear a panel of recent FSU graduates, visit tabletop exhibitions, and find out about Ferris State's 4-year and 2-year Rubber and Plastics degrees.

For teachers and chaperones attending we have scheduled a workshop entitled "Rubber and Plastics". Lynn Higgins of the Polymer Ambassadors will be presenting. The workshop will provide hands on learning activities that attendees can take with them to their classrooms and share with their students.

We made quite an impression on the National Association of Manufacturer's (NAM) Center for Workforce Success with the planning of our Career Fair and they awarded us a grant to help with event expenses. Part of the grant money will help offset transportation costs of the attending schools. We will also be recording the event in PowerPoint so that other schools can mimic our efforts.

Special thanks are extended to Kevin Ott of the RMA and to Michael Bulawa, ExxonMobil for their assistance and advice in planning the event.

We would like to be able to distribute this semi-annual newsletter online. If you are interested in receiving our newsletter in the future, please email ferrisstaterubbergroup@yahoo.com to be included on our mailing list. Another option is to log on to our website at www.geocities.com/ferrisstaterubbergroup. At the website one can find a lot of information about our student organization.

We hope you enjoy this newsletter and we always welcome any questions or comments.

Interning with Freudenberg-NOK

By Abraham Z. Levy

Two years ago I started interning for the world's largest seal manufacturer, Freudenberg-NOK. My first internship took me down to Georgia. The experience of living and working in Georgia was incredible. I spent countless hours molding products, working in their rubber-to-metal bonding line, quality control, testing, secondary operations, and going through every step of a project development process. I really got a complete picture of how a plant operates, the value of teamwork, the significance of establishing a good relationship with floor personnel, and the importance of embracing new technology.

I also did the typical amount of paperwork required of an engineer. This freed-up my boss's time to do more productive things for the company such as developing new products and markets. The experience greatly contributed to my learning of project management, the design process, and new product development. At the second plant in LaGrange, Georgia I got to work with a great group of people. I got to do time studies, and use more of the industrial engineering skills I learned at Ferris. I also got to work with many different materials, seals, and testing equipment.

This past summer I interned at International Seal, Freudenberg-NOK's aerospace division in Santa Ana, California. I wanted to try something different and the aerospace industry looked quite appealing to me. The experience was invaluable to say the least. I participated in many kaizens and continuous improvement projects, and had the opportunity of seeing the sealing business from an aerospace perspective instead of an automotive perspective.

I learned and saw "lean" at its best. The internship was well structured and challenging in terms of the amount of projects we took on and the time frame to complete them. Everyone from top management to the press operators played an important role in making this internship the best one. Everyone worked as one big team. I had never worked in a place where you consider 150 employees "your close family". What impressed me most about the plant in California was how involved employees were in the decision making process and how important their input was to management. You read about it in books, but they practice it. I was very fortunate to be part of this team and family. And finally, I got to speak more Spanish than English in California. It was kind of weird at first, but I loved it. Tacos, Sushi, great weather, great company...what more could you ask for?

Thank you very much for taking the time to read our semi-annual Ferris State Rubber Group newsletter. Be on the look out for one in the spring, 2004.