

Marie Winkler-Sink: Making IMPAXX

Marie Winkler-Sink has had many different opportunities to have impact during her 21-year tenure at Dow Chemical. She's held a variety of positions starting as an application development engineer and later moving into positions that require not only technical know-how, but also an understanding of business management and leadership. She currently is Research and Development Director for New Business Development and Diversified Products for Dow Automotive, which is how she became involved with NASCAR.



When NASCAR re-designed their race car, safety was one of the most important concerns. The existing car did a good job protecting the driver from front and rear collisions, but NASCAR wanted the new car to provide better protection in the case of a side impact. After testing over 200 different materials, NASCAR finally settled on IMPAXX™ foam, an innovative Dow Automotive energy-absorbing foam.

Moving car has kinetic energy. A race car going 180 mph has about nine times more kinetic energy than a passenger car going 60 mph. When a car comes to a stop, its kinetic energy must be converted into other types of energy. The goal of energy-absorbing materials is to use some of that kinetic energy to deform and, if necessary, crush the material. The more energy that can be used by the foam, the safer the driver will be. Those same properties are being utilized to make passenger cars safer as well.

Marie's Job

Q: What do you do at Dow Automotive? My role is a combination of growing opportunities and applications of our existing products and looking for the next big opportunity to create value through invention of new products. I lead a great team of engineers that use materials science and engineering principles every day to help make cars safer, quieter, stronger, or run more energy efficiently and cleaner.

Q: How did you get involved with NASCAR? The NASCAR Research and Development center contacted us when they were designing their new car. They were looking for a material that would provide the drivers with enhanced safety in case of a side impact. We had just commercialized IMPAXX™ foam for use in passenger vehicles. NASCAR had looked at every existing safety system from metallic honeycomb to plastics to foam, but IMPAXX™ foam proved to have the best properties for use in a race car.

Q: What role did you play? I interacted with the NASCAR R&D Center quite a bit as they were finalizing the design of their new car's safety system. Dow Automotive combined its expertise in materials science with NASCAR's expertise in car design. I also communicated with drivers and teams to provide them with information about how the foam works.

Statistics

NAME: Marie Winkler-Sink

CURRENT POSITION: Research and Development Director for New Business Development and Diversified Products, Dow Automotive

FAMILY: Husband, son and daughter

EDUCATION: Bachelors degree (Petroleum Engineering), The University of Texas at Austin; Masters degree (Mechanical Engineering), Texas A&M University

EMPLOYMENT: Has worked at Dow for 21 years, starting as an engineer working with composite materials. Moved into leadership roles in developing new products and bringing them to market.

“The fun part of this job is knowing that you are helping people, whether it's a race car driver or a passenger car driver.”

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About Marie

One course I didn't take in school that I wish I would have taken is... Psychology—even in this world of science and technology, you have to really be able to influence people and get things done. I had to learn the hard way how to do that. It's important to understand how the human mind is motivated.

“If you want to make your mark on the world, you can't think of a better way to do it than advancing science. Everything you enjoy at home—like your iPod or computer—was touched by a scientist.”

My favorite part of my job is...

Some people like to implement things that

already exist. I like to carve out the new frontier. What gives me a thrill is when the scientist and myself come up with a hypothesis—something we're not quite sure about—and then we

test it and find that we were right. That 'aha' is the coolest feeling. And it's really cool to see something you worked on drive down the street.

My least favorite part of my job is... I hate budgeting—it's boring and keeps me from the fun stuff of my job. I made the choice to move to management. The rewarding part of that is influencing direction, but budgeting comes with it.

When I'm not working, I like to... Scuba dive. I love to dive and we go to the Caribbean when we can. I think it goes back to the days when I wanted to be an astronaut—there's a completely different world under water, just like there is in space.

Getting There

Q: Did you like math and science when you were in school? A: I have to tell you I liked math and science because it was easy for me. But I loved English and history just as much. I've always found it interesting to learn how things in the past affect how we think about the future.

Q: What did you want to be when you were in school? I loved astronomy and what I wanted most was to be an astronaut.

Q: Is there someone in your life who served as a role model? There were some teachers who were very encouraging in my love for astronomy. I also did a lot of reading and found role models from history. My favorites were those that were in science and that really believed in themselves when others didn't, like Galileo.



Marie's group won the R&D 100 award for the development of IMPAXX™ foam. Marie is second from the right.

Something I wish someone would have told me when I was in school... Follow your dream and don't take the easy way out. At one point, I thought it didn't matter what I was going to do if I couldn't be an astronaut. Someone should have given me a good shake, told me to get over it, take your passion and interests and work hard to make things happen because there are lots of options. For instance, if you love motorsports, there are lots of different, exciting ways to participate besides being a race car driver.

The best advice for a student who wants to work in motorsports is... Shoot for the moon. Don't let other people tell you you can't do something. It may not be exactly what you thought you started out to do, but if you're passionate and you work really hard, it doesn't matter exactly what you do—you will be successful.