Shaping the Future of Ford with Persistence and a Love of Trash

Someone else’s trash is Debbie Mielewski’s treasure. It’s a viewpoint the Ford research scientist has built a career on, helping to meet the company’s aggressive sustainability research goals.

In the late 1990s when SUVs ruled the road, Mielewski – then technical leader of plastics research at Ford – predicted a time when oil prices would soar, customers would feel the pinch, and Ford would need a solution.

In her lab, Mielewski led the charge to reduce the amount of petroleum the company used to produce plastic parts – a financial move with an eye toward environmental consciousness. She turned to soybean oil, a favorite of company founder Henry Ford, and discovered the answer.

Mielewski and her team toiled for five years to develop a bio-based foam using soybean oil that would meet durability and performance standards while helping to boost the automaker’s sustainability profile.

Finally, in 2001, Mielewski was ready to present her work to executives. She sat outside a conference room for three hours waiting for her moment.

“Is this that green stuff?” Mielewski recalled an executive say as she and her team entered the room. “You guys can go.”

Mielewski stood stunned. She and her team left without a word.

“Yes, we were discouraged, but in research we don’t have to have immediate acceptance,” said Mielewski. “I knew deep down there would be a time when people would not only accept this work but want it.”

Acceptance came in 2008 when oil prices soared to $160 a barrel and Ford executives were ready to listen. Soy-based foam seats debuted later that year on Ford Mustang, and today every Ford vehicle produced in North America is equipped with the eco-conscious seats.

“That’s when the magic happened and my phone started ringing off the hook,” said Mielewski, now a 29-year veteran of the materials research department. “We had good foams that were ready for prime time. I never expected the road to this moment would be easy, but I knew the payoff would be big.”

Consider the impact: Soy-based foam is up to 24 percent more renewable than petroleum-based foam. The biomaterial has helped Ford reduce its annual petroleum oil usage by more than 5 million pounds and its carbon dioxide emissions by more than 20 million pounds. The soy-foam seats can provide a 67 percent reduction in volatile organic compound emissions.

Mielewski’s eco-conscious lifestyle was cultivated early. She credits her father for instilling in her his Depression-era values, and a love of recycling and reusing other people’s rubbish – garbage night was viewed as a weekly “treasure hunt.” Her home today is furnished with garage-sale finds and her closet holds an enviable collection of blazers sourced at resale shops (think Chanel).
A second child with a penchant for trouble, Mielewski floundered in high school until a chemistry teacher noted her knack for sciences. He pushed her to focus, and she went on to earn three degrees from the University of Michigan including a Ph.D. in chemical engineering.

She joined Ford in 1986 and quickly rose through the ranks with her enthusiastic nature and drive to “do the right thing.”

In a male-dominated industry, Mielewski built a largely female team. The women supported one another not only professionally but privately as each was juggling the demands of work and raising children.

“These women are all tremendously smart, talented scientists, and we all have the same goal of wanting to make the world a better place,” said Mielewski.

With Mielewski’s guidance, Ford is now a leader in sustainable materials research. Beyond soy-foam seats, the automaker produces storage bins using wheat straw for Ford Flex, dashboards padded with scrap cotton from blue jeans in Ford Escape and kenaf in the SUV’s door bolsters.

Innovations continue, including the employment of tomato fibers and retired U.S. currency to offset petroleum use in producing bins and other plastic parts for vehicle interiors. Mielewski’s team is also experimenting with algae to even further boost the amount of biomaterial content in seat cushions.

“As the world’s population continues to swell and resources become scarce, my gut is telling me that providing sustainable options to petroleum-based plastics is heading in the right direction,” said Mielewski. “We can make cars that are better for the planet and we can change the way the world moves.”

Changes that will, no doubt, be helped by perseverance and a bit of trash.