

CERAMIC TECH CHAT

Episode 02

Title – “Why We Like Two-Year Tech Degrees: Dana Goski (E02)”

INTRO

De Guire: “I’m Eileen De Guire, and this is Ceramic Tech Chat.

Ceramics are in many ways a hidden industry. For example, many people don’t realize that their cell phones, laptops, and cars are made possible because of the ceramic components they contain. However, we also use ceramics to manufacture other materials that might be more familiar.”

Goski: “Refractories are materials that are used for the containment of hot processes, so think zinc, aluminum, iron, steel, and then mineral processing, such as iron ore, or chemical processing.”

De Guire: “That’s Dana Goski, vice president of research and development with refractories manufacturer Allied Mineral Products, located in Columbus, Ohio. Dana will also become president of The American Ceramic Society in October of 2020.

For her, refractories are more than just materials used in processing of iron and steel. They are themselves complex products, and they play a vital role in the sustainability and environmental impact of the metals processing industry.

So how does one get into the business of making other industries possible?

(music)

SECTION 1

De Guire: “Dana’s pathway to refractories is similar to how many students end up in their respective research fields—she followed the funding trail.”

Goski: “I started out in chemistry and when I decided to do my honors in chemistry, it was in nuclear analytical chemistry. I actually intended to do my master’s in nuclear analytical chemistry, but the department head had called me over the summer and said funding won’t come through for that particular supervisor until mid-year, would I rather change and work for him in physical chemistry. And it turned out to be a joint project in colloidal chemistry but ceramic processing with the National Research Council of Canada. So, I ended up going with him because he had funding and I wouldn’t have to wait an extra few months to start my graduate degree.

Then when I finished with that, I was literally at my graduation ceremony and the associate graduate dean from the engineering school was there and said, ‘So what are you going to do next? I have a project. Are you interested?’ So I thought about it, and I ended up going to work with him and it was through the department of mining and metallurgical engineering. Even though it was ceramics-related work, they didn’t have a ceramics department per se, so we were processing some natural minerals and trying to incorporate them into advanced ceramics. And that’s how I ended up getting through the whole ceramics field.

When I went to look for a job, it happened that Allied Mineral Products was looking for somebody who had ceramics background and understood the nuclear business because we were working in refractories for the consolidation of low-level radioactive metals. So it was a marriage of those two things that ended up drawing me to the company.”

De Guire: “And they were fortunate to find probably the one of two people in the whole world who had that unique combination.”

Goski: “I’m not sure, it might be, unless you worked in government.”

De Guire: “Yes, exactly.”

De Guire: “So, you’re the vice president of research at Allied. What does that mean to be conducting research at a refractories company? What kinds of things are you working on?”

Goski: “So we work in areas for different business units. We cover the spectrum from certain types of metal processing, certain types of mineral processing, certain types of heat treat processing. So, we’re covering research for products in those application areas.

We are not doing pure scientific research. We’re doing applied research for most practical purposes. We’re also looking at how can we customize products to work in specialty areas that our customers have needs, so we work closely with partners who have special needs and try to develop product solutions for what their trouble areas are in their materials world.

De Guire: “Do you see any kind of common themes across these various industries that you’re working with?”

Goski: “So, there are a number of themes, some are materials related, some are personnel related. So in the materials related area, we’re seeing a lot more application requests for alkaline environments, so this sometimes happens in waste processing where people are trying to collect the energy value out of materials and at the same time consolidate waste. So we see a lot of alkaline, sodium, potassium family type elements attack on refractory product. Second theme we’re seeing is faster turnaround time and faster time to heat up the unit and get it into service. Time is money and so we have customers who want to see that turnaround time reduced and their time to cure reduced. And then the third element of that

is we're seeing fewer customers with staff that's trained in refractory materials, and so they're relying more on us or on our installers for that technical information to install the product properly. That's been a trend we've seen over the last decade."

De Guire: "I know you've been involved in a new program we have at The American Ceramic Society to develop a technician program. Can you talk to us a little bit about the importance of the education pathway as it affects your industry, the refractories industry? From a two-year degree and a bachelor's degree level and then moving on into graduate school but especially that kind of paraprofessional entry level area."

Goski: "Absolutely. We have a large number of employees at our company in Columbus that have a two-year technology degree from a school that used to train in ceramic and industrial applications. And when they closed that down, it became clear after a year that it was going to be an issue for us because we really rely on trained personnel to come in and they have an idea of what to expect in a ceramic industry. They've got good skills but not everybody wants to do a four-year degree, or a five-year or beyond degree. They might also just prefer to work with their hands or work with materials. And so, from that two-year program, we have employees that work not only in research and quality but in operations and purchasing, and sales, from that program. And it gave them a really sound foundation on what refractories were.

So the new program that's being launched at Central Ohio Technical College in Newark, Ohio, which is a two-year degree program in ceramics, which is being supported by the Orton Foundation and the Ceramic and Glass Industry Foundation, I think that's critical for local industry. For us, it's really important to have trained personnel coming out of that program that we can get into a job immediately. If they want to carry on and do a more advanced degree later, they can. But we can certainly supply them with an opportunity and a career with a two-year degree in that area.

So, it's not just our company, there are a number of other companies in refractories and beyond refractories, also in glass and ceramic processing in the Midwest, that use this, that have a workforce need for this type of program. And in fact, there's some really big international companies that were sad to see that previous program that existed close. And so, we're happy that we're able to support this new COTC ceramic technician program out in Newark, Ohio, and we think it's a great opportunity for the local community. And kids that just aren't ready for a four-year degree but really would like to do something in engineering."

De Guire: "And what kind of value does a person with those kind of skills bring to a company?"

Goski: "They bring insight into some of the raw materials and processes, and that's really needed. It is hard to train somebody in materials who has never worked with materials. We've done that before, and it takes a lot of time and a lot of energy. And while anybody coming into a company is going to have to learn what their processes are and how they work, having somebody that's trained in those basic materials skills lets them hit the ground running. And so they can make an impact right away."

De Guire: “Since we recorded this interview, Central Ohio Technical College has decided to delay the start of the two-year program because of the impact on its resources by the coronavirus that causes COVID-19.”

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SECTION 2

De Guire: “Refractories is a huge global industry, and Allied Mineral Products has quite a bit of experience themselves dealing with the worldwide market.”

Goski: “When I started with Allied Mineral Products, we were based in Columbus, Ohio. Today we have plants, we have four plants in the States, we have plants overseas in Europe, three in China, one in India, one in South Africa. What we try to do with those facilities is sell a globally consistent product through our ISO process but also offer regional products because we don’t want to be shipping everything. And the customers don’t necessarily need a Tier 1 type product. They just need something that performs in that region. And so much of my time is spent with our groups on trying to optimize regional raw material use so we’re not shipping it all around the globe, that’s one way to look at it environmentally.”

De Guire: “So as third world countries become more industrialized, oftentimes they start with maybe something like a steel plant or an aluminum plant because, for one thing, the raw materials aren’t very far but that’s really the baseline material, those are the baseline materials for making other products. So, I don’t know the answer so I’m just curious, is that a true statement? That developing world countries are looking to develop their minerals processing or their steel-making capability? And if so, does the refractories industry have a role to help make that happen?”

Goski: “I think what we see more of maybe is... it’s very expensive to own an iron and steel operation. It’s big corporations. So I think what I would see more of in a developing country is trying to maximize their natural resources. So if they have a unique raw material that’s available to them that is generally desirable, I can think of, perhaps, kyanite out of Thailand or bauxite out of Guyana. Something along that lines is probably more what I would think you’d see unless there’s a niche industry that’s starting up, maybe that somebody has a creative, innovative idea in a developing country that they’re trying to produce, you might see that.”

De Guire: “So I was also wondering if young people might be attracted to the refractory industry because of the kinds of solutions to world problems that a person who’s really fluent and knows what they’re doing with refractories can offer.”

Goski: “That’s a great point. I think younger people today are interested in making an impact, affecting climate change, paying attention to resources, and how we can optimize what we have, how we can reduce, reuse, recycle. I think they’re also very engaged in just what’s going on around them, more so than maybe in the past.

De Guire: “What opportunities would you say the refractory industry offers to young people?”

Goski: “You could consider just any part of a business, and we need staff that can work in that area. If you think of a technical area, there’s quality control, there’s analytical services. We have customer support services, that are product services if you want to think of it that way, in applications. We have research needs, people who can work in research level. We have lab support staff. So we are looking for people that might just have, let’s say, a two-year degree right through to a Ph.D. So, we cover the gambit in terms of workforce just in the research and technology group.

At the same time let’s say you have an interest in that area, but you don’t want to work in a lab, you could work in operations. We have a number of people who work in operations that have two-year to advanced graduate degrees there. We also have materials engineers that work in purchasing. So it’s pretty spread out.

I forgot to say sales. We like salespeople too.”

De Guire: “Of course.”

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SECTION 3

De Guire: “To a certain extent, Dana is unique in the refractories industry. The field still tends to be male-dominated, but Dana sees opportunities beyond the challenges of being a woman in the field.”

Goski: “It’s a bit of a challenge in that you do stand out like a sore thumb. But at the same time, you have an opportunity to share your voice.

You do get to meet a lot of people because people, when you’re working in an area, you want to see somebody who looks like you. And so young kids think that way as well, that’s how they learn, that’s how they connect. And so I’ve had an opportunity to meet more people in the industry simply because you are a little unique being a woman in this industry. I’d like to see it being less unique as we go forward because there are obstacles.

Yeah, it can be frustrating. I appreciate that I won the Theodore J. Planje award last year, and I was the second woman to win that. Nancy Bunt from Imerys won that the year before. But the year prior to that, there had been no women in that group. And at the meeting where that award is given, one of the women who is retiring from our industry shouted out, ‘Where’s the women?’ And I have to wonder to myself, if she hadn’t shouted that out, would someone have woken up and thought about that at the time? And so, I was very proud of Nancy Bunt winning that award, and she gave an exceptional speech. And I thought what she did was outstanding. She invited all the women in the room to stand and come up with her because it’s community.

Yeah. So, there are obstacles, but I see progress.”

De Guire: “Excellent. That’s good. So, looking back over the years, what would you say has surprised you the most about the career, the way your career has unfolded?”

Goski: “So, I had to tell my grandmother I made special dirt for a living. I wouldn’t have even thought it was an industry, really. When I think back to college, I actually sat in on a refractories training session. I did a lot of thermal calculations involved with metal processing and refractories, but I didn’t realize the scope and how big it was and what a critical industry it actually is to making other things possible. So the fact that we can impact the future industries is quite, it’s sort of awe-inspiring that you can help make a difference in that. Maybe that was my takeaway, was I didn’t realize how impactful this hidden industry that nobody knows about really in the public could be.”

De Guire: “Now looking ahead five years or so, what excites you about where the industry is going?”

Goski: “I think there’s a huge opportunity in sustainability for the industry. I think there’s also some really interesting processes out there that I know we’re involved in that are energy related that could help make a difference. And it might not be in five years. These things sometimes take a lot of time. It might be the next decade. But we can impact the quality of life for the future.”

De Guire: “That’s a good thing.”

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CONCLUSION

De Guire: “I hope our listeners have gained an appreciation of the refractory ceramic materials that are used to make the materials we use and see in everyday objects.

And you know, what Dana said about two-year degrees is also a lot like a hidden industry in and of itself. Many people are intimidated by a four-year degree or it may just not be the right fit for them, and they may not realize that two-year degrees offer another pathway to successful and fulfilling careers in industry.

I’m Eileen De Guire, and this is Ceramic Tech Chat.”

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