



Episode Title: Product Stewardship, Supply Chain, and Downstream User Engagement -- A Conversation with Catherine M. Croke, DBA

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Lynn L. Bergeson (LLB): Hello, and welcome to All Things Chemical, a podcast produced by Bergeson & Campbell, P.C. (B&C[®]) a Washington, D.C., law firm focusing on chemical law, business, and litigation matters. I'm Lynn Bergeson.

This week, for our 100th podcast episode, I had the pleasure of catching up with Dr. Catherine M. Croke, B&C's and our consulting affiliate, The Acta Group's (Acta[®]), new Director of Product Stewardship and Regulatory Affairs. Catherine joined us recently from Evonik Corporation, where she was Senior Advocacy and Compliance Manager. Catherine's diverse background, working for industrial chemical companies in a variety of science, business, and advocacy roles, has made Catherine a core part of B&C and Acta's team. We discuss during our conversation the expanding role and growing importance of product stewards in corporate America today and talk about what product stewardship is exactly, the value this role offers to companies, and where to begin if your company is without a product steward. Now, here's my conversation with Catherine Croke.

Hello, Catherine. It's just wonderful having you in the studio today. Thank you for joining us.

Catherine M. Croke (CMC): Thank you, Lynn. I'm happy to be here.

LLB: You have a totally amazing career background. You've earned multiple degrees. Toxicology, business administration, you even have a bit of law there. You've worked for several large chemical companies over the years. Perhaps you could tell our listeners just a little bit about who our new Director of Product Stewardship and Regulatory Affairs is.

CMC: Yes, Lynn. Thank you. Well, this new position for me builds on my background in the chemical industry as well as my education background. And it will provide a practical background to understand our organizations and supply chain structures. This will enable me to support clients as they undertake their daily business and prepare strategic plans for the future.

LLB: Well, that's great for us and great for our clients. Our conversation is going to focus on product stewardship, which, as you know well, is a really growing field that covers, in my view, just a whole lot of real estate, a lot of territory. As you probably know, I am immediate past President of the Product Stewardship Society, which is a position that reflects my personal and, of course, our firm's professional commitment to the practice of product stewardship. In looking at the growth in this area over the last ten years, I'm just thrilled and impressed that the concept of product stewardship has really taken root in American businesses. I'm interested in hearing your views on what exactly product stewardship means in a practical sense and how you, Catherine, our new Director of Product Stewardship, will deploy your consulting skills to advance it and help our clients.

CMC: Yes, Lynn, as you mentioned, product stewardship doesn't have a set definition. It actually varies widely in definition, but at its core it's defined as just responsibly managing something that's entrusted to you. And I think that's an excellent starting point for understanding this field. The Product Stewardship Society's definition is product stewardship is the act of minimizing the health, safety, environmental, and social impacts of a product and its packaging throughout all lifecycle stages, while also maximizing economic benefits. If we look at this in terms of the lifecycle assessment, it's critical that we understand the product's impact through all stages of its use, such as design, production, sales, use, and disposal.

All manufacturers and importers have an enormous challenge to understand this impact at every stage of their product. Of course, manufacturers know product hazards the best, but understanding risk is a more difficult component of these assessments. Product stewardship is really the intersection of science and business, to be able to solve problems and provide value throughout the supply chain. I believe my experience communicating targets and objectives in product stewardship related to products and product packaging will be necessary to help promote product stewardship principles in the future.

LLB: Well, you raised a lot of good points here, Catherine, and your experiential background is what I really am wanting to focus on. You've worked for a variety of employers over the years, largely in major chemical manufacturing sectors. In your view, how does product stewardship kind of rate -- and I use that term loosely and for lack of a better word -- in terms of its importance in the business sector? Do you think product stewardship is regarded as an imperative, a business imperative, that an entity *must* have to be a 21st century corporate citizen? Or is it regarded as something that's kind of nice and good to have but not essential to have that type of department or functionality in your corporate hierarchy? What are your views?

CMC: Yes, Lynn, as you mentioned, of course, I come from an organization where there was an entire department devoted to this activity, but product stewardship may be situated in a different level of the organization based on the particular challenges which need to be addressed by each company and, of course, the company size. While large companies have more resources to devote entire departments and functionalities to product stewardship, even small companies often have a role that has defined product stewardship responsibilities. I really believe this is growing and more present in businesses' minds because we're experiencing an intersection where there is increased pressure with new regulation and legislation worldwide combined with increased public scrutiny, resulting in a lot of requests for transparency with chemical products and communication of their safe use.

The public expects this increased transparency in communicating product stewardship issues. Effective product stewardship teams provide valuable services to navigate this

changing world and help to develop programs to ensure safe product use and handling. I believe businesses understand this value and regard it as an essential element within their organizations. I think even in today's world and in meeting the challenges of the 21st century, all organizations have to find some sort of product steward role in their organization to be able to meet these challenges and remain competitive for the future.

LLB: Let's dissect what you offered as a definition of product stewardship. If I recall, you said it really means responsibly managing the health, safety, and environmental aspects of a product through its entire lifecycle and across the value chain. That necessarily means that a product stewardship program, whether it's embedded in a large company or a small company, needs to have certain elements: product design; procurement, purchasing; the manufacture of the product; its distribution; use; and presumably aspects of its end of life. That -- as I begin our conversation -- covers an awful lot of real estate. How do these, and presumably other functionalities and product stages, get addressed in either a single person, a company's product steward, or department, as was the case in in your past under the heading of product stewardship? What I struggle with is -- especially in entities that are perhaps newer to the field -- how do you embed all of those different functionalities under a single roof, or even more challenging, in a single person?

CMC: As you mentioned, Lynn, it's much easier said than done. The definition is rather wide. And if there's not a department and we're looking at a team of product stewards, their real role is to promote communication, to facilitate the data gathering that we need for all these essential product stewardship elements. Understanding this complex system to gather data presents many challenges. Even expert product stewardship teams need to deploy and develop really good communication skills.

This can involve speaking to teams within the organization, as you mentioned: manufacturing, research, sales and marketing, legal, and EHS [environmental, health, and safety] experts. Managing risk just based on innate chemical knowledge, as well as an eye to the societal and government influences, is something that we need to keep in mind. This growing government and societal influence is one of our biggest current-day challenges. So what do we need to know? Does the customer want more green products, reduced risk, ease of application or a change in application from a prior product? And what are the current and proposed regulatory impacts of a particular product or market? That's something that a product stewardship team needs to keep in mind. They need to align with industrial and consumer uses and industrial uses. The conditions are generally well known, and we have good existing process controls.

But for some retail or customer uses, the conditions of use may be subject to some deviations based on the education of the consumer for the designed use. In this case, supply chain communication is essential to communicate hazards and safety protections in whatever the anticipated user community is. The user is certainly part of the supply chain; he closes the loop. Whomever they may be, these users are responsible for safe use and disposal, including recycling of a product. When we talk about recycling, of course, many local, state, and federal governments share in the responsibility here.

Increasingly, these government entities are establishing and educating the public, particularly in the area of waste and recycling. Another area that's often overlooked in this closing the loop as a user is also our first responders. In the case where there *may* be an emergency situation, our first responders, like firefighters, need user information to be able to safely handle products. This strong focus on transparency and communication all

throughout the supply chain is becoming much more prevalent and forward in the minds of our product stewards.

In all of these, a strong consideration always needs to be focused on what's happening with the product. Where is the product headed? Is there an alternate means of disposal that might be socially acceptable and even regulated or legislated? Manufacturers look for these types of opportunities to prepare and distribute products that can be reused, recycled, and make the public more likely to purchase a product. This is also the same for industrial customers. These examples and many others all fall within the responsibilities of today's product stewards and product stewardship departments.

LLB: That's a lot of responsibility, and product stewards obviously have a very large portfolio, and as you were chatting, Catherine, it occurred to me what the role of the product steward is in helping the company or entity for which it works to kind of extend and forge new ground in emerging areas. I was particularly interested in your comments about recycle, reuse. Extended producer responsibility (EPR) is an emerging concept in the United States. A couple of states now have mandatory programs, but for years and years, EPR was not really popular in the United States, certainly not as popular as it is in the European Union (EU). And I know some of your former employers are foreign-based companies. In your view, as a product steward, do you see EPR as emerging at a fast pace, or just kind of bumping along as it has for the past two decades?

CMC: This is one of the areas where it's really focused and formed by public opinion. That's why this product stewardship definition proposed by the Product Stewardship Society of including the *societal* impacts of a product becomes so important to consider. These societal impacts will help our government, either local or federal governments, responding to these customer needs and customer requests for things like recycling. And I think we see a real intersection there of how society feels as a whole and how the governments and local legislations have implemented, especially things like recycling programs.

LLB: Another question occurred to me when you were talking about your responsibilities in your former employer, and that is, I would imagine that your team in the Product Stewardship Department may not in all cases agree on a pathway forward. How are issues, some of the issues that we deal with as chemical stakeholders and product stewardship aficionados, are not cut and dry. These are emerging areas. How did you deal with a lack of unanimity or alignment on a particular issue? Did you just talk it out and make recommendations and let the employer figure out the next step? Or did you have a problem-solving protocol within your ranks as product stewards?

CMC: Yes, of course we did. I think the role of the product steward, as I mentioned, was to facilitate this communication and data gathering. But at the same time, that facilitation involves consensus building. We look at actually all of the information from the team, and the product stewardship folks are really people who are being the gathering point and the data management point for these teams. Typically, this consensus, as you said, you talk it out, you look at the data that you've gathered, you look at the information that all of your team members have gathered and come to a consensus on what you believe the best path forward is.

LLB: I think another challenge -- I know as a chemical stakeholder and counselor to chemical companies and others in the community -- just managing the tsunami of information that we are all confronted with from the multiple reliable sources on which we rely is tough. Now, given the extraordinary advances in chemical detection methodologies and just the

explosion of interest in what might be a cause of adverse human health or environmental safety, how do you recommend product stewards prioritize and manage information?

CMC: Lynn, you're right. The only constant right now in the product stewardship area is change. Not only, as you mentioned, are analytical methods constantly evolving, even adding artificial intelligence to some processes. But the public, as we mentioned, has become much more involved in seeking information from product stewards. So having this source of information readily at hand is really important as part of our product stewardship duties. The first step in this application is to look at the data that we have and pick the best available data based on science. This is an essential tool for a product steward in order to prioritize and manage information. Data come in all forms and sizes, and assessing data in the context of the known conditions of use, considering what known exposures and best practices are as a manufacturer, is really the way to make safety protections most paramount.

Once that basic organizational data and safety data are gathered, it then becomes the professional obligation of the product steward to work on a data management plan. Now, this data management plan can include, as you mentioned, tools and data that are available publicly, as well as internal data that a manufacturer might have on hand. It's important to keep abreast of relevant *new* information as well, so there has to be a way to track changes in government, changes in legislation, and then the interaction of these product stewardship teams within the business teams to gather data that may come in from customers and consumers is really important as well.

As soon as we have all of these data in one place, typically in some sort of enterprise IT [information technology] system, then we can look at the business objectives for a particular product and understand how soon these objectives must be met in a particular region worldwide. Armed with all these valuable data and information, product stewards are then able to prioritize and manage information most effectively.

LLB: Sounds sensible. Having all of those internal tools -- an enterprise system along the lines -- is that something that you would expect any enterprise would have or any company? Or is that largely delegated to larger institutional corporate multinationals?

CMC: No, larger companies certainly have more sophisticated systems than small ones, but even small companies have a way that they can manage data and information. Of course, they need this information to provide government reporting, to prepare safety data sheets. So even a small company has some way typically that they electronically manage data, whether it's receiving information and new information or compiling and preparing information to send out to their customers and stakeholders.

LLB: A lot of people -- and I'm one of those people -- think that not only is product stewardship a business necessity and a societal imperative, but it's also an opportunity for competitive advantage. And I would imagine in your prior roles, seizing the elements of product stewardship that can promote competitive advantage is something that is a good selling point for incorporating a product stewardship department in a business enterprise. Do you agree? And how might that advantage be gained?

CMC: Yes, I do agree, Lynn. And there's a few different ways I think that that advantage can be gained. Of course, product stewardship now is in the modern business atmosphere where we're combining elements of communication in the supply chain, but also customer expectations. Companies sometimes establish competitive advantage by implementing corporate citizenship components into their product stewardship programs.

And we've talked about these. They may be things like using materials that safely biodegrade, reducing waste through recycling, and also considering environmental impacts in developing inventions and infrastructure. But that's not the only way. Manufacturers also have the greatest ability and therefore also the greatest responsibility to enhance and embrace the positive impacts of their products. Companies that are accepting this challenge are recognizing that product stewardship can represent a substantial business opportunity and competitive advantage by rethinking their products, their relationships within the supply chain, and the ultimate consumer. Some manufacturers dramatically increase their productivity, reduce costs, and provide new market innovation.

Of course, during COVID, lots of companies were forced to do this as different points during the supply chain, and different transportation points were blocked or considerably slower than in the past, and they really had to innovate and provide customers with more value, with more challenges as well. In terms of just health and safety, another societal influence, of course, is reducing the use of toxic substances, which lots of consumers are concerned about designing for reuse and recyclability, and if that's not possible, perhaps creating takeback programs.

These are just a few of the opportunities for companies to become better environmental stewards of their products. In the 21st century, lots of forward-thinking businesses have recognized that these corporate citizenship programs enhance productivity, make their workers feel more connected to the processes, and also can result in a competitive advantage by increasing stakeholder wealth.

But also, at the same time, government shares some responsibility for increasing product stewardship values. As we mentioned, with recycling programs and other coordination and collaboration among states and governments and industry, this kind of inner government and company relationship is becoming more and more commonplace. This helps governments bring products to market and address society concerns. Product stewardship programs now become based on more than just what a particular use is. They're based on the concerns of customers, various public- and private-sector stakeholders, as well as government legislation as a basis for considering what their competitive advantages may be.

LLB: That was a great answer, and it caused me to wonder, in your prior roles, was there any serious consideration with trying to develop in a more meaningful way that public-private partnership? We have as -- if you've listened to *any* of our prior podcasts, especially Dr. Engler and I have spent a lot of time really thinking about how can we emphasize the societal benefits of new chemistries that are of a diminished risk sort and urging [the U.S. Environmental Protection Agency] (EPA) to be more mindful of the diminished risk part as an element to incentivize the commercialization of new chemicals? And yet, the opposite is happening under revised [Toxic Substances Control Act] (TSCA), where new chemicals are at a competitive *disadvantage* vis à vis their existing incumbents, largely because the barriers to commercialization are much higher for new chemicals as opposed to existing ones.

I know I'm going off here on a personal interest of mine, and that is urging the government to truly incentivize in more meaningful, demonstrably efficient ways: commercializing new chemicals, as a means of advancing product stewardship and advancing the growth and commercialization of diminished risk chemicals, and lightening the load for new chemical entry so that market barriers are not as significant as they are. I see that as an element of product stewardship, and maybe companies can be more insistent that we can all do better in providing more specific business incentives as a means of product stewardship, not as a

means of just interpreting TSCA one way or the other. What are your thoughts on that, Catherine?

CMC: That's a great point, Lynn. And what we know, of course, in the case of EPA is that their internal pressures to be able to review new chemicals and meet the requirements that *they* feel that they have internally has provided a real hurdle for customers and for businesses that want to implement new chemistries, or these recyclable contexts, because EPA feels that they have this set of data that they need to have available and complete before they are ready to promote some of these new innovative ideas. And it's really a catch-22 because I believe they have the same societal pressures that manufacturers are facing. They're hearing the same things from their stakeholders, but they have not really adapted to a 21st century model, where they can quickly and carefully at the same time promote these new innovations that are becoming really more commonplace. So that's the challenge for EPA, and that's where manufacturers have an opportunity to advocate their views to EPA, because EPA is certainly hearing them from other sources as well.

LLB: In your new role here as Director of Product Stewardship, how do you think you will assist clients in addressing the nuts and bolts of product stewardship? For example, if a client called you today and said, "We need some help in creating a product stewardship department or functionality within our company." What are the two or three things you might suggest right out of the box?

CMC: Sure. Well, it's certainly a big area, and it's not an easy answer, but really a discussion of business goals focused on markets and countries where the client would like to promote their brand or product is just a basic understanding that a product steward needs to have. This understanding of the business objective helps to direct a product stewardship program that can solve problems and provide value to the organization. Of course, having a broad product category expertise, as our team does, devising effective solutions, particularly if one of the business goals is a worldwide product stewardship program, is an area where I would be able to assist clients in these product stewardship functions.

LLB: I know one area that many of our clients are looking at really hard now, and this is only going to become more challenging as the months click by, and that's in the area of [per- and polyfluoroalkyl substances] (PFAS) and trying to understand your supply chains in a way that will enable you not only to be compliant with a growing number of local, federal, state, and international regulatory prohibitions on the use of PFAS, however that term is defined, whether it's the 6,000, 7,000, 8,000 that the new EU program includes or a smaller number, but nonetheless a huge number of chemical substances that are thought no longer to be viable in a commercial setting. Given their ubiquity in the supply chain, the difficulties in identifying what a source of a PFAS might be, as a product steward, what do you advise if you have PFAS in your supply chain? How do you just go about dealing with that issue? Because it's only going to get worse as the years go by.

CMC: You're right, Lynn. And there's thousands of PFAS chemicals, as you mentioned, based on what definition of the particular chemical you're looking at, and they're found in so many different consumer, commercial, and industrial products. This group of chemicals has been widely manufactured since about the 1940s because of their useful properties. And while some PFAS chemicals have been more studied than others and in relation to specific chemistries versus the group, overall they're described as forever chemicals because of their breakdown so slowly in the environment and sometimes that they build up in the environment over time. As you mentioned, some individual PFAS have already been removed from commerce or replaced in recent years. But for some of them, they're still in

the supply chain, and they've been there for so many decades that it makes it challenging to assess the health and environmental risks of these chemistries.

One of the challenges is knowing where substances *are* in use and at what volume, and that's where the product stewardship team comes in. We have many resources to understand where PFAS remains in these products and how to determine appropriate actions. We look at the data in terms of the most recent science, and EPA, as well as state and local authorities, may have also set standards that we need to look at in the science-based data. Are there limits that communities or governments have set that we may need to comply with? In the United States, for example, drinking water standards are in place in most communities, and the Consumer Product Safety Commission (CPSC) also has taken interest in this and developed a hotline and a website for household consumer products. U.S. government agencies have devoted time and effort to keep guidance on PFAS friendly and easy to understand, but at the same time, we're becoming more and more highly regulated. In terms of societal influence, even food suppliers, like McDonald's and Burger King, have publicly committed to phase out these PFAS. But practically speaking, how are we really going to do that?

LLB: Right. That's exactly the issue. How?

CMC: That's where the product stewards and teams supporting producers of products containing PFAS are facing all these pressures on so many fronts. One major manufacturer, for example, has already announced that they plan to discontinue PFAS across their entire product portfolio by the end of 2025. But what that means is we have to develop a substitute that has the same useful properties. This identification of PFAS in the portfolio and the consideration of replacing it with something that has similar functionality is a real challenge, before any kind of reformulation or process modification can occur. Of course, we have to think about reformulations that become necessary because of restrictions or because of a particular standard or threshold, and even restrictions from societal pressures, like the one I mentioned from McDonald's or Burger King. Staying up to date in this ever-changing area is really important for product stewards, and it's a real challenge. I think we're going to have to see over time how this develops and what new useful chemistries come about as a result of this devoted effort to try to reduce PFAS in the environment.

LLB: That's a great segue, Catherine, to my last question before I let you go, and that is you had mentioned the CPSC has a PFAS hotline, a fact that I was unaware of, so that's good to know. But where else do you direct people, clients and others, who ask you for resources on product stewardship? Are there are a couple of websites or organizations that you might direct our listeners to to help out if they're thinking about developing that functionality in their company, or perhaps themselves becoming a product steward?

CMC: Sure. And of course, as you mentioned, Lynn, if you have a particular interest in a chemistry or a particular use or a manufacturer, everybody loves Google, so we all know how to Google something on a particular chemistry.

LLB: True that. We all know Google.

CMC: I don't think there's a real challenge if you want to find data. As you mentioned, EPA, the CPSC, local governments all have great websites if you have a particular chemistry or chemical that you're interested in.

But in terms of the profession, that's something quite different. So internally, for people who are interested in becoming product stewards, there are a number of professional societies which support and even provide certification for product stewardship programs. The Product Stewardship Society, as an affiliate of the American Industrial Hygiene Association, is a society specifically focused on this profession. They have trainings and even certifications, conferences, webinars to help develop particular skills for product stewards and help them be most successful in their career. There are other organizations as well, like the Society for Chemical Hazard Communication, whose goal is to promote product stewardship, perhaps more focused on SDS generation and regulations specific to certain chemistries. And of course, our companies, B&C and Acta, provide excellent tools and resources for product stewardship.

LLB: Thanks for that shout-out to the Product Stewardship Society. We -- I keep saying we. As a former member of the board, we worked awfully hard on creating that credential, which is a very achievable and very marketable credential to have. For those of you that are not familiar with the Society, please go to the website, Product Stewardship Society, and look up certification. And as Catherine indicated, getting trained and getting that certificate is a huge help in enhancing the rigor of any internal product stewardship functionality, and it's an exceedingly marketable skill.

Catherine, I can't tell you how happy I am that you've joined our team. You are a just excellent professional in this space. You bring so much value to both our team and the clients who are fortunate enough to work with you. And thank you for being here with us today. We learned a lot.

CMC: Thank you, Lynn. I'm pleased to be here and happy to support any client concerns and put my expertise to work to address any product stewardship issues.

LLB: Great. Thanks, Catherine.

CMC: Thank you.

LLB: Thanks again to Catherine for speaking with me today about product stewardship and the role of product stewards in industrial chemical operations.

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