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(technical difficulty) Before we get started, please note that this presentation contains estimates, projections and forward-looking statements on this slide, and we'll refer to our annual and quarterly reports filed with the SEC for a full disclosure of those risks and uncertainties. We'll also refer to non-GAAP measures. A reconciliation to the most directly comparable financial measures and other associated disclosures are contained in the presentation materials, which are available at mineralstech.com in the Investors section.

Thank you for the opportunity to present Minerals Technologies to you today. We have representatives from across the company presenting, and you will have time to ask questions at the end.

Now I'm very pleased to announce Doug Dietrich, our Chairman and CEO.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Thanks, Lydia. Good morning, everyone. We have a lot to share with you today, and I can speak for everybody from MTI. We're really excited to do that today. Over the next few hours, we want to give you as deep an understanding of the company as possible. We'll take you through how the company has transformed over the past several years through our -- through the execution of our strategies. We're going to get you deeper into our technologies that are core to what we do and demonstrate how we've positioned ourselves to drive sustainable revenue and profit growth, and how that translates into value creation.

Underlying all of this, you'll hear today about what makes MTI unique to our customers, stakeholders and to you, our investors. You'll learn about how we run the business and the deep-rooted culture that supports everything we do, about how we apply our core technologies, about our broad mineral reserves, about our strategies, and how these elements combine to create a uniquely sustainable and valuable investment. First, to kick things off and set the stage, let me play a short video explaining the role MTI plays in people's lives every day, everywhere.

(presentation)

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

While informative, the video only tells part of the MTI story. But it also outlines why we're here today. Many of you may not have been aware of just how ingrained MTI is in your everyday life and in many meaningful ways. From the time you get up in the morning until the time you go to bed, you either use products we make, use products we are part of or use items that help our customers -- we help our customers manufacture. We're unique in how we can deliver technologies, products and expertise across different end markets. And today, we're going to explain how.

Let me quickly go through the agenda for today. I'll start by giving you some background of the company and reorienting everyone to our new segmentation. We have a group of technical expertise. Experts here from the company to demonstrate our core technologies and show you how we drive value through innovation.

Our segment leaders, D.J. Monagle and Brett Argirakis will take you through their businesses. We'll then take a short break. And when we return, we'll cover our ESG and sustainability goals and accomplishments. Then Eric, our CFO, will present how all this ties together with our 5-year financial outlook. Finally, I'll wrap it up, and we'll open it up for questions, which I'm sure you're all going to have.

With that, let's get started. As I mentioned, we're going to throw a lot of information at you this morning. But our goal is to make sure that you gain a solid understanding of this company and its intrinsic value. I'll describe our culture and business system and give you a perspective on how we think, how we engage employees in problem solving and how the way we operate the company provides a strong foundation. We'll present our four core technologies and how we have unmatched expertise that extends into many products, end products, processes and industries. We'll then explore each business segment and show how we are integral to our customers' success. We'll also share strategies and critical growth drivers for each. Together, this will demonstrate how MTI is uniquely positioned for the business model, a set of technologies and expertise, mineral assets and reserves and strategies to continue delivering long-term value. This is a combination, I think, people miss about our company. and a true understanding of these elements is what I want you to take away from the presentations today.

Over the past several months, you've heard me talk about our re-segmentation. I want to take you through the rationale behind it, and how it positions us to better support our customers and execute our strategies going forward. Some of you know us well and others are new to the story. But regardless, we have changed in many ways from the MTI we were 10 years ago when MTI was primarily in paper, steel refractories and construction products. In 2014, we doubled in size with the acquisition of Amcol. We added our bentonite mineral reserves and deepened our core technical expertise. It broadened our business portfolio, adding consumer-oriented products like cat litter and sophisticated industrial applications like environmental and water remediation.

Amcol was acquired for several reasons, but primarily because its technologies were synergistic with MTI. It had solid positions in many markets, and it provided us with new avenues for growth. Consistent with our strategy of moving into higher growth, less cyclical markets, we focused on growing the consumer-oriented businesses that we acquired. At the time, these businesses were smaller in size, but they were uniquely positioned in the market with technology and vertical integration. We analyzed them, developed growth strategies for the ones that had potential. We invested in them through new product development and organic capacity expansions and through several acquisitions.

We purchased Sivomatic, Normerica and Concept Pet to take what was then a \$75 million U.S.-focused pet litter business and grow it into a \$400 million globally positioned private label pet litter leader. We invested in personal care technologies, water remediation technologies and in edible oil purification. In addition, we used our core technical -- used our core technological expertise to extend our existing products into higher growth markets like packaging. Over the years, the portfolio transformed from one serving purely industrial markets to one being more balanced across both consumer and industrial markets. Here's how our portfolio has been organized over the last several years. We had our traditional carbonates

business as one segment. Refractories stand alone as a second segment and manage the bentonite businesses with the pet litter acquisitions together as a third segment.

We were organized based more on the structure formed through inorganic growth than we were based on market or technology. Towards the bottom of this slide, you can see the imbalance that's created. There was a mix of consumer and industrial products, similar technologies used in different segments. What this legacy structure lacked was the synergies and speed that come from sharing and leveraging these commonalities that were spread across the company. The current organization is set up to take advantage of these commonalities. Two segments, one product focused and the other process focused. Four product lines, each oriented by common markets, common customer types and the use of similar technologies. By organizing this way, we've created a simpler, faster and higher performance organization. It's also one that better reflects who we are today.

We're already seeing tremendous benefits from the new organization. It's -- first, it's easier to explain, but we're also -- we're already seeing faster decision-making, identification of common issues and better communication. The product lines have improved visibility to market trends, or leveraging supply chains and are identifying new product opportunities. New teams are being formed between colleagues, who before were in separate businesses or in different parts of the organization. New ideas are flowing, best practices are being shared. And that's all in the first four months. We're just getting started.

Now I want to bring you a little bit behind the scenes at MTI. Because to truly understand everything else you'll hear today, you first need to understand our foundation, which is made up of our business system, our passionate people, our mindset of continuous improvement, our values and our core technologies. This foundation supports everything we do. It's structurally sound, a solid footing on which to continue to build and its main part of what differentiates us in the marketplace.

The first part of our foundation is the MTI business system. We operate and structure the company in a very systematic way that drives accountability, performance, process excellence and efficiency, while at the same time maintaining and reinforcing our culture. At first glance, it may not seem much different from other companies, but our system is uniquely designed to engage the employee base to both clearly align everyone with goals and objectives and importantly, clearly define how we want to go about achieving them. We operate somewhat like a portfolio holding company giving our operating segments the resources they need to run their business. They have full accountability for their P&L, return on assets and business strategies. Our Corporate Resource Units are set up to provide functional expertise and common policies across the company and ensure that we have the best information and processes to support the businesses. Resource units include HR, corporate finance tax, corporate communications, et cetera.

These are functions that are most effectively and most economically provided centrally instead of replicated in each of the businesses. Our Global Business Services group is a key differentiator for MTI and something that is rare to see in a company our size. This organization executes our transactional activities, accounting business analysis, payroll, et cetera, through standardized processes to ensure efficiency and best-in-class service at the lowest cost. Any transaction in the company that's repeatable or common is put into GBS and standardized. The team members are located around the world in each region, and they provide these services 24/7. Another distinct but not well understood aspect of our company is that we operate on a single instance ERP system, which provides transaction standardization, control and compliance across the company. It also provides us with speed. An example of this is that we close our books each month in 2 days, where it can take another company -- other companies of our size over a week. That's world-class speed, and it gives us the advantage of being able to understand the financials quickly and make necessary operating corrections early to ensure we hit our targets.

Our Lead Team structure is distinctive. These are the teams that drive the culture at MTI and establish the basis for how we want to go about doing things. Each lead team is sponsored by an executive and includes employees from across the company. These teams meet monthly at a minimum and ensure that standards are established and that each business or function is meeting them. No matter where you go at MTI, our approach to health and safety, operational excellence, new product development, sustainability, diversity inclusion, mining and expense control are all uniform. The standard is set and performance is monitored by these lead teams. And as I mentioned, employees from around the world are members of these teams. So policy deployment and performance monitoring happen quickly. This is part of why our culture is so firmly embedded around the world.

This business system and more importantly, so how deeply it is deployed is unique in the marketplace. It provides full business accountability in a lean and efficient way while maintaining a robust and uniform culture. Additionally, it's scalable, enabling us to leverage the model as we grow organically and deploy quickly to integrate new acquisitions. In short, it's a great way to run a company.

Let me start with safety. Safety is a key foundational element, and we talk about safety at the beginning of every meeting at MTI for a reason. It's the singular most important thing for all of us. Every employee wants to work in a safe environment. It doesn't matter if you're located at one of our mines, at a plant, in an office or at a lab, remaining safe at work is above all else. At MTI Safety is everyone's job from the Board of Directors to our colleagues on the plant floor. We look out for each other to ensure everyone goes home safely. It starts with our culture, the mindset and belief that an injury workplace -- injury-free workplace is achievable. Our EHS lead team establishes a robust management system across the company designed to engage employees in safe practices.

They help employees to take the time to see risks, not pass them by. We deploy continuous improvement tools, analyze workplace processes and reengineer them to remove potential risks. You can see from the chart that we've made significant progress over the years, driving our safety performance to world-class levels. In fact, 85% of our sites have operated injury free for multiple years. Each of these sites is an example and a reminder that a zero-injury workplace is achievable.

Let me move to operational excellence. Operational excellence and the spirit of continuous improvement are embedded in our culture. More than that, it defines us. Many companies employ OE, but few truly achieve establishing it as part of their culture and can engage every employee in its use. For those who don't know, operational excellence is a set of tools and behaviors, that drive continuous improvement mindset in everything you do every day. By striving to do things in the least waste way, we constantly look for opportunities to do things better. Whether it's a manufacturing or a business process, we use these tools to drive wasteful time out of our employees' tasks.

Operational excellence is foundational at MTI, and every employee is trained in how to use these tools. When an opportunity is identified, we conduct a problem-solving event called Kaizen to dissect and redraw the process and start to finish in a more efficient way. We then standardize the process to lock in the improvement. As conditions change, as they will, over time, we'll refine the process again through another Kaizen event and further -- and lock in further improvements. This process happens over and over and over and over at MTI. It's in constant use, not top-down directed, but spontaneous. It's happening everywhere, every day across the company.

Part of continuous improvement is leveraging suggestions. Our employees have great ideas and to capture them, we have a robust suggestion system where we take ideas from employees around the world. We treat these suggestions as gifts and deploy them across the company. This is a key part of employee engagement at MTI, and we generate enormous benefits from these suggestions and celebrate the successes. Another tool we use is Hoshin Kanri. This is a rigorous process of deploying our objectives across the company, aligning each business and function with our goals. It deploys a plan-do-check-act process, which enables us to stay on course with our goals and make small corrections along the way to ensure we hit the target state. It's what makes us agile and able to react quickly if conditions change.

At MTI, we have 100% employee engagement around our OE culture. We all speak the same OE language and every new employee, including those who joined from acquisitions are trained to use the tools. But one of the most essential parts of OE is a recognition and reward system. Saying thank you is important. And we give small spontaneous thank yous to employees in the form of a Bravo chip, which looks like this poker chip. I think you each have one of them at your seat, which has a small monetary value. To show how deeply OE is embedded at MTI. Last year, we conducted 8,900 Kaizen events. We collected 65,500 suggestions and said thank you, giving 11,500 Bravo Chip recognitions, not bad for a company with 4,000 employees. This level of OE deployment and employee engagement is unique. It's what enables us to operate more efficiently and react more quickly than our other companies.

It's easy to describe OE, but it's very hard to do at this level. Sustainability is the next foundational element. It's not new for us. It's been a passion and focus for a long time. As a matter of fact, our first sustainability report was issued back in 2008. Sustainability is not just a check-the-box exercise at MTI. It's ingrained in our values, embedded in our strategies and drives how we operate and make decisions. It's a big part of our innovation pipeline, as you'll hear, it's passion of our employees, and we see it as essential to long-term value creation. MTI is being recognized for how we approach ESG. We continue to be rated in the top tier compared to industry peers by many external rating companies. We'll take you through more of our ESG initiatives and our progress later this morning.

Next is technology. Technology has always been a key foundational element. And in a moment, we're going to take you deeper into our four core technologies. Crystal engineering, functional additives, engineered blends and particle surface modification and explain to you how we develop solutions through their application. We'll show you how deep our knowledge is in these areas along with some of the cool things we do and the innovation -- innovative products we develop. But along with our technologies, it's our applications expertise that makes deploying them valuable.

Applied Technology is truly at the core and what enables us to create solutions for customers and solve challenging issues around the world. Supporting these technologies and applications, capabilities is our mineral reserves worldwide. We own world-class reserves in each region and with the longevity and quality to supply customers for many years. These three - our mineral reserves, our renowned applications expertise and our four core technologies are what lead to differentiated solutions, strong customer partnerships and our leading market positions. Together, these components form the foundation of our company. Our people, values and culture, our efficient business system, differentiated technologies, all wrapped together in a continuous improvement mindset makes for a powerful combination.

Okay. Before we move on to our businesses, let's first give you a better understanding of our technology, and what we do from a technology standpoint. Let's -- I think it's important that you understand this first to put everything else you're going to hear today in perspective. So let me hand it over to Jon Hastings, who leads our technology lead team. Jon?

Jonathan J. Hastings - *Minerals Technologies Inc. - SVP of Strategy and M&A*

Thank you, Doug. Good morning. Thank you for joining us today. I'm Jon Hastings. I'm Head of our Strategy and M&A group. I also chair our Technology and Innovation Lead teams, and it's in that capacity that I want to talk to you today.

Today, I'd like to introduce you to our core technologies as well as how we develop new differentiated products for our customers. We recognize innovation is a critical driver of growth and also profitability, and we'd like you to understand what makes us unique. Our innovation starts with the customer, and we spend countless hours talking with them. We understand their applications. We invite them into our facilities. We have them in roundtables, we solicit their input, we test ideas. We also visit their sites. And as you'll hear later on, we spend countless hours measuring their processes and trying to figure out how to improve their businesses.

We're world renowned for how we tailor our products to the unique needs of every one of our customers. Indeed, we deploy our core technologies to formulate new innovative products and processes that no one else in the world can deliver. For the next few minutes, we're going to walk you through each of the four technologies, and we want to provide you some examples of the technologies and use of the applications. Our technologies are supported by some of the world's best mineral reserves, also coupled with our MTI business system. Our innovation is a key tenet of MTI, and it's fueled greater than 2% incremental growth year-on-year.

Bottom line, we want you to understand how we add significant value to the minerals that we extract from our deposits. How we can change the crystal in structure, blend them in unique combinations, mix and create additives that impart unique properties to our customers as they use them or change the surface chemistry to functionalize the particle so they can be used to meet the stringent requirements of our customers. We're proud to do all of this in ways that no one else can do. And before I turn it over to the technologists, I want to call your attention to the right-hand side of the chart. Our technologies are truly differentiated.

And as a result, we have world-leading positions in almost every one of our businesses and segments. We have demonstrated the ability to rapidly create new and innovative technologies to introduce them to the market and commercialize them with significant impact to our growth and profitability. And over the past few years, we've increased our pace of innovation, and we have a broad portfolio of many new innovations yet to come. I'd like to introduce our key technologists. Sharad Mathur. He's going to explain our crystal engineering capabilities.

Dave Helmick, he's going to explain what we do when we talk about engineered blends. Mike Donovan, he's going to explain what we do with surface modification and Jerry Darlington, who is going to explain our functional additives capabilities. I'm excited to have our R&D leaders take you through these four core technologies. And while they're not the only technologies that we work with, we consider these four to be core to our business, core to our customers and where we have unique and differentiated formulations in the marketplace today, and we see exciting innovation for tomorrow.

Up first, we have Sharad, who's going to take you through Crystal Engineering. Sharad?

Sharad Mathur - *Minerals Technologies Inc., Director New Product & Business Development*

Thanks, Jon. Good morning. I'm Sharad Mathur with the Consumer & Specialties Business segment. I will describe to you the crystal engineering -- what is crystal engineering and how it adds value to our products, in diverse applications in consumer, health care, automotive, construction and paper and packaging markets. Crystal engineering is really a set of proprietary processes that we have that we use to control particle size, the distribution of these sizes and the shape to result in a target particle, which is needed for demanding applications. In many of these applications, minerals are used such as ground calcium carbonate derived from limestone.

And what I want to point out are the large particles and the very small particles and everything in between. Several applications demand that the particle size should be of a uniform size. And in these cases, we cannot separate the particle size here. And this is where crystal engineering comes in. For example, we take the same limestone, derive lime from it and react it with water and carbon dioxide to precipitate these crystals with the shapes that we want for the application, scalenohedral, acicular, rhombohedral or even spherical and control the size to which they should grow and even their aggregation so that the final product is tailor-made for the application.

Now I will share with you how this differentiating feature of shape, size, the control and the variation of size helps us in some demanding applications. So let me start with the consumer and health care market. So in this, on the left-hand side, you see examples of food items such as alternatives to dairy milk, soy milk, oat milk or baked item like bread, and here, we use our PCC to fortify this with calcium to meet the daily requirement that the body needs on calcium. We also use our PCC in pharmaceutical applications as an antacid, where it is the active ingredient or as an excipient or inactive ingredient and other pharmaceutical tablets there.

The shape that we have found to be the most suitable is a rhombohedral shape, and this is the range of particle size that works the best so that when you eat the bread or you drink this oat milk, you get a smooth texture in your mouth and not a choky or grainy feeling there. Another important item related to all these things that we consume as humans is the purity. So these are regulated by FDA and crystal engineering allows us to achieve this purity in our PCC, easily compared to other ways of making this product.

I will now talk about a different market here, automotive and construction. So you see those examples of construction and automotive, where our PCC goes for polymer reinforcement or it's going into a sealant application. And in these applications, again, the same rhombohedral crystal. But what is -- the major difference here is the particle size. This particle size is 125th or 100th of the size that you saw in the previous slide. Why? In polymer reinforcement, any mineral will give improvement in stiffness, but the downside is a decrease in impact resistance, which is when a polymer part is shocked, it will crack. However, with this extremely small particle size, the impact resistance actually increases. So it's not a question of one versus another property, but both properties are enhanced by the use of our PCC. In the sealant application, these extremely fine particles build up a 3D structure, and this helps prevent the sealant from sagging or flowing when it is just applied before curing.

However, during the application process, this structure easily breaks down for ease of application. So now you can see some really differentiating features of the design of our PCC particles on shape and size there. And I'll illustrate it further with this paper and packaging market applications. Here, PCC is used in our filling application and coating application. An example of the filling application is the copy paper that we use in our everyday lives. 20% of this paper is PCC, which means 5 pounds of copy paper contains about 1 pound of PCC. And the PCC crystal that we have found to be the best in this application is finally a different shape, scalenohedral.

So these little scalenohedral crystals, we control the process to aggregate to a defined size. And it becomes a rosette structure. I'm sure you are familiar with rosette structure in daily lives with roses, of course, and other plants. And a key property of the Rosetta structure is in closing a lot of this space. And what that does is that it provides bulk to the paper. And why is that important? Because copy paper is sold on volume. So higher bulk means the paper maker can use less fiber to sell this paper resulting in cost savings for the papermaker. The same space, which is generated here also scatters light back at you and the improvement in brightness and opacity is there from the paper.

The same space or voids also collect the ink when ink is applied when we are printing on this paper and allow the ink particles to set on this paper, giving us the nice printability. And this has -- this also goes in the case of packaging, where, again, this paper is used. It's the same kind of filling

application. This white top box, which you are familiar in everyday lives whether you get this at home in an Amazon box or you go to Costco or Sam's or any other store, and there is print on this white box, of course, on pizza box, this is almost all white. So that's an application of filling in packaging. We can further enhance the printability through coating such as on this Barilla box, and by the way, in all these examples, it is our PCC, which is used. So our PCC is used in this coating, and it's a different crystal because what we found to meet the demands of the coating application in terms of the process where there's high share under a metering device and also excellent coverage that is required to give better printability and sheet optical properties like gloss and acicular crystal is needed.

So we have designed this for the coating application. Not only that, in addition to our core competency of core technology of crystal engineering, we have a core competency in on-site satellite plant with a proprietary manufacturing technology, so we make this product at the paper mill site, and we consume the carbon dioxide generated at the paper mill site to precipitate the calcium carbonate or PCC there. and this consumption of carbon dioxide, as you know, results in sustainability.

In recent years, there has been a mega trend around sustainability. Our customers are aligned on sustainability, and what we have also done is use waste streams generated at our customers and created a platform called NewYield, where we combine our expertise in crystal engineering, application know-how and on-site plans to create customized products at the mill side for the customer there. And this helps with circular economy, sustainability because the customer now does not have to put this waste product into a landfill or in some cases, maybe avoid the construction of a new landfill, so we are helping our customer in both the circular economy and sustainability here. A customer of ours Navigator actually has put our company, MTI, in their last two sustainability reports, recognizing us for our efforts.

And with that, I hope I was able to excite you with the crystal engineering core technology, and how it adds value to our products.

And with that, I will also now pass it on to Dave Helmick, who will talk about Engineered Blends. Thank you.

David Helmick - *Minerals Technologies Inc., Global Director R&D*

Thank you, Sharad. Good morning, everyone. I'm Dave Helmick. It's a pleasure being here. I'm excited to be here.

Our next core technology is Engineered Blends. And I'm going to start off with first defining what that core technology is. Engineered Blends is the expertise. It's actually our expertise and understanding of the interaction between the blends of ingredients that we manufacture and the customer's application conditions. So why is that important? Well, our customers' application conditions are very harsh, so harsh, so hot that it causes our blends to undergo chemical reactions and physical transformations. These chemical reactions and physical transformations are the critical part of our design. It is the engineered and engineered blends.

So our Engineered Blends for foundry applications utilize a large variety of ingredients with very specific purposes. Examples of this are sodium bentonite for high-temperature durability, calcium bentonite for strength. And there are other specialty ingredients to create a reducing atmosphere for preserving our customers' metallurgy, others for moisture retention and so on. These ingredients are then expertly blended into over 300 variants to meet all our customers' needs, whether it be cost savings, reducing scrap rate, we're increasing recyclability. These blends are then further blended by our customers and formed into molds and liquid metal is then poured into these molds creating the chemical reactions and physical transformations as part of our Engineered Blend design to produce products like this automotive steering component.

Not only does our engineering blend allow the precise casting of this component into the shape and size needed but it also preserves our customers' metallurgy, provides the surface finish that is needed for the performance of this component. Like our foundry blends, our steel blends are made up of a large variety of ingredients as well. Ingredients like magnesia, alumina, chemical binders and property enhancers and so forth. These blends are then applied on the inside of a very hot furnace. Operating temperatures of 3,000 degrees Fahrenheit or even higher, where once again, they undergo chemical reactions and physical transformations as part of our product design. This is what our engineered blend looks like from our manufacturing, and this is the same blend after the chemical reactions and physical transformations. These changes produce a durable, corrosion-resistant, erosion-resistant insulating layer in a very harsh environment.

Also our steel-engineered blends are specifically designed to be applied in automated equipment, enhancing safety and performance. Our engineered blends are further enhanced by our technical and application support. This adds a whole different dimension to our engineered blends and makes a major impact for our customers. For both our foundry products and our steel products, it really starts with their dedicated and talented technical staff. As it continues with the integration of our foundry customers with our own processes, ranging from blending facilities and close proximity to our customers, to the over 10,000 customer samples analyzed in our laboratories every year, to our ability to rapidly tailor our formulations to our customers' needs.

All of this points to our very intimate knowledge of the foundry processes. In the steel industry, we have about 400 MTI employees full time at our customer sites, maintaining our customers' furnaces, providing material, equipment application and laser measurements, providing a fully integrated on-site support and maintenance of our customers' vessels, and we are the only producers of calcium metal in the Western Hemisphere. So you've heard me mention a few times now, our automated equipment and automated application of our materials. What I was referring to is our robotic equipment, we call Scantrol that we've designed.

Our Scantrol is a large-scale robotic arm, you see in the photo here that integrates our laser measurement system with our automated refractory application system. So why is this important? Well, first, it improves safety by getting everybody off the shop floor and out of harm's way. It improves the application process. It provides more data for better data-driven decisions, and ultimately, it extends the life of our customers' furnaces and increases their availability. The future of Engineered Blends is automated.

So that's my summary of Engineered Blends core technology. I hope my excitement for this technology is apparent and along with my excitement about automation and our technical support. So thank you, everyone.

I'd like to introduce my friend and colleague, Mike Donovan, who will be discussing our particle side -- particle surface modification.

Michael Donovan - *Minerals Technologies Inc., Director R&D Cetco*

Good morning, everyone. My name is Mike Donovan. I want to start out by thanking you for coming here and spending some time with us today.

So I'm going to be talking about how particle surface modification strategies can help our customers solve their problems. But before we talk about the modification of the particles, I want to talk about the particles themselves. So we are one of the world's largest suppliers of sodium bentonite clay. So this little cartoon at the top part of the slide, that's where our clay platelets look like on a sort of a molecular level, like little platelets, Think of them like cards in a deck of playing cards. Each one of those cards in the deck is 1 nanometer thick. So just to kind of put that in perspective, you could take 10,000 of those platelets and stack them up, and that's basically the equivalent of the thickness of a human hair. Now the platelets have an aspect ratio.

There are thousands of nanometers long and wide and because they're so small, it has tremendous surface area, and we can take advantage of that surface area. The other cool thing about our minerals is that they carry an electrostatic charge. So if you imagine my hand is the platelet, it's kind of decorated with negatively charged sites. So when the clay gets wet, we sell sodium bentonite. So those negative charges are associated with a sodium ion. The sodium ion dissolves, the clay platelets can repel one another and disperse in water. So it's really useful for things like drilling muds and kitty litter. So we can use our knowledge of chemistry to functionalize the clay to make it do new things. We could use flocculation agents, polymers, surface active agents, and that affects a lot of the properties of the product.

We can affect Rheology, we can change the way it absorbs materials. We can change the physical properties like the hydraulic connectivity or the rate at which water flows through. And all of this is really supporting our businesses in drilling, waterproof - waterproofing, water remediation and environmental remediation. So the first particle surface modification strategy you're going to cover is our flocculation agents. So I mentioned those platelets have a negative charge. So think of them like little magnets. They want to repel one another. We can kind of counteract that with a flocculation agent, which is depicted by these little purple circles.

And they carry a positive charge. So if you remember from the physics class, opposite charge attracts. So these opposite charges from the platelets and the flocculation agents could come together. And if there's waste present, you can encapsulate waste. So we're going to do a little demonstration

for you today. So imagine you're a company and you're printing on cardboard and you're using an aqueous-based printing ink. And you're going to have ink waste to deal with and you can't take that waste and just kind of put it down the drain. You have to purify it. So you have a couple of options. One option is you can work with an external company and they can treat your waste for you, and that's kind of expensive or you can work with us and we can tailor make flocculation agents to remove the waste from solution.

So it's a pretty simple demonstration. And all we really need is this a little bit of our -- this is called our RM-10 flocculation agent. And what you do is you put the material in the water and when you put some energy into it. That energy kind of disperses the clay platelets and the flocculants dissolve, and you could take that waste and basically make flocs that can hold it up, so you can see -- so now we have a nice clear water. And what the customers do is they filter the flocs out, and that can go to a nonhazardous waste landfill, if you want to pass it around [choppy]. So the flocs can be filtered. And a lot of times, they're nonhazardous. So that material can go to a nonhazardous waste landfill and the water can either be recycled or it can go to a public water treatment facility.

So we have over 100 different formulations of RM-10 materials designed to remove things like heavy metals, solids, oil and grease. And so we sell these products around the world to keep our water clean and our people safe.

The next particle surface modification strategy I want to cover is polymer amendment. So our polymer is represented by this green kind of long squiggle. So the polymers we use are water-soluble. And what they do is when they hydrate they kind of wrap around the clay structure, almost making like a spider web. And what that does is it actually imparts better hydraulic properties to the Clay. So the rate at which water flows to the clay slows down. It also gives the clay more salt resistance.

So as the salt concentration goes up, the chemical resistance of the clay kind of decreases. So they kind of work together. And we can use our knowledge of polymer chemistry to design how polymers interact specifically with the clay and that's really important for waste storage. So what our materials do, we can incorporate those in geosynthetic materials by needle punching, and we can help our customers meet the regulatory requirements of storing their waste. We make these products in three locations around the world, one in Lovell, Wyoming. We have a plant in Poland and another in China. And we really kind of tailor make these materials for the specific type of waste.

So every year, we get in 200 different water samples, over 200 water samples, and we find the right combination of clay and polymers to deliver the properties that the customers need. So this is really important in the area of things like coal ash waste storage, red mud storage in producing iron or aluminum. We can make GCLs or Geosynthetic clay liners that can store things, acidic leachate from copper processing. And what it does is actually our products look like large rolls of carpeting. If you look closely, you could see those stripes. Each one of those stripes has an individual role. And that basically prevents water from percolating in the environment, keeping your drinking water safe. The other thing that geosynthetic clay liners do is they actually prevent a failure of the cell wall of the landfill wall because if water escapes, it can soften the soil and over time, you can have a breach in the cell wall and you can have an environmental disaster. So our products are really -- there's a couple of different ways that can protect the environment.

The last particle surface modification strategy I'm going to cover is surface-active agents. And so what we can do with surface-active agents is reprogram the clay surface to do new things. So a surface-active agent is kind of depicted by these little red chevrons. One end of that little molecule has a positive charge.

So basically bonds at the clay surface, and we can tailor the chemistry of the little functional groups to bond with specific types of waste. So we can convert something that's originally hydrophilic or water loving, to something that's only oleophilic or oil loving. A good example of that is our FLURO-SORB material. So we've specifically designed the surface treatment of the clay to absorb PFAS. So what's PFAS. I'm sure you've heard about PFAS in the news lately, these are the forever chemicals. PFAS is an acronym for per and polyfluoroalkyl substances. So these are fluorinated compounds that have been around since the 1950s, and we're just kind of realizing their health effects.

So if you use things like nonstick cookware, stain-resistant carpeting, pizza boxes, there's all sorts of makeup. There's all sorts of materials that have PFAS in it. And these PFAS, they can get in the environment and get in our water supply, get in our food and ultimately end up in our body. Everybody in this room has about 6 parts per billion of PFAS in their bloodstream right now. And what they're finding is it can cause health effects to certain

types of cancer issues with the immune system. So the EPA and various governments around the world are starting to regulate PFAS in drinking water. In fact, some of the new limits and some states are already regulating PFAS are in the low parts per trillion range.

So what's a part per trillion? So it's kind of another thing. It's kind of hard to conceptualize. But a part per trillion is 1 drop of water in 20 Olympic swimming pools, very hard to even detect chemicals in that concentration, and one of the really amazing things about our products is they're really good at removing PFAS. So -- and it's partly because of the structure. So I mentioned that platelets structure. So the PFAS chemicals can bury themselves inside the structure and because those platelets are not permanently linked together, they can expand and accommodate more of the PFAS. And that gives us a big advantage. So shown on the picture is a vessel where they're filtering water. The customer is using carbon compared to our material, activated carbon is really good, but our material can actually absorb 3x more PFAS, and you can flow water 5 to 10x faster. So we have a big advantage. In fact, there's other media in the market called ion-exchange resins and ion-exchange resins have similar performance, but they're much more expensive. So the other kind of cool thing with our product that we can do is we can change the size. So we have these little piles of different materials. We can go from 100-micron size powder all the way up to a quarter in size granule and do different types of work with them. So this last slide kind of covers the versatility of our products.

So if you look at the cartoon on the right: -- customers, what they want to do, sometimes there's contaminants that are in the soil and they want to lock those contaminants up. And that's done by a process called in-situ stabilization. So that truck would take our powdered material and mix it with the soil to prevent contaminants from getting into the environment. You can always do that by suspending the powder and water and directly injecting it into the soil to do the same thing. So let's say the contaminants already escaped, and it's in the groundwater. One of the ways you could treat that is through pump and treat. So you take the contaminated water out of the ground, you filter it through our vessels, and you could put the clean water back into the environment. So you're essentially washing the soil.

If, for example, that groundwater plume is intercepting a sensitive reservoir like a lake or a water body you can cap the sediment with our needle punch products, and we call that product Reactive Core Mat, that's a permeable reactive barrier. So as the contaminated water flows through it, the contaminants are removed. So we have a whole host of different ways of helping customers protect the environment, and that is -- that's where I'm going to conclude. I want to thank you again for your time.

And I'm going to introduce my colleague, Jerry Darlington, and he's going to cover Functional Additives.

Jerry Darlington - *Minerals Technologies Inc., VP Research & Development*

Thank you, Mike. Good morning, everyone. My name is Jerry Darlington. I'm both honored and pleased to be talking about Functional Additives.

In Jon's opening remarks and several of our colleagues here, they talked about the importance of the customer, the voice of the customer, and it's especially important in functional additives. And I would even say it's a little bit different. In most of the other three areas, we talk about our products. In this area, we really talk to the customer, and we build a product for them. So we often times make a product that's new for that specific customer with new attributes and new functionality.

We talked to the customer about many things, many concepts, but you really can break it down into three categories. I recognize that oftentimes, we sell our products to another customer, and they then sell to the consumer under a private label relationship. So we talk to our customer, how do they want to enhance the consumer experience. We talk to our customers on what specific impurities do they want to remove from their products, or how do they want to improve the purity of their products. And thirdly, we talked to our customer what functionality do they want in their product. And it's important to realize the functionality we build into our product, it's always in our product, but it may not be visible or transparent or apparent until -- sorry, it may not be visible or apparent until it shows up in the customers' products. Some examples. I'll give you a next slide is more detail on Pet Care, but I want to leave you the thought.

We are the critical functional additive in cat litter. I'll come back to that in a minute.

For household and personal care and the household care for detergents, many of our customers want to incorporate cleaning surfactants or hueing dyes. A dye is something that will make brights brighter or whites whiter, for example. We will build that in our product. Our customer will put it

in the detergent. You don't see the impact until the consumer actually does the washing. Personal Care, you have a lady putting sunscreen on. Many discussions, do they want an SPF of 15, 30, 50, 70? Do they want a mineral sunscreen or an organic sunscreen? Do they want a transparent or do they want a creamy feel?

All those discussions with the customer go into the product that we build for them. We take impurities out, and we'll highlight edible oils in the animal health. In Animal Health, we can bring additional functionality. Do they want a clump? Do they want anti-clumping as well as toxin removal? In biofuels, we can help them both improve their productivity with our additives as well as removing impurities.

Pet Care, Pet Care is our largest market. We are the critical functional additive. It all starts with our high-quality bentonite clay that we have in our unique reserves globally. The bentonite clay manages the moisture from the cat, the liquid waste. It causes a clump, that clump is removable.

We can engineer the particle size of that bentonite clay to give you a round clump or a pancake clump depending on what the customer wants. Why is that important? Number one, you're managing the liquid waste and the bentonite clay is absorbing ammonia and other odor causing agents to come from the cat. We can supplement that functionality by putting in proprietary fragrances and malodor control compounds to enhance the consumer experience. We can also add other esthetic granules to give it a visual look that our customers want to bring.

Our goal and our customers' goal is to provide a clean home environment, and this is especially important wherever the cat litter might be present near living quarters. You don't want the odor. Our bentonite clay absorbs odor, and we can supplement that with fragrances and malodor control. We back this up with data that we can generate in our laboratories, and we can also use in home use tests, both on ourselves as well as our customers.

So the key ingredients, the cat litter that starts with the bentonite clay, that's the material that's in the box. And we can then supplement by offering the customer a range of discussions around sustainable packaging. This will be in the back of the room, and I look forward to talking to you more about it. But this actually says CO2-free. By our processes and stuff, we can offer a customer a CO2-free cat litter.

You can see a range of other packages up there, and for those customers who want additional fragrance and freshness, we can offer fragrance boosters, as shown in the bottom right, where you would sprinkle that on the cat litter box to give you additional fragrance. So in pet care, the key focus is we are the functional additive and we supplement that with additional technologies.

To show you the diversity, the very broad diversity, we're going to give you three examples. When you take a corn or soybean and you initially press it, what comes out is oftentimes a brown or a greenish material. It has solids in it. It's not transparent. If you take the lid off, it has an odor to it. This -- when you freshly pressed this, this has a relatively short shelf life on the order of a few weeks before it would start to go rancid.

What you and I buy at the store is oftentimes this. This nice yellow, no solids, transparent. If you took the lid off, it would smell like a regular vegetable oil. This is soybean oil, by the way. How you get from this that's pressed to this that we buy, our customers have a 3-stage process.

Our Bleaching Earth is the critical functional additive in the second step. A Bleaching Earth is an absorbent clay, a very simple definition, absorbent clay that lightens colors and absorbs components. So we have a Bleaching Earth. First of all, it's a unique mineral and we have a differentiated process that's not normal for the bleaching industry. We sell this material to our customers that are refining edible oils or they're involved in the emerging renewable diesel market.

Our Bleaching Earth will take out components. It will take out the color causing components like chlorophyll and other ones. It will take out heavy metals, they'll take out phosphorus and fossil lipids and remove them from the process. In the emerging renewable diesel, we improved the degumming and we improved the productivity of our customers.

Shifting now to Personal Care, again, to show you the diversity of our applications. We are experts in the delivery of retinol, retinoids and other active agents to the skin. How we do this is we have a variety of delivery agents, in this case, Microsponge N is for natural. It's a natural-based delivery agent. We also have synthetics. We can load retinol and other active ingredients onto our delivery agent. We can incorporate that into our customers' formula.

So for anti-aging with retinol, anti-acne or if you want sun protection factors, we can put organic sunscreens or mineral sunscreens as well and deliver them to the formula. Our delivery agents, combined with our process technology, enable our customers to claim and offer their consumers reduced irritation, improved stability and sustained delivery to the skin over time. So you get a longer and more effective use of that active agent. We also have rheology additives. We can add to the formula to give you more of a creamy, smooth application of that cosmetic.

Now let's jump to Animal Health. Again, showing you the diversity. The top left picture is 2 years of moldy corn. That is mold and fungus that's growing on corn. That mold and fungus gives off a secondary metabolite called the mycotoxin. There's about 300 mycotoxins in the world. The most predominant ones are in 6 categories. They can cause detrimental health effects when the animal eats them such as liver damage, reproductive effects, weight gain losses.

Now it's easy to see that mold on your corn. But when you think about that combine that's moving through a field at 10 to 12 acres per hour, and you think about those corn kernels get removed from the cob and put into a 100,000 bushel bin, you're not going to know if that mycotoxin is in that bin or not until you see the detrimental effect on the animals.

So what we do is we provide functional additives to our customers and they add it to the animal feed. It's important to note that our material does not have any impact on the animal feed itself. But once the animal ingests the feed that contains our functional additive, our material absorbs the mycotoxins gastrointestinally and carry them out through natural expulsion of the animal through their natural processes. So we absorb the mycotoxin, prevent the damage to the animal and improve the animal productivity.

We have additives that are very effective against the polar mycotoxins of aflatoxin or ergots and we also have additives that are very effective against the nonpolar like zearalenone, fumonisin and ochratoxin. So in these couple of slides, I tried to show you the diversity from cat litter to bleaching earth, to personal care, to animal health. We have many more examples. We have some back here. I look forward to having discussions with you and answering your questions.

At this point, I'm going to turn it back to Jon for a wrap-up and give you some additional key facts about our innovation processes.

Jonathan J. Hastings - Minerals Technologies Inc. - SVP of Strategy and M&A

Thank you, Jerry. Thank you, Sharad, Dave and Mike. It's really hard not to get excited when you hear the technologies and the innovation that we do every day. I hope you have a better sense of each of these technologies, the crystal engineering where we design tailor-made products, functional additives which bring unique attributes to our customers' products, our engineered blends which impart mission-critical properties to our customers' processes, and also surface modification where we tailor the surface to perform in very unique ways across many dimensions.

This is what we do, and we're really good at. Indeed, it's unparalleled in this industry. We're unique, and we do it every day around the world in each of our businesses for every one of our customers. I want to talk to you briefly about how all this innovation happens. We've talked about what we do, but I also want to talk about the how.

Fundamentally, we operate the same way we operate throughout the company. We deploy OE, and we have a focus on continuous improvement. We drive lean principles. And together, we've developed and deployed standard processes, practices, best practices which have been embraced by each one of our businesses. We innovate based on customer pull. Each of our projects is coupled with a key customer partner, and what that does is it helps us ensure that we innovate with a focus on delivering the value to the customers that they need.

Fundamentally, we have focused on pacing and impact over the past couple of years. And as you can see on this chart, we have significantly decreased the time it takes to move an idea all the way through all the stages of development through to commercialization. We're commercializing -- developing and commercializing much more quickly today. And our customers depend on us. That makes us industry leaders, makes us much more competitive with significant competitive advantages derived from our innovation.

As a result, our sales from products commercialized has increased and indeed accelerated, growing at 16% for year-over-year over the past 6 years. This ability to understand the unique needs of our customers to develop new products quickly and to deliver innovation to the markets we serve has provided another key component of our profitable growth. It's delivering meaningful revenue growth per year, all while improving margins.

And as highlighted in the lower right-hand side, we have the added benefit of a keen focus on sustainability, both the environmental and sustainability footprint of our customers as well as our own footprint. Thanks again to the technical team. Great to have all the examples and the discussion. And at this time, what I'd like to do is turn it over to my colleague, D.J. D.J. is going to talk to us more about the Consumer and Specialty segment. Thank you.

D. J. Monagle - *Minerals Technologies Inc. - Group President of Consumer & Specialties*

Hi, everyone. Thanks, Jon and team, for grounding everyone on our core technologies. It's truly at the heart of what we do. Customers we provide valuable technology combined with expertise that establishes us as the preferred partner and supplier worldwide. My name is D.J. Monagle. I'm Group President of the Consumer and Specialty segment and Head of the Operational Excellence lead team that Doug had mentioned earlier.

Operational excellence is integral to our organization and how we do things, from how we run our businesses and operate our facilities, to how we serve our customers and in general, how we think and do. It's embedded in everyday activities, whether you're at a plant, in a mine or working in our New York office.

It's my privilege now to talk to you about the Consumer and Specialty segment. As you saw in Doug's presentation, we've significantly invested in our consumer-oriented businesses over the last 5 years. We bought 3 cat litter businesses in North America and Europe, and we've grown our personal care and household businesses through innovation and also extended our paper platform into adjacent packaging applications while growing geographically.

We also just heard our R&D teams explain the core technologies that further define the products we develop for our customers and the markets we serve within this segment. What unifies all these products in addition to the technologies is that there are functional components that go into consumer end products and often end up directly on a shelf.

We have two product lines that fall under Consumer and Specialty segment. First, our Household and Personal Care product line, has what we call the mineral-to-market products. It is either a final product, a functional additive to the product you can buy at the store and find in your home. These are products and solutions that are driven by consumers' buying behaviors.

Second is our Specialty Additives product line, creating products used as mineral additives, providing enhanced properties to our customers' products, a broad range of applications, whether it is a food you eat or a sealant in the car that you drive.

So let me take you through more details of these product lines. First, let's dive into Household and Personal Care product line. The applications in this product line include everything from pet care, personal care, fluid purification care, declumping and odor absorption. Properties of the bentonite make it the best and most popular solution for cat owners to eliminate odors and to use their cat litter most economically by taking out clumps of clay rather than changing an entire litter box.

In personal care, natural mineral-based formulations and anti-aging solutions are in high demand by cosmetic consumers. Our products align well with both of those trends thanks to the unique properties of our mineral reserves and our deep knowledge of mineral applications. We have attractive solutions for the purification of edible oils and biofuel production. It also applies to wine purification.

For fabric care, we're working with leading global manufacturers of dry laundry detergent with formulated active components. Our solution makes whites whiter, brights brighter or complements other designed features of detergent like softness. Our unique mineral reserves of bentonite and leonardite and deep understanding of mineralogy also provide differentiated solutions for animal health as well as crop enhancement in agriculture.

So let me explain to you where we are today in this product line from revenue drivers to market positions. The Household and Personal Care product line is defined by pet care, at 73% of the product line and the other 27% is the consumer specialty applications. Pet care being the largest shouldn't be a surprise as we've invested in this category over the last few years through the acquisition of Sivomatic in 2018, Normerica in 2021 and Concept Pet in 2022.

This growth strategy makes us the largest private label clumping cat litter producer and the only one that is fully integrated. Our manufacturing footprint is strategically located close to our customers. We also have multichannel go-to-market model. In addition to private label sales, we sell bulk products to most of the top brands in the market. While cat litters now are core in this product line, we have multiple exciting businesses that I mentioned a few minutes ago, where we've grown significantly over the past few years have tremendous potential for continued growth.

Our ability to create tailored solutions to specific customer needs differentiates us as we apply our technological expertise and leverage our unique mineral reserves. We have natural solutions the customers and consumers want. We also have distinctive offerings such as retinol delivery or surfactant agglomerate technology. These capabilities and tailored solutions for customers allow us to maintain leadership positions in global private label cat litter, bulk cat litter in North America, European premium cat litter and retinol delivery systems in North America.

Now that you've had an overview of the Household/Personal Care product line, let's talk about our future opportunities. Here are the key drivers as we see them for the next 5 years related to pet care. Now that we've invested in becoming the leading private label cat litter producer, we expect to see continued organic growth aligned with market trends and our specific strategies. For perspective, global cat litter is just under an \$11 billion market. Clumping cat litter is about 75% of that market, which continues to gain customer retention due to its functionality resulting in money savings opportunities for the consumers.

The 2 major markets currently are North America and Europe. While they are basically the same size, the markets have evolved differently and have well-established consumer behaviors. In North America, major brands have 80% of the market and private label has an important 20% of that market. Here, we supply bulk bentonite to the major brands. With our bentonite providing the functionality that has come to define the market and our functional additive expertise to which Jerry was referring, helping these brands execute their strategies.

We also provide tolling options for the major brands. And we have a well-established private label offering, helping many retailers enhance their offering to their customers. We expect that demand to grow at about 5% a year, consistent with the previous 5 years. The European clumping cat litter market is of similar size, but the market is driven by the presence of regional private label distributors providing 80% of that market, and branded products making up the remaining 20%.

Here, we collaborate across the market, and we've established our own private label as the premium product in the space. We see similar growth of 5% in Europe as we see in North America. The more significant driver of the mid- to long-term growth is in change in pet ownership preferences, especially in Asia. For example, in the last 3 years, cat ownership in China grew by 15% and now cats are the most popular pets surpassing dogs. By some statistics, China has the second largest number of domesticated cats, a little over 50 million, but still significantly behind the U.S. at over 70 million.

For a comparison for you, cat litter is around \$3 billion in North America, as I previously mentioned. And while we expect the market to reach \$1 billion in China by 2024, so there's lots of room to still grow. Our plan in China is to take the same approach we've taken in the other regions. We'll work with the major brands to support their growth through our functional additive expertise and will offer our innovation of private label distributors, helping them complement their offer to their specific target markets.

Building on general market growth trends, applying our functional additive expertise and growing our tolling relationship with major brands, we expect to grow in China at above-industry rates. We also see our innovative culture is one of our differentiators, continuously working on new solutions and expanding comprehensive offerings to all our customers. An excellent example is our renewable packaging solutions that you see right over there in our demo stand.

Carbon-neutral packaging helps our customers achieve their sustainable goals. Some other examples are add-on items like fragrance boosters. We're also expanding our multichannel go-to-market strategy. We're already selling through various online channels, including Amazon, and we see a significant opportunity, especially in China, to expand online channels and volumes further.

With our leadership positions in North America, our leadership position in Europe in private label, and in bulk, plus access to every channel in the market and expansion in the growing Asian market, we see the potential to add \$150 million of additional revenue by 2027. And this is just one area under the Household/Personal Care. Let's talk about the other opportunities in this product line.

As you saw from the previous slides, we have several other applications for the Household and Personal Care markets. Our focus is to continue to expand our high-margin, high-growth products. From a market perspective, here are some great examples where we're well positioned and differentiated by our minerals and technologies with targeted industries.

The Bleaching Earth market is a mineral purification solution for plant-based fluids, especially oils. 70% of that \$1 billion market is concentrated on the edible oil filtration industry, and the rest of the market is filtration of biodiesel fuels and other commercial fluid.

Earlier in the technology discussion, you heard Jerry mention we have a unique product that consistently outperforms alternatives. As we advance in this market in the past few years with our innovative products, we have penetrated the edible oil market by gaining positions with industry leaders. We're well positioned to grow with them at above GDP rates for the industry.

Our ability to outperform alternatives is across this entire market, but we're especially excited about biodiesel fuels. In this segment of sustainable energy, we are well positioned with industry leaders, especially in Europe, to capitalize and grow beyond the 4% growth rate anticipated for this sustainable industry.

Another opportunity for growth lies in the niches of the lucrative skin care market. Two significant trends in this market align well with our portfolio, are the growth in anti-aging solutions and the trend towards more natural and sustainable beauty products. The point-of-sale value for the retinol anti-aging market is about \$2 billion with a growth rate over 5%.

Here, our unique retinol delivery systems are highly valued by all the major cosmetic companies. While our delivery systems are just a small part of that market, the superior and differentiated performance gives us great confidence that we'll continue to see above-average growth in this market in the U.S. while also expanding to a broader customer base and into other geographic regions.

Also, we're working on a more customizable solution for dry fabric care to work in cleaning [pads]. Additionally, our animal health products are in high demand by industry leaders, and we see an ongoing opportunity to expand those sales over the next 5 years. A combination of market growth trends, established position with industry leaders, our differentiated products and our unique mineral reserves will enable us to capture incremental revenue growth of \$75 million by 2027.

Now let's look at the other part of Consumer and Specialties with more details on our Specialty Additives product line. This is the product line that centers around our crystal engineering technology. It's a very versatile core technology suitable for various applications and custom functionality. For example, we take engineered mineral crystals to deliver enhanced performance for paper and packaging manufacturers, but then also use customized crystals to help with rheology control to apply to the automotive or construction industry, and could also apply that same approach and expertise to add nutritional benefits to food or pharmaceutical products. Depending on the application, our specially designed additives can offer cost savings, impact resistance, stability and aesthetic properties.

Let's take a deeper look into those markets served by this product line. Paper and packaging is part of our legacy business, making up almost 60% of the specialty additives product line, construction, automotive and food and pharma balance out the rest. You know us already as the global leader in paper filler applications. Our unique long-term partnership model with our customers helps create a solid platform for long-term sustainable growth.

For the other end markets, our world-class reserves, manufacturing footprint and deep applications knowledge helps us continue to penetrate these markets worldwide. No matter what application we're talking about in this product line, there is one meaningful commonality to which I keep referring. We have strong application know-how to develop fit-for-purpose solutions that our global customers highly value and that is reflected in our strong leadership position. We are the worldwide leader in precipitated calcium carbonate and we are the only specialty PCC producer in North America. So this leads to some interesting growth opportunities across the product line, especially in paper and packaging.

Our ongoing focus in the paper market is to continue our penetration in the Asia markets. You may have seen our most recent announcements of 3 satellite contracts signed over the past several months. We continue to execute on that strategy and have more opportunities in the pipeline. If you look at the total market potential, benchmarking it with the PCC penetration that we have in the U.S., we still have a significant opportunity for growth. Adjusting to market trends, we're also expanding in the ground calcium carbonate, known as GCC, and we will be deploying that product through our standard satellite business model, which is especially relevant for the Asian packaging market.

The new solutions for the packaging industry are an extension of our deep knowledge of the paper industry and our differentiated crystal engineering technology, combined with a deep understanding of mineralogy. As you can see on the graph, container and consumer board is more than 3x bigger than the printing and writing market. The current use of minerals is small but gives us a tremendous opportunity to grow working closely with key packaging companies who are already, in many cases, our customers, building on our extensive innovative expertise and reputation in this industry.

We have additional opportunities to grow in this product line, including further penetration of our specialty PCC products in the Asian automotive markets and pharma markets. The other growth avenue we're actively working on is leveraging our existing technological capabilities, is CO2 sequestration, further expanding our sustainable solutions, reducing customers' landfill exposure and increasing recycling of minerals in this circular economy. The potential for our Specialty Additives business can be an additional revenue of \$150 million by 2027.

In the Consumer and Specialty segment, our innovation pipeline is a critical part of our growth story. You can see the significance of our core technologies in this graph, showing sales from products less than 5 years old. You will notice the balance in the portfolio between the product lines and the major highlights on the right side of the slide show the significance we see in sustainable solutions. This shows the impact of crystal engineering and functional additive expertise.

I've highlighted technology, which emphasizes our unique ability to meet emerging trends with special emphasis on sustainability. Sharad had earlier mentioned NewYield, which is a process that allows for tailored products repurposing a pulp mill waste stream into useful pigments for paper or packaging products. One of our most recent satellites in India is with NewYield LO and we have good pull from the market, which is advanced to customer discussions and should yield more commercial contracts in the very near future.

We've grown from a small base in Bleaching Earth. In just a few years, and we're finding a great traction in the biodiesel fuels as we apply our unique mineral reserves and applications expertise to this growing market. Our crystal engineering allows us to further establish our leadership position in the SPCC, specialty precipitated calcium carbonates, as the demand for high-performing sealants grows to support the auto industry shift into higher-performing robots and the architects' push for more creative and energy-efficient buildings. These are robust technologies with broad applications suitable to meet emerging trends.

As I wrap up, I hope you can see how exciting the potential for Consumer and Specialty segment is. Consumer behaviors drive this segment and we are well positioned to respond to changing trends. We have multiple growth levers to pull, including geographic expansion for majority of our products, further investment and growth of our higher-margin businesses as well as expansion of our sustainable and natural solutions.

There are also additional growth opportunities that are not included in the numbers I presented. A good example of that is the CO2 sequestration, which is an inherent expertise and capability associated with our crystal engineering technology. We're exploring further building on our existing technologies and experience. Other such growth platforms include recycling solutions across all the businesses, taking advantage of our cultural emphasis on sustainability and applying even more broadly to our product offering.

Thank you for letting me give you more details about the Consumer and Specialty segment and the 2 product lines, Household/Personal Care and Specialty Additives. That's one of the 2 segments for MTI. Now I'll hand it over to Brett to present the Engineered Solutions segment.

Brett Argirakis - *Minerals Technologies Inc. - Group President of Engineered Solutions*

I'm Brett Argirakis. I'm Group President of Engineered Solutions segment and Head of the Environmental Health and Safety lead team. As Doug mentioned earlier, safety is paramount to MTI and our employees work diligently to keep each other safe and we strive hard to maintain world-class safety culture.

Today, I'm very happy to talk to you about a very exciting segment. Engineered Solutions. You will see that this half of MTI's portfolio utilizes different technologies that through our products, application technology and technical service makes it really cool. Engineered Solutions combines our technologies to improve customers' processes and serve as part of a project solution. We cover various operating and project environments, such as [harsh] steel and foundry environments, complex environmental remediation projects and water.

The segment incorporates highly valued teams that work closely with steel manufacturers, foundry manufacturers, oil and gas companies, commercial builders, mega projects and engineering firms. There are 2 product lines within the Engineered Solutions, high-temperature technologies and environmental and infrastructure. The segment makes up about \$1 billion in revenue. High temperature technologies is about 1/3 of MTI's revenue. Environmental and infrastructure makes up about 14%. Both are very specialized and includes solutions and services that we are renowned for across our industries.

Let me take you through some in more detail. The high temperature technology segment is differentiated through our team's deep understanding of steel and foundry processes. We are a trusted supplier and service provider within these markets. We provide value-add solutions, technical service and highly competent maintenance crews to support cost savings and high-quality output.

The foundry business develops tailored mineral blends to meet specific customer needs. The 300-plus formulations that David spoke about provide solutions that lower emissions, optimize performance and increase operating efficiencies. Our product blends have proven the reduced foundry scrap from 10% to 2%, equating to millions of dollars of savings annually. These formulations have also helped to reduce carbon emissions through the less use of coal in the process.

In addition, our products also allow for a portion of the mineral blends to be reused, enabling additional savings for our customers. Our foundry technical service and R&D teams focus on engineered blend technology in order to optimize product performance and minimize waste. The technical staff provides daily support to test and evaluate our blends in our labs in Chicago and Tianjin, China.

The refractories business is similar. Like our foundry business, the refractories team offers technical solutions that include high-performance, monolithic refractories, automated laser measurement systems, application equipment and essential products like our calcium wire used to produce high-quality steel.

The business utilizes 400 steel mill service employees worldwide. These employees are embedded in our customers' sites where they operate and maintain equipment, apply our products and provide technical solutions and suggestions for our customers every day. Refractories products are primarily used to assure metal containment within an operating vessel of an iron, steel or other high-temperature industrial lining. These high durable products are designed using the engineered blends to maintain and maximize vessel life.

Laser measurement systems are used to assure a safe operating lining for an iron or steel-making vessel. The systems are also used as part of the refractory program to assure proper placement of refractory materials. Our calcium wire injection technology is used as part of the secondary metallurgy process to modify and eliminate inclusions that could impact steel casting and quality. These highly valued products and solutions are what makes us the leaders in these markets.

The foundry and steel and other industrial markets are split about 50-50 and generate about \$700 million in annual revenue. Customers partner with us because we can provide a higher value solution that can help them operate more efficiently. Within our foundry products, we are the

world's largest producer and supplier of green sand bond solution. We incorporate a combination of unique mineral reserves with our differentiated technology, making us the go-to specialist for foundry applications.

Within our refractories business, we're the leader in North America for monolithic refractory solutions and also have a solid footprint in Europe and Japan. In the U.S. and Canada, the business maintains all of the BOF furnaces in the majority of the electric arc furnaces.

Our automated Scantrol technology includes proprietary laser measurement and application technology that supports the no-person-on-the-floor program in the electric furnace market. This technology was designed to improve safety, enhance refractory applications and assure furnace availability. And as David noted, we are the only producer of calcium metal in the Western Hemisphere, making us a crucial supplier to the U.S. steel industry.

Let's discuss the foundry product line. The graphic in the top left shows the total bentonite market for the U.S., China and India. The dark blue portion represents the engineered blends usage, which is our core focus. Our foundry business is the technical leader for the engineered blends within this market. In North America, the engineered blend usage is quite common and represents our largest market share.

As you can see, there is significant growth opportunities for pre-blends in China and India as these markets continue to develop. India is of similar size of the U.S., but demand for pre-blended materials is still in the very early stages. China is 5x larger than the U.S. A change in custom blend technology in these two countries would enable a growth potential of about \$700 million.

The pie chart below shows the China foundry market evolution over the past 10 years. The market has broken down into 3 types of producers. Types 1 and 2 are the most automated and sophisticated producers. These foundries see the value in our custom blends. As you can see, the more automated producers are growing. This space is where we expect to penetrate the fastest with our engineered blends.

Our strategy for growth will focus on leveraging and maintaining our global mineral reserves. We'll continue to develop custom blends for new sustainable products that improve customer quality and operations. We expect to maintain our North American market with our ongoing technology advancements and our strong technical support. And of course, we'll continue our efforts to further penetrate the developing markets with our pre-blend mixes.

Over the next 5 years, we are targeting pre-blend growth in China from 25% to 35%. And in India from 15% to 20%. This equates to about \$100 million of new growth. Let me give you some perspective of the steel market. Steel is manufactured with 2 primary processes. You heard me say BOF. It's a basic oxygen furnace. It uses iron produced in the blast furnace. It's added to scrap in the BOF furnace and melted with oxygen before being refined. The electric arc furnace or EAF, utilizes electricity to remelt scrap, before it's being refined.

Over the past several decades, new steel plant expansion projects have been utilizing the EAF process. In the U.S., it's been 100%. The graphic on the left shows the evolution of U.S. steel production from BOF to EAF over the past 30 years. Europe is similar. The refractories product line has been serving the BOF for over 50 years with our products, our people and our application technology. Currently, we service all U.S. and Canadian BOF accounts and more than half of the European accounts.

As the global steel market evolves, we have focused our innovation strategy to further penetrate the expanding electric furnace market. David mentioned the Scantrol. Our Scantrol technology is a great example of technological advancement into this space. The Scantrol provides automated laser measurement and application technology for faster and more efficient furnace maintenance. The process is much safer and moves employees away from the 3,000-degree steelmaking temperatures.

Our strategy for this product line is to maintain our current position in the BOF market with our highly durable products, steel mill service and application technology. We'll focus our expansion efforts further into the EAF market with our automated technology and other innovative solutions, in particular, the Scantrol technology. The 5-year growth opportunities for this product line are expected to be at least \$50 million.

Now let's move into another cool product line. Environmental and infrastructure. The environmental and infrastructure product line offers bentonite-based solutions for environmental construction and infrastructure products that are made up and combined with our unique mineral reserves, technological advancements and membrane and geotextile systems that work with our active mineral course.

Products in these product lines serve to prevent groundwater contact with contaminated leachate, prevent water and vapor intrusion buildings and provide best-in-class absorption media capable of chemically binding a variety of contaminants and removing them from various water sources. Environmental lining systems have provided solutions for some of the world's most technically challenging and highly contaminated types of projects, such as custom-engineered solutions for coal combustion byproduct disposal facilities, global mining applications with some of the most difficult to manage leachate chemistries in the industry as well as for the contaminant of nuclear contaminated soil from the Fukushima nuclear disaster.

Our water treatment and remediation portfolio include products for a broad range of applications, such as complex offshore oil and gas environments and deepwater basins around the world. Industrial water treatment, municipal drinking water treatment systems in North America with our FLUORO-SORB technology and water remediation of complex environmental cleanups, such as the current remediation capping work being completed on the Gowanus Canal in Brooklyn. The drilling products offering allows customers to maximize drilling efficiencies in several different types of applications, such as construction and infrastructure projects and the oil and gas industry.

Lastly, Building materials provides active waterproofing and vapor intrusion solutions for commercial and infrastructure subsurface concrete construction projects. These best-in-class products can be found in major projects such as corporate campuses and headquarters, convention centers, hospitals, universities, stadiums. And here in New York, our products were used for the New York City infrastructure project for the rail tunneling on the East side.

The environmental and infrastructure product line generate about \$300 million of sales within 4 regions. Our ability to provide tailored solutions for very complex problems for water and vapor intrusion and leachate make us extremely valuable to these customers. As mentioned, our unique mineral reserves, particle surface modification technology and our deep knowledge of mineralogy is key to our success.

Our technological solutions provide best-in-class support making us #1 for active waterproofing for concrete structures and #1 for water treatment and well testing services in the Gulf of Mexico deepwater market.

Let's talk about the growth, growth opportunities for environmental and infrastructure aligned with the regulatory and infrastructure revitalization trends that we're currently witnessing. Our work on the global PFAS problem extends into in-situ soil remediation, wastewater treatment and landfill leachate. We continue to deploy our FLUORO-SORB technology for groundwater, sediment capping and drinking water.

And as you are aware, the EPA recently announced they will propose a plan for new drinking water standards for PFAS containing compounds by the end of 2026. We also have an excellent opportunity to grow with infrastructure spending in the U.S. and worldwide through our building materials and drilling products. We expect additional revenue to be generated for investments in green energy and for the hardening of the grid. The growth potential we see for this product line is \$50 million over the next 5 years. This growth can be higher depending on the pace of regulatory change.

We have a robust innovation pipeline that covers all market trends and customer priorities in the near and long term. The pipeline is a combination of products developed through engineered blends and particle surface modification technology. We plan to pursue growth in our high-temperature solutions business through geographic expansion into the foundry markets with custom blend Greensand Bonds. And we'll continue to pursue alternative steel applications for our automated Scantrol technology.

For our environmental and infrastructure business, we plan to focus on global solutions that will meet today's and tomorrow's environmental regulations, such as more advanced building materials for dual use water and vapor intrusion, refined solutions for more complex landfill environments, geothermal drilling and new drinking water solutions to meet stricter environmental regulations.

Let me summarize before we take a break. Considering our market position, our alignment with key industry trends and our innovation pipeline, we are confident that over the next 5 years, we can grow this business in the middle of the range at about 4% compound annual growth rate. Depending on regulatory drivers, we could see accelerated growth over the next few years. This is an area that we can continue to -- that we'll definitely keep an eye on, and we expect to hold our leading positions in the Engineered Solutions segment, and we'll continue to pursue the new growth initiatives that we are -- that we highlighted today.

Our pipeline of innovative technologies will continue to focus on meeting the challenging environmental regulations. This segment is very dynamic, and we look forward to the future growth that this business will bring to MTI. Thanks for your time today. We're excited about the growth potential for the Engineered Solutions segment and hope you are as well. Lydia?

Lydia Kopylova - *Minerals Technologies Inc., VP Investor Relations*

Thank you, Brett. For those who are on the webcast, we're going to return in 15 minutes. Thank you. We're taking our break and for everyone else, please enjoy looking at our technologies that we just covered in products. We'll be back.

(Break)

Jerry Darlington - *Minerals Technologies Inc., VP Research & Development*

Welcome back and thank you. Jerry Darlington again. I'd like to talk to you a few slides about our sustainability initiatives. Doug highlighted our lead teams, how they're integral to MTI and how they're a key part of driving our culture. It's important to note that at MTI, people that are on the lead team, that's not a full-time position. We actually take people that have a regular job or regular duties and we assign them to lead teams. And so the lead team is a very important addition to their regular duties.

For the sustainability lead team, we have people from operations, environmental health and safety, finance, investor relations, communications, human resource. And we bring these people together to ensure that we have the expertise and the knowledge to understand all of our stakeholders, understand the voices of all stakeholders, both internal and external.

Our goals with the lead team are to share best practices, drive improvements across the company, enable discussions, investigate feasibility of new ideas, and most importantly, to communicate to all stakeholders, internally and externally. We want to communicate MTI's initiatives, our actions, our targets and our goals. The way that MTI does this and most other companies, by the way, is through our sustainability report that we published annually as well as our external website. And as Doug mentioned, we're very pleased to say that we have published a sustainability report for the past 15 years, and this is well before most companies were publishing reports.

Sustainability is part of our culture. It's part of our DNA. Doug mentioned, DJ mentioned we're an operational excellence company focused on continuous improvement. We don't view emissions, reductions or water reduction simply for the environmental benefit. Rather, it's the best way to run a company. It's part of our operational excellence. We want to use the most efficient, lowest-carbon fuel.

We want to improve our processes to increase our efficiency, and we want to also reduce our emission and discharges. We strive to staff our company with the best candidate and considered gender and ethnic diversity. We strive to have sustainable human resource practices and policies that will foster inclusion and gain the active voice of all employees.

We strive to increase our efficiencies by using our lowest carbon fuel possible reducing emissions, reducing discharges, upgrading technology, and we strive to be transparent and communicate to all stakeholders.

On the next slide, I'm going to talk about our median exceeding the targets. Jon highlighted about providing our customers with sustainable solutions. We've given you several examples with sustainable packaging, how we're improving their efficiency, how we're helping them. Transparency and disclosure of all of our policies and practices, our actions and our initiatives is really important to us. And you can see on the bottom, Doug

highlighted this as well, but I want to point out a little bit more detail on our ratings from external raters with Sustainalytics, we're in the top 10 percentile of their specialty chemical universe.

MSCI has us ranked AA on a AAA scale. Institutional Shareholder Services ranks 1 to 10 on their monthly quality score with 1 being the best. We are best-in-class for environmental disclosure and social disclosure, and we're currently at 2 on governance. We participate in EcoVadis -- it's very important to significant parts of our company. We're currently at silver medal and continuously improve for the future.

Next slide, please. Environmental, as most of you know, we set our initial emissions and discharge goals in 2018. Immediately the next year, in 2019, we doubled our reduction target for Scope 1 direct emissions. Last year, in 2021, we reset all of our targets to a, more aggressive reduction potential. Just to give you a couple of examples, we set our Scope 2 indirect emissions target. Our previous target was 15%. We want a 40% reduction on Scope 2 emissions by 2025. Our previous target for water was 11% reduction. We went to 20%.

As the graph on the left here shows you in the green font with the leaves, through 2022, and we'll publish this in a few months in our 2022 reports, so we're giving you some advance insight into this. We have exceeded our 2025 targets in at least 4 areas and we are very confident that we will exceed our 2025 targets in all areas.

In the spirit of continuous improvement, we're going to continue working with CDP on that journey and disclosure. CDP, as you know, is the former climate disclosure program. We're starting a science-based target journey. We're starting the journey on estimating Scope 3 reporting for future disclosure.

Once we achieve all the 2025 targets, looking forward, we're very eager to set and we will announce 2025 to 2035 targets next.

Our people in the social category. Our people are our most important asset. We want to reiterate that all injuries are preventable. All of our employees, each and every employee is empowered and authorized to exercise stop work authority if they feel that themselves or their teammates are not in a safe situation, stop work.

We believe that 0 injuries is achievable. And as evidence of this, 85% of our sites have been injury-free over the past few years. We conduct a lot of training of all employees on safety. We have 100% employee engagement on our metrics. As you've seen from the sustaining report, we've identified risk areas that exist in any industrial process, and we are taking active steps through our kaizen process to reduce and eliminate that risk.

Socially, supporting our community is very important. Just 2 brief examples. Several of our communities are involved with book drives and reprograms in the local schools. And the top picture in the middle, I want to do a special call out to our Dandeli, India operation, our paper and packaging facility. This village of about 1,800 families or so get served water from a river in India.

Our facility work with the local government to build and install a reverse osmosis water treatment facility to provide clean drinking water to that village. It's operational. Picture of people getting drinking water. We're working with the local government to maintain and ensure continued success.

Diversity inclusion is important. As Doug mentioned, we have a diversity inclusion council, Sarah heads it up in the back of the room. We've made significant strides on our diversity metrics. We have ways to go, but we're continuing to drive these initiatives. You can see since 2018, we've increased our women in management by 50%, women in workforce by 15%, and we report racial equity metrics for the United States only. We've increased management by 20% since 2018 and 34% in the workforce.

About a month ago or so, we issued a proxy you've had a chance to read it. We have several shareholder-friendly initiatives in the proxy. I'm not going to review that today. It's well published. You had a chance to vote on it, restate our annual meeting. But I want to go back to the culture. So lead teams drive across the company. We have cross-functional people that come together and to drive and share best practices. We're very engaged with the Board of Directors.

We firmly believe that management's job is to identify risk, develop the strategy and say how they're going to manage those risks. The Board of Directors' responsibility is to ask questions and provide oversight with their expertise. So all the lead teams work with the Board of Directors to ensure that we're thinking about the priorities and providing the strategies and solutions.

We -- on the ESG front, there is a discussion with the Board of Directors at every meeting. And just last week, the sustainability lead team presented and had a very good discussion with the Board. So I hope I've given you a good idea of just some brief highlights about our sustainability program, our emissions reductions, our social initiatives, diversity inclusion as well as the cultural aspects of our lead teams.

At this time, I'm going to turn it over to Erik, our Chief Financial Officer, who will give you a very detailed update. Thank you.

Erik C. Aldag - Minerals Technologies Inc. - Senior VP of Finance & Treasury and CFO

Hello, everyone. Good morning. I'm Erik Aldag, Chief Financial Officer of MTI. It's great to be here with you. Great to see you all this morning. I'm excited to share how everything you've heard today rolls up from a financial perspective.

We've certainly shared a lot today, and I hope you all have a better appreciation for what makes MTI unique. From our culture of operational excellence, to the MTI business system, our scalable platform for growth to the core technologies, applications expertise and valuable mineral reserve positions that drive our competitive advantages. I also hope you got a sense for the significant growth opportunities we have over the next 5 years. So let me take you through what all this means in terms of growth potential and value creation for our shareholders.

First of all, I want to summarize the multiple growth levers we have across our product lines. In Household and Personal Care, we have a strong global position in the growing cat litter market. And we have smaller, but fast-growing positions in high-margin consumer specialties like bleaching earth for edible oil purification.

Household and Personal Care has been our fastest growing product line over the last several years and we expect that trend to continue with sales growth in the 7% to 10% range. Getting to the high end of that range would come from faster bleaching earth growth, for renewable fuel applications, for example, and faster penetration of the cat litter market in Asia.

In Specialty Additives, we've been growing through penetration of our paper and packaging technologies in Asia. And we have a lot of room to continue that trend as customers look to us to provide the best technology as well as innovative and sustainable solutions for recycling and reuse of waste streams.

We expect this product line to grow in the 3% to 5% range with the upside depending on the pace of adoption of our new technologies and how quickly we can penetrate the packaging market. Overall, for the Consumer and Specialty segment, we expect to grow in the 5% to 7% range over the next 5 years.

In the high-temperature technologies product line, we expect growth in the 4% to 6% range driven by further expansion into the Asian foundry markets and maintaining our share in North America. The high end of this range would come from faster deployments of our Scantrol technology in the U.S. and Europe as well as faster penetration of our engineered foundry blends in Asia.

In Environmental and infrastructure, we expect 3% to 6% growth driven by continued innovation and demand for environmental remediation and infrastructure projects. The higher end of the range depends on the pace of regulation we see as well as the level of infrastructure spend.

Overall, for MTI, we expect long-term growth in the 4% to 7% range, which reflects the meaningfully higher through-the-cycle growth rate that this company is capable of. The broader macro conditions will have an impact on where we end up in that range, and therefore, this growth may not all happen in a straight line. However, the portfolio we have today is well positioned to maintain these higher growth rates on average through the cycle, and we have plenty of upsides in our plans to push us to the high end of that range as well.

So what would this translate to in terms of revenue dollars? On this slide, we've modeled a 5% CAGR over the next 5 years. And this 5% growth assumption balances our significant organic growth opportunities with the potential for market cycles and fluctuations through the period. And this equates to just under \$600 million of revenue growth over the next 5 years. \$375 million from Consumer & Specialties and \$200 million from Engineered Solutions, which would bring total MTI revenue to \$2.7 billion in 2027.

I'll also point out that achieving the high end of the growth range we provided today would translate to approximately \$3 billion in revenue in 2027. So what's also really exciting here is the clear pathway we have to margin improvement in the next couple of years. So first, I want to point out that this projection is for 2025, not 2027.

We have a clear line of sight to 300 basis points of margin improvement by 2025 from 12% where we were in 2022 to our target of 15% in 2025. And you can see from the bridge on this slide here that 150 basis points of that improvement we expect to come from catching up on inflation. Most of this price versus cost improvement is happening in the Consumer & Specialty segment, which is the business that absorbed the most inflationary cost increases, and it's also the one with the most significant contractual lag on our price increases.

So as the pace of inflation has slowed, the margins in this segment and for the company overall stand to benefit significantly from this catch-up. We expect an additional 100 basis points of margin improvement from leveraging our fixed cost base as we grow.

The Consumer & Specialty segment is also driving the improvement here as we bring our newest acquisitions in pet care up to the MTI productivity standard and as we utilize our expanded pet care footprint to grow in the U.S. and Europe.

As always, we expect to leverage our lean organization, maintaining SG&A in the 10% to 12% range of sales as we drive the incremental margins from our sales growth down to the bottom line.

And finally, the new product development you heard about today is margin accretive. We're expecting 50 basis points of margin improvement overall from the continued growth of our sales from new products, which come at higher than average margins.

The growth rates that we've laid out for you today translate to significant value creation potential. A 5% sales growth rate translates to around \$2.7 billion of revenue in 2027. And this level of top line growth, combined with our target margin improvement, to an overall operating margin of 15% of sales translates to an operating income CAGR of 10% through 2027, which would result in total operating income of around \$400 million and EBITDA of over \$500 million.

One very important note about all the growth we've been talking about is that we're maintaining the strong free cash flow generation capability of the company. We've constructed this portfolio to enable higher levels of profitable growth while also preserving the cash flow generation profile. These growth opportunities that we've talked about today don't require an excessive amount of capital to support them.

We expect our capital spending to stay in the 4% of sales range throughout this period. Our cash flow conversion metric has averaged around 77% over the last 5 years, and we expect that kind of strong performance to continue going forward. And the same goes for free cash flow as a percentage of sales, we expect to average the same 7% going forward.

This would translate to free cash flow in the \$190 million range in 2027 and more than \$800 million of cumulative free cash flow over the 5-year period. And from a return perspective, we expect to improve return on invested capital from an average of 9% to approximately 12% in 2027.

So how do we plan to allocate this free cash flow. Overall, we're maintaining our balanced approach to capital allocation. First, our target net leverage is 2x EBITDA. So in the short term, we'll be paying down debt to reach that level. Once we're at our target level, we typically deploy around 50% to shareholder returns through our dividend and share repurchases. Share repurchases have been our preferred method of returning cash to shareholders because they allow us more flexibility to use cash for M&A when we see those opportunities. The remaining 50% of our free cash flow typically goes toward balance sheet flexibility for M&A.

We'll flex that allocation back and forth depending on the M&A opportunity set in front of us. So if M&A opportunities wane, we would look to return more cash to shareholders.

And on the topic of M&A, everything we've shown you so far today has been based on organic growth. M&A is a key part of our growth strategy as well, and any inorganic growth we achieve in the next 5 years would be additive to these numbers I presented.

So let's move to that topic next. We have inorganic growth opportunities across both segments and in all 4 product lines. We're looking for deals that accelerate our organic growth strategy, deploy core technologies further into attractive markets or extend our core capabilities. And we're looking at Bolt-ons as well as transformational opportunities. Our screening process is simple. We ask, does it accelerate our growth? Does it provide an opportunity to leverage the MTI business system. And of course, it has to be value accretive.

We've positioned our balance sheet to remain flexible should a larger opportunity become available. We refinanced our debt last year and extended maturities out to 2027. We have been asked a few times about the level of debt we're willing to take on. If we find a larger business we want to acquire. And first of all, I'd say that the level of leverage we'd be willing to go to completely depends on the target and the value we see we can generate with it.

If a company fits our strategy, meets all of our criteria and if we have a clear line of sight to quickly paying down debt through the cash flows we would generate, then yes, we'd lever up for those reasons. And the AMCOL acquisition was a good example. You can see on the chart on the bottom right hand. We extended our debt ratio to 4.5x in 2014 when we acquired AMCOL. And our track record shows we were disciplined in reducing that debt over a short period of time to return to target net leverage.

Right now, based on where interest rates are and the availability of a transaction that size, we're focused on smaller Bolt-on opportunities. However, our M&A pipeline contains target opportunities everywhere from the \$20 million of revenue range to the \$500-plus million of revenue range. And we have the balance sheet flexibility to take on a larger transaction should something come available that we think makes a lot of sense for us to own.

So next, I'll share a few perspectives on valuation. We believe there's potential for multiple expansion if we hit the targets that we've laid out today. We've looked at our valuation relative to specialty chemical peers, and we trade at a 1 to 2x EBITDA valuation discount to those peers. We've looked at a number of metrics, and we compare well across many of them from sales growth to operating margin and our average cash flow conversion of 77% has been well above median. However, we have lagged our peers on driving top line growth to the bottom line over the last few years, primarily driven by the impact of rapid inflation and the timing of our contractual and negotiated price increases.

We believe that executing the plans we've described today, which translate to the 10% operating income CAGR I mentioned, should help close the gap we've had in terms of valuation.

So we can wrap this section up here with the key investment takeaways. The growth opportunities we described today translate to organic sales growth of 5% CAGR through 2027. We expect margin improvement of 300 basis points by 2025 and operating income growing at a 10% CAGR through 2027, and we expect continued strong free cash flow conversion.

We're also maintaining our strong balance sheet with flexibility for inorganic growth on top of those organic growth rates. We think the combination of all of this makes for a very compelling value proposition. So now let me turn it back over to Doug for closing remarks.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Thanks, Erik. We put a lot in front of you today, but we do hope it help you better understand who we are and where we're going. Let me say MTI is a great place to work. We're a company with a people-centered culture and a solid foundation. We have an engaged workforce with a strong set of values. We operate a portfolio of businesses well positioned in the markets they serve, each with solid growth prospects.

Our technologies are at our core. And we have the ability to apply them to create essential solutions and products and processes that touch everyday lives. We're vertically integrated with world-class mineral reserves, providing us with long-term sustainable supply of raw materials.

We view the development of sustainable solutions as a key part of our strategy and see opportunities to both eliminate costs and stimulate innovation to create sustainable products and open new revenue pools.

We've invested in higher-margin products and built a higher-growth segment of the company that will continue to compound. We see ample opportunity to leverage this growth using our efficient business model to drive margins higher to our target levels. And not to be missed, we've managed this transformation while preserving, as Erik said, our strong historical cash flow profile.

This revenue growth, margin growth and strong cash flow profile create a tremendous financial flexibility and strength of the company. But I hope you understand it's the combination of everything that we described to you today that makes us truly unique in the marketplace. It's what differentiates us from other companies and what we'll continue to create long-term value for you.

Again, thanks for joining us today. Let's open it up for some questions.

Lydia, do you want to take it?

QUESTIONS AND ANSWERS

Lydia Kopylova - *Minerals Technologies Inc., VP Investor Relations*

Thank you, Doug. We will be taking questions online and in the room. If you have a question in the room, please raise your hand, and we'll come over with a microphone.

Stephen Michael Ferazani - *Sidoti & Company, LLC - Research Analyst*

Stephen Michael Ferazani from Sidoti. I thought that was extremely informative and helpful. I did want to ask a little bit about those growth rates through 2027. And you covered a number of areas where you thought could lead to growth above those levels. I just wanted to get a little bit more highlight on those 3 areas. Pet care in China, your opportunities gaining market share in packaging and I guess, regulatory on environmental. I guess those are all big areas, but if you can touch on those?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

I think each of them have opportunities for higher growth. Let's start with Consumer & Specialties. Certainly, the largest product line is pet care. It's not only just - I don't want you to think it's only China that's driving this growth. I mean we have multichannels. So we're entering online channels in North America and Europe. Those are big growth areas for us. Toll processing for branded customers. So with our capacity and our footprint, we have packaging opportunities at pretty much all the population centers.

And so folks are looking to us to help them with their manufacturing. That's growth opportunity both in our core markets. So it is outside of just China. Now that's a big market and growing and we'll start to penetrate it. But it's a small amount now and it will continue to grow. The bigger ones are probably in North America and Europe are equal out.

In the Specialty Additives business, we talked a lot about some of the recycling technologies. We have NewYield and we have some higher filler technologies that will continue to penetrate markets not -- again, not just Asia. We've just put our first NewYield facility in India. We've got some other brown packaging opportunities in the United States. And so these new technologies that they roll out into packaging now, it will take some time. I want to say (inaudible) a notoriously slow market sometimes in terms of paper and packaging.

So it takes a lot of trial opportunities. It takes a lot of trial time and those -- because the machines are so enormous, it takes time to set them up. So -- but we've gone through that over the past 3 years, and we're starting to see, as you've seen with NewYield, some of that penetration, and that's globally, that's not just in Asia.

Regulation in the environmental business is obviously another one. Right now, drinking water for PFAS remediation, whether it becomes a law put in place, it's going to be 2026. Despite that though, we're -- Mike Donovan showed you some of the pump and treat - some of the localized contamination that we're working on right now, and that's gaining some traction as municipalities or companies or others are starting to look to remediate on their own outside of regulation.

However, should regulation in terms of PFAS being a harmful substance be regulated, that will go much quicker. It's hard to predict right now when that will happen. I think in the high-temperature technologies, the upside is really like in India, we've started to see an acceleration of acceptance of our engineered solution. As Dave mentioned, a lot of these customers form their own formulations that you have to have a green sand bond, but they'll do it themselves.

And what would take some time is showing them, okay, well, we know your system, we can engineer that, but you're going to have to pay a higher price. And so there's some price stickiness that happens in some of the markets. But it does catch on. And I think the last time we talked to you about this, China was probably around 15%. And just over the past 5 years or so, we've pushed that to 25%.

India was at very low levels. We've got it to 15%, and it's going to continue to accelerate. So -- but it's hard to predict sometimes how fast that will happen, but we've seen the acceleration, we think we're giving you kind of the average growth rate. If that goes a little faster, it's going to go higher. So I think each of the 4 product lines have opportunities. What Erik presented to you is kind of that middle of the road, something we feel very confident we're going to deliver, but it could go faster. Does that help?

Stephen Michael Ferazani - *Sidoti & Company, LLC - Research Analyst*

That was great, thanks.

Michael Joseph Harrison - *Seaport Research Partners - MD & Senior Chemicals Analyst*

Mike Harrison with Seaport Research Partners. Was curious if you can talk a little bit about where you guys derive your greatest competitive advantage? Is it the mineral resources? Or is it the core technologies and I know this is a little bit like asking, which is your favorite child, but which of those core technologies do you feel like is most difficult to replicate by a competitor?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

You're not going to like the answer. But I really -- and I'm not going to pick a favorite child. I really do think it is a combination. If I would say, look, some of the particles surface modification that we talked about, I mean, again, how cool is it. These things are plates that and Mike forgot to mention they're so thin and so wide that what a teaspoonful will cover, the surface area of a football field, right? So these are interesting things, but that's the mineral.

So the technology being able to adapt it is interesting, but you have to start with that resource. And we have that resource in every country or every region. So it's cool for that reason. It's really important, and we'll leverage that for that reason. Other things like crystal engineering, it doesn't require necessarily the resource. But our ability to grow a crystal fit for use and control its size and morphology and it doesn't have to just be calcium carbonate. That doesn't require the resource, but being able to tailor something to a sealant to an excipient to a pharmaceutical to paper packaging, et cetera. That's a very unique technology, something that we have been doing since the origin of the company, right? So that one doesn't necessarily require.

Engineered Blends, I think, as Dave told you, that business has well ingrained positions. I mean if you just look at its value in terms of what it delivers, foundry and steel and other glass, et cetera, customers, the knowledge, the depth of knowledge that we have to put those together because we understand so well what happens in that process that we can tailor these things.

And I think that's evidenced by -- so it may be, okay, well, you can mix some things. Well, other people can bake a cake, and that's not really interesting. But when you wrap it around the fact that we analyze their sand systems 10,000 times a year. I mean we are that person. We are that company that if they have a problem, they call Dave in Chicago. And we are able to send a truckload that has a change to that formula on the next truck.

So that one, very cool technology, but it's wrapped around a level of service that you can't provide, right? So -- and I think my last statement covered it for you, but all of this is wrapped around that we're thinking about this all the time and taking waste out of processes. We're operating in a very lean fashion. So I would say, yes, it's the 4 core technologies.

It sits on top of resources that nobody else has in every region. And it's wrapped around the team that you saw today - a mindset that we're just looking to do things better every day. So it's the full package. So I know you're not going to like that, but that's how I feel.

Michael Joseph Harrison - *Seaport Research Partners - MD & Senior Chemicals Analyst*

It's fair enough. I guess one other quick one for Erik. Maybe talk about the confidence level in that 150 basis points of margin improvement just related to price cost. Is the pricing to achieve that margin expansion already in place? And what does it assume around raw material and energy cost trajectory from here?

Erik C. Aldag - *Minerals Technologies Inc. - Senior VP of Finance & Treasury and CFO*

Sure. So the answer is very confident. I mentioned on our last earnings call that we have line of sight to that 150 basis points on a run rate basis as we exit this year. And that's because -- we've been catching up with inflation over the last 18 months to 2 years. We've been absorbing a significant amount of inflation at an extreme pace. And so we've been keeping up with it on a dollar value basis. But in order to catch up on a percentage margin basis, our contractual mechanisms needed to catch up with the inflationary cost increases that we've been experiencing, and that's happening now.

So as inflationary cost increases have planed over, our pricing is catching up and you're starting to see the margin expansion already. In terms of the 150 basis points, what we have needed for that to happen this year is for our pricing to go in as planned in terms of the timing of the pricing adjustments and the amount and the pricing is going in as planned. So the pricing execution is there.

We've needed inflation to cooperate to a certain extent because it's not the absolute level so much, but the pace of inflation. And as the pace of inflation has slowed, it's cooperating and it's in line with what we planned coming into the year. And in some respects, on energy, for example, helping out a little more than we'd planned.

So pricing versus inflation so far is happening as planned, as we need in order to be exiting 2023 at that run rate for the 150 basis points. So very confident in that.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

The only thing I'll add, Mike, is something that's happening simultaneously is not only just inflation, other companies face that, but we do have, as Erik said, contractual things that protect us kind of hurt on the way up, but they protect you and they expand on the way down and that's going to start to happen. They're contractual.

But we've just bought 4 companies and though they are accretive right now, it takes some time to bring them to what we feel is the operating and efficiency standard of MTI. And so some investments and some upgrading of those facilities. But I think Erik showed you about 100 basis points of margin improvement just from that fixed cost leverage. We have capacity. We've built out a system in our pet litter business that has capacity to continue to supply.

Those efficiencies through our system, through OE deployment will continue to allow us to drive that growth without the fixed cost expense. Not only is there going to be some fixed cost savings associated with it, but the leverage we're going to see in that business, and I think that's where you're going to see a lot of the margin improvement.

So our Engineered Solutions business is already kind of up with that target margin, but that price lag and that fixed cost leverage is going to happen in Consumer and Specialties. Interesting thing about that is that's the segment that's going to grow the fastest. So you're going to see that margin expansion and that growth compound.

Ross Kesselman

This is Ross Kesselman, standing in for -- Ross Kesselman from CJS Securities standing in for Dan Moore. I understand that some of your consumer or household or personal care, one of the subsegments is consumer specialties and additionally, you have exposure to different industrial applications, automotive, housing industries. Where would you say the most exposure to cyclicalities is in your business across the different segments?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

The most cyclicalities is in Engineered Solutions. And the reason being is there's steel, more industrial applications on that side. So you'll see the automotive and the foundry. You'll see a lot of construction building and construction -- commercial construction and the infrastructure. And you'll see in steel, just in general steel cycles.

There is some in the automotive and construction, residential construction on the consumer and additive side, but the majority of it is on the Engineered Solutions side.

Ross Kesselman

Great. And have you seen any kind of -- has that -- do you think any type of cyclicalities or macro instability could lead to any fluctuations in your 5- or 7-year plan or 5-year plan?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Yes. I think -- well, as Erik mentioned, this is not going to be linear. But I think through the range we gave you, the 4% to 7% on average takes into account, that lower end of the range takes into account the average through perhaps the cycle. So that's a through-the-cycle growth rate we feel at 5%.

So yes, some of our businesses are going to cycle. I will tell you, though, that they're more -- they're much better positioned than they were previously. And I think a lot of you that have known the company for a long time, refractories are that steel and other had cycled along -- 10 years ago, it did not have the position that it had today.

It was -- it didn't have the technology, it didn't have the service that we have. It didn't have the automation. And what we have done -- and this is just an example, as we've added through the equipment and the automation, some more fixed revenue streams, number one, that are independent of the consumption of the refractory. But we've also changed the margin profile of that business such that with the fixed revenue stream and the

fixed cost and the restructuring and the higher margin products, its profitability isn't going to cycle like it did before. And I think you saw that in 2020.

Steel operating rates went down to, I think it was 50% -- less than 50% overnight. But that business continued to throw off over 13% operating income margins through the period. So what used to go to kind of a breakeven business, we've now made one of the most profitable in the company.

Ross Kesselman

Thanks for that additional color.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Any online?

Peter Lerner - *Lerner Associates*

Thank you for hosting today. Just PFAS remediation touched on a little -- it's a few years out, depends on the regulation, but just your product versus activated carbon discussions that you're having, could you just elaborate more on discussions you're having with municipalities and waste companies for the potential there?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

I can. I can anecdotally, the gentleman sitting right behind you to the right, can probably give you a little bit more color, Mike. So maybe I'll start off, and I'll give it to you.

Yes. I think hard regulation, we've been waiting to see things happen, but that doesn't mean that drinking water companies or even others are waiting, right? So this is -- even though it's not going -- it may or may not become a law in 2026, they're already moving forward. And we've been involved in drinking water and, as I mentioned earlier, kind of in situ remediation projects for the past 5 years.

And a lot of them have been trialing. But I think as Mike Donovan told you today, and being qualified through the various agencies that qualify our product that's been done. But I think what you're starting to see is that we're starting to emerge as probably the most valuable source, right?

So there are other ion exchange resins that are similar effective remediation products, but a lot more costly. And so from a total cost of ownership, our media plus the flow rates, you can get through it offer either drinking water or even an in situ or a pump and treat opportunity, the highest value.

So as far as conversations, Mike, I don't know if you want to go through a little bit about more anecdotally what you're seeing and talking about.

Michael Kozak

Sure. And I want to stress the drinking water is only one of the PFAS verticals that we're involved with. We are already seeing traction in, in situ stabilization, whether it be soil stabilization or pump and treat at contaminated sites. We had a multimillion dollar sale a year ago for Department of Defense site in Canada where we were involved in selling the product that was used to remediate a contaminated Canadian Air Force site.

We're doing another U.S. government site in June, which is probably the largest PFAS, FLURO-SORB in situ stabilization project to date. And so we continue to work on all that. We have about 400 opportunities in our pipeline right now. And what will happen with the regulations is basically that dam will break. There'll be an outside regulatory driver contributing to the market.

But as Doug mentioned, we're not waiting until 2026, and we continue to see a ramp-up in both the level of interest as well as the size and the number of projects. So we remain very excited about PFAS.

Lydia Kopylova - *Minerals Technologies Inc., VP Investor Relations*

Any other questions in the room? Okay. We have 2 questions from David Silver, and one is I believe on the FLURO-SORB.

David Silver - *CL King & Associates - SVP Equity Research*

My question about remediation and a particular FLURO-SORB opportunity. I'm wondering if your growth forecast might be too conservative. In some applications, your value proposition focuses on low-cost solutions, while in others, it is a superior performance relative to alternative products.

So can you discuss your current marketing approach, value proposition for FLURO-SORB products across soil remediation, groundwater remediation and municipal drinking water remediation end markets. Where has custom uptake been the greatest and what are your long-term growth objectives for FLURO-SORB?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Well, I think we answered. By the way, thanks, David, for the question. I think we answered some of that, but we'll reiterate it. Our long term right now, without regulation, we're going to continue in the acute areas where people need to remediate. So this is the pump and treat. This is soil stabilization. This is waterway sediment capping.

We are working in drinking water. And I think with the announcement and we're taking this one slow, but with the announcement in 2026, you're seeing a lot more utilities and a lot of them work through engineering companies start to really look hard at having things in place well before 2026. And so it's not -- like I said, it's not like 2026 happens and it goes, we're working with them today because they're putting in systems that you saw already with our media to start cleaning up PFAS in their water.

So it's happening now. It's going to grow. What we're saying is that a regulation or a hard snap on regulation will make that accelerate very quickly. We're not necessarily have that in our numbers. We don't have the fact that this will become a hazardous substance or anything in.

We've modeled at least \$30 million from FLURO-SORB over the next 5 years, and we think we can achieve that with just what we're doing today all the way to 2026, even though the drinking water regulation won't happen until late in our program, we think we can deliver. And I think the environmental and infrastructure was about \$50 million in total, and we think \$30 million of that is easily achievable in PFAS alone.

Lydia Kopylova - *Minerals Technologies Inc., VP Investor Relations*

One more question from David. Can DJ discuss the new product -- project opportunity funnel for your PCC paper product line. In particular, how do you see the evolution of nontraditional paper PCC opportunities to involve, for example, packaging, Envirofil, GCC projects, et cetera. How has the project final evolved over the past 3 to 5 years?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

I'd answer, but you asked DJ. So DJ, you're going to go ahead.

D. J. Monagle - *Minerals Technologies Inc. - Group President of Consumer & Specialties*

Thanks, Doug. Thanks for the question, David. So let me talk about -- reemphasize some of the things that I discussed today and then provide some color on things that I didn't get to today. What I said today is in the very near term, we expect to see some NewYield contracts coming forward. NewYield LO was the one that we had announced in India. That is taking a waste stream from the pulp mill, reconvert it into a pigment and that Sharad was emphasizing crystal engineering and that capability has allowed us to not just make 1 product, but has allowed us to come up with a system that can be applied to these challenges in pulp mills and create a stand-alone opportunity for NewYield or we can bolt it on to some of our existing satellites and we'll probably see examples of those coming forward in the near term.

And there was basically one of those in the pipeline over the last 3 years and now there are several. What is also new is that, that technology can apply to packaging for us, so we've got several inquiries, they're not as advanced as the ones I was highlighting that are near term, but we're making a lot of progress there.

We continue to gain traction with the ground calcium carbonate and what is unique for us there is we are taking our business model, the satellite business, not all the ability to tailor those products for the specific application and our operational excellence, which provides a customer continuous improvement over time. We've got our first one that'll be coming online towards the end of this year. And we've got several more in the pipeline. On top of that, I would say that one of the items which is a little bullet point in the slide, let me just provide more dimension to that.

In brown packaging, we've advanced with a lot of trials with a major brown box manufacturer and this will be a container board packaging. When we discuss some of the synergies that we're seeing and the collaboration that goes on with these segments, this one started prior to the segmentation, but we see a lot of those sort of ideas that are coming through the R&D community about how we can use the different minerals that we have and those core technologies that we have and apply them across a broader spectrum of applications.

So we've got one big trial to go. It will be going on later towards this year, and we would hope that we can advance that key penetration into packaging and brown packaging in particular. All those things are new. And then David, as I've often given in the past, when you were asked on the analyst call, just for perspective, with Jim Wright who's here with us today, he's leading that paper group. I will typically discuss something just under 2 dozen opportunities and about 1/3 of those are in packaging, and that wasn't close to that earlier. So that's the sort of the dimension that we've got.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Other questions? Anything online?

Stephen Michael Ferazani - *Sidoti & Company, LLC - Research Analyst*

Probably not a fun question, but I think it's worth asking. Doug, early on, you described running the company is like running a portfolio holding company. And then you talked about the discounted multiple. A lot of investors would say that's part of it. I think the new segmentation who's at least simplified or eased understanding of the product lines. But how do you count our investors who say, "I can diversify my portfolio myself. I don't need the companies I own to do it."

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

So first off, the segmentation was not to change the way we think about the businesses and the value creation, right? So we do go through a process. We look at ROIC. We look at return assets. We look -- we dissect a lot of valuation margins. But not only that, not just today, where they're going and what their potential is, okay? So we are looking at the portfolio entirely. And we'll make decisions on that portfolio. If we find something that we feel is, look, it's a low return or it doesn't have the long-term potential to improve to a level that we want and as we've described to you today.

So we look at a portfolio we manage that and we will manage that actively. What I think this is, though, but it's not just so easy to say, okay, well, I like that side of the company and not that side of the company because the mineral resources that supply both sides. It's -- we have these resources both on the carbonate side, on the bentonite side resources. We have magnesium oxide resources -- or Magnesia resources. They kind of transcend the business.

What this structure is for is to really start to concentrate the knowledge and the market knowledge and the viewpoints and the types of customers, those consumer product companies, the supply chains that it require, the innovation cycles and timing that it requires to innovate for those type of customers, different than perhaps high temperature, different than what's going on in environmental and those technologies, we've now kind of compressed or coagulated into these things so that we get that faster speed. We get a better clarity of markets. We get better collaboration and start and you saw that CAGR of those innovation.

We want to -- we have to continue that growth rate. So we did this for speed. We did this for clarity. We did this so we can explain to you the company on one sheet of paper. We used to have 13 product lines, right? I mean it took us (inaudible) we'd get through 5 and you'd fall asleep, right? So now we can do that and it much makes much more sense. That said, back to my first statement, there are pieces and parts of it. We looked at them discreetly. They have discrete assets associated with them. And we have a plan for each of them to make sure that they're going to deliver the returns that we expect, the margins that we want.

And if we don't see that, that happens or the market changes, we'll take a portfolio approach to make sure we either can't get there or we re-deploy that capital somewhere. Did I answer it?

Michael Joseph Harrison - *Seaport Research Partners - MD & Senior Chemicals Analyst*

I have several more but I'm going to edit them down. Doug, and maybe if the rest of the team can chime in. I'm curious if you can talk about some of the changes that have happened within the R&D process to increase the pace of innovation and reduce time to market.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Yes, I can. Great question for the team. Maybe I'll start with kind of philosophically how we approached it. And maybe if we have some time, we get some anecdotal answers or input. You go back in 2016, and the team has done just a phenomenal job, but it really starts with, I guess, the deployment of Lean principles. It says, "Hey, there's waste in this process. We have products in here that are not going to be commercialized. They're not being pulled by a customer. We're spending far too much time on them. And so therefore, resources are being taken on something that's either not going to be commercialized or we're going to find out way too late that it's going to fail.

And so we've always had a standardized new product development process, but putting some rigor around that in terms of the metrics starting to set targets for ourselves, starting to look at that new product development process, removing waste from it. So I always say failing fast, and that sounds weird, but what you really want to do, and I know the team looks at you want to make sure -- you want to know if the thing is going to succeed. You have to fail fast. You have to know fast if that's going to make it or not. One of the best screens for that was, is a customer asking for it. So going out and doing technology road maps with each of our customers to say, what are you thinking about 5 years from now?

What are the products? What are your concerns? What are the things you're focused on? What are your strategies and building that product pipeline so that right now, we're aligned with those customers, and we know what they need. That's where the Scantrol came from. It came from a major electric arc furnace saying, "Hey, my biggest thing is safety. I need to get people off the floor, but I need to also save cost." Okay, we're going to develop a product that uses our laser technology, our application technology and give you a better product, and we're going to put that in a package so that you get a better furnace, you get safer furnace operations and we make more money at it at the same time.

It's very well aligned. But you have to do that in a pace. So setting targets for ourselves, making sure that the products are being pulled by customers and failing fast. What that does is that aligns that product development with things that have the highest potential to be commercialized. It gets

them through quickly because you're focusing the resources on the ones that are going to win. And you put a rigorous process in there, and then we plan, we do and then we check along the way to make sure that this is happening. And if it's not, we make corrections. That's the act piece.

So it's applying that OE kind of mindset to our new product development and becoming very efficient and very effective with the commercialization. I think that's what John showed you. We've cut the time in half. It used to be 40 months, it's now 18 months to get a product from start to finish, idea out. And we've doubled, almost tripled the amount of revenue that we've gotten from. We set a target to double, cutting in half and double. That was the target we set. We more than achieved that. Now we're going to go set another -- I don't know if we want to go to 1-day innovation, but there's an efficient level of speed that you want to take, and I think we're getting there.

And it's different in every business, but certainly aligning with the customer. And what we're hearing is a lot of those suggestions and things they need are sustainable energy savings emission reductions, and that's why our pipeline has grown to 70% of what's in there is providing a sustainable benefit for our customer. So that's kind of how we did it, but it really is the way we approach global business services, accounting, operations, closing the books, new product development, that's the way we think about it.

Michael Joseph Harrison - *Seaport Research Partners - MD & Senior Chemicals Analyst*

All right. Next question I had is for Erik. When you talk about your acquisition strategy, it sounds like it in most ways, is supporting your organic growth initiatives. It seems like that means that there's kind of a buy versus build calculus in decision-making process. How do you approach that decision and what pushes you to buy something versus what would push you toward saying we're going to make an organic investment?

Erik C. Aldag - *Minerals Technologies Inc. - Senior VP of Finance & Treasury and CFO*

Yes, sure. I mean I think it comes down to availability on the inorganic front. It's not always a clear-cut decision in terms of build versus buy. And if we want to -- if we have an opportunity to grow organically and build out the footprint, that's what we do. But I think sometimes the inorganic pathway can shortcut that a little bit, but it comes down to availability of those inorganic targets at that point.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

It comes down to value as well, right? Is this something that we feel we can do at a higher return? Or do we think that it's available to purchase. A lot of the markets that we're in are fragmented, and there's a lot of value to be generated by putting them together. And we saw that in the cat litter business, at least in the packaging part of it. We own all of the resources, most of the resources that supply the sodium bentonite cat litter based business, and we felt that there was an opportunity to, instead of taking the time to go build those centers that we just put it together and roll it out, and that's what we did.

Michael Joseph Harrison - *Seaport Research Partners - MD & Senior Chemicals Analyst*

All right. Last question I have is for Brett. You talked about the refractories growth opportunity in North America and in Europe. Doug talked quite a bit about that being kind of a model of success for growth for margin improvement. I'm curious if you could talk about your refractories position in Asia and maybe whether there's an opportunity there or if not, why not?

Brett Argirakis - *Minerals Technologies Inc. - Group President of Engineered Solutions*

I can always count on you to ask and talk about refractories, and he tries to hog up the answers all the time. Asia is the smallest part of our -- of the refractory business. It's probably less than 10% of the refractories revenue. But we have some positions like adding India. India is a growth market. India is actually growing in steel. So it is -- it does show some opportunities. And we've taken advantage of that. But China and Japan. Japan is probably our strong, not broadly. It is our strongest area, our biggest area of revenue and growth, but -- and it's stable.

The issue we have in China and Japan are these companies actually have their own refractory companies within their steel company. The reason they use us is because they need that high-value product when they get late in a furnace campaign. So basically, as that furnace starts aging, it needs the high durability products that we provide. So we step in and we start applying them. They also don't -- in Japan, they don't have the steel mill service. They use their own people. So -- and that's their market. So we don't have the opportunity to physically apply our own products. We give them technical solutions and then help them with our products.

So we -- it's just not as -- we're not as strong to drive that market. China has a lot of small refractory companies, low cost, and it makes it a little bit more difficult. Now the good side of the new organization and the high temperature solutions, we have that strong footprint for the metal castings business or the foundry business. So that makes us much stronger. It gives us a footprint to drive it further. And in China, it's almost as strong as it is in the U.S. So when you tie it all together, we have a market share of about 20% in Asia in the Engineered Solutions business.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Just not a market that is conducive to our model with the equipment and the people and the high durability refractories, they do it themselves and it's vertical in their business. It's just not as open to our model. Mike, I had a whole list.

Michael Joseph Harrison - *Seaport Research Partners - MD & Senior Chemicals Analyst*

All right. I'll give you 1 more. In the PCC business, you obviously have a printing and writing position that's very strong. Packaging is kind of emerging that other category would include tissue and towel. Is there an opportunity for PCC or other types of filler in tissue and towel?

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

There is. You wouldn't think -- well, I'm going to let DJ answer the tissue and towel. You wouldn't think that putting rocks in your tissue would be conducive to the softness, but actually is, and it really has to do with some of the technologies we have around fiber. And how we can manipulate fiber help customers manipulate it to put in and make that towel or tissue just as soft, but cheaper to make. So there's some of that.

I think the other things in PCC are really around the specialty area, which is in food and pharma is a big piece of that, especially PCC. We talked a lot about some of the calcium fortification of beverages because the small particle size that Sharad put in, but also in sealants and construction and in green kind of construction areas. I don't know, DJ, I'm taking it all up. Brett yelled at me for answering the questions, so maybe you take this one.

D. J. Monagle - *Minerals Technologies Inc. - Group President of Consumer & Specialties*

I don't have much to add there. I would say, Mike, so in terms of the volume and the value that we can bring with crystal engineering, it's in that paper market. printing and writing well established both in the sheet and on the sheet. Packaging technologies emerging, and I would throw NewYield in that crystal engineering sort of thinking. And then beyond that, you asked for tissue and towel.

There are some niche opportunities that are developing although I'm not ready to call it a growth opportunity for us, but we have been able to help customers achieve hand feel and softness with our crystal engineering. I just don't know that we're ready to say that's a big thrust for us at this time.

But the other area is that we do see PCC contributing to growth for the company is in that specialty application, especially in the sealant and the food and pharma range. And that's taking those same particles and making them much, much smaller like Sharad was telling us where we can -- well, you can see some of the examples on the tables and even if you got some oat milk, where it's our PCC that allows for that calcium fortification to get to you without you tasting chalk and it allows for suspension stability within the application within the milk.

Peter Lerner - *Lerner Associates*

I just have 1 quick question for Erik. On the slide where you talked about the relative valuation. Who are the proxy peers you were referring to? I have a hard time coming up with them?

Erik C. Aldag - *Minerals Technologies Inc. - Senior VP of Finance & Treasury and CFO*

Yes. So just trying to find good comps for us, but those are our peers that we disclosed in the proxy. ^ Published. So it's a set of 22 companies, I believe, but it's publicly available. We can share the list with you, mostly Specialty Chem names.

Douglas T. Dietrich - *Minerals Technologies Inc. - Chairman & CEO*

Other questions? Anything online Lydia. Look, I'll let everyone get out of here. Thank you very much for attending today. As you can -- hopefully, you got the excitement that we felt trying to share this with you. It's been a long time, but we wanted to give you a feel for -- yes, the roundness that it is, it's not any 1 element, but it is that combination that I think we're able to execute on, is what we're passionate about, and hopefully what will drive some value for you.

So thanks for coming in. today and hope to see you on future events or even some of our calls coming up next quarter. Thanks.

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