

# HOW IT'S DONE: CREATING A CULTURE OF QUALITY

By David Holthaus

Quality is more than a buzzword; in the manufacturing world, it is an essential practice.

As long ago as 1930, a vice president of a milk manufacturer described the practice of quality in a now oft-quoted speech: "Quality is never an accident. It is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

Quality improves productivity, enhances worker safety, saves money, and creates loyal customers. Attaining high quality consistently is a never-ending process of continuous analysis and improvement.

To get at the recipe for a culture of quality, we interviewed executives at two refractory manufacturers, Saint-Gobain and Allied Mineral Products. Their products must withstand extreme temperatures and corrosive environments—meaning quality is of utmost importance.

## SAINT-GOBAIN

Saint-Gobain is a 350-year-old Paris-based multinational corporation that attained an international reputation for quality. Its SEFPro division provides refractory solutions to the glass industry, which it has done for the past 85 years.

Andrea Kazmierczak has worked for Saint-Gobain for more than 18 years and is currently R&D process leader with the SEFPro unit at its Northborough, Mass., location. She spoke to us about the company's quality processes.

**Q: What is your role in improving and protecting quality?**

**A:** It's twofold. At Saint-Gobain, one of the major functions of R&D is to have strong relationships with our customers. We learn about



The Saint-Gobain Group is a \$44 billion company with 166,000 employees. Credit: Saint-Gobain

ways to help provide value to them, by improving the quality or guaranteeing the quality of materials. We support the customer at every step of their project through the various services we provide. We help our customers identify defects in their glass, so they can rely on us to quickly and efficiently analyze the problem and provide them with the information to correct it. We work very closely with our global fleet of manufacturing plants in pursuing new technologies and implementing processes to ensure that our facilities are providing the best quality of materials to our customers.

**Q: Can you drill down on some specifics and best practices that your company follows?**

A: Something that stuck with me early on as a process engineer and then a quality manager is just the cost of quality, investing in quality testing. You have employees, technicians, and engineers involved to analyze the data. That cost is not negligible. But it has been instilled in me how much that can affect the quality of the products going forward. Catching a problem early on will save a tremendous amount of money. Looking at things like qualifying and ensuring good quality raw materials is a good example of that. If you cannot certify that your raw materials are stable, that they are within a set specification, you could have a ticking time bomb and you will not know it until you have a load of scrap materials. Investing that time early on is critical.

**Q: How do you work to catch problems early?**

A: Quality is everyone's job. It is important to instill that in everybody. Operators and technicians are empowered to speak up if they see something different, or an incoming shipment comes in a different color bag, or if you have something that just does not look the same. Everybody's empowered to speak up and bring attention to these things.

**Q: How do you create that culture, that attitude among employees?**

A: That is everybody's bottom line. We are all trying to reach the same goal, to support our customers in every aspect of their project. We want to understand our customer's needs and deliver what they want, on time, all the time. It is instilled in process engineers the first day you come in. We place a big emphasis on traceability, so we can relate the materials and process to quality. During a customer furnace tear-down, we can often go back to the drawing or a parts list and trace the history of each part manufactured from the raw material to when it left out dock.

**Q: Is there a continuous improvement process that you follow?**

A: Yes, that's involved with the ISO 9000 system, and there is a strong emphasis on continuous improvement and getting to the root cause of a problem. If there is an issue, we log it, and either talk in a small group or a large group to hash out the corrective action, continuous improvements and the preventive maintenance or preventive actions that make sure we do not have a repeat occurrence or similar one in another area. It is really for the customer to have complete confidence about the quality of the materials they purchase.

**Q: Is their employee training along those lines?**

A: Everyone coming in learns about quality. There is information about the cost of quality, and process engineers go through a

SMART program where they get a handle on every aspect of the plant. They are put into an operator's shoes in different departments.



Andrea Kazmierczak

**Q: When you visit a plant, what do you look for?**

A: A lot of my projects are in the later stages of getting out to a customer, so I'm helping to make sure that the properties we attained in a lab are maintained throughout the scaleup of the process. Sometimes when you are in the fire at the manufacturing plants, it is hard to see the long-term or systemic problems that can happen.

**Q: How do you work with your suppliers to ensure quality?**

A: We have lists of critical suppliers and we do audits on them. There are different categories, different tiers of suppliers. Critical or sole source suppliers, for instance, would be more closely scrutinized. We make sure we have secondary sources for raw materials. If we do make a change, it is not done lightly. We go through extensive quality control checks whenever we make a change to the batch or process, no matter how minor it is. We make sure everything's still as expected. There is a follow-up required for each of those changes.

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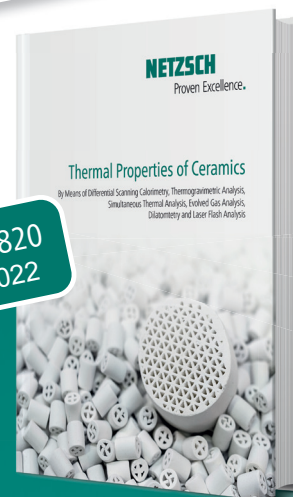
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## Allied Mineral Products: Where quality begins at the top

Founded in 1961, Allied Mineral Products has grown into a global company and leading producer of monolithic refractory products for a wide range of industries. Based in Columbus, Ohio, the company operates 12 manufacturing facilities in eight countries, and sells its products in 100 countries.

At Allied, quality begins at the top, says Doug Doza. Doza is an executive vice president who has worked at Allied for more than 37 years. "It's the corporate culture," he says. "It's driven by leadership."

Allied has built a reputation for quality through a sustained focus on its customers, who range from steelmakers to aluminum producers to heat treating operations.

"Our quality system is really about customer focus," Doza says. "How do you characterize and measure our products and our raw materials throughout our process so that the products we produce are fit for use in the eyes of the customer."

Sounds almost simple, but maintaining reproducibility and consistency with products that must withstand extreme temperatures, molten metal, and other thermal shock conditions is an ongoing process that involves continuous improvement and measurement, as well as communication with customers.

That necessarily involves engaging the company's employees in quality assurance and making its practice a part of everyone's role on a daily basis, Doza says.

"Employees need to be actively involved and understand the product and the products' features so that they can develop appropriate inspection plans," he says.

Allied employs teams of engineers who work with customers to help determine what their needs are. They work to understand the customers' processes and goals and what the products' performance requirements will be. They then engineer solutions by selecting products from Allied's extensive list or creating advanced ceramic customized solutions that make the best use of an existing product or creating a new one.



The Jon K. Tabor Global Business Center at Allied Mineral Products. Tabor, former chairman and CEO of Allied, who recently passed away, was an inspiration behind Allied's quality culture. Credit: Allied Mineral Products



Some of the employee owners of Allied. Credit: Allied Mineral Products



Doug Doza

"If you do not understand the customer's needs, you cannot design or manufacture a product that is optimized for their process," Doza says.

Training and communication within the organization, as well as outside the organization, by the Allied team and with its customers is ongoing.

Befitting a company in the business of precision manufacturing, Allied measures employee engagement on a regular basis. The company annually asks employees to complete a Gallup-style survey that ascertains how they feel about their jobs and other workplace issues.

"There are metrics that go with employee engagement," Doza says. "You need to have measurements and rate yourself to those measurements."

At Allied, employees tend to be inherently interested in the company's performance because they are owners of the company through an employee stock ownership plan. "Employee engagement is part of our calling," Doza says.

Part of the company's ongoing training and employee communication plan is promoting awareness of shared goals so employees can optimize their work to benefit the company and themselves.

Allied also holds employee round tables regularly where employees can hear about new projects and have opportunities to meet with senior leadership. It is a practice Allied has been doing for about 25 years, Doza says.

"Twice a year we sit down and they ask us questions until they're out of questions," he says. "The executive team wants to know—how can we get better and how can Allied get better? What's happening that we're not aware of?"

Allied's efforts ultimately come down to this continuous improvement practice, Doza says. "What decisions do we make today to make us better tomorrow?"



**Q: St. Gobain is such a large company, with so many different sectors and so many manufacturing plants. Are there practices you could spotlight that help the company ensure it has a culture of quality across all divisions?**

**A:** We look at what the core values are for the customer, and the quality really comes from the commitment to the customer. We are committed to providing them with a product that meets their needs. We get an understanding of what the customer wants, and once you meet with a customer, you start to become invested in their success.

**Q: Are there any new trends or new practices that you have implemented or you are seeing in the industry?**

**A:** There is a lot of potential for using sensors and nondestructive testing techniques to help our customers monitor their furnaces better. We have a complete suite of services where we can help monitor gas emissions to help them get a longer life out of their furnace or maybe diagnose issues or improve efficiencies and detect if there are any temperature leaks. The current trends are leading us to help customers get more and more lifetime out of their furnaces, and help them adapt to environmental regulations. ▽



SEFPro is dedicated to offering refractory solutions to the glass industries. Employees work to ensure that properties attained in a lab are maintained throughout the scaleup of the process. Credit: Saint-Gobain



Northborough, Mass., is Saint-Gobain's largest research center. Credit: Saint-Gobain

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