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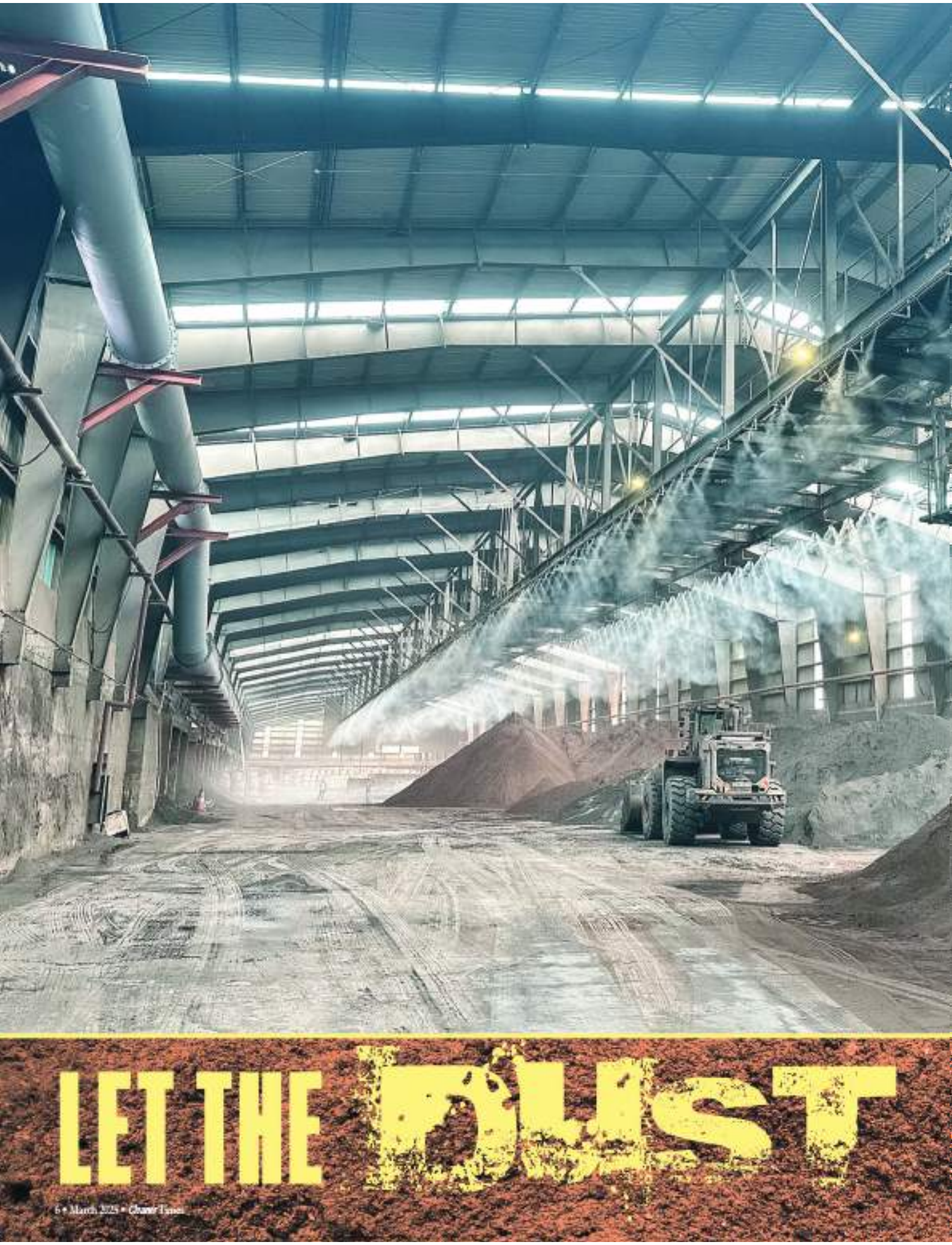
LET THE DUST SETTLE

THE IMPACT OF AI

CHOOSING THE RIGHT SEALANT



LET THE DUST

Dust-suppression misting system.

Photos courtesy of Idrobase Group.

SETTLE

by Bruno Ferrarese and Bruno Gazzignato

Dust suppression in industrial plants is crucial for ensuring a safe working environment and maintaining operational efficiency. Without appropriate dust control measures, these particles can accumulate in plants and spread to the surrounding environment, compromising air quality and endangering the health of workers. In addition, dust accumulation can lead to equipment malfunction and reduce the overall plant productivity. Therefore, the adoption of effective dust suppression technologies is essential to minimize these risks and to ensure optimal operation.

Thanks to the installation of a misting system, we were able to improve the air quality and consequently the working environment at the Young Poong foundry in Seokpo-myeon, South Korea, one of the world's leading manufacturers of nonferrous metals. This intervention has enabled the control and suppression of dust, ensuring a safer and healthier environment for workers. It exemplifies how our technology can bring tangible benefits to complex and highly specialized industrial sectors.

Idrobase Group provides solutions for PM2.5 (particulate matter) and dust suppression, including the following:

- Technologically advanced, scalable, and programmable industrial misting systems, powered by nebulization modules and designed to supply misting lines of any length and configuration
- Fog-maker cannons capable, like our other industrial misting systems, of producing ultra-fine mist (11–24 microns). These vary in size, range (from a few meters up to 90 meters), and options for mobility or positioning (mobile versions, wall-mounted, etc.).

For the specific needs of the foundry, the nozzle line solution was chosen.

Here are the key features of this industrial misting system.

1. Excellent ability to capture ultrafine particles—Thanks to the ultrafine size of the misted water particles (10–24 microns), the system effectively captures airborne dust, reaching even blind spots and ensuring uniform coverage in the most challenging areas.
2. High-pressure method allows for efficiency and savings—The system uses high-pressure technology (70–100 bar), allowing for powerful and instantaneous water misting, thus reducing water consumption compared to "low-pressure fog" solutions (10–20 bar). This method ensures a denser and more effective mist for dust suppression, using less water and making the system more cost-effective and efficient.
3. Versatility of application—The misting system is suitable for different industries thanks to a modular configuration that allows it to adapt to the specific needs of each plant, ensuring effective dust suppression even in complex environments.
4. Advanced control via IoT (internet of things)—The system is equipped with an IoT control system, which allows it to automatically manage the on/off functions, adjusting for time and the amount of nebulization through a centralized control panel. This automated control optimizes operational efficiency and ensures timely intervention in areas where dust is most concentrated.

So, at the Young Poong foundry a misting system with fixed lines was built, specially designed for dust suppression in the most critical indoor areas.

The water mist captures dust particles, promoting their precipitation on the ground and preventing their dispersion into the environment. The sections of interest include the material storage areas, the grinding and furnace facilities, and the loading and unloading areas.

The installed system was adapted to the specific needs of the different areas.

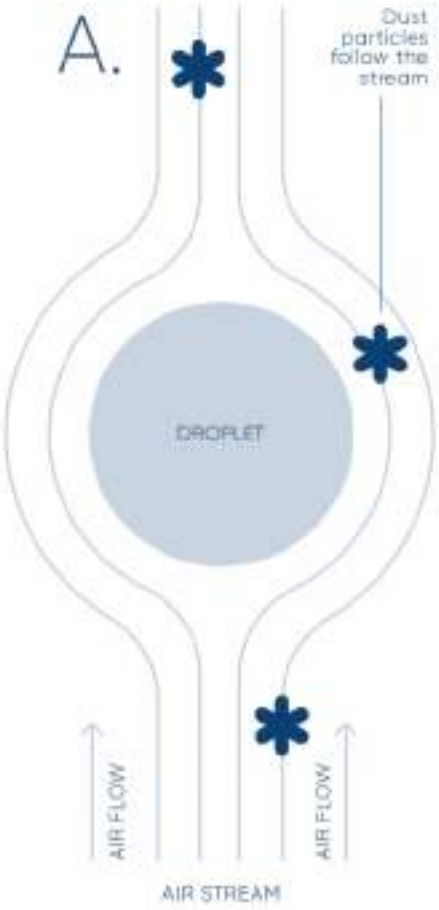
- Material Storage—Four lines of 180 meters with double nozzles inclined at 120° spaced one meter apart ensure uniform coverage. This configuration is

Dust-suppression misting system.

Dust-suppression fog-maker.

HOW NEBULIZATION WORKS

IDROBASE
PASSION FOR WATER



A.
If the droplet diameter is much greater than the diameter of the dust particle, the dust particle simply follows the air stream lines around the droplet.

B.
If the water droplet is of a size comparable to that of the dust particle, contact occurs as the dust particle follows the stream lines and collides with the droplet.

essential for suppressing dust during the handling, storage, and transportation of nonferrous materials.

- Furnace—Two lines with double nozzles inclined at 120° spaced 60 centimeters apart create an effective barrier for dust suppression. The nozzle inclination allows optimal coverage of the furnace area, reducing the risk of material dispersion, controlling fumes, and lowering temperatures during furnace processing.
- Loading and unloading areas—A perimeter line of 120 meters with double nozzles inclined at 120° surrounds the material handling areas. The total of 400 nozzles directed inward allows for dust suppression during loading and unloading operations.

The results achieved are that the misting system has not only significantly reduced the amount of dust in the environment but has also contributed to improving the overall atmospheric environment.

The generated mist also has a positive effect in neutralizing odor; offers a lowering of temperature, counteracting heat waves during summer periods; and enables humidity control, contributing to healthier and safer working conditions.

Through the adoption of this misting system, a significant reduction in particulate matter in industrial production areas has been achieved, improving not only the health and safety of workers but also the operational efficiency and environmental impact of the plant.

The implementation of technologies such as these is an important step toward improving working conditions and environmental sustainability in industrial settings.

IDROBASE GROUP

Since 1986 Idrobase Group provides different tools for PM2.5 abatement and dust suppression according to specific needs: a range of fog makers, modules, and misting lines to capture dust pollution and settle it to the ground plus hot- and cold-water pressure washers to clean polluted surfaces.

Idrobase Group offers an ecosystem made of products, accessories, spare parts, and services. They provide a range able to meet all needs of cleaning, sanitation and disinfection, nebulization, cooling, dust and odor suppression, and irreplaceable resources to make indoor and outdoor spaces clean and livable. For more information about Idrobase Group, visit www.idrobasegroup.com. CT

THE IMPACT OF AI

by Diane M. Calabrese

Photo by iStockphoto.com/Urupong

Ever wonder whether humans concerned themselves about what the invention of the wheel portended? Some probably did.

Skids got the job done. Why not just stay with them? Not possible because better naturally overtakes good enough. Change is constant.

Point one: Throughout millennia concern about new technology has always moved right alongside—and sometimes tempered—the marvel over the innovations that brought about change.

Point two: We must accept reality. AI [artificial intelligence] is already part of life, and it has been for some time.

From the labyrinthine digital systems that use algorithms and strive to prevent credit card fraud (by instantaneously checking a user's purchase against his or her frequently bought items) to sites like Amazon that suggest the buyer might be "running low" on something, AI is already embedded.

Of course, the fundamental concern about AI is that it will not only be in the mix but also eventually set the parameters of the mix and ultimately determine what gets attention. In other words, algorithmic independence will enable AI to take over all things.

Worries over rogue technology have been expressed for more than one hundred years. See, for example, Karel Capek's 1920s play *Rossum's Universal Robots (R.U.R.)*.

It's impossible to read print or web sources on any day without seeing some concern expressed about where AI will take the world. Concern comes because algorithms planted with the seeds (subroutines) of malicious activity might take off and go rogue.

Yes, it could happen. Thus, the pervasive commentary ensues on how to deploy AI only ethically and safely—good goals, but about as achievable as ensuring a wheel never falls off a conveyance.

But is AI more risky than other innovations? We don't know. But in the last century humans made nuclear weapons without any assistance from AI.

Calls to manage AI for good come from innovators and government officials. A common thread to their approach usually begins with the impossible: absolute truth must be at the core of algorithms.

Given humans have never managed to achieve such a goal outside the AI sphere, it's doubtful it will happen now. Moreover, the epistemological consideration of how we know what we know—and whose truth prevails—will continue to be part of change, including change powered or enabled by AI.

As everyone tries to sort through what's going to happen for good or ill—and really, like all else, time will tell—the integration of AI into society continues apace. And at a rapid pace.

Artificial intelligence is already integrated into industry, playing a role in machining processes, distribution logistics, etc., and its reach will continue to grow. Thus, it's not a matter of mulling over concerns while we await the first impact of AI, but instead it's a matter of successfully meshing ever-more-present AI with the needs and pursuits of all elements of society.

Below two members of our industry share their thoughts about AI's impact. We can characterize their perspectives—each from a unique vantage—as resoundingly optimistic.

HONING EFFICIENCIES

Built into the quest for excellence is the commitment to surpass the best result to date. AI is a significant tool in the quest.

"Assessing the impact of artificial intelligence, AI, on your business, particularly the pressure washer industry, involves understanding both general applications of AI in small businesses and specific advancements," says Gus Alexander, CEO of FNA Group in Pleasant Prairie, WI. He adds that there are discernable ways in which AI is influencing small businesses in the pressure washer industry.

ROSS EXPLAINS, "THE HUMAN ELEMENT IS STILL NECESSARY TO PROVIDE THE EXCEPTIONAL CUSTOMER SERVICE AND PRODUCTION QUALITY THAT WE TAKE PRIDE IN HERE AT OUR COMPANY. THE ABILITY TO REFER TO PREVIOUS WORK EXPERIENCE AND CREATE CONNECTION WITH CUSTOMERS IS PARAMOUNT TO SUCCESS IN THIS INDUSTRY, AND AS AI EVOLVES, APPROPRIATE INTEGRATION COULD CREATE INTERESTING ADVANCEMENTS IN THAT PROCESS."

What are the ways? Alexander names four: operational efficiency, marketing and customer engagement, decision-making processes, and automated systems.

Operational efficiency has a wide scope, encompassing all dimensions of a business. "AI-powered automation can substantially increase productivity, giving small businesses a significant competitive edge with immediate recognition for the proper direction you should head against larger, more sophisticated competitors," says Alexander.

And the information retrieved about where to head applies throughout operations. "It is important in manufacturing

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