



Spraying Systems Co.®
Experts in Spray Technology

HOW TO DRAMATICALLY REDUCE THE USE OF CHEMICALS, LUBRICANTS & OTHER COATINGS WITHOUT COMPROMISING QUALITY

Whether you're applying lubricants to molds, pans, tools or equipment; ingredients or toppings to food products; or protective coatings, chemicals or moisture to raw materials or finished products; achieving consistent, uniform coating can be challenging.

Manufacturers and processors often struggle with applying the proper amount of coating. Applying too much or too little creates a multitude of problems, including:

- Waste of costly chemicals, lubricants and ingredients
- Product quality issues, including:
 - Altered appearance and/or taste
 - Mold release failure
 - Reduced efficacy of antimicrobials and chemicals
- High scrap rates and costly rework
- Messy, unsafe work environments

Unfortunately, many of these problems are accepted by manufacturers as part of the coating process. However, there is an alternative that can minimize or eliminate the waste, scrap and mess associated with most coating operations.

PRECISION SPRAY CONTROL (PSC): THE KEY TO SUPERIOR, CONSISTENT COATING

Precision Spray Control provides exceptional accuracy and consistency with minimal waste by ensuring the proper amount of coating is uniformly placed directly on the target and nowhere else.

WHAT IS PRECISION SPRAY CONTROL?

PSC uses a spray controller to turn electrically-actuated nozzles on and off very quickly to control flow rate. Flow rate changes are based on operating conditions, such as line speed. The flow rate changes almost instantaneously to ensure the proper application rate.

Benefits include:



Elimination of wasteful, messy overspray



Reduced consumption of costly coatings – users report reductions up to 70%



Improved product quality and lower scrap rates



Decreased maintenance time



Safer, cleaner work environment



Lower operating costs

A CLOSER LOOK AT HOW PRECISION SPRAY CONTROL (PSC) IMPROVES COATING PROCESSES



REDUCE CHEMICAL/INGREDIENT USE

Most manufacturers are shocked to discover how much coating material is wasted and to learn how much they can save. PSC can reduce coating use up to 70% and yield savings of hundreds of thousands of dollars annually.

Over-application and misting are the primary causes of wasted coatings. Over-application occurs when:

- More coating is applied on the target than necessary
- The coating is applied on areas surrounding the target
- The coating is dispensed continuously instead of intermittently when needed

Misting, which typically results from using compressed air to atomize the coating, can also be a big source of waste.

PRECISION SPRAY CONTROL ELIMINATES COATING WASTE BY:

- Automatic adjustment of the application rate, ensuring the exact amount of coating is applied and not a drop more
- Applying the coating directly on the target by providing accurate, consistent spray coverage
- Applying the coating only when and where it is needed. For example, if you have products on a conveyor, the coating should be applied only when the products are properly positioned under the nozzles. There is no need to spray continuously, even if the products are in close proximity to each other. PSC enables nozzles to be cycled on and off very quickly and activated to spray only when needed. See figure 1.
- Adding zone control to a PSC system is another way to reduce waste. If the width of the product varies, zone control enables nozzles to be turned off and on as needed. See figure 2.

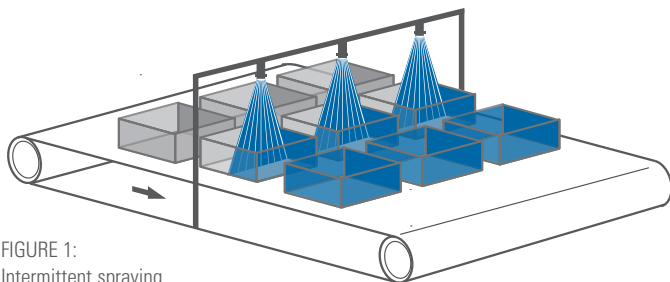


FIGURE 1:
Intermittent spraying



MINIMIZE SCRAP & REWORK

Inconsistent application of coatings and ingredients can wreak havoc with product quality. In some cases, products can be reworked, but often the rejected product is scrapped. Rework and scrap are costly and wasteful. If the coating problem isn't detected prior to product shipment, the negative impact can be even greater. For example, if a corrosion inhibitor isn't applied uniformly to steel strip and the problem goes undetected, the steel is likely to be returned at the producer's expense and customer satisfaction may plummet, jeopardizing repeat business.

Here's how PSC eliminates inconsistent coating:

- Automatic adjustment of the application rate ensures the proper amount of coating is always applied – even with variations in line or machine speed or changes in other operating conditions
- The inconsistencies inherent with manual application of coatings, dipping or brushing technologies and using pressure to adjust flow rate are eliminated

Some manufacturers have reported results like these since implementing a PSC system:

- **Reductions up to 50% in scrap**
- **Elimination of rework due to coating problems**
- **Increased production and profitability**

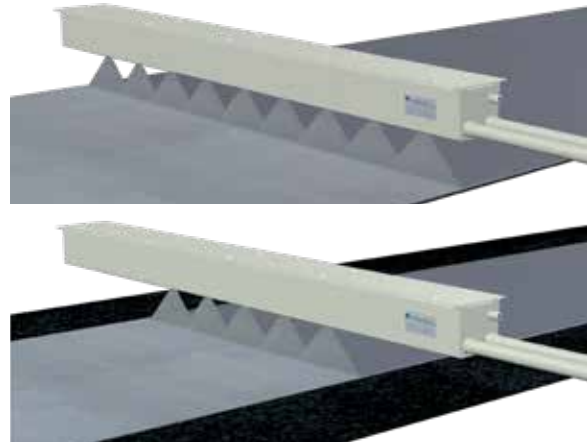


FIGURE 2: Zone control

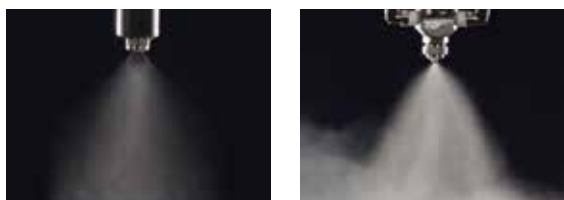




IMPROVE WORKER SAFETY

One of the biggest threats to worker safety is slip hazards caused by oils, lubricants and other coatings dripping and spilling on the floor during application. PSC eliminates the wasteful overspray that creates slippery equipment and floors.

Another factor that jeopardizes worker safety is misting. PSC can dramatically improve air quality by reducing misting. In many operations, electrically-actuated hydraulic nozzles can replace air atomizing nozzles. With PSC, electrically-actuated hydraulic nozzles can produce very small drops. The drops are slightly larger than the drops produced by air atomizing nozzles, but provide the same or improved coverage without using compressed air. The result is precision application of coatings with minimal misting. See figure 3.



Electrically-actuated hydraulic nozzle

Air atomizing nozzle

FIGURE 3: Shows the difference in misting and bounce-back between an electrically-actuated hydraulic nozzle and a traditional air atomizing nozzle spraying at the same flow rate.

One food processor reported a **90% improvement in air quality after installing a PCS system.**

ADDITIONAL BENEFITS OF PRECISION SPRAY CONTROL

In addition to reducing the use of costly coatings, minimizing scrap and improving worker safety, PSC helps manufacturers reduce downtime and lower operating costs.

- Eliminating overspray and reducing misting **reduces maintenance downtime and labor**
- Automating coating **eliminates the need for labor for manual application or adjustment** of flow rate
- Eliminating the use of compressed air in some operations may be possible and result in **significant energy savings**

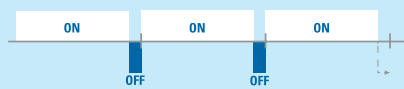
HOW PRECISION SPRAY CONTROL WORKS

PSC uses an AutoJet® spray controller to turn electrically-actuated Pulsajet® nozzles on and off very quickly to control flow rate. This cycling is so fast that the flow often appears constant.

With traditional nozzles, flow rate adjustments require a change in pressure. Changing pressure also changes the nozzle's spray angle/coverage and drop size. With PSC, pressure remains constant, enabling flow rate changes without changes in spray performance.

The spray controller automatically adjusts the flow rate to compensate for changes in operating conditions and variations in line speed. Sensors are often integrated into the system to trigger the nozzles to spray only when needed.

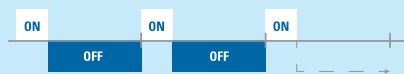
NOZZLES SPRAYING 90% OF THE TIME



NOZZLES SPRAYING 50% OF THE TIME



NOZZLES SPRAYING 25% OF THE TIME



HOW TO DRAMATICALLY REDUCE THE USE OF CHEMICALS, LUBRICANTS & OTHER COATINGS WITHOUT COMPROMISING QUALITY

IS PRECISION SPRAY CONTROL RIGHT FOR YOUR OPERATION?

If your operations involve coating, lubricating or dispensing, the answer is most likely yes. PSC is ideal for use with a wide range of fluids/materials in dozens of industries.

Here are a few examples:

- Spraying oil, butter, flavorings and toppings to food products. Depending on the viscosity of the coating, heat may be required to ensure optimal performance. Ask an expert for guidance
- Applying release agents
- Applying antimicrobials and mold inhibitors
- Spraying fire retardants, corrosion inhibitors, adhesives, dyes, fragrances, wax and more



SUMMARY

There may be an opportunity in your plant to dramatically reduce coating use and advance your sustainability initiatives. For most manufacturers, reducing coating use can be a gateway to reducing scrap, improving worker safety, lowering operating costs and boosting production.

For more information on Precision Spray Control, contact your local spray specialist at 1.800.95.SPRAY or spray.com.



ABOUT SPRAYING SYSTEMS CO.

We help companies around the world reduce water, energy and material use, decrease waste, minimize environmental impact and improve worker safety. Let our spray technology advance your sustainability initiatives.



Spraying Systems Co.
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White Paper 117 ©Spraying Systems Co. 2019