

# Dry Ice Blasting: A Game-Changer for Safe Cleaning and Decontamination in Nuclear Power Plants



## Introduction

The nuclear energy industry is critical not only for meeting the world's growing demand for electricity but also for advancing global decarbonization goals. As the sector evolves—through life extensions of existing plants, decommissioning, innovations like small modular reactors (SMRs) and microreactors, and new facility construction—the need for safe, efficient, and environmentally responsible maintenance and decommissioning continues to grow. Whether a plant is coming online, operating beyond its original design life, or entering decommissioning, cleanliness and operational integrity remain non-negotiable. That's where dry ice blasting stands out—a powerful, safe cleaning method ideally suited for the high-stakes demands of nuclear environments.

## What is Dry Ice Blasting?

Dry ice blasting is an advanced cleaning technology that propels solid carbon dioxide (CO<sub>2</sub>) pellets at high speeds using compressed air. It can be used to remove various surface contaminants like rust, oils, scale like deposits, and much more. Upon impact, the pellets sublimates, instantly transforming from solid to gas, creating a thermal shock that lifts contaminants and residues from surfaces. The results? Ultra clean surfaces with little to no residue.

### What Makes Dry Ice Blasting Ideal for Nuclear Power Plants?

The unique characteristics of dry ice blasting make it particularly valuable in nuclear power applications:

- **Non-Abrasive:** as a softer media it won't damage most surfaces allowing for the safe cleaning of delicate components.
- **Non-Corrosive:** since the process leaves no residue and contains no water it will not rust or corrode surfaces.
- **Non-Toxic:** it uses no harsh chemicals or cleaning agents making it an environmentally friendly solution.
- **Non-Conductive:** it does not conduct electricity, eliminating the risk of short-circuiting electrical systems during cleaning.
- **No Secondary Waste:** the process is completely dry, due to the sublimation on impact, it eliminates any secondary waste unlike many other cleaning methods.

For nuclear facilities dry ice blasting checks every box. Its dry, chemical-free, and non-damaging process makes it ideal for maintaining critical infrastructure without risking the integrity of sensitive components. But what truly sets it apart is it produces no secondary waste which means that there is no residue, no contaminated water or other cleaning agents to dispose of, and no need to replace cleaning equipment after use. This means reduced costs, and safer, more efficient operations.

Interested in Dry Ice Blasting? Goodway Technologies DIB-2500 Industrial Dry Ice Blaster is an ideal solution for nuclear facilities.

### Dry Ice Applications in Nuclear Facilities

Dry ice blasting is proven to be an exceptional cleaning method used across both



active and decommissioned nuclear power plants. Its dry, non-toxic, and residue-free process makes it especially well-suited for environments where safety and contamination control are critical.

In operating facilities, dry ice blasting plays a key role in maintaining essential systems—like heat exchangers, steam generators, turbines, pumps, electrical components and general nuclear contamination. It helps remove buildup and surface contamination without damaging sensitive components or disrupting operations, all while reducing downtime and minimizing radiation exposure risks.

For decommissioning projects, it supports safe and efficient cleaning and decontamination throughout the facility. From decontamination in hot cells and gloveboxes to cleaning walls, floors, and instrumentation, dry ice blasting makes it easier to meet regulatory standards while avoiding secondary waste.

Click to learn more about Goodway Technologies DIB-2500 Industrial Dry Ice Blaster.