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SOLUTIONS

For the coolest, quickest clean



Energy sector

# Energy sector

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## Dry Ice Blasting in the Energy sector:

Welcome to BBS's information pack for the energy production industry. Dry ice blasting offers several benefits for the energy sector. It provides a non-conductive and non-abrasive cleaning method that effectively removes contaminants, such as rust, scale, and coatings, from equipment and infrastructure. It reduces downtime, increases equipment lifespan, and improves operational efficiency while minimizing environmental impact. through this information pack we will go over in detail how our service will create instant benefits for your industry.





# What is it?

Dry ice blasting, also known as dry ice cleaning or CO<sub>2</sub> blasting, is a non-abrasive and environmentally friendly cleaning process that uses high-velocity streams of dry ice pellets accelerated by compressed air to remove contaminants from surfaces. The process combines thermal shock, kinetic energy, and gas expansion to effectively remove dirt, grime, grease, paint, adhesives, and other substances without leaving residues or damaging the surface. The benefits of dry ice blasting include its non-toxic and non-abrasive nature, reduced cleaning time and no need for equipment disassembly, improved worker safety, minimal environmental impact, and versatility across various industries and applications.

*Kinetic Effect: When dry ice pellets strike the surface, they transfer kinetic energy, causing the contaminants to crack and loosen.*

*Thermal Effect: The extremely cold temperature of dry ice (-78.5°C or -109.3°F) causes the contaminants to contract and become brittle, making them easier to remove.*

*Sublimation Effect: Dry ice pellets convert into CO<sub>2</sub> gas upon impact, rapidly expanding and creating tiny explosions, lifting the contaminants away from the surface.*

# Benefits of Dry Ice Blasting in the Energy sector

**Efficient Cleaning:** Dry ice cleaning effectively removes contaminants such as oil, grease, dirt, and corrosion from various energy production equipment, including turbines, generators, heat exchangers, and pipelines. It ensures thorough cleaning and restores equipment performance, resulting in improved efficiency and reduced downtime.

**Non-Abrasive and Non-Conductive:** Dry ice blasting is a non-abrasive and non-conductive cleaning method, making it safe for use on delicate equipment and electrical components. It cleans without causing damage or disrupting sensitive parts, ensuring the integrity and reliability of the equipment.

**No Chemical Residues:** Dry ice cleaning does not involve the use of chemicals or solvents, eliminating the risk of chemical residues on equipment surfaces. This is particularly important in the energy production industry, where contamination can affect operational performance and lead to safety hazards.

**Environmentally Friendly:** Dry ice cleaning is an environmentally friendly solution as it does not generate secondary waste. The dry ice pellets sublime into carbon dioxide gas upon impact, leaving no residue or waste behind. It also reduces water consumption compared to traditional cleaning methods.

**Cost Savings:** Dry ice cleaning reduces maintenance costs by extending the lifespan of equipment. By effectively removing contaminants and preventing corrosion, it helps to maintain equipment efficiency, reducing the need for frequent repairs or replacements.

**Increased Safety:** Dry ice cleaning improves safety in the energy production industry. It removes flammable materials, such as oil and grease, reducing the risk of fire hazards. Additionally, it eliminates the need for manual cleaning methods that can be physically demanding and pose potential injury risks to workers.



# What can we do for you?

**Turbine Cleaning:** Dry ice cleaning effectively removes contaminants from gas and steam turbines used in power generation. It removes dirt, soot, and deposits that can accumulate on turbine blades and affect performance. By restoring the efficiency of turbines, dry ice cleaning helps maximize power generation and reduces fuel consumption.

**Generator Maintenance:** Dry ice cleaning is ideal for cleaning generators in the energy sector. It removes oil, grease, and carbon deposits from generator windings and cooling systems. By ensuring clean and efficient operation, dry ice cleaning helps extend the lifespan of generators and reduces the risk of breakdowns or failures.

**Heat Exchanger Cleaning:** Dry ice blasting is effective in cleaning heat exchangers used in various energy production processes. It removes scale, fouling, and other deposits that can impede heat transfer efficiency. By restoring optimal heat exchange, dry ice cleaning improves overall energy efficiency and reduces energy consumption.

**Pipelines and Tanks:** Dry ice cleaning can be used to clean pipelines and tanks in the energy sector. It effectively removes scale, rust, and coatings from the inner surfaces of pipes and tanks, ensuring smooth flow and preventing blockages. This helps maintain pipeline integrity, optimize flow rates, and minimize energy losses.

**Substation Equipment:** Dry ice cleaning is a safe and efficient method for cleaning electrical substation equipment, such as insulators, busbars, and circuit breakers. It removes dust, carbon build-up, and other contaminants that can affect electrical performance. By ensuring clean and reliable electrical connections, dry ice cleaning helps maintain substation efficiency and reduces the risk of equipment failure.

**Environmental Benefits:** Dry ice cleaning offers environmental advantages for the energy sector. It eliminates the use of chemicals and solvents, reducing the release of harmful substances into the environment. Additionally, dry ice blasting produces no secondary waste or residue, minimizing the environmental impact associated with traditional cleaning methods.

# Nuclear

**Radiation Decontamination:** Dry ice cleaning is effective in removing radioactive contaminants from various surfaces in nuclear power plants. It can safely and efficiently remove radioactive particles, dust, and residues from equipment, machinery, walls, floors, and other surfaces. This helps maintain a clean and decontaminated environment, ensuring worker safety and regulatory compliance.

**Turbine Cleaning:** Dry ice cleaning is well-suited for cleaning turbine components in nuclear power plants. It effectively removes dirt, grease, and other contaminants from turbine blades, ensuring optimal performance and efficiency. By improving turbine cleanliness, dry ice cleaning helps maximize power generation and reduces fuel consumption.

**Cooling System Maintenance:** Dry ice cleaning is useful for cleaning cooling systems in nuclear power plants. It can remove scale, fouling, and deposits from heat exchangers, condensers, and other components. By enhancing heat transfer efficiency, dry ice cleaning helps maintain optimal cooling system performance, reducing energy consumption and improving overall plant efficiency.

**Reactor Component Cleaning:** Dry ice cleaning can safely clean reactor components, such as control rods, pumps, valves, and piping. It removes contaminants and debris without damaging or disturbing the integrity of sensitive nuclear equipment. This ensures proper operation and extends the lifespan of critical reactor components.

**Dry Cask Cleaning:** Dry ice blasting is utilized for cleaning dry casks used for storing spent nuclear fuel. It can effectively remove dirt, dust, and other contaminants from the exterior surfaces of the casks, maintaining their integrity and preventing corrosion. This helps ensure the safe and secure storage of nuclear waste materials.

**Reduced Downtime and Waste:** Dry ice cleaning minimizes downtime in nuclear power plants as it can be performed in place without the need for disassembly of equipment. This reduces maintenance time and increases plant availability. Additionally, dry ice blasting produces no secondary waste or residue, eliminating the need for additional waste disposal processes.

# Our process

**Assessment and Consultation:** The company starts by figuring out what the client needs in terms of cleaning. Once we gain a thorough understanding of your specific requirements. We then proceed to identify the surfaces and equipment that need attention. Additionally, we conduct a meticulous assessment of any safety or environmental factors that may impact the project. We discuss thoroughly with you the customer to find out what you want done specifically, find out what surfaces or tools they want to clean, and consider any safety or environmental issues.

**Planning and Preparation:** BBS makes a thorough plan for the cleaning process based on the assessment. This includes choosing the right dry ice blasting equipment, choosing the right type and size of dry ice pellets, and thinking about any extra safety measures or equipment that might be needed for the job.

**Surface Preparation:** Before using dry ice to clean, we make sure that the surfaces or equipment that needs to be cleaned are prepped and precautions have been taken to insure everyone's safety. This could mean cleaning up any loose trash, covering up sensitive areas, and taking any other steps needed to protect nearby parts or buildings.

**Dry Ice Blasting:** Setting up the dry ice blasting tools is the first step in the dry ice cleaning process. The equipment is usually run by trained employees of the company. It consists of a blasting gun linked to a high-pressure air supply and a dry ice pellet feeder. The technicians aim the stream of compressed air and dry ice pellets at the surfaces they want to clean. The mix of kinetic energy and thermal shock effectively removes contaminants.

**Quality Control and Inspection:** A priority of BBS is quality control all the way through the dry ice cleaning process. We check the cleaned surfaces to make sure that all the dirt has been removed and that the level of cleanliness that was wanted has been reached. Any touch-ups or extra cleaning steps that are needed are done as required.

**Waste Management:** The waste from the dry ice cleaning process is taken care of by us by following the right waste management steps. When dry ice pellets hit something, they turn into carbon dioxide gas and the waste they remove is left behind. The company makes sure that this trash is collected, stored, and thrown away in a safe way that follows environmental laws and rules.

**Project Completion and Documentation:** Once the dry ice cleaning process is done, we provide a summary of the work done, which will include pictures and videos of the before and after. We also suggest ways to keep up with maintenance clean in the future.

By following these operational processes, We can make sure that cleaning in many different industries is fast, effective, and safe. Throughout the whole process, we customer happiness first, keep quality standards high, and follow all environmental and safety rules.



# Summary

In summary, dry ice cleaning has considerable benefits for the energy sector. For starters, it provides an efficient and effective technique of contamination removal, ensuring that equipment and surfaces work optimally. Dry ice cleaning improves energy economy, regulatory compliance, and equipment longevity by successfully removing dirt, oil, scale, and even radioactive particles.

Second, in the energy sector, dry ice cleaning lowers downtime and maintenance expenses. There is no need for time-consuming disassembly or lengthy equipment outages with the capacity to clean equipment in place. As a result, operational efficiency and productivity improve. Furthermore, dry ice cleaning is a non-abrasive and non-conductive procedure that preserves the integrity of delicate equipment while lowering the danger of electrical failures. Dry ice cleaning helps energy firms optimise their operations and maximise revenue by reducing maintenance time and costs.

Overall, the advantages of dry ice cleaning for the energy sector include efficient pollutant removal, reduced downtime, cost savings, equipment protection, and improved safety. Dry ice cleaning is a vital asset in the energy business, contributing to its overall reliability, efficiency, and sustainability due to its environmentally benign nature and capacity to boost energy production and regulatory compliance.

Request a Quote today

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