BBS

BLIZZARD BLASTING SOLUTIONS

For the coolest, quickest clean

Aerospace

Aerospace

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Dry Ice Blasting in the Aerospace Industry:

Welcome to BBS's information pack for the aerospace industry. In the aerospace sector, dry ice blasting is a very effective and environmentally friendly cleaning procedure. It allows us to eliminate impurities such as grease, oil, coatings, and adhesives without causing harm or leaving residues. Its non-abrasive and non-conductive properties make it ideal for delicate aerospace components and electronics. Dry ice blasting improves precision, efficiency, and worker safety while satisfying strict quality and regulatory criteria. This versatile cleaning technique contributes to a cleaner, more sustainable aerospace industry, reducing downtime, improving productivity, and ensuring optimal performance of critical aerospace systems and components.

What is it?

Dry ice blasting, also known as dry ice cleaning or CO2 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 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 CO2 gas upon impact, rapidly expanding and creating tiny explosions, lifting the contaminants away from the surface.

Benefits of Dry Ice Blasting in the Aerospace Industry

Gentle and Non-Abrasive Cleaning: Aerospace components, such as turbine blades, avionics, and delicate electronic systems, require meticulous cleaning without causing damage. Dry ice cleaning provides a gentle and non-abrasive method that effectively removes contaminants without harming sensitive surfaces. It preserves the integrity and performance of aerospace components.

Environmental Friendliness: The aerospace industry places a strong emphasis on environmental sustainability. Dry ice cleaning aligns with these goals as it utilises non-toxic, non-abrasive dry ice pellets made from reclaimed carbon dioxide. It does not introduce additional chemicals into the cleaning process and produces no secondary waste. This makes it an eco-friendly choice for aerospace companies committed to reducing their environmental footprint.

Non-Conductive and Non-Disruptive: Aerospace components often incorporate intricate electrical and electronic systems. Dry ice cleaning is non-conductive, meaning it can be safely used around live electrical equipment without the risk of short circuits or damage. The dry ice pellets sublimate into gas upon contact, making it a non-disruptive cleaning method that minimizes the need for disassembly or removal of delicate components.

Efficient Cleaning and Reduced Downtime: Dry ice cleaning provides efficient and thorough cleaning for aerospace applications. The kinetic energy and thermal shock generated by the dry ice pellets effectively remove contaminants such as oils, greases, adhesives, paints, and coatings. This eliminates the need for labor-intensive manual scrubbing and reduces cleaning time, resulting in decreased downtime and increased productivity.

Versatile Applications: Dry ice cleaning finds diverse applications in the aerospace industry. It can be used for cleaning turbine blades, engine components, avionics, landing gear, composite materials, moulds, and more. It effectively removes stubborn contaminants and prepares surfaces for inspections, repairs, or coatings. The versatility of dry ice cleaning makes it suitable for a wide range of aerospace cleaning needs.

Worker Safety: Dry ice cleaning eliminates the use of hazardous chemicals, solvents, or abrasive materials that can pose risks to worker health. It creates a safe and clean working environment by minimizing exposure to harmful substances. Additionally, the non-abrasive nature of dry ice cleaning helps protect workers from potential injuries caused by manual scrubbing or abrasive cleaning methods.

Quality Assurance and Compliance: The aerospace industry operates under strict quality standards and regulatory requirements. Dry ice cleaning ensures thorough and consistent cleaning, helping aerospace companies meet these standards and comply with industry regulations. It provides an efficient method for maintaining cleanliness and performance while reducing the risk of contamination.

What can we do for you?

Mould and Tool Cleaning: Dry ice blasting effectively cleans molds, tooling, and dies used in aerospace manufacturing processes. It removes release agents, contaminants, and residues without causing damage, ensuring the integrity and quality of aerospace components.

Composite Material Cleaning: Aerospace components often utilize composite materials that require careful cleaning. Dry ice blasting gently removes contaminants from composite surfaces without compromising their structural integrity. It helps maintain the performance and longevity of composite materials used in aircraft construction.

Paint and Coating Removal: Dry ice blasting efficiently removes paint, coatings, and surface finishes from aerospace components, such as aircraft exteriors, without damaging the underlying substrate. It eliminates the need for harsh chemical stripping methods, reducing time and labor while preserving the structural integrity of the aircraft.

Turbine and Engine Cleaning: Dry ice blasting is highly effective in cleaning turbine blades, engine components, and fuel nozzles. It removes carbon deposits, soot, oil, and contaminants, improving turbine and engine performance, enhancing fuel efficiency, and reducing emissions.

Electronics and Avionics Cleaning: Dry ice blasting offers a safe and non-destructive method for cleaning delicate electronics and avionics systems in aircraft. It removes dust, dirt, and debris from circuit boards, connectors, sensors, and other electronic components without causing damage or leaving residues. This ensures optimal performance and reliability of critical aerospace systems.

Precision Cleaning of Small Parts: Dry ice blasting is particularly useful for cleaning small and intricate aerospace parts. It can effectively clean fuel injectors, valves, actuators, fasteners, and other small components with precision. The non-abrasive nature of dry ice blasting allows for thorough cleaning without compromising the integrity or functionality of these parts.

General Maintenance and Surface Preparation: Dry ice blasting is commonly used for general maintenance and surface preparation in the aerospace industry. It removes grease, oil, dirt, corrosion, and other contaminants from various surfaces, including landing gear, airframe structures, wings, and interior components. It provides a clean and well-prepared surface for inspections, repairs, and subsequent coating applications.

Our process

A**ssessment 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 want, 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

Dry ice blasting is a highly effective and environmentally friendly cleaning method that provides numerous benefits for the aerospace industry. It offers gentle and non-abrasive cleaning, making it suitable for delicate aerospace components, molds, and tooling. The process is non-conductive and non-disruptive, allowing it to be safely used around sensitive electronic systems

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Dry ice blasting efficiently removes contaminants such as paint, coatings, oil, grease, and carbon deposits from aerospace surfaces without causing damage or leaving residues. It finds applications in cleaning composite materials, turbine blades, engine components, electronics, and avionics. The versatility of dry ice blasting enables general maintenance, surface preparation, and precision cleaning of small parts. Additionally, it promotes worker safety, complies with quality standards and regulatory requirements, and contributes to environmental sustainability by using non-toxic, reclaimed carbon dioxide pellets.

Dry ice blasting plays a crucial role in enhancing productivity, ensuring cleanliness, and maintaining the optimal performance of critical aerospace systems and components.

Request a Quote today

Contact information

07803 267356

info@blizzardblasting.co.uk