

Introducing:
DRY ICE BLASTING



A new service offered by:
**Lange & Leaman Electric
Michigan Motor Works**

DRY ICE BLASTING

CRYOGENIC BLASTING is a technology in which rice size pellets of solid carbon dioxide (dry ice) are propelled in a high velocity air stream to impact and clean a surface.

The combined impact energy and low temperature (-110 deg. F) of the CO₂ particles produces a thermal-kinetic effect that removes contaminants and coatings from the inside out, causing the contaminants to fall off, as opposed to the chiseling, abrasive effects of grit blasting. As the dry ice pellets impact the surface, they instantaneously dissipate as a moisture free gas and return to the atmosphere, leaving no residual blast media, thus eliminating entrapment and additions to the waste stream. Therefore the only cleanup is the contaminants.

Additionally, the dry nature of dry ice cleaning allows for on site cleaning of electrical components and eliminates the need for drying prior to reenergizing electrical apparatus.



Benefits of Dry Ice Blasting Technology

Dry ice blasting benefits can be broken down into six general areas. The following describes these benefits:

Benefit 1 - Decreased Downtime through Cleaning In-Place

Typical cleaning procedures require that the equipment be disassembled and moved to an assigned area for proper cleaning. That is not the case with dry ice blasting. Equipment can be cleaned in-place and hot in most situations. Because of that, many time consuming, laborintensive steps, which were required with other methods such as sand blasting, can be eliminated including:

- Cool down
- Disassembly
- Transport of the equipment to and from a dedicated cleaning area
- Reassembly
- Reheating time
- Dry ice blasting can shorten the downtime for cleaning from days down to hours.

Benefit 2 - Faster and More Thorough Cleaning

With dry ice blasting, a superior cleaning can be achieved while reducing hours while compared to scrubbing with abrasive pads or wire brushes. A tremendous labor savings is accomplished. In addition, the dry ice blasting method cleans in crevices that can't be reached by hand. As a result, equipment runs more efficiently and potential leaks are revealed, possibly preventing major system failures.

Benefit 3 - Elimination of Equipment Damage

Cleaning methods such as sandblasting have an aggressive and abrasive effect on the surface. They can actually remove part of the surface, changing the structure considerably. Dry ice is nonabrasive to surfaces and does not change a surface's structure. It lifts the contaminants away. Secondly, because equipment can now be cleaned in-place, potential damage from moving equipment to and from a dedicated cleaning area is eliminated.

Benefit 4 - Reduction or Elimination of Solvents

No Solvents are used when using CO₂ pellets. This can be a critical need from certain companies in order to comply with environmental regulations or to improve worker safety. There are no issues pertaining to toxicity.

Benefit 5 - Reductions in Waste Disposal

With other cleaning methods, whether it is with solvents, sand blasting or some other means, the cleaning agent becomes a secondary contaminant and must be disposed of as toxic waste along with the primary contaminant. However, with dry ice blasting because the CO₂ pellet vaporizes upon contact, the only waste created is the contaminant itself. This alone can result in significant waste reduction.

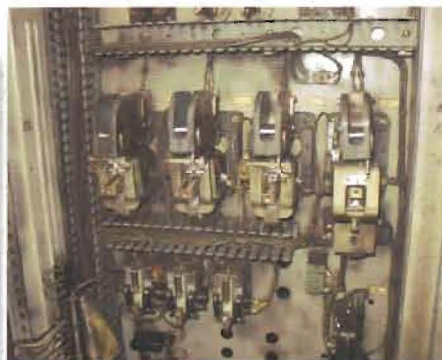
Benefit 6 - Increased Safety

CO₂ blasting pellets are non-toxic, non-hazardous creating advantages to the environment, your employees, and production facility:

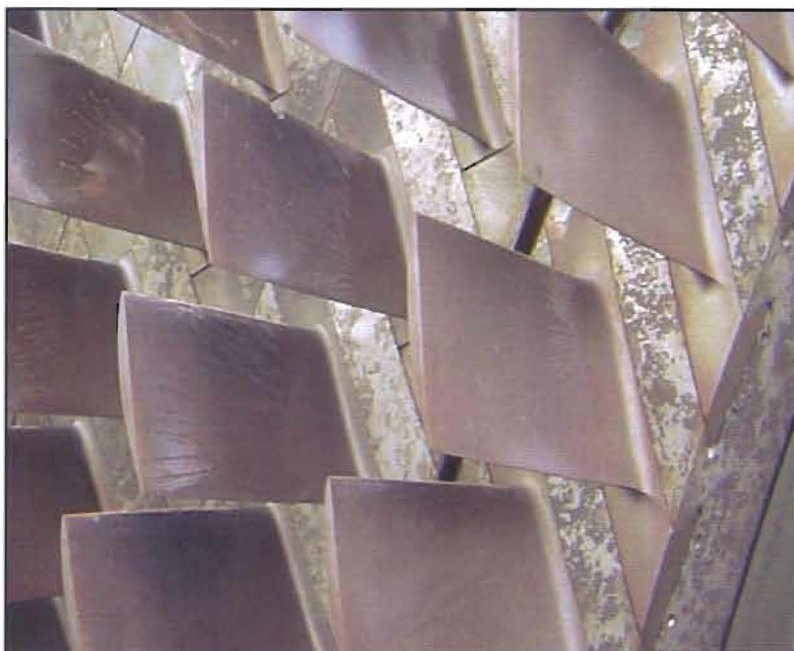
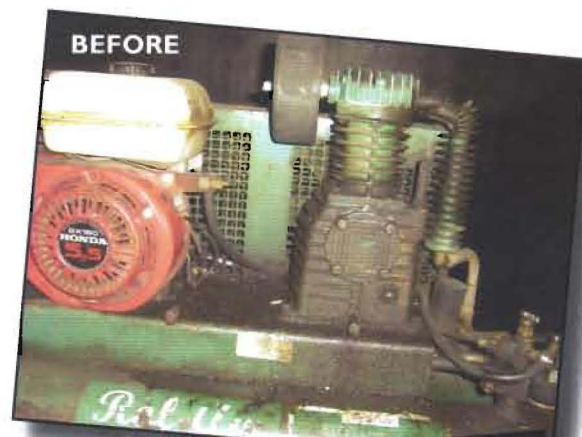
- No secondary waste
- Safe for the environment
- Safe for employees
- Safe for end products Safe for equipment



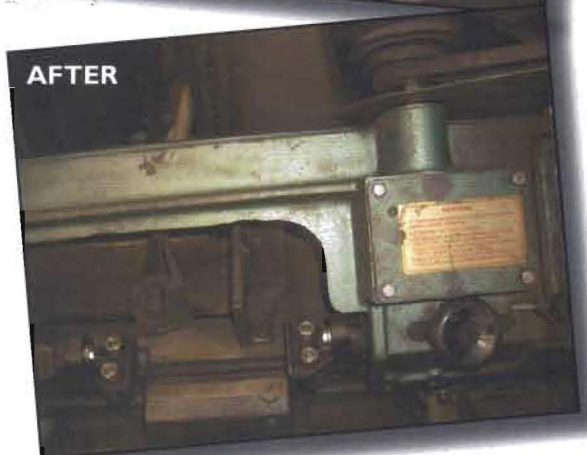
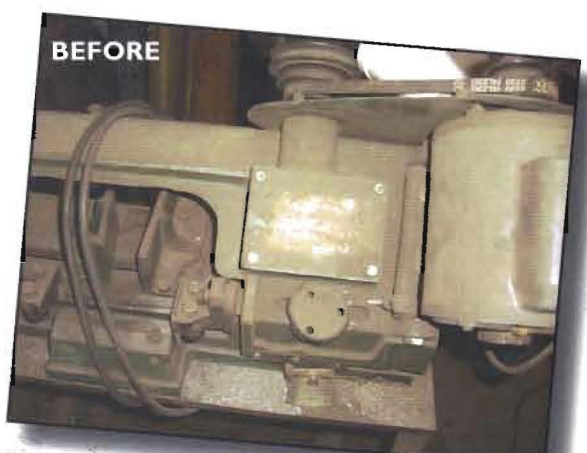
▲ **BEFORE:** Oily, mill dust, sticky accumulations cause outages and **TIME** to correct – when you can find the problem



◀ **AFTER:** CO₂ cleaning all surfaces, even blind areas clean and trouble free. The proper use of CO₂ cleaning systems provided the best possible clean surface in the shortest possible time and the lowest possible cost to Eliminate unplanned electrical outages.



BEFORE: Cleaning with Cryogenesis System.



AFTER: Cleaning with Cryogenesis Dry Ice System.

Uses for Dry Ice Blasting

Mold Cleaning

- Rubber and plastic surfaces
- HDPE and PET containers
- Reaction foam

Electrical Equipment

- Motors - windings, armatures
- Switch gears
- Transformers
- Sub-stations
- Circuit boards

Foundry

- Core boxes, including screens
- Permanent aluminum molds

Automotive Parts

- Manufacturing and Assembly
- Equipment cleaning
- Robotic welding equipment
- Painting systems cleaning
- Mold cleaning
- Tire/rim assembly equipment
- Rubber from test and alignment equipment
- Windshield and body sealants

Baking and Food Processing

- Baking ovens
- Wafer oven plates
- Conveyors, mixers

Printing

- Press cleaning
- Gears, decks, guides
- Anilox rolls

Aviation (FAA Approved)

- Landing gear
- Brake components
- Engine cleaning

General maintenance and Compliance Cleaning

- Surface preparation for inspection and testing
- Plant and equipment (complete removal of oil, grease, adhesives, etc.)
- Fire restoration
- Mold remediation [black mold]

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