



Cleaning Solutions: Paint Removal

The Cleaning Challenges

The traditional methods of removing chipping and loose paint from various surfaces before repainting have included sandblasting, scraping and waterjetting. Sandblasting, for one, provides a good all-purpose removal technique. However, each of the techniques has serious drawbacks. They include:

- **Labor intensive** Typically, items need to be taken off-line and cleaned. Then, if scraping is required, the process can be very slow to completely prepare a surface for painting. Sandblasting and waterjetting can create a tremendous mess requiring more time for waste cleanup
- **Downtime** Frequently, equipment needs to be taken off-line and cleaned. The extensive time required to effectively disassemble, clean and then reassemble results in costly production losses. With the use of sandblasting or water, surfaces to be repainted are often either too rough or wet too long to permit a quick repainting.
- **Surface wear/Equipment damage** Sandblasting can etch or wear down surfaces and also cause mechanical damage. Scraping can also wear down surfaces.
- **Water/Grit entrapment** Sand and water can become entrapped in mechanical or electrical parts.
- **Cost** Sandblasting can generate significant waste disposal costs.

The Dry Ice Blasting Process

Dry ice blasting is a relatively new cleaning process using solid CO₂ pellets (known as dry ice). It is primarily used for industrial use in a variety of applications. The pellets sublime or convert directly from a solid blast pellet to CO₂ gas leaving no residue.

The process involves propelling dry ice particles from a blasting gun at a hyper-velocity to impact and clean a surface. The particles are accelerated by compressed air, similar to other blasting systems.

The micro-thermal shock (caused by the dry ice temperature of -79° C), the kinetic energy of dry ice pellets and the air pressure break the bond between the coating and the substrate. The dry ice sublimates to a CO₂ gas and expands 400 times its original volume. The coating then pops off from inside out and the air stream removing it from the surface yet creating no secondary waste stream. Dry ice blasting is a far better alternative to traditional cleaning methods.

Dry Ice Blasting: The Perfect Solution

Dry ice blasting addresses each of the major issues regarding removal of loose and chipping paint. The benefits include:

- **Benefit #1 Reduced labor hours.** The dynamics of cleaning with dry ice can dramatically reduce time requirements. The actual cleaning is faster. There is no need for disassembly/reassembly of equipment. The time required to collect the waste is lessened
- **Benefit #2 Reduced downtime through cleaning in place.** Any cleaning labor for scrubbing and scouring is eliminated. Also, the time required to move equipment to a blast media containment area for cleaning is eliminated. Further, there are no repainting delays due to moisture as when waterjetting is used. In sum, production gains can be extremely significant.
- **Benefit #3 Reduced equipment damage.** Dry ice pellets do not chisel away contaminants as sand blasting does. Instead, CO₂ pellets penetrate the contaminant, fracture into small particles when they impact the base material and instantly sublime. The loosely bonded paint is removed in a lift and flush action.
- **Benefit #4 Elimination of grit entrapment.** Since the dry ice pellets return to a vapor upon contact, there is no cleaning material that could be entrapped in the equipment.
- **Benefit #5 Reduced costs.** Dry ice sublimates eliminating a secondary waste stream minimizing waste disposal costs. Also, labor costs can be dramatically lessened. Further, consumption of paint required per square foot is less because surfaces are even.



ICEsonic Dry Ice Blasters

The ICEsonic brand is the most economical on the market, both in initial cost and in continued use. You can expect to save 50% or more over competitor's models. In addition, ICEsonic Systems are designed for everyday industrial applications. The units are made from all stainless steel construction and superior components to insure many years of trouble-free operation. RSG Technologies, Inc. is the exclusive agent for ICEsonic Systems in the Americas.