The Dry Ice Blasting Process

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Dry ice blasting is much like pressure washing or sandblasting in that there is a media being moved at high speed, under pressure, to clean a targeted surface. But this is where the similarities end. Dry ice is dry, so there is no danger of ruining electrical equipment or introducing moister to rust bearings. It is non-conductive, so it can even be used on energized circuits, this requires special equipment and proper training. It is non-abrasive, so it will not damage most surfaces. Think of dry ice blasting as being like a spatula, lifting the contaminant from the surface, rather than an ice pick, chiseling away contaminants. The best part is that it disappears, leaving no residues, eliminating secondary waste streams. The dry ice used in blasting is food grade, meaning it can be used in food manufacturing, food preparation facilities and is FDA approved. There is no grit left behind to cause damage to your expensive machinery.

Because there is no secondary waste stream, dry ice blasting is ideal for in-plant maintenance and production cleaning. Equipment that once had to be disassembled, transported to a cleaning booth, either sand blasted or hand cleaned, then transported back and reassembled and calibrated, can now be cleaned in place, with little or no disassembly, greatly reducing costly downtime. The only waste to clean up afterward is the material - ink, mold release, oil, loose paint, etc. that was removed. In restoration applications (mold, fire, etc.) total time to complete a job is greatly reduced due to the fact there is no significant "after-blast" cleanup required.

There are mechanical processes happening when dry ice particles strike a surface. Depending on the type of dry ice blasting system being used, air pressure, air volume and nozzle selected, the dry ice particles travel at speeds up to 800 feet per second. Upon impacting the targeted surface, they sublimate into CO2 gas. This sublimation, (solid to gas, no liquid state), creates an expansion factor of about 8 times the volume of dry ice being used. So assuming the particles are able to initially penetrate the contaminant, this expansion occurs at the underlying hard substrate, thus lifting or blowing the contaminant off. In some applications there is an advantage to due to thermal shock, as the particles are at extreme sub-zero temperatures (-109.3 F). Many applications are able to clean faster because of this effect, most notably hot tooling, such as tire molds.

For more information about this technology and the benefits of dry ice blasting, visit this site, Dry Ice Blasting Online.