
What are some examples of applications where CO₂ does not work well?

Dry ice Blasting Will not etch or profile most surfaces. If you need to clean large quantities of small parts, CO₂ is not as efficient as other alternatives such as ultrasonics. Because dry ice blasting is primarily a line-of-sight cleaning process, if you can't see what you need to clean, you probably can't clean it with dry ice.

Can CO₂ be used to remove paint?

Yes, however, the removal rate is dependent on a great many factors including: the underlying surface profile of the substrate; the thickness of the coating; the adhesive bond strength of the coating; and the cohesive strength of the coating (generally a function of age). Paint removal rates can vary dramatically, from 300 square feet/hour down to 1 square foot/hour. Generally speaking, if you have concerns with contamination, toxic substances, waste disposal, or substrate damage, dry ice blasting should be considered as a cleaning option. Otherwise, grit blasting is probably a more efficient method for paint removal.

Will CO₂ remove greases, oils, or weld slag?

A methodical approach similar to hosing down a driveway is required if dry ice is to be effective on these and other wet contaminants. You must start at one end and work the grease to the other end where it can pass through a grate or be vacuumed or squeegeed for disposal. Some customers use a paper or plastic backdrop to catch the wet contaminant as it is removed from the substrate. dry ice doesn't dissolve the oil and doesn't make it disappear so you must have an acceptable way of handling it when it is relocated by the blasting process.

Can CO₂ be used to remove rust?

It tends to remove the loosely adhered oxidation and salts, but will not remove the deeply adhered oxidation. You will not get a white metal finish. To do that you have to remove the surface metal, something the dry ice blasting process cannot do. Of course in many applications, this is a major advantage because it preserves the surface integrity of the substrate.

Will CO₂ clean glass?

It can, but some prior testing is required to avoid shattering the glass. We have a customer who uses the technology to clean glass monitors before applying a non-glare coating. We have others who use it in general maintenance to clean oil and grease off of glass dials on control panels. To clean glass, it is important to remember that a certain impact energy is required to disbond the contaminant. If that energy level is high enough to also shatter the glass, you cannot clean using this process.

Can CO₂ be used to clean wood?

Dry ice blasting will raise the grain on the wood, leaving a finish similar to that of sandblasting. If you need a smooth wood finish, dry ice blasting is not the answer. The primary interest here has been in lead paint abatement. We are currently working with the Air Force to develop a program to remove lead paint from wooden buildings. Most other removal methods create too much additional toxic waste. Because dry ice disappears as it strikes the surface, the only waste that must be disposed of is the paint itself.

Does CO₂ replace sandblasting/beadblasting/ waterblasting, etc.?

They are all tools in the toolbox. Consider that there are many types of hammers: ball peen; tack; claw; sledge; and so on. Could each do the job of the other? Perhaps, but the ideal toolbox would include each, because each has specific capabilities that it does better than any of the others. Alpheus equipment should be in your toolbox if you are concerned with downtime, entrapment, waste volume, or equipment damage.

Is the system noisy?

Yes. Noise is a function of air volume and air velocity. Within the nozzle, the stationary air is sheared by the high velocity air causing turbulence which creates noise. The level can range from 85 - 130 db. Hearing protection is required.

Do the contaminants or dry ice particles ricochet?

As long as it strikes the surface head on, dry ice does not ricochet because it sublimates (turns into a gas) on impact. As for the contaminant, you usually do not see or feel it as it disbonds and leaves the substrate, however, it is removed with some force which is why eye protection is recommended at all times.

Does the process generate static electricity?

Yes. Any dry air process will generate static electricity and dry ice blasting is no exception. All Alpheus equipment is designed with grounding devices. As long as both the blasting unit and the piece you are blasting is properly grounded, you are unlikely to have static discharge problems.

Is it okay to blast in an enclosed area?

Yes, with proper ventilation. Because CO₂ is 40% heavier than air, placement of exhaust vents at or near ground level is recommended when blasting in an enclosed area. In an open shop environment, existing ventilation is sufficient to prevent undue CO₂ buildup.

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