



Dry Ice Blasting for Construction Machinery

Plant cleaned in the yard, without washdown or run-off

Construction plant works in mud, dust, concrete, oil and grease, and it brings plenty of it back to the yard. Dirty machines hide leaks, cracks and wear, slow down servicing, and lose value when they are sold or returned off hire.

Most plant is cleaned with pressure washers and degreasers. That works on mud, but it drives water into bearings, pins, electrics and cabs, it struggles with baked-on oil and grease, and it creates oily, silty water that must be managed properly.

Dry ice blasting offers a different approach. In this guide I want to explain how it works and where it delivers real advantages for plant owners, hire fleets and contractors.

What is dry ice blasting?

Dry ice is solid carbon dioxide (CO_2) at around -78.5°C . Instead of melting, it turns straight back into gas when it warms, a process called sublimation.

In dry ice blasting, small pellets of this material are fired at a surface using compressed air. Three things happen on impact:

- **Impact energy** breaks up and dislodges the deposit.
- **Thermal shock** makes the residue brittle and weakens its bond to the surface beneath.
- **Sublimation** turns the pellet into gas, which expands rapidly and lifts the residue away from behind.

The pellets disappear into the air. The only thing left to collect is the residue that has been removed. There is no water, no detergent and no blast media to clean up afterwards.

Where dry ice blasting really outperforms traditional cleaning

1. It removes grease and baked-on oil

Thermal shock makes grease and oil brittle, and the expanding gas lifts them from engines, hydraulics, booms and undercarriages, including the recesses a pressure washer cannot clear.

2. No water in pins, bearings and electrics

Dry ice is a dry process and non-conductive. Engine bays, wiring, control valves and cabs stay dry. Electrics should still be isolated as normal.

3. Better inspections and servicing

Clean machines show leaks, cracks and wear clearly. Fitters work faster and safer, and inspections such as LOLER thorough examinations are easier on clean equipment.

4. Preparation for painting and resale

Clean plant looks better and sells better. At higher settings, dry ice can also remove failing paint before refurbishment.



5. No grit

Grit gets into hydraulics, pins and engines. Dry ice leaves nothing behind but the dirt removed.

6. Mobile

We come to your yard or site with our own power and air.

Environmental credentials

Contractors and hire companies are under pressure to manage run-off and reduce chemicals. Dry ice blasting can help on several fronts.

- **Recycled CO₂.** The CO₂ used to make dry ice is typically recovered as a by-product of other industrial processes, such as fertiliser production and fermentation, rather than produced specially. Blasting returns it to the atmosphere it would otherwise have reached, so the process adds no new CO₂ of its own.
- **No oily run-off.** Washing plant and vehicles produces oily, silty water that must go to an interceptor or foul drain, not a surface water drain. Dry ice produces no run-off at all.
- **Fewer degreasers.** Less chemical use and COSHH handling.
- **Water savings.** No water used on the jobs it replaces.
- **Longer machine life.** Dry pins and bearings and early leak detection reduce wear.

At a glance

	Pressure washing and degreasers	Dry ice blasting
Water introduced	Large volumes	None
Run-off	Oily, silty water	None
Baked-on grease	Hard to shift	Removed effectively
Electrics and cabs	Must be protected	Non-conductive, no moisture
Chemicals	Degreasers	None
Location	Wash bay with interceptor	Mobile, in your yard

Typical applications for plant

- **Excavators and dumpers:** engines, hydraulics, booms and undercarriages.
- **Telehandlers, cranes and access platforms:** booms, chassis and engine bays.
- **Engines and hydraulic systems:** cleaning before servicing or leak tracing.
- **Off-hire and resale:** preparing machines for return or sale.
- **Refurbishment:** removing grease and failing paint before repainting.
- **Attachments:** buckets, breakers and quick hitches.



Our setup at Vortex Ice Labs, and why it matters for plant

Vortex Ice Labs is a fully mobile service. We bring a complete, self-contained system to your yard, so we do not need your power or compressed air. The air passes through four stages before it reaches the surface.

- 1 Compressor.** This supplies the large, steady volume of air needed to drive the pellets. Consistent flow means consistent cleaning, with no drop in performance halfway through a job.
- 2 Aftercooler.** Compressing air heats it, and hot air carries a lot of moisture. The aftercooler cools the air straight away so that moisture condenses and can be drained off. Without it, water would freeze inside the blaster, causing pellets to clump and block, and could be sprayed onto the surface being cleaned.
- 3 Filtration.** Filters then remove the remaining water, any oil carried over from the compressor, and fine particles. This matters on plant. The aim is to leave machines clean and dry, not to put oil or water onto electrics and hydraulics.
- 4 Dry ice blasting unit.** The pellets are metered into the conditioned airstream and delivered through the hose and nozzle. Pressure, ice feed and nozzle choice are adjusted for each task, from wiring and sensors to heavy grease on undercarriages.

Every stage protects the result. Clean, dry air means a clean, dry machine.

Working safely, and where it fits

Dry ice blasting is a powerful tool, and it should be planned like any other maintenance activity in the yard.

- **Ventilation.** As the ice sublimates it releases CO₂ gas. In enclosed or poorly ventilated areas this has to be managed with suitable airflow and, where needed, gas monitoring.
- **Noise and PPE.** Blasting is loud, and operators use hearing protection, eye and face protection, and insulated gloves. People nearby need to be kept clear of the work area or protected too.
- **Containment.** Removed grease and dirt can travel, so we plan the work area, protect nearby machines and clear up afterwards.
- **Machine safety.** Machines are made safe, with attachments lowered and isolated as your procedures require.

Used this way, it is most valuable before servicing and inspections, for leak tracing, refurbishment and preparing machines for sale.

Final thoughts

Plant owners need machines clean, safe and earning. Pressure washing will always have a role for mud, but it brings water, chemicals and run-off with it.

Dry ice blasting removes many of those trade-offs. It cleans dry, reaches baked-on grease, and we bring it to your yard.



If you would like to see how it could work on your plant, I would be happy to arrange a demonstration in your yard. Get in touch with us at Vortex Ice Labs.

Ian Glover, Vortex Ice Labs

Tel: 07438 409188 | Email: ian@vortexicelabs.co.uk

Web: www.vortexicelabs.co.uk

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