



Dry Ice Blasting for Boats and Marine

Hulls, engine bays and bilges cleaned without water or grit

Boats work in one of the harshest environments there is. Fouling, old antifouling, oil, diesel, grease and grime build up on hulls, in engine bays and in bilges, and they hide the condition of the boat underneath.

The usual methods are scraping, chemical strippers, pressure washing and grit or slurry blasting. They work, but they are slow, messy or aggressive. Grit can damage gelcoat, steel and timber; water soaks into wood and spreads oily residue; and chemicals bring their own handling problems.

Dry ice blasting offers a different approach. In this guide I want to explain how it works and where it delivers real advantages for boats, narrowboats and marine businesses.

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 is a dry process

Dry ice adds no water. That matters in engine bays, bilges, cabins and timber boats, where water soaks in, spreads oil and takes days to dry out. Surfaces are dry as soon as we finish.

2. Gentle on gelcoat, timber and paint

Dry ice is non-abrasive. With pressure set for the surface, it removes grime and soft deposits without grinding into gelcoat, timber or sound paint, which grit blasting can easily damage.

3. Engine bays and bilges

Oil, diesel and grease in engine bays and bilges come off without solvents or water. Dry ice is non-conductive and leaves no moisture, so it can be used around engines and wiring with the electrics isolated.

4. Old coatings and antifouling

Dry ice can lift many soft antifoulings and failing coatings. Hard, well-bonded coatings may come off slowly or not at all, so we test a patch first and give you an honest view.

5. No grit in the boat or the yard

Grit gets into hatches, lockers, bearings and the boatyard. With dry ice, the only waste is the material removed.

6. Mobile

We come to the boatyard, marina or hard standing where the boat is, subject to the yard's rules.

Environmental credentials

Boatyards and marinas are under close scrutiny for what runs into the water. 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 contaminated wash water.** There is no water carrying oil, diesel or antifouling into drains or the water.
- **No blast media.** No spent grit to collect and dispose of. The only waste is the removed material.
- **Fewer chemicals.** Less use of strippers and degreasers near the water.
- **Contained waste.** Removed antifouling and residue can be collected on sheeting and disposed of as the yard requires.

At a glance

	Scraping, washing and grit blasting	Dry ice blasting
Water introduced	Pressure washing adds water	None
Media left behind	Grit in the boat and yard	None
Gelcoat and timber	Grit can damage surfaces	Non-abrasive
Drying time	Often days for timber	None
Engine bays	Degreasers and water	Dry, non-conductive
Run-off	Contaminated water	None

Typical applications for boats

- **Hulls:** fouling, grime and soft or failing antifouling (tested first).
- **Engine bays:** oil, diesel and grease on engines, beds and surrounding areas.
- **Bilges:** oily build-up without adding water.
- **Narrowboats:** baseplates, engine bays and weed hatches.



- **Outboards, sterndrives and running gear:** props, shafts and housings.
- **Trailers:** cleaning boat trailers and launching gear.
- **Teak and timber:** gentle cleaning at low pressure.

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

Vortex Ice Labs is a fully mobile service. We bring a complete, self-contained system to the 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 a boat. The aim is to leave surfaces clean and dry, not to put oil or moisture back into an engine bay or timber.
- 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 gentle cleaning on timber and gelcoat to heavy grease in engine bays.

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

Working safely, and where it fits

Dry ice blasting is a powerful tool, and it should be planned with the boat owner and yard before we start.

- **Ventilation.** As the ice sublimates it releases CO₂ gas. Engine bays, bilges and cabins are enclosed spaces, so we ventilate them and use gas monitoring. CO₂ is heavier than air and collects in low spaces.
- **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 antifouling and residue can travel and may contain biocides, so we sheet the ground, protect nearby boats, and collect the waste for disposal as the yard requires.
- **Yard rules.** Many yards have their own rules for hull work. We work within them and agree the plan with the yard in advance.

Used this way, it is most valuable for engine bays and bilges, timber and gelcoat boats, surveys and refits, and anywhere water or grit would cause problems.

Final thoughts

Boat owners and yards need clean boats without damage or pollution. Traditional methods will always have a role, but they bring water, grit, chemicals and run-off with them.



Dry ice blasting removes many of those trade-offs. It cleans dry, is gentle on surfaces, and we bring it to the boat.

If you would like to see how it could work on your boat, I would be happy to arrange a visit or a test patch. Get in touch with us at Vortex Ice Labs.

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