

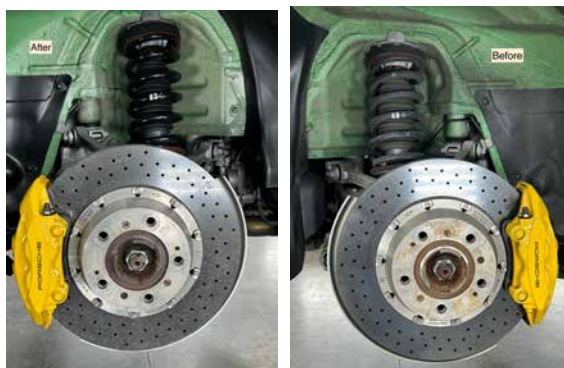


(Above) Heinz, Joe and Tim with Joe's RWB Porsche above them.

# Tech Session: Sauber NW Dry Ice Cleaning

BY HEINZ HOLZAPFEL  
PHOTOS BY CHRIS CURTIN

(Below) Before (r) and after (l)! The difference is obvious.



A grey, rainy Saturday morning, and 55 members are showing up at the Sauber NW garage in Beaverton, what gives? Well, Sauber NW is providing a special and fast-growing service: dry ice cleaning. What exactly is dry ice cleaning? In short, you blast the underside of a car with dry ice, which is frozen CO<sub>2</sub>, and it restores most surfaces back to factory conditions. The two owners, Joe DeCarlo and Tim Walbridge had several cars to show the before-and-after of dry ice cleaning and it is impressive! Joe is a member of Oregon Region. They also gave us a little demo of the equipment and shared a lot of experiences they gained over the years. If you ever want to sell your car and get the engine compartment and underside as clean as possible, you should consider dry ice cleaning. If you are very particular about the cleanliness of your car, you could

do it every year.

"How does dry ice cleaning work?" I asked ChatGPT to explain: Dry ice cleaning, also known as dry ice blasting, is a cleaning process that uses solid carbon dioxide (CO<sub>2</sub>) pellets accelerated by compressed air to remove contaminants from surfaces. The method involves several key steps:

## FORMATION OF DRY ICE PELLETS:

- Dry ice is produced by compressing and cooling carbon dioxide gas until it forms a solid.
- The solid CO<sub>2</sub> is then pelletized into small, high-density pellets, usually measuring around 3 mm in diameter.

## ACCELERATION AND PROPULSION:

- The dry ice pellets are loaded into a specialized dry ice blasting machine.
- Compressed air is used to accelerate the pellets to high speeds, typically between 80 to 400 meters per second, depending on the specific application.

Enjoy the photos. There are more on our SmugMug site here: <https://orpca-pix.smugmug.com/2024-ORPCS-EVENTS/Tech-Session-Dry-Ice-Cleaning-2172024>



### **IMPACT AND SUBLIMATION:**

- The high-speed pellets are directed onto the surface to be cleaned through a blasting nozzle.
- Upon impact with the surface, the dry ice pellets undergo a process called sublimation. Sublimation is the transition of a substance directly from a solid to a gas without passing through the liquid phase.
- The rapid sublimation of dry ice creates a micro-explosive effect that lifts contaminants from the surface. The kinetic energy of the pellets also contributes to the cleaning action.

### **CONTAMINANT REMOVAL:**

- Contaminants, such as dirt, grease, paint, or rust, are dislodged and lifted away from the surface due to the combination of thermal shock, kinetic energy, and sublimation.

### **COLLECTION AND CONTAINMENT:**

- Both the removed contaminants and the sublimated CO<sub>2</sub> gas are collected by the dry ice blasting machine.
- The contaminants can be vacuumed or swept away, while the CO<sub>2</sub> gas, which is non-toxic and environmentally friendly, simply dissipates into the atmosphere.

### **NO RESIDUE LEFT BEHIND:**

- Since dry ice sublimates completely, there is no secondary waste generated in the form of liquid runoff or abrasive media residue. This feature is especially

beneficial in industries where cleanliness is critical.

The process is safe when performed by trained professionals, and it offers advantages such as no residue, minimal environmental impact, non-abrasive, and no need for drying time.

The cost depends on the condition of the car and the level of cleaning you want to achieve. The process is time-consuming as the spray nozzle for dry ice pellets has only a small coverage area. You can expect the cost to be around \$2,000. Not cheap, but easily recoverable if you want to sell your car in prime condition.

There are a few limitations to dry ice cleaning, like material sensitivity to rapid temperature change, and some contaminants like heavy grease require additional cleaning methods.

Sauber NW will make a quote only after putting your car up and inspecting the condition, as well as discussing with you the target level for cleaning. Their shop is very impressive, especially the futuristic "Spray Box" that they use for dry ice cleaning. They recently teamed up with 503 Motoring, and while several vendors offer dry ice cleaning in Portland, Sauber NW has the combination of great equipment, great location, great service, and a great partner on their side.

Last little tidbit: Sauber is the German word for clean. How fitting for the name of the business! ■