

Paint Gun Transfer Rate Increased by 27.78%

“Blended Nitrogen” improves on Dr. DeVilbiss’ invention

One of the most radical tools and equipment improvements to the paint shop in recent times has been the gravity fed HVLP spray gun. So much more efficient than the old siphon guns, that they are now an EPA requirement. Everyone, including the EPA, along with shop owners, their painters, and their paint suppliers, recognized the HVLP improvement in transfer of paint, from the gun, to the vehicle.

The sole purpose of a spray gun (atomizer), since it was invented by Dr. DeVilbiss in the 1880s, was to transfer a liquid to a near gaseous state for better area coverage. Dr. DeVilbiss, a nose and throat specialist, developed a medication for his patients and subsequently invented the atomizer to better apply his medicine to the patients.

Dr. DeVilbiss realized that the smaller the liquid droplets could be atomized the better the area coverage and the *LESS* material (medicine) would be required. In those days, over medicating was a serious, sometimes life threatening, concern.

Fast forward to today...and the auto painting industry...we pay for a full can of paint, we want to get as much of that paint on the vehicle as possible. Any paint discharged from the gun and *not* transferred to the vehicle *is wasted* and collected as overspray in the booth exhaust filters. Therefore...it stands to reason, a better transfer ratio equates to longer filter life, and therefore, less filter costs.

Now, here’s where the “Blended Nitrogen” comes in. Nitrogen “Atomizes” (breaks down to smaller droplets) far better than compressed air. NOTE: All paints “Cross-Link” (molecule interaction) much better with smaller droplets! The paint droplets from an HVLP gun using nitrogen are much, much smaller than droplets from a gun using compressed air. Paint droplets from a gun using blended nitrogen sprays like “BBs” compared to the “Golf Balls” coming from a compressed air gun. One of the reasons for this is that nitrogen is an “inert” gas, meaning it will not expand or contract with temperature changes. It’s also “Anhydrous” meaning it can hold no moisture. **Therefore, “Nitrogen” is particularly helpful for drying waterborne paint in adverse, high humidity, conditions.** Nitrogen is the perfect “Fluid Carrier” for waterborne paints. Solvent or waterborne...blended nitrogen will get more paint

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Shorten application time by 25%!

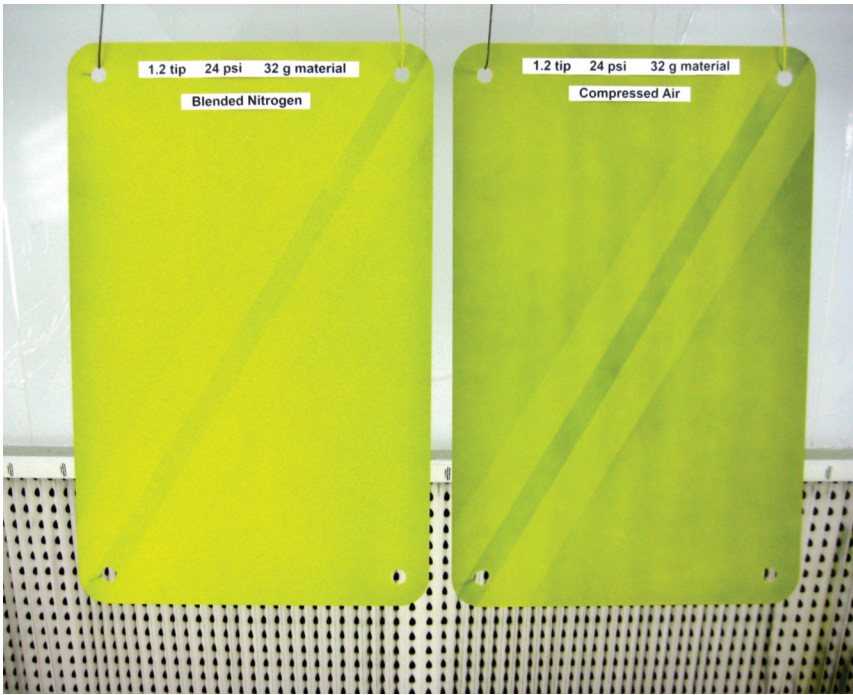
Double exhaust filter life!

Incredible paint luster!



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Both panels, sprayed with one coat, show better coverage with blended nitrogen.

on the vehicle and less in the floor filters.

We've heard about the virtues of nitrogen in other mediums. Over the past few years auto tires, especially race car tires are filled with nitrogen instead of compressed air because the nitrogen will not expand as the tires get hot, thereby changing the tire pressure...a half pound change of pressure at 200 MPH can greatly change a race cars performance. More recently Shell gasoline is now "enriched" with nitrogen. Shell has proven that by adding the nitrogen their gasoline will "atomize" better and burn more efficiently for better mileage and a cleaner engine. Other petroleum companies are sure to "jump on the nitrogen band wagon".

So where do you get the nitrogen from? Not from the guy who supplies the acetylene and oxygen for your touches. Actually, nitrogen is free. It's, in the air, it's all around us. You see, an air molecule is made up of 78% nitrogen, 21% oxygen, and some other trace gases. All you need to get it is what's known as a "Nitrogen Generator" machine. A machine specifically designed for wet painting application. A nitrogen generator (about the size of a small file cabinet) actually extracts the nitrogen from your compressed air supply and delivers it to the painter thru a special air hose. The unwanted gases are discharged back out to the atmosphere. The machine is mounted close to the paint booth for best results.

So what kind of results can be expected...We tested the most popular "Blended Nitrogen" system throughout the Metro New York tri-state area with astounding results.

...All testing was done within "Actual Real Shop" conditions and not under "Laboratory" conditions for the most accurate "as in real life" results. We spent weeks, upon weeks, in 10 different shops. Most spraying water, some solvent, spraying a wide variety of the major paint brands. All had full down draft heated booths, some had multiple booths. The tests were as scientifically standardized as possible. The tests were performed by the individual shops painter using the painters personal HVLP gun on actual "work in process" repair jobs as they came thru the shops door. Time studies were compiled on an average "per panel" basis for *application of material time*...as well as the *flash time* between coats. It covered a wide variety of ma-

terials including water and solvent base coats as well as clear coats. The amount of material transferred was measured in grams applied. In each shop an average of 5 vehicles were painted with compressed air, than the painter unplugged the compressed air line and plugged in the blended nitrogen hose and another 5 cars were painted, there were no other changes...same painter, same gun, same work load. All paint studies were on average collision repair vehicles, no overall completes.

The highest improvement in *shortening application time* was 44.77% while the lowest was .97%. The highest improvement in *shortening flash time* was 60.71% while the lowest was 19.48%. The average improvement for shortening "Booth Time" *Door Open, Vehicle In to Door Open, Vehicle Out* was 27.04%. **That's an average 27.04% increase in booth productivity.** At 27% the average booth producing 4 cars a day will easily increase to 5 cars in the same time period with the same painter operating under the same conditions.

Material transfer was increased an average of 27.78%. The highest transfer improvement was 45.00% and the lowest was 20.91%. Not only was 27% more material transferred to the vehicle with blended nitrogen, but 27% less material was going into the filters.

A few side notes...Hard to cover colors (yellows and colors high in metallic) showed the best results for "*Less Costs to Cover*" and all painters reported "*Less Overspray*" in the booth promoting "*Cleaner Paint Work*".

Note should be taken that the nitrogen system was accessorized with a heated air line system which greatly enhanced the quality of the finish and in some cases a deionizer, however the deionizer proved of little value.

One shop owner commented "He wouldn't have believed it 'till it was proven in his own shop" while another referred to the Blended Nitrogen as a "Game changer" for his bottom line...and all the painters are smiling.

Most shops are willing to invest aprox. \$700 per month (average lease payment) to put 27% more material on the car and 27% less in the exhaust filters and get an additional car thru the booth per day...and that's big!

For further information, contact Tom Beck via tom@futurecure.com.