

Iowa Waste Reduction Center
University of Northern Iowa

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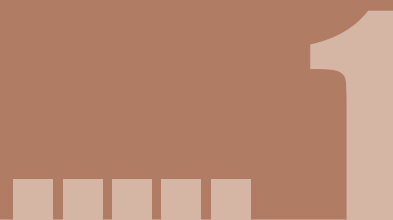
*Summer***2003**

Pollution Prevention For Painting & Coating Compliance Enhancement

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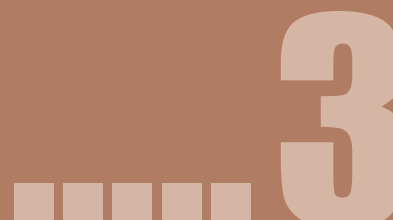
Energy Consumption of Painting and Coating Can Be Reduced

A recent study by an IWRC specialist found that painting and coating equipment operators can save money and reduce the amount of energy their operations consume by installing AC motor controls.



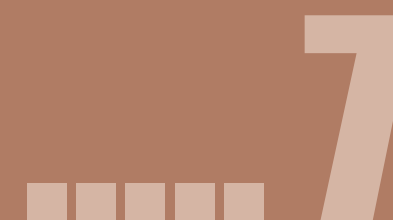
Metal Finishing: case study 1

On-Site Reviews are a valuable service provided by the IWRC. One Iowa business has seen the significant impact this service has had on its facility's finishing process through improved paint usage, finish quality, emissions and booth maintenance.



News Briefs

With special seminars like Tech Days and PACE Process Training, the IWRC is able to assist many small businesses like Ottumwa Works.



Wood Finishing: case study 2

Through On-Site visits, the IWRC helps businesses run at a top-notch rate. One Iowa facility was able to decrease its total material usage by 22 percent after implementing suggestions made by the IWRC.



BETA: The Blueprint for Environmental Technical Assistance

BETA was developed to provide a readily available resource to assist new programs and new employees with on-site assessment training. BETA provides them with information about the business/industrial processes they will be reviewing.



Removing Waste and Improving Finish Quality in the Auto Body Shop

With the high cost of conducting automotive paint systems being higher than ever, waste of any kind takes an expensive toll. Anything from keeping your facility clean to using the right techniques and equipment can help save your business money.





Energy Consumption of Painting and Coating Equipment Can be Reduced

by Jeff England
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In a recent study conducted by the Iowa Waste Reduction Center (IWRC), Quality Assurance Manager Jeff England found that many painting and coating equipment operators can significantly reduce not only the amount of energy their operations consume, but can realize monetary savings by installing AC motor controls into their systems. In the Midwest, where colder climates often create higher energy prices, implementing AC motor speed controls in either a paint booth, a 5-stage Pretreatment System or a Powder Coating Booth can prove beneficial to not only the environment, but a business' pocket-book as well.

In the study, AC motor controls were installed on three common pieces of painting and coating equipment in order to measure the potential energy savings that resulted. Energy savings are from the reduced electrical demand of the motor speed controllers combined with the resulting decrease in heating costs related to ventilation. Results were as follows:

- ❖ When installed in the paint booth ventilation system,

which consisted of a 5-hp intake motor and a 15-hp exhaust motor, fan speed was reduced by 23 percent without allowing ventilation to fall below the recommended minimum. The cost of installing the speed controls came to \$5,025; while in operating costs, results from the reduction were \$4,844 per year for a booth operating continuously. The financial payback period for the AC motor speed controls in this type of system was about one year.

- ❖ The installation of motor controls into the 5-Stage Pretreatment System consisted of two 5-hp exhaust fan motors. Installation cost was only \$1,980 while a 7.5 percent fan speed reduction resulted in an annual savings of \$3,984 for a system operating continually. The reduction in this case is due to the combined effects of reduced fan motor speed and reduced ventilation. A system operating 40 hours a week would save an average of \$940 per year.

- ❖ Finally, AC motor speed control was installed in a powder coating booth ventilation system that consisted of two 3-hp motors, operating off of a single speed controller. The cost of installing the speed controllers on the powder-coating booth was \$1,175. Due to the lower operating cost of the powder-coating booth, it was expected to benefit the least of three equipment operations from the modification. Fan speed was reduced by 33 percent without significantly reducing ventilation, resulting in a savings of \$525 per year for a booth operating continuously.

By incorporating AC motor speed controls into painting and coating operations, businesses, especially those that operate equipment in multiple shifts, can lower their energy use in a sufficient payback period. For more information on installing speed controls into your operations, or for a complete copy of the project report, call Jeff England of the IWRC at 800-422-3109 or visit www.iwrc.org

Metal Finishing

case study 1

by
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Background

In the spring of 2003, Process Training staff visited a manufacturing facility that finished agricultural products. The facility's coating supplier coordinated the site visit after realizing that a number of application problems existed at the facility. An equipment vendor familiar with the facility's finishing process and equipment (Spray Equipment and Service Center Inc. [SESC]) also attended the site visit. SESC had visited the facility in the past and had made a number of recommendations toward improving the facility's application process. However, the facility was hesitant on implementing those modifications.

The facility applies a fast-dry, general-purpose enamel. The coating was 30 percent solids (by volume) and the recommended dry film thickness for the coating was 1.0 to 1.5 mils. The viscosity of the coating, out of the drum, was reportedly 28 to 32 seconds on a Zahn #2 cup.

The facility experienced a number of problems associated with its finishing process. Dry film build measurements taken on a number of finished products indicated operators were applying excessive film builds - anywhere from four to six mils dry. This resulted in excessive overspray, coating usage and emissions. It also caused poor coating appearance (runs/sags) and performance (cracking).

The facility operates an electrostatic air-assisted airless spray gun fed from a 30:1 pump. Paint applied to the substrate first passed through an in-line heater for viscosity control and reduction. The coating was heated to a temperature of 136 degrees Fahrenheit (at the in-line heater) before it was circulated out to the spray gun's whip hose. The heated material was then re-circulated back to the drum. Although the delivery system was equipped with a back-pressure regulator, no fluid regulator was plumbed into the system (a fluid regula-

tained at an elevated level - approximately 80 psi. This produced an excessive fluid pressure of approximately 2400 psi to the spray gun but avoided the surging problem experienced at lower operating pressures.

The electrostatic efficiency of the system was reviewed by observing the degree of wrap on a piece of tubular steel and by checking continuity to ground with a megohm meter. By observing the degree of wrap achieved on the tubular steel, it became apparent that parts attached to the ground-

Equipment modifications, some training and equipment maintenance

will undoubtedly result in a

significant impact

on the facility's

paint usage, finish quality, emissions and booth maintenance.

tor is a self-adjusting valve that senses fluid pressure at its outlet and keeps it constant). As a result, the gun's spray pattern experienced surging (and "tails") when the pump cycled. Because of the surging during pump cycles, the air regulator for pump operation was main-

ing cable had no wrap while parts hung on the conveyor realized excellent wrap. Follow-up with megohm meter measurements verified that the grounding cable exceeded one megohm of resistance to ground while the conveyor had good continuity to ground.

The existing fluid filtration system consisted of a 100-mesh screen in the pump manifold filter and a 100-mesh filter in the spray gun's fluid inlet. Although a 0.009-inch diameter fluid tip orifice was capable of providing the output needed for production, the facility used an 0.011-inch fluid tip orifice because of frequent tip plugging.

The booth's airflow was also checked with a velometer. Measurements indicated airflow through the booth was, at best, an average of 50 feet per minute. A review of the booth exhaust revealed loose fan belts. An ensuing discussion with facility staff also indicated an overspray buildup inside the stack and on the exhaust fan could be contributing to the poor airflow. A cursory inspection of the downdraft spray booth found air gaps in the booth arrestor filters (because

of their placement/ orientation). As a result, overspray could bypass the filter media and enter the stack.

Modifications and Benefits

To address the identified application problems, the following changes were implemented:

- ❖ For fluid pressure stability and control, a fluid regulator was installed at the pump outlet downstream of the manifold filter. Although fluid pressure at the regulator inlet fluctuates (from pump changeover), the regulator maintains a set outlet pressure to the spray gun, providing consistent material delivery. As a result of its installation, along with the installation of a more sensitive back-pressure fluid regulator, the fluid pressure to the spray gun was lowered

from approximately 2,400 psi to 800 psi.

- ❖ The return line of the paint circulation system was plumbed back into the pump foot valve rather than the paint drum. This simple plumbing fix circulated heated material back to the pump intake, avoiding unnecessary solvent loss from the drum. The coating drawn into the pump intake was also brought up to operating temperature more efficiently.

- ❖ To address frequent tip plugging with the 0.009-inch tip, a 200-mesh screen was installed at the manifold filter. A 100-mesh in-line filter was also installed at the whip hose. This improved fluid filtration allowed the 0.009-inch tip to be used for finishing, resulting in reduced material consumption, improved atomization and better electrostatic performance. At a given fluid pressure (for a light to medium viscosity fluid) an orifice diameter decrease from 0.011-inch to 0.009-inch represents approximately a 30 percent decrease in fluid delivery rate. Additionally, the decrease in operating fluid pressure (i.e., 2,400 psi to 800 psi) results in an even greater decrease in fluid output.

- ❖ Alternative fluid tips (machined with varying included angles to produce different

size spray patterns) were provided to the operators along with a brief review on fluid tip selection (i.e., orifice diameters and spray pattern size relative to the tip numbering scheme). Because the facility finished products that varied from flat panels to products manufactured with small diameter tubular steel, a variety of 0.009-inch diameter orifice tips were provided to "better fit" the various part geometries finished at the facility. The intent was to select a fluid tip with a spray pattern appropriately sized for the parts finished, improving transfer efficiency.

- ❖ The air control valve on the air-assisted airless spray gun was being used wide open. To minimize fluid droplet velocity and optimize elec-

trostatic benefit, operators were instructed on air-assisted airless spray gun setup. Operators were shown how to set the air control valve just to the point where "tails" were removed from the spray pattern. The air to the spray gun was also limited to the air pressure setting recommended by the spray gun manufacturer.

- ❖ To improve booth airflow, belts for the exhaust fan were tightened, the exhaust stack and fan blades were cleaned of overspray and booth filters were better fitted to eliminate any air gaps that would allow overspray to bypass the filter media. Improving booth airflow in conjunction with lowering the spray gun operating pressures (air and fluid) should also have a positive impact in regard to the

amount of overspray on booth walls and the work floor.

Conclusion

Because the facility is currently fine-tuning its coating formulation (in an effort to maintain the fast-dry characteristics needed throughout the year), no fair "before-and-after" number comparison in regard to material consumption can be made at this time. However, the \$1,100 investment in equipment modifications, some training and equipment maintenance will undoubtedly result in a significant impact on the facility's paint usage, finish quality, emissions and booth maintenance. Additionally, spray operators are more knowledgeable of the finishing equipment, have much greater control of the process and benefit from a healthier, safer work environment.

“After training, spray operators are more **knowledgeable** of the finishing equipment, have much **greater control** of the process and benefit from a healthier, safer work environment.”



Properly selected fluid filters remove particulates that would otherwise lead to frequent tip plugging in airless and air-assisted airless application systems.

NewsBriefs →

Tech Days Event: September 23-25

A Tech Days event, featuring coating equipment manufactured by Graco Inc. and Parker Ionics, will be held on September 23, 24 and 25 at the IWRC's Painting & Coating Process Training facility. The three-day event is an opportunity for businesses to visit with industry experts, attend technical presentations and review the latest application equipment offered by Graco and Parker Ionics. This event is sure to provide technical information beneficial to your liquid or powder coating finishing process. For more details, please contact Brian Gedlinske or John Whiting of the IWRC at 800-422-3109, gedlinske@uni.edu or whiting@uni.edu

Ottumwa Works: Improving Coating Performance

John Deere Ottumwa Works recently utilized the training facility's resources to evaluate coating performance using a five-stage pretreatment system. Ottumwa Works currently uses a two-stage spray washer to prepare parts for painting, but will soon upgrade to a five-stage system. By improving coating performance through superior pretreatment and some coating reformulation, Ottumwa Works hopes to move to a single coat application for its ground-engaging parts and a two-step finishing process (an enamel dip followed by an air spray application of a two-component enamel) for its class A and B pieces. Ultimately, this process change is anticipated to reduce the facility's VOC and HAP emissions by 25 to 30 percent.

Hands-on Spray Gun Setup and Operation

Each month the IWRC's Process Training program offers a free 2 1/2-day, "hands-on" training course covering a variety of painting and coating processes. The program was developed to educate regulatory personnel, technical assistance providers and businesses on coating processes in an effort to improve efficiency, reduce waste and decrease air emissions. As indicated in the course agenda, topics addressed range from pretreatment to liquid application to powder coating. For convenience, businesses are welcome to send representatives to pertinent portions of the training program. Additionally, to ease the financial burden associated with attending the program, regulatory personnel, technical assistance providers and end users are eligible for travel expense reimbursement. If interested in attending, please contact Brian Gedlinske (gedlinske@uni.edu) or John Whiting (whiting@uni.edu) for training dates.

PAC²E Process Training *Painting and Coating Process Training Program* Training Agenda

DAY 1	7:45-8:00	INTRODUCTION ✓ Tour of facility
	8:00-12:00	PRETREATMENT ✓ Cleaning, Phosphatizing and Process Control ✓ Equipment Review
	12:00-1:00	LUNCH
	1:00-3:00	INTRO TO APPLICATION EQUIPMENT AND APPLICATION EFFICIENCY ✓ Air Spray, Hydraulic Atomization, Powder Coating ✓ Viscosity, Atomization and Finish Quality ✓ Transfer and Film Build Efficiency ✓ Spray Technique ✓ Recognizing Problem Areas and Improving Efficiency
DAY 2	3:00-5:00	INTRODUCTION TO COATINGS ✓ Coating Materials – Liquid and Powder ✓ Components, Properties and Application ✓ Process Control/Troubleshooting
	8:00-11:00	INTRO TO APPLICATION ENHANCEMENT EQUIPMENT, GROUNDING AND POWDER COATING ✓ Electrostatics ✓ Grounding ✓ Hangers and Part Presentation ✓ Powder Coating Equipment - Hands-on
	11:00-12:30	LUNCH
	12:30-5:00	LIQUID SPRAY APPLICATION EQUIPMENT AND ✓ Air Spray Equipment - HVLP and Conventional ✓ Equipment Setup ✓ Hands-on Spray Gun Setup and Operation
DAY 3	8:00-11:00	LIQUID SPRAY APPLICATION EQUIPMENT – AIRLESS AND AIR-ASSISTED AIRLESS ✓ Safety ✓ Tip Selection, Fluid Pressure and Air Pressure

Wood's case study 2 Finishing

by
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Background

In the fall of 2002, Process Training staff partnered with ESCOM on a site visit to a wood finishing facility. The facility had encountered some regulatory issues and was looking for ways to cut production costs and emissions. The focus of the site visit was the staining line and the facility's sealer/topcoat application process. These coating operations accounted for the bulk of the facility's material usage and emissions.

The staining line used pressure fed HVLP spray guns to apply a solvent-based, wipe-able stain to the substrate. The spray guns were fitted with 0.055-inch fluid nozzle/needle air cap combinations. During a cursory review of the staining process, it was determined that the atomizing air to the HVLP spray guns was unregulated and well above any inlet pressure that would keep the process HVLP compliant. Further inspection of the staining process revealed inoperable fluid regulators, resulting in excessive and uncontrolled fluid output from the spray guns (other than what little

could be accomplished by closing off the fluid needle adjustment valve).

Air-assisted airless spray guns were used to apply a sealer and high-gloss lacquer topcoat. The viscosity of the sealer and topcoat materials was reported at approximately 25 seconds on a #2 Zahn cup. Air-assisted airless spray guns were fitted with 0.021-inch diameter fluid tips. The included angles machined into the tips were designed to produce 12- to 14-inch spray patterns at a 12-inch gun-to-target distance. Coatings were fed to the spray guns using 30:1 pumps. Fluid pressures to the spray guns averaged around 1,900 psi although they varied anywhere from 1,550 to 2,200 psi. Air pressure to the spray guns varied from 30 to 68 psi at the wall regulator.

“It was readily apparent that the **application process** was being operated more as an **airless system**.”

Based on the viscosity of the coatings sprayed and the fluid pressures used, it was readily apparent that the application process was being operated more as an airless system than an air-assisted airless system. This was demonstrated by turning off the air supply to the gun and still achieving a uniform spray pattern.

Modifications and Benefits

To address the identified application problems, the following changes were implemented:

- ❖ Air regulators were installed to control the atomizing air to the HVLP spray guns. Instead of operating at line pressure, the atomizing air to the spray guns could now be controlled and the staining process could become "HVLP compliant." Additionally, with more deliberate detail to spray gun setup and operation, the staining process could be completed with a much "softer" spray, resulting in reduced overspray, material usage and emissions.
- ❖ Fluid pressure regulators were replaced or repaired to provide control over fluid delivery from the HVLP spray guns. Prior to their repair/replacement, HVLP spray guns delivered a high velocity fluid stream from the nozzle, making it difficult (at best) for operators to apply the stain efficiently. Control over spray gun fluid

pressure equates to improved operator control, reduced atomizing air pressures and a more efficient application process.

- ❖ Air and fluid pressures to the air-assisted airless spray guns (used to apply sealer and topcoat) were reduced. This produced a much "softer" spray by reducing air turbulence. In turn, this reduced overspray created a more favorable work environment for the operator. The air pressure to the spray gun was reduced to a setting that eliminated "tails" from the spray pattern and provided adequate atomization in regard to finish quality. The reduction in fluid pressure also gave operators more control over the spray

gun (resulting in fewer runs/sags) while still allowing them to keep up with production. It also meant less tip wear.

- ❖ The fluid tips were replaced with 0.017-inch tips that produced an 8- to 10-inch or a 10- to 12-inch spray pattern at a gun-to-target distance of 12 inches. These new tips kept more of the spray pattern on the product being finished while reducing material output and improving atomization. At a given fluid pressure (for a light to medium viscosity fluid) an orifice diameter decrease from 0.021-inch to 0.017-inch represents over a 37 percent decrease in fluid delivery rate.

Results

Monitoring data indicates the facility realized a double-digit percentage decrease in coatings usage as a result of changes implemented during the site visit. Over the same three-month period before and after the site visit, the amount of sealer and high-gloss lacquer sprayed by the facility dropped by approximately 24 and 32 percent, respectively. This decrease in material consumption was normalized for the same amount of production. Overall, a 22 percent decrease in total material usage was realized for the facility, a number equivalent to over \$100,000 in material costs and 33 tons of VOC emissions per year.

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The Blueprint for Environmental Technical Assistance

The Iowa Waste Reduction Center's (IWRC) Small Business Compliance Alliance (SBCA) recently developed a training program for other environmental assistance providers, as well as packaged the corresponding materials in a manual. The need for The Blueprint for Environmental Technical Assistance (BETA) was based on the lack of existing training for environmental technical assistance providers. New programs and new employees do not have a readily available source for on-site assessment training, nor a way to learn about the business/industrial processes they will be reviewing.

BETA is comprised of a compliance assistance and pollution prevention on-site review training guide that includes checklists, regulatory summaries, vendor information, a client entry database and example on-site reports from a variety of business sectors. The training guide, in conjunction with on-site business visits, has formed the basis for training technical assistance providers from two other states. A typical BETA visit includes two on-site

reviews with IWRC staff, a review of regulatory summaries, training with the client tracking database and training on how to access vendor information. The training is customized when the trainee has particular projects as their focus and site visits are arranged with IWRC staff with that applicable expertise.

The IWRC has developed several different modules of an overall environmental model. This allows existing programs to implement only those modules they do not already have in place, or find most useful for the needs of their state. The modules developed include:

on-site technical assistance training, client tracking database, workshops, small business assistance providers' roundtable, website template with regulatory and waste type summaries.

If your organization is interested in additional information about the BETA training program please contact Chris Horan or Jeff Beneke of the IWRC at 800-422-3109 or visit www.iwrc.org.

by Chris Horan
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Reducing Waste *and* Improving Finish Quality in the Auto Body Paint Shop

by Mark Clark
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Today's automotive paint systems cost more than ever before. Not surprisingly, great technology costs money. Not only are today's paints compliant with the National Rule on solvent content (VOC), they are also much more durable. At more than \$100 dollars per gallon, these technically impressive coatings require careful stewardship, not only for emission control but cost control too.

Typically, the body shop spends about 70 cents of every dollar in refinish material on liquid paint. Undercoats, sealers, color systems, clear coats, solvents and catalysts are mixed together in exact proportions to yield amazingly durable auto finishes. Each typical auto painter uses about \$2,000 worth of liquid each month. Waste of any kind takes an expensive toll.

Preventing rework

I contend that the main cause of wasted materials is poor initial repair. When work must be re-repaired the solvent emissions and the monetary cost both double. The shop is allowed a material allowance from the insurance company responsible for repair. More than 90 percent of all collision repairs are paid by insurance (this is based on a multiple of the estimated labor hours of paint time and a specific hourly allowance rate, typically \$20-\$26 per labor hour). However, they only pay for one correct paint repair. The body shop is out the cost of all new materials and lost profit on the original repair. Prevent re-work to make the greatest improvement in your paint waste.

Common causes for a paint redo include a poor color match and excessive dirt and contam-

ination in the finish. Prudent auto painters use sample spray out panels and clever blending techniques to effect an invisible paint repair. Less clever painters re-spray the entire multi-panel repair when a color mismatch is finally discovered. Prudent painters employ clean paint suits, careful prep and masking and a well maintained spray booth. Less skillful painters spend hours and hours perfecting the final product to flaw-free original equipment standards by hand, sanding and power buffing endlessly.

Material Waste and Mixing

Next on the list of material waste pitfalls is over-mixing. Not only does the excess paint product cost lots of money, it becomes expensive hazardous waste as well. A typical auto body repair is \$1,500 in total.

Approximately \$70 of that is the body shop's cost for all liquid paint products required. If most repairs were over-mixed by 25 percent (10 percent over-mix is appropriate) the shop would spend an unnecessary \$10 for every car painted or about \$5,000 each year in a typical shop. The potential savings more than merit a managed approach to reducing liquid paint waste.

Most auto paint companies offer a computer driven mixing scale that will calculate color formulation and catalyzation ratios down to a fraction of a gram. By employing this built-in technology, smaller quantities are very easily mixed. To take full advantage of these smart mixing scales, the painter should mix every liquid component on the computer scale. Exact ready-to-spray ounces of primer surfacer, sealer, base

color and high solids clear coat can complete a smaller repair with "exactly" the right amount of catalyzed and reduced material. Once catalyzed, auto paint pot life is measured in hours at best. To help manage their financial

investment, savvy painters can also tie each mix to the correct customer repair order through the computer, tracking costs by each job.

A simpler and very effective method to track over-mixing

Each typical auto painter uses about
\$2,000 worth of liquid each month.
Waste of any kind takes an **expensive toll.**

by auto body painters is to employ intermediate hazardous material containers for individual painters. Rather than have every painter dump excess paint liquids into a common 55-gallon drum of hazardous waste like most shops do, have the painters pour their waste into one or five-gallon cans first. In a controlled time period, each painter would have his or her waste measured and recorded before being pooled into the shop's main waste drum. Painters could be compared against past performance or individual waste generated per paint labor hour. In either case, over-mixing abusers are quickly identified. Rather than punishing the wasteful painters, rewarding the frugal ones makes more sense to encourage everyone's compliance.

HVLP and the Environment

It is beneficial to the local air quality to minimize the

Hazardous Air Pollutants (HAPS) and Volatile Organic Compounds (VOCs) emitted while spray-painting collision repairs. Employing spray guns with high transfer efficiency makes economic and environmental sense everywhere and is mandatory in many regulated areas around the country. High volume, low pressure, gravity feed, air atomized spray guns are the norm across the United States. These HVLP spray guns theoretically enable transfer efficiency of around 65 percent. The combination of low atomization pressures (less than 10 PSI at the air cap) and larger paint droplet size make this type of gun much more efficient than the former auto body industry standard spray gun. From the 1920s until the South Coast Air Quality Management District (SCAQMD) passed Rule 1151 in 1987, most auto body spray guns were siphon feed, bottom cup spray guns. With large

fluid openings and powerful venturi action at the air cap, these guns blew and swirled their contents into large clouds of finely atomized paint mist, often having transfer efficiency only in the 30 percent range.

The switch to higher transfer efficiency spray guns has been good for both the painter's health and the local air quality. A recent development by several paint gun manufacturers may signal the next step in auto refinish spray equipment. The content of Rule 1151, which many other regulations are modeled after, is targeted at all spray equipment that is 65 percent transfer efficient, not just HVLP equipment. It is possible to get 65 percent transfer efficiency from both electrostatic and airless spray. However, it is very difficult to achieve the faultless Class 'A' finish required to match today's autos with either method. New gravity feed, high transfer (but not HVLP) spray guns have recently been given SCAQMD approval.

While operator training is the best transfer efficiency determiner, the current generation of guns will still enjoy potentially high transfer efficiency. They will also allow the painter to raise the air pressure at the air cap past the current 10-PSI maximum. This is good news for painters in heavily regulated areas who must get the same stunning Class 'A' finish using extra low VOC products. Auto painters in Los Angeles must atomize clear coats that

are as low as 1.9 pounds of VOC per gallon. These super-high-solids resins benefit greatly from higher atomization pressures. While looking like close cousins of today's HVLP guns, these newly approved guns open another important avenue to enable the painters to work their magic.

And magic it is. Consider that in a largely uncontrolled environment, using air dry, site-mixed urethane resins, the local auto body shop can offer a paint repair both as attractive and as durable as the factory applied finish. Original equipment manufacturers spend millions of dollars to create the most perfect, repeatable, healthy, clean and compliant spray system possible. Local auto body painters use some top-notch chemistry and a few preventative steps along with lots of post-paint cleanup and detailing.

Take Time to Save Time

Cleaner vehicles, painters and spray booths quickly affect initial paint finish quality; truly a stitch in time saves nine. Any time the painter spends keeping the process clean and orderly is saved many times over upon completion. Slower solvents, heated exhaust airflow and good spray technique make the finish as smooth and glossy as humanly possible. However, it is very difficult to keep the refinish repair as clean as the OEM version. As a result almost every paint job coming from a body shop today will have some hand lev-

eling, polishing and buffing performed before delivery.

Since many auto painters continue to employ solvents that evaporate too fast, their paint work often has orange peel. Orange peel is always caused when the droplets of paint don't melt completely into one another (Slowly evaporating solvents stay inside the paint film long enough to flow out smoothly). To remove this hi-lo texture from the final clear coat, painters wet sand with very fine grits of sandpaper first. Grits as fine as 1500,

dust or other airborne clutter are removed using a rigid sanding block of some kind to prevent undercutting the contaminated areas. Finally, the gloss is restored and enhanced by polishing with a suitable compound on a power buffer.

Typical paint detailing these days employs both wool and foam rubber polishing pads. In either event, the polisher should turn relatively low RPM (1,500-2,000) to keep from generating surface friction heat. A lightly abrasive polishing compound brings back the showroom perfect paint gloss from the sanded clear coat. It is possible to heat and re-flow fresh auto paints so completely as to ruin them. Burned or burned through paint repairs must be re-done and the cycle of material waste begins again. As always, the paint shop that has written procedures for each step in the repair process will have higher quality repairs with fewer mistakes.

The outlook is bright for auto paint technology. New ultra violet cured finishes are the next technological resin jump. Newer, better spray guns are on the market today. The air quality has improved nationally directly from changes made by auto body shops since the 1987 and 1990 legislation. We're doin' good man! A better repair with more compliant materials and low emission spray equipment is a win for us all.

Any time the painter spends keeping the process clean and orderly is saved many times over upon completion.

2000, 2500 or even 3000 ANSI are used to level the painted finish flat. Small particles of



PAC²E

Painting & Coating Compliance Enhancement

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www.iwrc.org

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