

Certification Workbook & Pollution Prevention Guide for Autobody Repair Shops

Bureau of Air Quality Self-Certification Program



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Certification Workbook for Autobody Repair Shops, First Edition April 2010

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1.0 Overview

In order to improve environmental protection at less cost to both government and business, autobody repair shops are being required to self-certify to the South Carolina Department of Health and Environmental Control (DHEC) Bureau of Air Quality that they are complying with the air quality requirements that apply to their shops. This new, common sense approach to regulation holds great promise for making it easier for the autobody repair industry to meet – and surpass – South Carolina’s air quality regulations. This workbook provides the information needed to help you understand and comply with State and Federal air quality regulations. The package has two parts:

1. **Bureau of Air Quality Self-Certification Workbook for Autobody Repair Shops (This Workbook):** This workbook explains the air quality standards that apply to your shop and how to make sure you are complying with them. The workbook is designed to be used in conjunction with the accompanying self-certification checklist and can also be used as a reference for your shop. The workbook also provides information regarding management practices for general housekeeping and other environmental program media areas that can help your shop minimize human health risks and environmental impacts while saving money.
2. **Annual Self-Certification Checklist and Accompanying Forms:** This checklist requires facility information and contains a series of compliance questions, which generally require “yes” or “no” answers about whether or not your shop is following the applicable air quality requirements. The checklist ends with an annual compliance certification, which must be completed and signed by the shop owner. One additional form is provided as follows:
 - **Return to Compliance Plan:** Complete the Return to Compliance Plan if your shop is not in compliance with a particular checklist item at the time of certification. The shop must detail its plans to address the particular item(s) to bring them back into conformance with air quality regulations within a specified period of time.

1.1 Area Source Regulations

Since 1970, the Clean Air Act has provided the foundation for protecting people and the environment from the harmful effects of air pollution. In the 1990 Clean Air Act Amendments, the U.S. Congress directed the U.S. Environmental Protection Agency (EPA) to develop a strategy to identify and control emissions of no less than 30 of the 188 hazardous air pollutants (HAP) that result in the greatest threat to public health in urban areas. Under the Urban Air Toxics Strategy, the EPA identified 33 HAP and 70 area source categories, which accounted for 90 percent of the emissions of those 33 HAP. The EPA is developing standards to control toxic air pollutants from the identified area sources. "Area" sources are those sources that emit less than 10 tons annually of a single hazardous air pollutant or less than 25 tons annually of a combination of hazardous air pollutants. When the Urban Air Toxics Strategy is fully implemented, the EPA expects there will be a 75 percent reduction in cancer risk. The EPA identified autobody repair shops as one of the area source categories because the spray-applied coatings may contain compounds of the following HAP: chromium (Cr), lead (Pb), nickel (Ni),

and/or cadmium (Cd), which are known carcinogens, and/or manganese (Mn), which known to cause non-cancer health disorders. On January 9, 2008, the EPA published the final regulation that established requirements for autobody repair shops: 40 CFR Part 63, Subpart HHHHHH – National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources (Subpart HHHHHH).

1.2 Who is Subject to Self-Certification?

Participation in the self-certification program is mandatory. Any shop with operations involving collision repair; vehicle painting; paint stripping with methylene chloride; and student training in any of those areas shall participate in the program. If a painting operation is included as part of a new or used car dealership or general auto repair shop, it is also considered a refinishing operation in the Self-Certification Program. Every autobody repair shop is subject to State and Federal air quality requirements. The Self-Certification Program allows shops to annually certify that they are in compliance with those regulations.

1.3 What Does Participation in the Self-Certification Program Entitle Your Shop To?

Compliance with air quality regulations is a requirement of all autobody repair shops. Autobody repair shops will be required to request coverage under a registration permit and be required to participate in the Self-Certification Program. Shops that do not request coverage under a registration permit will have to complete the full air quality permitting process and be subject to regular inspections by DHEC.

Here are some other advantages of participating in the Self-Certification Program:

- DHEC may reduce the inspection priority for you shop; although there is always a possibility of a random inspection.
- You can find and correct environmental violations before we discover them during an inspection.
- You will have completed a comprehensive evaluation of your shop's compliance status, making you better prepared for an inspection.
- The DHEC Air Toxics Program will be happy to provide technical and compliance assistance if you encounter any questions or problems. The technical and compliance assistance may include understanding the regulation, evaluating gun options, determining methylene chloride usage, evaluating MSDS sheets, etc.

Note: Participation in the Self-Certification Program does not guarantee that your shop will not be subject to a random inspection, or an inspection prompted by an employee or neighbor complaint. Both State and Federal environmental and occupational health and safety agencies have the authority to perform such inspections. These inspections can result in enforcement actions against your shop. Participation in this program will identify deficiencies and prepare your shop in the event of an inspection. Keep copies of your checklists to assist you in demonstrating compliance with applicable State and Federal air quality regulations.

1.4 Pollution Prevention – The First Step to Compliance

The first step on the road to environmental compliance is to look for opportunities to use fewer hazardous materials and to generate less waste, thus stopping pollution at its source. Why manage wastes when you can eliminate them? Pollution prevention techniques can help you to reduce your compliance burdens, make your workplace cleaner and safer, increase your competitiveness, and save you money. This section outlines some simple steps you can take to prevent pollution. After reviewing these steps to reduce your use of toxic materials and generation of wastes as much as possible, move along in the workbook to find out how to properly manage your remaining air emissions, and to start using best management practices with your remaining wastes and wastewater discharges. If you need help with implementing pollution prevention techniques/technologies, feel free to contact DHEC's Center for Waste Minimization at 803-896-8986.

All Autobody Shops Should:

- Make one person solely responsible for chemical purchases and inventory control. Consider environmental and safety requirements in purchase decisions.
- Eliminate the use of methylene chloride-based paint strippers.
- Consider purchasing a solvent recycler to allow your shop to reuse thinners and gun cleaners.
- Use an enclosed spray gun cleaner or comparable gun cleaning method to minimize air emissions when cleaning spray guns as required by state and federal regulations.
- Use low volatile organic compound coatings and cleaners whenever possible.
- Examine your use of material by operation. Are there new technologies that can replace your existing process and reduce toxics or waste? You may also be able to save money or provide a new customer service.
- Conduct an annual inventory to reduce the number of chemical products used in the shop.
- Track chemical use and wastes to identify opportunities to reduce waste and use less toxic alternatives.
- Implement best management practices for the storage and handling of stock and materials. Spoiled and obsolete materials should be removed. Use first-in, first-out management practices.
- Clean containers as much as practical. Recycle the used containers or return them to the supplier or a drum reconditioner.
- Give employees simple incentives to keep their work areas clean and minimize chemical use. Promote good housekeeping.

- Be sure that a minimal amount of airborne dust is leaving the premises. You can achieve this by installing a dust collection system. Or by making sure that all spray booths or preparation stations have exhaust fans that have filters installed.
- Be sure that all solvents, thinners, paints, and coatings are stored in closed containers when not in use.
- Make sure that all paint and coatings are being used to the manufacturer's specifications such as for mixing and storage.
- Make sure that the spray gun cleaner is kept closed except for when parts are being cleaned. Also, excess spray gun cleaner should be kept in a closed, non-leaking container and disposed of properly.
- All standard operating procedures for handling and transferring paints, coatings, and solvents should be written out and posted in a visible location.
- Certified product sheets from the manufacturer showing the VOC content (Material Safety Data Sheets (MSDS)) should be maintained on site.

1.5 Key Environmental Concepts

The standards and management practices contained in this workbook are designed to protect the environment from the following types of pollution:

Air Emissions: Air Emissions occur when air contaminants are discharged to the surrounding environment. An air contaminant is any substance that has been released to the air including sanding dusts, paint solvents, mists, odors, smoke, or combinations of these. One particular type of air contaminant common to autobody shops are volatile organic compounds (VOC) that are generated when solvents, such as thinners and paints, evaporate into the air. VOC play a major role in the formation of ground-level ozone (otherwise known as "smog"). Autobody shop responsibilities regarding air emissions are explained in Section 4.0.

Hazardous Waste: Hazardous waste is material you intend to discard that is hazardous to public health and the environment when not handle properly. Examples of hazardous wastes commonly found in autobody shops include: solvent-based waste paints, used solvent thinners and gun cleaners, spent chemical paint strippers, and tipped paint wastes. Materials which are *potentially* hazardous wastes in your shop include waste automotive fluid oils, etc., and paint booth filters. Hazardous wastes have special storage, handling, labeling, emergency planning, and training requirements, which are mentioned in Section 5.1 of the workbook.

Industrial Wastewater Discharge: Industrial wastewater is any wastewater resulting from an industrial or manufacturing process, trade or business. Discharge is the release of the industrial wastewater into the waters of the State through pipes, sewers, or other means. For autobody shops, industrial wastewater is generated from car washing, floor washing, and general cleanup. Some management practices for wastewater are listed in Section 5.2 of the workbook.

2.0 Top Ten Tips for Environmental Success

- 1. Pollution Prevention – Your first step to compliance.** Pollution Prevention techniques should be used wherever possible to reduce wastes and emissions. Look for opportunities in your shop to employ pollution prevention techniques.
- 2. Actively and Aggressively Manage your Wastes.** Hazardous waste should never be handled like regular trash, nor should it be disposed of in the regular trash. As a generator, you are responsible for the waste's identification and disposal. Accumulate these wastes in appropriate containers for proper disposal. Also, non-hazardous materials such as cardboard, aluminum, paper, and scrap metal are recyclable.
- 3. Shop Towels and Waste Disposal.** You should reduce the amount of paints and solvents on your shop towels as much as possible. Shop towels saturated (dripping) with paints or solvents must be handled as hazardous waste. Towels with only minor contamination must be handled as hazardous waste unless they are sent off-site for laundering at a properly licensed commercial laundry.
- 4. Hazardous Waste Management – To Manage is to Control.** Nothing can get you into trouble faster than a disorganized hazardous waste storage area. Label drums and keep them clean and closed. Maintain aisle space, post warning signs, and keep hazardous waste separated from non-hazardous waste and virgin materials.
- 5. Prevent Trouble – Plan for Emergencies and Train Employees.** You must have emergency response procedures and equipment in place, along with a written plan, to ensure employee safety. Post emergency phone numbers at each phone near the work areas. Designate an emergency coordinator and instruct employees on whom to contact and what to do during a spill or evacuation. Employees that handle or are otherwise involved with hazardous waste must be trained (annually) in the proper procedures for safe handling of these materials.
- 6. Records, Records, Records.** You must keep your material purchase or usage records, hazardous waste manifests, material safety data sheets (MSDSs), and other legally required records on file. It is good management practice to keep these records indefinitely.
- 7. Solvents – Minimize or eliminate where you can.** Volatile Organic Compounds (VOC) are regulated under DHEC's Air Pollution Control Regulations. With regard to auto body shops, the burden to meet certain aspects of the regulation lies with the coating manufacturer, so make sure that you are using compliant coatings and cleaners. Auto body shops are also required to use spraying equipment that achieves a transfer efficiency of at least 65%. This translates to the use of High Volume/Low Pressure (HVLV) spraying equipment in auto body shops. Finally, the use of methylene chloride as a chemical paint stripper is strictly regulated
- 8. Know Where Your Wastewater Goes.** Wastewater from industrial processes such as auto refinishing shops is regulated according to work activity/area and discharge point. Should your facility have floor drains that collect waters from car washing, you should know where

this wastewater goes. If washing occurs in the parking lot or other outside area, you should also know where it goes. (i.e., Does it enter a storm drain?)

9. Minimize Solvent, Isocyanate and Dust Exposure - Use Personal Protective Equipment.

Research has shown that paint solvents and isocyanates are dangerous to human health. Also, sanding dust contains toxic metals such as lead and chromium. High exposure to solvents, isocyanates or metals can cause adverse health effects. Most shops use disc sanders to remove paint/body filler compound from cars, which creates dust that may be ingested or inhaled. Also, chances are good that, unless the sander has a dust collection device, dust generated from the sander could travel beyond the property of your shop, which would be regulated by DHEC's Air Pollution Control Regulations. Your workers must be properly protected when sanding and painting.

10. Internal Review – Continual Improvement.

Good environmental, health and safety management does not end with a one-time review of your shop. Periodic reviews of your chemical usage can identify trends and problems, which can help you to minimize wastes – even if you are a small business. Regular discussions with employees that review these issues can help begin a culture of environmental, health and safety awareness which can save you time and money and protect you from liability and possible fines down the road. Consider providing incentives for employees who minimize chemical use and use personal protective equipment while doing a quality finishing job.

3.0 Pollution Prevention (P2): The Quickest and Easiest Way to Save Money and Ensure Compliance

Pollution prevention (P2) is a method of reducing environmental and human health risks. More specifically, P2 is the use of materials, processes, or practices that reduce or eliminate the creation of pollutants at their source. It includes reduction in the use of hazardous materials, and energy and water conservation. Literally hundreds of industry case studies from across the U.S. and abroad have shown that companies can increase productivity, save money, and reduce workplace and environmental health risk by adopting a P2 approach in their facilities.

In the autobody industry, pollution prevention practices generally fall into one of three categories: product changes (such as raw material substitution), improved operating practices, and technology changes (process or equipment modification, for example). Some of the more obvious pollution prevention techniques that may be used include the use of HVLP spray guns, enclosed spray gun cleaners (or equivalent devices), and low VOC coatings. Each of these P2 methods result in decreased raw material usage (saving \$\$) and/or reductions in the release of pollutants to the environment. Table 3-1 lists additional measures that will help you reduce your regulatory burden, maintain compliance, and save money. The South Carolina Bureau of Air Quality strongly encourages you to investigate the pollution prevention measures listed in this section and to apply common sense P2 practices where feasible.

Table 3-1: Pollution Prevention Measures for Autobody Shops

| Product Changes | Improved Operating Practices | Technology Changes |
|---|---|--|
| Use: | | Use: |
| Low VOC coatings | Keep solvent containers closed | HVLP spray guns (or similar technology) |
| Water-based/low VOC vehicle cleaners | Protect raw materials from damage | Enclosed spray gun cleaners |
| Eliminate methylene chloride paint strippers | Supervise and limit access to raw material dispensing | Computerized scale for paint mixing |
| Waterborne primers & basecoats | Train workers to minimize overspray | Resistant spot welding in place of conventional welding |
| Paint tints that do not contain metal compounds (Cr, Ni, Mn, Pb, or Cd) | Use environmentally-friendly products | Paintless dent removal in place of conventional refinishing where possible |
| Water-based hand cleaners | Mix paints in-house | A solvent recycling system |
| Tinted primers to reduce basecoat usage | Use first-in, first-out inventory system | A compactor to compress cardboard for recycling |
| Cadmium-free solder | Segregate waste thinners | |
| | Reuse/return excess product to supplier | |
| | Give excess paint to other companies | |
| | Use commercial launderer for shop rag cleaning/reuse | |

The following points highlight some of the measures listed in Table 3-1.

3.1 Storage of New and Used Materials

Be sure to keep all containers closed to prevent the release of chemical vapors.

3.2 Methylene Chloride used in Paint Stripping Operations

Some autobody shops still use methylene chloride (MeCl) as a paint stripper. The best way to avoid regulatory burdens associated with using MeCl is to eliminate it from your shop altogether. Instead, consider stripping paint from cars using a disc sander/grinder that has a dust-capturing capability associated with it or use an alternative stripper without MeCl (Note, however, that alternative chemical strippers may be flammable and/or toxic).

3.3 Solvent Recycling

If your shop generates large quantities of spent spray gun cleaning solvent, then you may be losing money by not using a solvent recycling system. For example, if your shop were to generate 15 gallons per week (750 gal/yr) of waste solvent with a per gallon purchase and

disposal cost of \$5 and \$9, respectively, then a \$3,700 solvent recycling system (with a 90% recovery rate) would save you more than \$5,000 in the 1st year alone.

3.4 Solvent-less Cleanup

Do not use solvents to clean your hands or skin. Solvents can penetrate through your skin, enter your blood stream, and be distributed to organ systems throughout your body. Instead, use a commercial soap solution made for paint cleanup purposes.

Also, avoid solvent emissions by eliminating solvents from spray booth cleanup operations. Instead, use a disposable masking over interior paint booth surfaces in place of solvent-based cleaners for removing paint overspray/residue. Such masking materials include plastic and paper sheeting or peel/tacky coats. If this is not practical for your shop, scraping, along with the use of water-based or low VOC cleaners, is still better than using highly concentrated solvent-based cleaners.

3.5 Energy Conservation

By shutting off lights and electrical devices that are not being used, you can save money, help to reduce air pollution and conserve energy. Such seemingly small actions will help to save on electricity produced back at the power plant (less energy generated = less air pollution emission generate = energy conserved), as well as saving your shop money on its electric utility bill.

Using skylights and energy-efficient fluorescent lamps (that are readily available at lighting suppliers and feature longer life and cost savings over the use of less efficient lamps) are easy ways to help your shop save money and reduce air pollution. Other energy saving strategies include:

- Building tune-ups (i.e., calibrating thermostats and lighting upgrades)
- Annual HVAC system tune-ups (heating and air conditioning systems)
- Load reductions (insulating roofs, windows, and reducing drafts)
- Fan system upgrades
- Upgrading heating and cooling systems
- Weather-stripping doors and windows
- Use of energy-efficient fluorescent lamps rather than incandescent lamps
- During the winter months, keep doors closed except when vehicles are entering or exiting



Whenever it is possible for your shop to do so, use electrical products that display EPA's Energy Star logo on them. This logo identifies products that operate more efficiently by using less energy, save money, and help protect the environment. Some of the equipment categories used

in the autobody industry that offer Energy Star qualified products include boilers and furnaces, fans, programmable thermostats, air conditioners, computer, copiers, printers, fax machines, windows, doors, skylights, and exit signs.

3.6 Waste Recycling

DHEC's Bureau of Land and Waste Management offers a program called South Carolina Smart Business Recycling, which is aimed at helping businesses start and maintain a recycling program. They offer free, confidential, non-regulatory services including site visits, technical assistance, and workshops. Your shop may be able to save money in avoided disposal costs, or create new revenue through the sale of recovered material. For more information, you can call the S.C. Smart Business Recycling Program at 1-800-768-7348. Materials that may eligible for recycling include:

- Aluminum
- Automobiles
- Corrugated cardboard
- Glass food and beverage containers
- Laser toner cartridges
- Newspaper
- High density polyethylene (HDPE) plastic mild and water containers
- Office paper
- Steel, and tin coated steel cans
- Telephone directories
- Used lubricating oil
- Vehicle batteries

Many of these materials may be found in autobody shops in varying quantities, and recycling them offers the opportunity to save money on solid waste disposal and help the environment.

3.7 Train Workers to Minimize Overspray

Make sure that your painters are fully trained in proper spraying techniques so as to minimize overspray (and training is required by the regulation). Paint overspray results in wasted product (\$\$) and emissions of air pollutants to the workplace and, ultimately, to the outdoor environment.

3.8 More Simple Measures

In addition to keeping solvent/waste containers closed when not in use, several additional cost-saving practices that require no/little capital investment are possible. These measures include protecting your raw materials from damage, contamination, or exposure to the elements; supervising and controlling the dispensing of raw materials; limiting access to raw materials; applying tinted primers to reduce basecoats usage; using a commercial laundering service to clean and recycle shop rags; using a trash compactor to compress cardboard and waste paper for offsite recycling; and using a first-in, first-out inventory control program. Your shop may also consider mixing paints in-house or using a computerized paint mixing scale. Also, be sure to choose environmentally-friendly products, such as cadmium-free solder, whenever possible.

3.9 Paintless Dent Removal

In certain applications, paintless dent removal can serve as a replacement for conventional refinishing, thereby eliminating potential exposure to pollutants generated during body repair and spray painting. As you may be aware, paintless dent removal is a purely mechanical process that uses special tools to restore sheet metal back to its original form by removing small dents, crease, and surface imperfections without the need for repainting. If paintless dent removal sounds right for you, call your local distributor for more information.

3.10 Waterborne Primers and Basecoats

Quality waterborne primer and basecoat technology is now available. Though additional equipment (e.g., heat lamps) is needed, waterborne coating technology may be right for you. Waterborne coatings not only reduce environmental releases of regulated pollutants, but may also reduce workplace exposures. For technical information on waterborne coatings, contact your local distributor.

3.11 Compliance, Compliance, Compliance

Perhaps the single greatest thing that you can do to save money and reduce toxic air emissions is to comply with State and Federal air quality regulations. This means that you are required by law to use 1) HVLP spray guns, or similar technology; 2) an enclosed spray gun cleaner or another cleaning technique that does not spray solvent; and 3) paint booths with walls or side curtains that are equipped with filters.

4.0 Air Pollution Control

When we think of air pollution, the first thing that generally comes to mind is smoke billowing from factory smokestacks. However, air pollution can be generated from many types of industrial processes, even without the visual presence of billowing smoke. Autobody shops play a role in generating air pollution. Although such pollution does not take the form of billowing smoke, these emissions may nonetheless be detrimental to the health of the shop worker and the environment.

Air pollution from autobody shop operations is generated from 3 main activities: surface preparation, surface coating, and cleanup. Each of these activities can be performed by various methods, and each carries its share of environmental requirements.

4.1 Introduction to the State and Federal Regulation for Autobody Shops

Subpart HHHHHH requires every autobody shop to perform all spray-applied operations in a spray booth or preparation station that is equipped with a filter. Autobody shops must also use specific types of spray guns, train painters on proper cleaning and spraying techniques, and keep specific records onsite. Spray booths, preparation stations, and filters are important to reduce the amount of overspray emitted into the environment and can help your shop save money. Every spray booth and preparation station is required to have a filter that has at least 98% capture efficiency and records must be kept onsite that confirm the filter's efficiency. Autobody shops

may use published efficiency data provided by filter vendors to demonstrate compliance with this requirement. Gun cleaning must be done so that no mist or spray of the gun cleaning solvent and paint residue is created outside of the container used to collect the used gun cleaning solvent. Painters must be trained to use spray coatings properly and documentation of the training must be kept on site.

4.2 Surface Preparation

Surface preparation and resurfacing operations conducted on vehicles is a type of activity that may create fugitive dust. If your shop uses disc sanders to remove paint and body filler from cars, chances are good that, unless the sander has a dust collection device, dust generated from the sander could travel beyond the proper of your shop. Shop fans that exhaust to the outside may be a primary means for sanding dust to travel off the property line. Also, leaving the doors of your shop opened to the outside presents another opportunity for sanding dust to travel outside your shop.

Research has shown that sanding dust contains toxic metals, such as lead, arsenic, cadmium, chromium, and manganese. Excessive exposure to toxic metals can cause adverse health effects. It is therefore very important that sanding dust be controlled. By using a disc sander in combination with a dust collection unit, your shop can significantly reduce potential occupational and environmental health risks associated with sanding dust generated during resurfacing operations. When used properly, vacuum units (also referred to as “dustless vacs” or “ventilated sanders”) can control up to 90% of sanding dust generated from the disc sanding operation. A vacuum sanding unit features a sanding disc that is perforated with a series of holes. As sanding dust is generated, it is vacuumed through the holes. The dust moves through a hose that is attached to the sanding unit; it then travels to a collection unit where it is stored until it can be characterized for proper disposal.

Workers who perform sanding operations at your shop should wear respirators that have been properly fitted, and they should be trained on how to use the respirators. Those employees should also wear disposable (tyvek) or cloth overalls that are left at work to prevent the toxic metal dust from being taken home.

Here are some management practices for sanding operations:

- Use vacuum sanding to collect dust as you work. Available tools include high velocity, low volume (HVLV) ventilated sanding system; vacuum unit with HEPA filtration; and low cost portable vacuum or commercial grade vacuum system with HEPA filtration
- Collect dust as sanding tasks are completed to prevent tracking to areas inside and outside the shop
- Do not wash dust to the ground outside the shop or into storm drains
- Avoid excessive sweeping which will send small particles into the air that can be inhaled
- Sand only in designated areas to avoid spreading the waste around the shop
- Wear proper attire that is left at the shop
- If you need to wet sand parts, control the wastewater do it does not flow to gutters, streets, or storm drains

4.3 Surface Coating

4.3.1 Filter Requirements

Subpart HHHHHH requires all spray booths, preparation stations, and mobile enclosures to have filters installed and properly maintained. The filter technology must have at least 98% capture efficiency of the paint overspray. The filter efficiency must be consistent with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Method 52.1, “Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992.” Shops may use available filter efficiency data proved by filter vendors to show compliance with this requirement.

4.3.2 Spray Gun Technology

Subpart HHHHHH requires that all spray-applied coatings must be applied with a high volume, low pressure (HVLP) spray gun, electrostatic application, airless spray gun, or an air-assisted airless spray gun. The most preferred method is HVLP because of the advantages it offers, including improved transfer efficiency and reduction of paint overspray, which leads to less paint wasted, cleanup cost savings, and less frequent spray booth filter changes. Shops may use an equivalent method if the spray gun manufacturer can demonstrate that the transfer efficiency is comparable to one of the spray gun types listed above. Any alternative method must be approved by DHEC in advance. If you would like to submit a request to use an alternative method, please contact us at 803-898-4064 for more information on how to submit the request.

4.3.3 Mobile Repair Services

Subpart HHHHHH requires that mobile ventilated enclosures used to perform spot repairs must enclose or seal against the surface around the area being coated so that paint overspray is retained within the enclosure and directed to a filter to capture paint overspray.

4.3.4 Motor Vehicle Parts

Subpart HHHHHH requires that all autobody shops that only spray-apply coatings to miscellaneous motor vehicle parts (i.e. door, hood, bumper, etc.) and vehicle subassemblies must do so in a spray booth or preparation station. All spray booths and preparation stations must have a roof and at least three complete walls or complete side curtains and must be ventilated so that air is drawn into the booth. The walls and roof of a booth or preparation station may have openings, if needed, to allow for conveyors and parts to pass through the booth during the coating process.

4.3.5 Whole Motor Vehicles

Subpart HHHHHH requires all autobody shops that only spray-apply coatings to whole motor vehicles must do so in a spray booth or preparation station. All spray booths and preparation stations must be fully enclosed with a roof and four complete walls or complete side curtains. The booth or preparation stations must be ventilated at negative pressure so that air is drawn into any openings in the booth or preparation station walls or curtains. Subpart HHHHHH does allow a fully enclosed booth that has seals on all doors and other openings to be operated at up to, but

not more than, 0.05 inches water gauge positive pressure **if** it has an automatic pressure balancing system.

4.4 Cleanup

Paint thinners, solvents, and alcohol-based materials are effective for cleaning, but there are significant environmental and health concerns related to their use because they may contain VOC, which are hydrocarbon-based compounds that evaporate easily into the air. When VOC are emitted into the air and combine with sunlight, they produce ozone, otherwise known as “smog.” In addition, some VOC-containing chemicals have been confirmed to cause acute or chronic health problems (i.e., methylene chloride). A majority of autobody paints contain VOC, as do solvents used for mixing paint and cleaning equipment, therefore shops should be careful attention when cleaning spray guns, paint booths, or other equipment.

Here are some management practices for cleanup:

- Store thinners, solvents, paints, or any other volatile material (including rags) in closed containers at all times, unless adding or removing materials.
- When cleaning the interior of a spray booth, consider using alternative low-VOC cleaners, or surface scraping. Shops may also consider using recyclable masking (plastic or paper sheeting) over interior paint booth surfaces in place of solvent-based cleaners.
- Some of the waste solvents or other cleanup materials, including rags, may be considered hazardous waste and should be disposed of properly. See Section 5.1 of this workbook for more information.

4.4.1 Spray gun cleaning

Subpart HHHHHH requires shops to clean their spray guns so that no misting or spraying of the cleaning solvent or paint residue occurs outside of the container for collecting used gun cleaning solvent. There are several gun cleaning methods available to help shops:

- Hand cleaning of parts of the disassembled gun in a container of solvent
- Flushing solvent through the gun without misting or spraying the solvent and paint residue
- Using a fully enclosed spray gun washer
- A combination of the non-spraying/misting methods listed above

DHEC strongly recommends fully enclosed spray gun washers because they can minimize solvent evaporation loss and reduce worker exposure. The washers also save shops money by cutting time and labor used for manual washing, and may also extend the life span of the spray guns. Units that have a filtration system can separate the sludge waste and recirculate the solvent for reuse.

4.5 Training, Reporting, and Recordkeeping

4.5.1 Training

Subpart HHHHHH requires that shop owners or operators must certify that all new and existing painters, including contract painters, have completed training in the proper application of surface coatings and the proper setup and maintenance of spray equipment. The training program must include at least the following items:

1. A list of all current painters by name and job description who are required to be trained
2. Hands-on and classroom instruction that addresses, at a minimum, initial and refresher training in the following topics:
 - a. Spray gun equipment selection, set up, and operation, including measuring coating viscosity, selecting the proper fluid tip or nozzle, and achieving the proper spray pattern, air pressure and volume, and fluid delivery rate
 - b. Spray technique for different types of coatings to improve transfer efficiency and minimize coating usage and overspray, including maintaining the correct spray gun distance and angle to the part, using proper banding and overlap, and reducing lead and lag spraying at the beginning and end of each stroke
 - c. Routine spray booth and filter maintenance, including filter selection and installation
 - d. Environmental compliance with the requirements of Subpart HHHHHH
3. A description of the methods to be used at the completion of initial or refresher training to demonstrate, document, and provide certification of successful completion of the required training

Note: Owners and operators who can show by documentation or certification that a painter's work experience and/or training has resulted in training equivalent to the training required in Item 2 above are not required to provide the initial training required by that paragraph to these painters.

4.5.2 Reporting

Subpart HHHHHH requires all shops to submit three types of reports. Here is a description of each report.

1. **Initial Notification:** The Initial Notification is a report that gives the EPA and the State Permitting Authority (DHEC in South Carolina) basic information, including the name of your shop, the name of the owner, and physical location of the shop. This is the report that you use to tell DHEC and the EPA that you have an autobody shop and are subject to Subpart HHHHHH.
2. **Notification of Compliance Status:** The Notification of Compliance Status (NOCS) is a report that tells DHEC and the EPA that you are in compliance with Subpart HHHHHH. The NOCS also requires some of the same basic information as in the Initial Notification,

including the name of your shop, the name of the owner, and the physical location of the shop. The owner of the shop will be required to certify (legally confirm) that the shop is in compliance with Subpart HHHHHH.

The EPA has created an example form that may be used for both the Initial Notification and the NOCS. It is available on their website at this link:

http://www.epa.gov/ttn/atw/area/paint_strip_example.doc. Follow the instructions the EPA provided on the form and send the original to DHEC and a copy to the EPA.

3. **Annual Notification of Changes Report:** Shops are required to submit this report for each calendar year in which previously submitted information has changed. The previously submitted information may be on the Initial Notification, NOCS, or previous Annual Notification of Changes Report. If you are required to submit this report, it is due by March 1st of the year following the calendar year when the change occurred. For example, if you change spray guns in 2012, you must submit this report by March 1, 2013. You may use the Annual Compliance Certification Form to meet this requirement by indicating any changes at your facility in the “Other Information” section.

4.5.3 Recordkeeping

Subpart HHHHHH requires all shops to keep records of trainings, filter efficiency, and copies of all notifications. The records must be kept for at least five years, with at least the latest two years on site; they may be kept off site after the first two years. Here is a list of the records you must keep.

- A copy of your Initial Notification that was sent to DHEC and the EPA.
- A copy of your Notification of Compliance Status (NOCS) that was sent to DHEC and the EPA.
- A copy of any Annual Notification of Changes Report that was sent to DHEC.
- Certification that each painter has completed the required training, including the date of the initial training and the date of the most recent refresher training.
- Documentation of the spray booth or preparation station filter efficiency.
- If you are using a spray gun technology that is not one of the listed types, you must have documentation from the spray gun manufacturer that DHEC has determined that the spray gun has the equivalent transfer efficiency of an HVLP spray gun.
- Records of paint strippers containing methylene chloride and content of methylene chloride in the paint stripper. See Section 4.6 below.
- Records of any deviation from the requirements of Subpart HHHHHH. See Sections 4.3, 4.4, 4.5, and 4.6 of this workbook. You must have a date and time period of the deviation, and a description of the nature of the deviation and the actions taken to correct the deviation.

4.6 Methylene Chloride Paint Stripping

Methylene chloride is a potential carcinogen (may cause cancer) and may cause other adverse health effects which may affect the cardiovascular system and central nervous system.

Subpart HHHHHH requires shops that use paint strippers containing MeCl to use the management practices listed in Section 4.6.1 of this workbook. Shops that have paint stripping operations must also maintain copies of annual usage of paint strippers containing MeCl on site at all times.

4.6.1 Management Practices

Each shop that uses a paint stripper that contains MeCl must use the following management practices to minimize the evaporative loss of MeCl:

- Evaluate each job to ensure there is a need for paint stripping (e.g., evaluate whether it is possible to re-coat the piece without removing the existing coating)
- Evaluate each job where a paint stripper containing MeCl is used to make sure that there is not another paint stripping technology that can be used
- Reduce exposure of all paint strippers containing MeCl to the air
- Optimize job conditions when using paint strippers containing MeCl to reduce MeCl evaporation (e.g., if the stripper must be heated, make sure that the temperature is kept as low as possible to reduce evaporation)
- Practice proper storage and disposal of paint strippers containing MeCl (e.g., store stripper in closed, air-tight containers)

4.6.2 MeCl Minimization Plan

Each autobody repair shop that has a paint stripping operation that uses more than one (1) ton of MeCl per year must develop and put into practice a written MeCl minimization plan to reduce the use and emissions of MeCl. The MeCl minimization plan must address, at a minimum, the management practices listed in Section 4.6.1 of this workbook, as relevant, for your shop's operations. Each shop must post a placard or sign outlining the MeCl minimization plan in each area where paint stripping operations using MeCl occur. Shops that are required to have a MeCl minimization plan must maintain a copy of their current MeCl minimization plan on site at all times.

5.0 Management Practices for Other Environmental Media, Health, and Safety

5.1 Hazardous Waste Management

As a business owner, you must manage your hazardous wastes in a safe and environmentally responsible manner. Federal and State regulations place the burden on you, as the generator, to properly dispose of the waste. The generator has "cradle-to-grave" responsibility, i.e., you retain responsibility even when other companies handle and dispose of your waste. By choosing products that are less hazardous, and minimizing the amount that you generate, you can reduce your cradle-to-grave liability.

A common misconception regarding the hazardous waste regulations involves the definition of wastes vs. raw materials. Materials that you are using or intend to use are not considered a waste, and thus are not subject to the hazardous waste regulations. (Raw materials with

health/safety hazards are regulated under OSHA Hazard Communication requirements, Spill Prevention requirements, and may even be subject to local regulations or fire codes.) As such, this raw material should be stored separately and not confused with waste materials. However, materials that are expired or that you do not intend to use anymore may automatically become wastes, and must be managed as such.

5.1.1 Hazardous Waste Identification

The auto refinishing process generates materials that are considered hazardous wastes. Automotive refinishing wastes are determined to be hazardous wastes because:

1. They are listed by the SC Hazardous Waste Management Regulation 261 Subpart D (a listed waste).
2. They demonstrate a characteristic of a hazardous waste as detailed in SC Hazardous Waste Management Regulation 261 Subpart C (a characteristic waste). The four characteristics are ignitability, corrosivity, reactivity, and toxicity.

As a generator, you are required to determine whether your wastes fall into either of these categories. You can do this by using your knowledge of the process and materials, including available information like MSDSs, or by testing a representative waste sample. A certified waste transporter or a South Carolina certified environmental lab can help you characterize your waste for proper disposal. You can get a list of certified transporters by calling the Small Business Environmental Assistance Hot Line at 1-800-819-9001. You can get a list of certified environmental labs by contacting DHEC's Office of Environmental Laboratory Certification at 803-896-0970. If changes in your materials or process cause your waste to change, then you may need to re-evaluate it to ensure proper handling and disposal. Some transporters and disposal facilities may also require you to re-evaluate your wastes each year. You must keep records of waste analyses to confirm your identification and characterization of wastes.

At an auto refinishing shop, the following commonly-generated waste materials should be investigated for characterization as a hazardous waste:

- Waste paint stripper and paint which has been stripped from vehicles
- Solvents such as waste gun cleaners and waste thinners
- Waste paint (unused or expired paint)
- Sludge or "bottoms" from a solvent recycling unit (still)
- Automotive fluids
- Spent filters from the spray booth

5.1.2 Generator Status

In order to know how to properly manage the waste you generate, you need to determine your status as a hazardous waste generator. The SC Hazardous Waste Management Regulations recognize three categories of generators and each generator category has different regulatory requirements. The three categories are:

1. Conditionally exempt small quantity generators (CESQG)
 2. Small quantity generators (SQG)
 3. Large quantity generators (LQG)
- CESQGs generate less than 220 lbs of hazardous waste per calendar month
 - SQGs generate between 220-2200 lbs of hazardous waste per calendar month
 - LQGs generate greater than 2200 lbs of hazardous waste per calendar month

5.1.3 Hazardous Waste Accumulation

As an auto body shop owner, it is your responsibility to properly identify, label, and ship the waste for disposal. Your shop may accumulate waste, up to 55 gallons, on site until the container is full if the container meets the following conditions:

1. It is at or near the point of generation where the waste initially accumulates
2. It is under control of the operator of the process generating the waste
3. It is in good condition
4. It is kept closed except when adding or removing waste
5. It is handled or stored so as not to cause a rupture or leak
6. It is arranged to accommodate the storage of chemically incompatible wastes
7. It is labeled with the words “Hazardous Waste” and other words that identify the contents of the container

5.1.4 Storage Requirements by Generator Type

Depending on your generator status, you may be allowed to store hazardous wastes on-site for different periods of time.

- CESQGs do not have a time limit as long as they do not store more than 2200 lbs of hazardous waste. If a CESQG exceeds 2200 lbs, you then become subject to SQG requirements.
- SQGs may accumulate hazardous waste on site for up to 180 days. SQGs may not accumulate more than 13,200 lbs in storage without becoming subject to more stringent requirements.
- LQGs may accumulate hazardous waste on-site for up to 90 days.

While waste is stored on-site, depending again on generator status, you may be subject to additional regulatory requirements.

- CESQGs have no additional requirements as long as storage limit is not exceeded
- SQGs must comply with all container management requirements including labeling containers and keeping containers closed and in good condition. SQGs must also designate an emergency coordinator, post emergency information by telephone, train employees relevant to their hazardous waste duties, and pay annual fee of \$500 to DHEC.
- LQGs must also comply with all container management requirements including labeling containers and keeping containers closed and in good condition. They must also provide secondary containment for liquid hazardous waste, prepare a contingency plan to address

emergency operations, develop a detailed employee training program, prepare quarterly reports of hazardous waste activities, and pay an annual fee of \$1000 to DHEC.

5.1.5 Hazardous Waste Disposal

All categories of hazardous waste generators must dispose of their hazardous wastes at designated permitted hazardous waste disposal facilities and must use transporters permitted by DHEC. A national uniform hazardous waste manifest is required to be used as a shipping paper and must be filled out in accordance with the instructions that satisfy the requirements of the US Department of Transportation and the SC Hazardous Waste Management Regulations.

5.2 Water Quality

Aside from the typical shop procedures of frame straightening, grinding, sanding, and spray painting, a car that has undergone autobody repair is usually washed before it is returned to the customer. In fact, a car is usually washed before any bodywork is performed on it. Another typical procedure in an autobody shop that requires water usage is wet sanding, where floors are hosed down on a regular basis. With the generation of wastewater in an autobody shop comes the inevitable question of how to dispose of it all.

Storm drains should not be used for wastewater discharges from autobody shop activities, due to contaminants (such as toxic metals or other pollutants) that may be contained in the wastewater. You may consider connecting to your local sewer system for disposal of wastewater. You may contact your local sewer service provider for more information.

5.2.1 Best Management Practices to Minimize Water Pollution

There are some simple measures your shop can take to minimize water pollution.

- Collect all unused paints for reuse or proper disposal.
- Keep paints, cleaners, and any chemicals or materials that can cause runoff (indoors or otherwise) protected from rainwater.
- Provide secondary containment for all chemicals including paints, thinners, strippers, cleaners, and automotive fluids.
- Use **dry** cleaning methods, such as sweeping and vacuuming, when cleaning the shop, since these materials can contain regulated pollutants. Do not wash these materials into floor drains or the sewer system.
- Minimize wet sanding practices, and use dustless vacuum sanders.
- Pre-clean equipment by wiping excess materials off prior to washing.
- Consider using a wastewater collection system to collect and recycle washwater for car washing.
- Be prepared to contain and collect any automotive fluids such as oil, antifreeze, power steering, transmission, and differential fluid. Use drip pans or absorbents to collect fluids. Do not wash these fluids to floor drains.

5.3 Health and Safety

Workers in autobody shops are potentially exposed to a variety of chemical and physical hazards. Chemical hazards may include volatile organic solvents from paints, fillers, and cleaners; silica from sandblasting operations; dusts from sanding; and metal fumes from welding and cutting. Physical hazards include repetitive stress and other ergonomic injuries, noise, lifts, cutting tools, and oil and grease on walking surfaces.

5.3.1 Health and Safety

Here are some initial things you can do at your shop to help protect the health and safety of the workers.

- Conduct a walkthrough of the workplace and identify and list all materials that may be hazardous: including product names, locations, and work areas where products are used. Include hazardous chemicals that are generated in the workplace, but are not necessarily in a container, such as welding fumes.
- Ensure that all hazardous chemicals that are purchased are included on this list.
- Establish a file on hazardous chemicals and include a copy of the latest Material Safety Data Sheet (MSDS) and any other pertinent information.
- Develop procedures to keep lists current, including updated MSDSs.

The MSDS provides detailed information, prepared by the manufacturer or importer of a chemical that describes the physical and chemical properties, hazards, and routes of exposure and control measures for that particular substance. The MSDS also lists symptoms of exposure, precautions for safe handling, and emergency and first aid procedures. When new products are used, the shop should update their MSDS files and request updated copies from the manufacturer with the next shipment. MSDSs should be available and accessible to all employees.

Manufacturers or distributors are responsible for labeling shipped containers, but the shops should also ensure that all containers of hazardous substances in the workplace are labeled, tagged, or marked including the identity of the hazardous chemical and appropriate hazard warnings.

A good materials inventory can be crucial to minimizing the danger factor in the event of an emergency situation in your shop. A materials inventory is careful recordkeeping of hazardous materials, such as paints, primers, and thinners, which are received and stored on your shop's premises. Having a handle as to what materials you store, as well as where and how you store them, can prove valuable to emergency personnel who may be called in to respond to an unsafe chemical scenario occurring in your shop. Just as important as keeping an accurate materials inventory is the proper storage of such materials. Make sure that hazardous materials are used in a first-in/first-out manner, and avoid stockpiling expired materials; these could pose an unnecessary risk during an emergency situation. Also, never store hazardous materials that are incompatible with each other; for instance, do not store fuels next to chlorinated products, where the potential for spontaneous combustion or an explosion could occur. It is also important to store hazardous materials in an area where the potential for a spill, as well as the risk to employees, is minimized.

5.3.2 Personal Protection Equipment

Proper use of personal protection equipment (PPE) will reduce many injuries from occurring to the eyes, head, face, and hands. Each employee should know the following things about PPE:

- How and why the PPE was selected and when each type of PPE is to be utilized.
- How to wear, take off, and adjust the PPE.
- The useful life of PPE and any inherent limitations.
- How to maintain, clean, and dispose of PPE.

PPE is available for each step of the autobody refinishing process. Goggles should be worn while cleaning and washing the vehicle. If the employee will be using a solvent-based pre-cleaner, then the employee should also wear appropriate chemical resistant gloves. During the structural body repair process, employees should wear impact resistant eye protection with side shields and cut resistant gloves when working with sharp edges. Employees should wear face shields with the appropriate lenses when welding or using acetylene torches. Make sure that gas cylinders are properly chained and checked for leaks. Leather aprons and arm length leather gloves should be worn to prevent burns.

When sanding and grinding, employees should use dustless vac technology to reduce the risk of inhalation or ingestion of toxic metal dust. Employees should never eat or drink within the shop area as minute dust particles travel freely throughout the shop and can contaminate food. Employees should wash hands thoroughly before eating, and eat only in a specified area outside the confines of the shop (such as a break room). Any employee that uses a paint stripper containing methylene chloride (a known carcinogen) should wear chemical resistant gloves, and appropriate eye and respiratory protection.

When mixing paints, employees should follow the proper precautions listed in the MSDSs for the paints, including wearing the proper PPE, such as gloves and a paint suit. Goggles should also be worn to protect against accidental splashing during the mixing process. Painters should wear paint suits, gloves, and respirators when painting vehicles. Electrical or non-explosion proof equipment should not be located within 20 feet of a spray painting operation. In addition, "No Smoking" signs should be posted above the spray booth and a fire extinguisher should be hung in an area outside the spray booth.