CARWASH

CAR WORKSHOPS: A SERIOUS GAME APPROACH TO MANAGING WASTE
CONSIDERED HAZARDOUS

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CASE STUDIES:
“Working With Waterborne Paint”

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1. **INTRODUCTION**

Cleaner production spotlight about savings on water, energy and raw materials and minimizing waste generation, economic benefits from its initial measures may be used for medium-cost technological cleaner production solutions. Fluids are used extensively in an automotive repair business. Fluids are sometimes used within the engine or other vehicle systems. They are also used for cleaning and other purposes. Protecting the environment requires that we conserve, control and recycle fluids wherever possible.

Waste paint-contaminated materials, such as paint booth filters, masking paper and overspray paper, may be hazardous because of heavy metal pigments in paints. Hazardous wastes can be minimized with equipment that has greater transfer efficiency. Reducing wastes saves money and makes cleanup easier. Waste paints, paint strippers and thinners may be ignitable and may contain hazardous materials such as toluene, xylene, acetone, methyl ethyl ketone, petroleum distillates, methylene chloride or methyl isobutyl ketone. Paint chips from sanding and spent grit blast media may be hazardous because of heavy metal pigments in paints.

In the followings you can learn about the waterborne paint handling in a Hungarian paint and body shop.

2. **OBJECTIVE**

While the solvent-based paints what are used forever are still legal to spray in most parts of the country, certain counties only waterborne paint be used because it reduces the emission of volatile organic compounds (VOCs), improving air quality and supposedly reducing the health risk to all involved.

Waterborne paint has become the standard, as 70 percent of all OEM vehicles are now painted with this material. It has been the standard in Europe for a long time, so while the latest waterborne paints are new technology, the concept is neither new nor experimental.

Waterborne paint is exactly what the name implies. Solvent-based paints use solvent to suspend the paint pigments and deliver them to the surface to be covered, while waterborne paints use water.

3. **BASICS CONCEPT**

This work shows the advantages and disadvantages of waterborne paints and the necessary techniques to use them.

**Advantages:**

- With waterborne paint, once it dries and the water is out of the basecoat layers, it’s done

  All solvent paints emit a gas during the curing stages—it’s part of the drying process. With solvent-based paints, the gas continues to work through the surface for some time, often six months or more. That means your primer, sealer, basecoat, and clearcoat are all curing together. This gassing out of the paint can appear in the paintjob later and give off a bumpy appearance if the paint is not completely allowed to dry.

- Better coverage

  Where it would take three to four coats to cover a panel with solvent-based paint, it will only take one to two coats with waterborne, using less material overall.
● Does not smell

Waterborne paint does not smell as caustic as solvent-based paint, but that does not mean you can spray without protective gear. In fact, just the opposite is true. Despite reduced VOC levels, waterborne paints feature plenty of chemicals that are deadly to humans. A respirator is necessary at all times. In addition, because of slow drying times, the paint lingers in the air longer.

● Better for the environment

Less toxic paint is important, elevated concentrations can persist in the air long after painting or repainting is completed.

● Healthier for your staff

Waterborne paint reduces the emission of VOCs, improving air quality and supposedly reducing the health risk to all involved.

● New and improved products

Transition to waterborne paint has prompted paint companies to develop new products.

● Cleaner/brighter than solvent-based paint

In painting with waterborne paint, wet paint tends to have a different hue from the true color. Once it dries, the waterborne paint will take on the true hue. Interestingly, when it comes to the actual color with waterborne, it comes out cleaner/brighter than a solvent-based paint.

Disadvantage:

● Expensive

The entire process costs more than solvent paints. Like health care costs, you’re going to see paint costs rise, and that increase is not limited to just the cost of the paint material. If you haven’t made the spray booth conversion, you will need a few more things, including a CFM gun (also known as a drier) to help ensure the paint sets up quickly. As the earlier description of waterborne paint implies, these new paints require increased airflow to remove the water from the paint, far beyond the standard solvent-based paints. The use of those guns helps avoid sags and runs, which is the biggest complaint about waterborne paint.

● Harder to shoot as it requires a different spray gun and dryers.

● Flash time is critical-it takes longer to dry overall.

● Blending of painted panels is harder, requiring you to learn a new skill set.

● Not a task for home application-a spray booth is required because of slow dry times.
4. CONTENT: POLICIES TO MINIMIZE THE GENERATION OF HAZARDOUS WASTE

4.1 Applying waterborne paint

Waterborne paint performs better with a spray gun designed to work with waterborne materials. The keys are the needle, nozzle, and air cap designs that help atomize the paint properly and internal parts that will not corrode or rust from the water. In addition, the old-style paint strainers will collapse with the new water-based paint because they use a water-based glue to hold them together. Use a 125-micron strainer to capture any dry latex from the container because this stuff will not redissolve in the paint.

The cleanup process is also different with waterborne paints. Because there are solvents in the waterborne basecoats, they cannot be cleaned with soap and water as you would with home water-based paints. A proper gun wash is perfect for cleaning basecoats, and waste created from the cleanup process needs to be disposed of properly or there will be fines to pay.

4.2 Paint waste storage

Spray guns and other equipment in contact with waterborne basecoats must be cleaned with water between each color change. Used cleaning water must be disposed of as hazardous waste. The shops need to set up separate collection drum for this wastewater and contracted with a new hazardous waste hauler to take it away. We need to note that it is a challenge to determine the proper disposal of this wastewater.

4.3 Good to know for the first steps

If you decide to make the switch to waterborne basecoats, take these initial steps to make this change:

- Contact your paint supplier about waterborne basecoat options and training opportunities. Your painters will need training on how to effectively spray waterborne coatings, including use of spray gun tips that provide a larger spray fan for applying thinner coats.
- Evaluate your shop’s equipment, especially the spray booth, and make the appropriate upgrades. The key to optimal drying of waterborne paints is in the temperature, humidity, and air movement over the surface. One source suggests uniform air flows of at least 11,000 cfm, sufficient heating, and clean air, among other factors. You may need to retrofit your existing booth, use portable blowers, or a combination.
- Spray gun passages and paint cups should be constructed from corrosion-resistant materials (e.g., stainless steel or plastic). Consider replacing your aluminum cups with single-use/disposable plastic cups.
- Evaluate your shop’s air supply and filtration system. Compressed air used in spraying waterborne coatings, as well as the hoses, must be very clean and free of any lubricating oil residues. Even a minute quantity of oil can contaminate the coating.
- Using dedicated spray guns and cleaning systems for waterborne vs. solvent-based coatings is highly recommended, due to the different cleaning methods and waste streams generated by each.