



How Do I Handle My Professional Car Wash Wastewater?

Information presented in this publication is intended to provide a general understanding of the statutory and regulatory requirements governing car wash wastewater. This information is not intended to replace, limit or expand upon the complete statutory and regulatory requirements found in the Illinois Environmental Protection Act and Title 35 of the Illinois Administrative Code. These requirements can be found on line at www.ipcb.state.il.us.

Professional car washes are an easy way for consumers to remove dirt and grime from their vehicles. The dirt washed off vehicles as well as the cleaning materials themselves may be harmful to the environment. As the operator of a professional car wash, what must you do to keep this dirt and the chemicals used in the cleaning process from being released into the environment? This fact sheet provides a description of the types of professional car washes, and explains why car wash activities are a concern to the environment, how to manage and discharge wastewater, how to manage sludge, how to prevent groundwater contamination, and how to become more environmentally friendly and conserve water.

- Detergents, including biodegradable detergents, that can be poisonous to fish
- Phosphates, which are plant nutrients and can cause excessive growth of nuisance plants in water bodies
- Chemicals, such as hydrofluoric acid and ammonium bifluoride products (ABF), and solvent-based solutions that are harmful to living organisms
- Chemicals and oils used for the maintenance of cleaning machinery (for automatic systems)
- Debris that can clog storm sewer inlets and grates and thereby prevent storm water drainage to the sewer

? What Types of Professional Car Washes Are There?

Most professional car washes can be classified as conveyor, in-bay automatic, or self-service systems. These are described below.

- In a conveyor car wash system, the car moves on a conveyor belt while the exterior of the car is washed. The two basic technologies that are available for the conveyor wash cycle are friction and frictionless. The friction wash uses brushes or curtain strips made of cloth or other material to clean the vehicle, while the frictionless uses high-pressure nozzles. In addition, the conveyor car wash is either full service or exterior only. In a full-service conveyor car wash, both the interior and exterior of the car are cleaned. Exterior-only car washes do not clean the interior.
- At an in-bay automatic car wash, the vehicle is parked in a bay and remains stationary while a machine moves back and forth over the vehicle to clean it. A professional in-bay car wash uses brushes made of nylon or other material, soft cloth strips, or automatic washers consisting of high-pressure nozzles.
- In a self-service car wash, the customers wash the vehicles. A wand dispenses water and cleanser at varying amounts and pressures. In addition, a low-pressure brush may be available to assist in the wash cycle.

? Why Are Car Washes a Concern For the Environment?

Professional car wash systems create wash wastewater that can have a great impact on the environment if not properly managed and discharged.

Contaminants in wash wastewater include the following:

- Oil and grease, which contain hazardous materials such as benzene, lead, zinc, chromium, arsenic, pesticides, herbicides, nitrates, and other metals

Washing vehicles on hard, impervious surfaces such as concrete areas can cause wash wastewater flow into storm drains. It is necessary to find out if area storm and sanitary sewers are combined or separate systems. Many storm and sanitary sewers in the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) are combined before the final discharge point; therefore, most wastewater is treated before it is discharged to surface water bodies such as rivers, lakes, and streams. Many newer areas and other cities have separate sewer systems; therefore, wastewater discharged to storm sewers is discharged directly to water bodies without treatment to remove pollutants. Car wash wastewater can be harmful to humans, plants, and animals if released untreated to surface water bodies. Additionally, allowing wash wastewater to soak into the ground can be harmful because the wastewater may contaminate soil and groundwater. More information on how to prevent soil and groundwater contamination is presented later in this fact sheet.

? How Should I Manage and Discharge My Wastewater?

The Clean Water Act requires professional car washes to route car wash wastewater to water treatment facilities or to state-approved drainage facilities designed to protect the environment. Filtration of the wastewater may be conducted before discharge to a sanitary sewer. Filtration is recommended so that fewer solids are present in the wash wastewater stream discharge to the sanitary sewer system. Filtration is mandated by the MWRDGC for wastewater that contains particles greater than 0.5 inch in diameter. Once filtration has taken place, you will be left with a sludge that must be disposed of. Details for proper disposal are discussed below.

? Do I Need a Permit for My Wastewater Discharges?

A National Pollutant Discharge Elimination System permit from the Illinois Environmental Protection Agency (Illinois

EPA) is required for businesses that discharge car wash wastewater directly into a surface water body or to a storm sewer that discharges to a surface water body. If car wash wastewater is discharged directly to a sanitary sewer system, a business owner must apply for a state construction permit and may also need to apply for a state operating permit. Contact the Office of Small Business for more information on Illinois EPA water permits. Because car wash regulations vary from city to city, it is wise to contact the city storm water program or department or water department to determine exact local permit requirements.

? How Do I Manage My Sludge?

Sludge can be disposed of wet or dry. The requirements associated with each are described below.

- The sludge can be dried by removing it from the car wash system and allowing the water to evaporate. The sludge may be dried at the site where it is generated without a Bureau of Land permit. If you take the sludge somewhere else to dry, the drying site must have a Bureau of Land permit. You must transport the sludge under manifest as special waste unless the sludge is certified as non-special. Sludge which is certified as non-special waste can be disposed of with your general refuse. Refer to the fact sheet "Do I Have A Special Waste?" for more information on special waste and certifying your waste as non-special.
- Special waste must be handled and disposed of in accordance with specific Illinois EPA regulations. For more information on special waste, refer to the fact sheet "Do I Have A Special Waste?" You must determine if the amount of special waste that you have generated requires you to obtain a generator identification number. For more information on this determination, refer to the fact sheet "Does My Business Need Generator Identification Numbers And Manifests?" Also, special waste must be disposed of in a licensed, special waste disposal facility and must be transported by a licensed special waste hauler using a special waste manifest. Disposal of sludge as special waste may significantly increase disposal cost. Drying and disposing of the sludge as general refuse may reduce these costs.

? How Can I Prevent Soil and Groundwater Contamination?

Soil and groundwater contamination is a serious hazard to human health. Therefore, steps must be taken to prevent discharge of car wash wastewater to soil and groundwater. The steps below should be taken.

- Discharge to sewer systems or to holding tanks when applicable and in compliance with state and local regulations.
- Capture and recycle as much wastewater as possible using filters, oil-water separators, reclamation systems, and other appropriate technologies.
- Hire a licensed special waste transporter to dispose of wet sludge and other nonrecyclable special wastes.
- Comply with state and local solid and liquid waste disposal regulations.
- Dry the sludge in containers and dispose of it as general refuse.

? How Can I Make My Professional Car Wash System More Environmentally Friendly?

As discussed above, the toxic materials associated with a professional car wash system include detergents, phosphates, chemicals such as hydrofluoric acid, and ABFs. The amount of toxic materials in a professional car wash system can be reduced by taking the measures below.

- Use biodegradable soaps and chemicals instead of solvent-based solutions.
- Reduce the amount of detergent used in the system. Using less detergent produces less suds and reduces the amount of discharge to the sewer system.
- Water softeners and filtration can lower the amount of total suspended solids in water and reduce spotting on vehicles. If there is less spotting on the vehicles, less detergent will be needed.

? How Can I Make My Car Wash System More Water Efficient?

Over the past 10 years, professional car washes have implemented and improved water conservation practices. Professional car washes can become even more water efficient by taking the general measures below.

- Detect and repair all leaks in the system.
- Install lower flow nozzles and run at lower pressure; adjust flow in nozzles, sprays, and other lines to meet minimum quality requirements.
- Maintain all water-using devices to original or improved specifications for the conservation of water, and replace worn equipment with water-saving models.
- Replace brass or plastic nozzles, which erode more quickly, with stainless-steel or hard ceramic nozzles.
- Check alignment of nozzles, and inspect nozzles for clogging on a regular basis.
- Install positive shut-off valves on all hoses and valves and in extractor sinks.
- Turn off all flows during shutdowns. Use solenoid valves to stop the flow of water when production stops.
- When washing towels or rags, use front-loading washing machines and reduce the amount of laundry by doing fewer but fuller loads.
- Identify discharges that can be reused and implement reuse practices.

In addition, there are specific measures that can be taken for each type of car wash. For a conveyor system, water can be greatly conserved by reducing conveyor time. Also, nozzles should be timed to turn on as the vehicle enters the arch and shut off as it moves out of range. For an in-bay automatic car wash, adjusting nozzle alignment, flow rates, and timing can conserve water.

? How Do I Obtain More Information?

For more information on professional car wash environmental requirements, please call the Office of Small Business at 1-888-EPA-1996. All calls are considered confidential, and the caller can remain anonymous. You can also visit the Illinois EPA website at www.epa.state.il.us. All fact sheets mentioned in this document are available through the Illinois EPA website.

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