Hazardous Waste Determinations

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The first step to proper waste handling is to know which rules apply. There are different management standards for hazardous waste, used oil and universal waste. The United States Environmental Protection Agency (USEPA) requires waste generators to make adequate determinations as to whether their wastes are hazardous.

Does Everything Leaving My Facility as Waste Need to Undergo a Waste Determination?

No. You only need to make waste determinations on industrial waste streams. You do not need to consider trash from the breakroom, restrooms or offices. Domestic sewage is not required to undergo a waste determination.

What Goes Into an "Adequate" Waste Determination?

USEPA allows you to base waste determinations on either testing or by applying generator knowledge. Be aware that if you use generator knowledge, you need to back it up with documentation. Make your determinations at the point of generation, which means that you are evaluating waste as soon as you determine it is no longer useful to you. This could be blanket wash that is being removed from a press parts washer, or a container of material that you no longer need.

Testing for hazardous waste could include flash point, pH, and running a toxic characteristic leaching procedure (TCLP). If you decide to use testing, work with your laboratory to identify only those tests that may apply to each waste. For instance, if you have a waste solvent that wasn't used to clean metals, you will not need to pay for metals TCLP testing.

Generator knowledge means that you made a decision as to whether or not your waste is hazardous based on your knowledge of both the material involved and the process it undergoes. Safety Data Sheets (SDS) are a good place to find information on the raw material. Keep in mind that some of its characteristics may have changed during use.

Whichever method you use to analyze your waste, you must first understand the rules and how they apply to your waste streams.

Know the Rules: Exemptions

Some wastes are excluded from hazardous waste regulations. Several that are commonly applicable to printing facilities are highlighted below.

Precious metals that are recycled can be excluded under 40 CFR 266.70.

Lead-acid batteries reclaimed under 40 CFR 266.80. Recycling your fork truck and back-up power system batteries will allow you to apply this exemption.

Know the Rules: Used Oil

Used oil that is not mixed with a hazardous waste and will be recycled, including burning for energy recovery, is generally not considered a hazardous waste. Helpful hint: labels for non-hazardous oil collection should read, "Used Oil." The words "Waste Oil" imply that the oil is a hazardous waste.

Know the Rules: Universal Waste

Universal waste is commonly generated low-risk waste that is excluded from hazardous waste regulations if you comply with certain handling and storage requirements. You can manage used fluorescent lamps, rechargeable batteries, mercury-containing devices, and certain pesticides as universal waste. There are fewer requirements for universal waste management, and you can keep waste on site longer.

Know the Rules: Hazardous Waste

There are two main categories of hazardous waste: characteristic waste and listed waste. USEPA assigns waste codes to identify the type of hazard or hazardous chemical in the waste. Many states have state-specific waste codes in addition to the federal codes.

Characteristic waste exhibits at least 1 of the 4 hazardous waste characteristics. There is a simple "TRIC" for remembering these characteristics: Toxic, Reactive, Ignitable, Corrosive. The SDS will often have clues to whether these apply to your waste. Waste codes for characteristic waste will start with the letter D, followed by 3 numbers.

Toxic: There are 40 toxins, each with a minimum threshold. If the concentration of that toxin exceeds a threshold, you will apply the appropriate waste code: D004 through D039.

Reactive: Reactive wastes are violently reactive under normal conditions, such as water-reactive chemicals. These wastes carry the D003 waste code.

Ignitable: Oxidizers, liquid wastes with a flash point of less than 140°F, or wastes that are not liquid that can start on fire due to friction or chemical changes and burn vigorously are deemed ignitable and assigned the waste code D001.

Corrosive: Corrosive wastes are acids with a pH of 2 or less; or alkalis with a pH of 12.5 or higher.

Use waste code D002 for both high and low pH wastes.

Listed waste comes from one of the lists in 40 CFR Part 261 Subpart D. Like the characteristic waste codes, listed waste codes start with a letter and are follow by 3 numbers. Each type of listed waste has its own letter code.

F-listed wastes come from non-specific sources. Printers may find the listed chemicals in spent inks or cleaning solvents. F003 applies to spent xylene and acetone; F005 apples to toluene and methyl ethyl ketone.

K-listed wastes are from specific sources, and these are very specific. For example, K008 is for oven residue from the production of chrome oxide green pigment.

U-listed wastes are commercial chemical products that are off-specification or chemical manufacturing by-products. An easy way to remember this is "U" is for unused.

P-listed wastes acutely toxic commercial chemical products that are off-specification or chemical manufacturing by-products.

Where Do I Start?

Start by determining if your waste is excluded, if it can be managed as a used oil, or as a universal waste. If none of these apply, the next step is assessing whether it is a hazardous waste.

Section 13 of the SDS is for disposal considerations. This is not a mandatory section; so, don't be surprised if it is blank or simply instructs you to dispose of the material according to federal, state, and local regulations.

You can find important information on the raw material by looking at the hazards in Section 2 of the SDS. Section 3 will have the list of hazardous ingredients; you can compare this to toxic and listed wastes in 40 CFR part 261. Flash point and pH are frequently listed in Section 9. Remember that SDS only tell you about the raw material, they do not address the process that the material undergoes prior to becoming a waste. The best way to describe this is by example.

Example 1:

Let's say you have some waste paint and thinners that have been collected together. The SDS for the paint indicates that it contains xylene, and the thinner contains acetone. Both of these have flashpoints below 140°F, and they did not come in contact with any other hazardous materials before becoming waste. When we compare these factors to the hazardous waste categories, we can determine that this is a hazardous waste, and it will be both a characteristic ignitable waste and a listed waste. In our waste determination, we will indicate that the D001 and F003 waste codes will both apply. We can support our decision that we applied generator knowledge using the SDS and by understanding that the process of painting did not add any new constituents or change any of the waste characteristics.

Example 2:

Now we'll start with an acid used in platemaking. The pH listed in Section 9 of the SDS is 1.9. There are no ingredients listed in Section 3 that appear in 40 CFR part 261. Is this a hazardous waste? Perhaps, but the acid is mixed with water and loses some of its corrosive qualities during use. When we assess the pH at the end of the process, at the point that it becomes a waste, the pH is now 5.5. It does not exhibit a hazardous characteristic at the point of generation; so, the resulting waste is not hazardous. You could have the waste tested at a laboratory, but using a pH meter or litmus paper will be sufficient and usually more economical.

Document Your Findings

Keep a written record of every waste determination; in most cases, one determination will suffice for all waste generated from the same raw material and process. If your waste determination is based on laboratory testing, keep a copy of the laboratory results with your written documentation. When documenting generator knowledge, keep a copy of the SDS and a description of the process, explaining how the material is used. There are tools available to help you document determinations. Wisconsin Department of Natural Resources has an optional checklist integrated into guidance document WA-1152; you can create your own written documentation format as well. Update your waste determination any time a raw material or process changes.