

APPENDIX D

Complying with the Hazardous Waste Rules

The Indiana Department of Environmental Management and the United States Environmental Protection Agency have created regulations that are designed to ensure that the generation, transportation, treatment, and disposal of hazardous wastes are conducted in a manner that protects human health and the environment.

This guidance will assist you in determining if you generate hazardous wastes and how to comply with the regulations as they apply to your operations.

Products that you purchase for use at your marina may contain hazardous materials. Hazardous materials are chemicals that are dangerous to human health and the environment. When these products are no longer of use to you and are being disposed of, they become hazardous wastes that may be regulated by IDEM and/or U.S. EPA.



Storage cabinets may contain hazardous materials.

In determining if the wastes you generate need to be managed as hazardous wastes, you will need to take the following into consideration.

- Is the material hazardous as defined by the Resource Conservation and Recovery Act (RCRA) under Title 40, Parts 260-262, of the Code of Federal Regulations (40 CFR 260-262)?
- What is your facility's generator status?
- Which regulations are you required to comply with, based on your generator status and the type and source of your waste material?

What is a Hazardous Waste?

There are a few steps that you must take in determining if your wastes are hazardous. You must first determine if what you generate is a "solid waste." For a waste to be hazardous it must first be a solid waste. A solid waste is defined as any material that will no longer be used for its original purpose or a material that must be reclaimed before reuse. Solid wastes can be solid, liquid or gas. You will need to look at the wastes you generate (e.g., oil, antifreeze, gasoline, solvents, cleaners, etc.) and determine whether they are solid wastes.

If you find that some of the wastes you generate meet the definition of a solid waste, then you need to see if they meet any of the definitions of a hazardous waste. Wastes can be hazardous if they are either defined by RCRA as a listed or characteristic waste, or if they are a mixture of a listed hazardous waste and other wastes.

RCRA Has Four Lists of Hazardous Wastes

- F-listed waste** (40 CFR 261.31):
 These wastes are generated from non-specific sources but were created from a specific activity. Marinas might generate one of the first five F-listed wastes, F001- F005, which deal with solvents used in cleaning and degreasing.
- P- and U-listed wastes** (40 CFR 261.33):
 P- and U-listed wastes are discarded or unused commercial chemical products, off-specification products, container residues and spill residues. Marinas may generate a P- or U-listed waste when disposing of unused solvents, algacides or other toxic chemicals.
- K-listed wastes** (40 CFR 261.32):
 K-listed wastes are generated from specific sources and from specific activities. It is very unlikely a marina would generate a K-listed waste.

If your waste is not a listed waste, you must then determine if your waste is characteristically hazardous. RCRA has defined four characteristics of hazardous wastes. You must conduct waste sampling and analysis, or apply generator knowledge of the process and of the materials used to produce the waste to determine if it exhibits any of the following four characteristics.

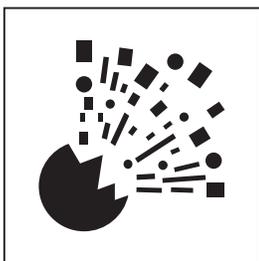
Exempt Solid Wastes

Certain solid wastes, such as used oil destined for recycling, are excluded from the hazardous waste rules. Household wastes are also exempt. The exemptions to the hazardous waste regulations can be found at 40 CFR 261.4 and 261.6–261.9.

Ignitability



Reactivity



Corrosivity



Toxicity



Four Characteristics of Hazardous Wastes

Ignitability
<p>A waste is ignitable if it is:</p> <ul style="list-style-type: none"> • A liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point of less than 60°C (140°F). • Not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard. • An ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the administrator of the U.S. Environmental Protection Agency, or his designee, under subsections 260.20 and 260.21. • An oxidizer as defined in 40 CFR 261.21 (4), such as chlorates, permanganates, inorganic peroxides or nitrates that yield oxygen readily to stimulate the combustion of organic matter. <p>RCRA classifies wastes that are ignitable as D001. Marinas may produce a D001 waste with disposal of paints, solvents, cleaner (flashpoint) chemicals such as nitrates, permanganates used as cleaner or in water treatment (oxidizer), or cylinders used for welding (compressed gas).</p>

Reactivity
<p>A waste is reactive if:</p> <ul style="list-style-type: none"> • It is normally unstable and readily undergoes violent change without detonating; • It reacts violently with water; • It forms potentially explosive mixtures with water; • When mixed with water, it generates toxic gases, vapors or fumes of a quantity sufficient to present a danger to human health or the environment; • It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, and fumes in a quantity sufficient to present a danger to human health or the environment; • It is readily capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement; • It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or • It is a forbidden explosive as defined in 49 CFR 173.51, a Class A explosive as defined in 49 CFR 173.53, or a Class B explosive as defined in 49 CFR 173.88. <p>A solid waste that exhibits the characteristic of reactivity has U.S. EPA Hazardous Waste Number D003. Potential D003 waste streams that a marina could produce would be in the disposal of out-of-date chemicals for water treatment.</p>

Corrosivity
<p>A waste is corrosive if it is:</p> <ul style="list-style-type: none"> • Aqueous and has a pH of >12.5 (alkaline) or <2 (acidic). • A liquid and corrodes steel at a rate of more than one-fourth inch per year. <p>RCRA classifies wastes that are corrosive as D002. Marinas may produce a D002 waste with disposal of nonsolvent-based cleaners and paint strippers, water treatment chemicals and general cleaners and disinfectants.</p>

Toxicity
<p>Toxic wastes are harmful or fatal when ingested or absorbed. When toxic wastes are disposed on land, contaminants may leach from the waste and pollute ground water or surface waters. Toxicity characteristic wastes are identified by concentration levels of contaminants that may be harmful to human health or the environment. This characteristic only identifies wastes which contain certain specified contaminants. Other toxic wastes are identified by listing them in the regulations.</p> <p>RCRA classifies wastes that are toxic as D004 through D043 with each characteristic having its own waste code (see table below and on page 109).</p>

Characteristic Wastes and Their U.S. EPA Hazardous Waste Numbers		
Heavy Metals	Pesticides	Organics
Arsenic (D004)	Chlordane (D020)	Benzene (D018)
Barium (D005)	Endrin (D012)	Carbon Tetrachloride (D019)
Cadmium (D006)	Heptachlor (D031)	Chlorobenzene (D021)
Chromium (D007)	Lindane (D013)	Chloroform (D022)
Lead (D008)	Methoxychlor (D014)	Cresols, o- (D023)
Mercury (D009)	Toxaphene (D015)	Cresols, m- (D024)
Selenium (D010)	2,4-D (D016)	Cresols, p- (D025)
Silver (D011)	2,4,5-TP [Silvex] (D017)	Cresols (D026)
		1,4- Dichlorobenzene (D027)
		1,2- Dichloroethane (D028)
		1,1- Dichloroethylene (D029)

Characteristic Wastes and Their U.S. EPA Hazardous Waste Numbers (continued)		
Heavy Metals	Pesticides	Organics
		2,4- Dinitrotoluene (D030)
		Hexachlorobenzene (D032)
		Hexachlorobutadiene (D033)
		Hexachloroethane (D034)
		Methyl Ethyl Ketone (D035)
		Nitrobenzene (D036)
		Pentachlorophenol (D037)
		Pyridine (D038)
		Tetrachloroethylene (D039)
		Trichloroethylene (D040)
		2,4,5-Trichlorophenol (D041)
		2,4,6-Trichlorophenol (D042)
		Vinyl Chloride (D043)

Mixing Wastes

If you mix your listed hazardous wastes with other characteristic wastes or other nonhazardous solids wastes, the entire mixture would become a listed hazardous waste. For this reason, it is very important to keep wastes segregated. Not only is it better for the environment, but it will help keep disposal costs as low as possible.

In determining if your waste is hazardous you may use generator knowledge and/or waste stream analysis. Material safety data sheets will help you determine what type of contaminants could be present. Sometimes after the chemical is used, it could be contaminated with other materials. It would then probably be more accurate to have the waste stream tested. For additional information on making a hazardous waste determination, refer to IDEM publications entitled “How to Identify Waste & Determine If It’s Hazardous Waste” and “Understanding the Hazardous Waste Determination Process” available on IDEM’s Web site at www.idem.IN.gov/cleanmarina.

Universal Wastes

Daily operations in the marina could also generate universal wastes. Universal wastes include nickel cadmium batteries, small sealed lead acid batteries, agricultural pesticides, mercury-containing devices (e.g., thermostats, barometers, and gauges), and lamps from electric lighting devices (e.g., fluorescent, high-intensity discharge, neon, mercury vapor, high-pressure sodium, and metal halide lamps). Universal wastes have fewer waste management rules that apply to them. For more information about the generation, storage, transportation, disposal and recycling of universal wastes, refer to IDEM's guidance document entitled "Universal Waste Rule" available on IDEM's Web site at www.idem.IN.gov/cleanmarina.

Keep in mind that it is your responsibility to ensure that a proper hazardous waste determination is made for each solid waste. If you hire a consultant to perform waste determination activities, the facility is still liable for any incorrect determinations that may be made.