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Used Oil Fact Sheet # 5

MIXTURES OF USED OIL AND OTHER MATERIALS

This fact sheet describes how mixtures of used oil and other materials are regulated under DEP's used oil regulations.

This fact sheet is intended only as a helpful compliance aid. It is not intended to supersede the applicable regulations.¹ It is always the responsibility of persons involved in the management of used oil to comply with all applicable laws and regulations.

Used oils may become mixed with a wide variety of materials. How the resulting mixture is regulated can vary greatly depending on the type of material that is mixed with the used oil. Each of the following Sections 1 through 5 describes the rules that apply to mixtures of used oil and (1) hazardous waste; (2) non-hazardous waste; (3) antifreeze; (4) wastewaters; and, (5) virgin fuels. In addition, Section 6 of this fact sheet describes some additional rules that may apply if used oil contains polychlorinated biphenyls (or "PCBs"). Several other issues concerning used oil mixtures are also discussed in Section 7. Section 8 describes how to obtain additional information about used oil.

1.) Mixtures of Used Oil and Hazardous Waste.

There are many different types of hazardous waste that might possibly become mixed with used oil. However, the types which are most commonly mixed with used oil include mineral spirits parts washers and other, similar types of petroleum-based cleaning solvents. Although high-flash-point formulations of these solvents are now quite common, many have a flash point below 140⁰ Fahrenheit, which would make them ignitable hazardous wastes (EPA waste code D001).

¹The requirements which currently apply to the management of used oil in Connecticut may be found in Regulations of Connecticut State Agencies ("RCSA") Section 22a-449(c)-119. This RCSA Section incorporates the 2000 federal used oil regulations at 40 CFR 279, and includes a number of additional, Connecticut-only provisions. Used oils are also subject to the requirements of Connecticut General Statutes ("CGS") Section 22-454 with respect to persons engaged in the business of collecting, storing, treating, or disposing of used oil.

How Are Mixtures of Used Oil and Hazardous Waste Classified?

Mixtures of used oil and hazardous waste are classified as follows:

- (A) Mixtures of Used Oil and Listed Hazardous Waste. If the hazardous waste that is added to the used oil is one that is listed in sections 40 CFR 261.31, .32, or .33 of the federal hazardous waste regulations (that is, a so-called “listed hazardous waste”), the resulting mixture is itself a listed hazardous waste. It does not matter how much listed hazardous waste is added to the used oil – any amount will result in the mixture becoming a listed waste. Examples of listed hazardous wastes that might become mixed with used oil include chlorinated solvents such as 1,1,1-trichloroethane, perchloroethylene, trichloroethylene, and methylene chloride. Other examples include non-chlorinated solvents such as toluene, xylene, and methyl ethyl ketone.
- (B) Mixtures of Used Oil and Characteristic Hazardous Waste. A used oil may become mixed with a hazardous waste that is not listed, but instead meets one or more of the characteristics of hazardous waste as described in section 40 CFR 261.21 through .24 of the federal hazardous waste regulations (that is, ignitable, corrosive, reactive, or “toxic” hazardous wastes). In this case, it is necessary to analyze the resulting mixture for these characteristics in order to determine how it would be regulated. If this analysis indicates that the mixture exhibits none of the characteristics of hazardous waste, then the mixture may be handled as a used oil rather than a hazardous waste. However, if the mixture exhibits any of the characteristics of hazardous waste, it would be classified as a hazardous waste, and may not be handled as used oil.² Examples of characteristic hazardous wastes that might become mixed with used oil include mineral spirits, petroleum naphtha, and Stoddard Solvent.

There is an exception to the above rule for mixtures of used oil and characteristic hazardous wastes that are hazardous only due to ignitability (that is, “ignitable-only hazardous wastes”). These types of mixtures do not have to be evaluated for all possible characteristics in order to be handled as a used oil – only ignitability (i.e., flash point). Therefore, if a mixture of used oil and an ignitable-only parts cleaner (such as mineral spirits) is no longer ignitable, it may be handled as a used oil.

It should be noted that DEP’s used oil regulations do not allow the intentional mixing of used oil and hazardous waste unless it is for legitimate recycling purposes. An example of mixing for legitimate recycling purposes would be the addition of a combustible solvent to used oil to enhance its fuel value prior to being sent to a commercial fuel blender for blending into an industrial fuel.

²Please note that this holds true even if the characteristic that the mixture exhibits comes from the used oil rather than the hazardous waste it is mixed with. For example, if a company mixes a used oil that is high in lead with a waste that is hazardous for barium, and the resulting mixture is hazardous only for lead, the mixture would still be regulated as a hazardous waste.

How Are Containers and Tanks Storing these Mixtures Regulated?

Containers and tanks that are used for the mixing and storage of used oil and hazardous wastes are regulated under both hazardous waste requirements and used oil requirements. Please note that compliance with both sets of requirements is necessary even if the resulting mixture no longer exhibits a characteristic of hazardous waste and can be shipped off-site as a used oil.

What about Mixtures Generated by Conditionally Exempt Small Quantity Generators (CESQGs)?

The Federal used oil regulations have an exemption for CESQGs who mix their hazardous waste with their used oil. This exemption allows CESQGs to add their hazardous waste to their used oil and remain subject to used oil requirements in all cases. However, DEP's used oil regulations are more stringent than the Federal rules with respect to these kinds of mixtures. As a result, CESQGs in Connecticut must comply with the requirements outlined in Steps 1 through 4 above whenever they mix used oil and hazardous waste.

What about Mixtures of Household Hazardous Waste and Used Oil?

Under both State and Federal regulations, household hazardous waste is exempt from hazardous waste management requirements. This concept extends to household hazardous waste that is mixed with used oil. Such mixtures are therefore not subject to the above procedures.³

2.) Mixtures of Used Oil and Non-Hazardous Waste.

If a used oil is mixed with a non-hazardous waste, the resulting mixture would be regulated as used oil. An example of a non-hazardous waste that might commonly be mixed with used oil would be a high-flash-point mineral spirits parts washer.⁴

3.) Mixtures of Used Oil and Antifreeze.

One waste which is sometimes mixed with used oil is spent antifreeze, which is generated from the routine maintenance of cars, trucks, boats, aircraft, heavy equipment, and various other types of commercial and industrial equipment. Although *virgin* antifreeze typically does not contain hazardous constituents, *spent* antifreeze can contain a variety of contaminants that can make it hazardous. In particular, spent antifreeze may contain constituents such as lead or benzene in excess of hazardous waste limits. As a result, in order to know how a specific mixture of used oil and spent antifreeze is classified, it is necessary to perform a hazardous waste determination on the spent antifreeze, and find out whether or not it is a hazardous waste.

³ Please note, however, that a separate DEP recycling requirement prohibits household hazardous waste from being added to used oil at municipal used oil collection centers.

⁴ Please note that even a high-flash-point parts washer may become characteristically hazardous if it acquires contaminants (such as metals) during use. Generators of spent parts washers must always perform a thorough hazardous waste determination on these materials prior to mixing them with used oil, to be absolutely certain that they are not hazardous wastes.

If the spent antifreeze is *hazardous*, then the procedures in *Section 1* above would define whether the mixture is classified as a hazardous waste or as a used oil. If the spent antifreeze is *non-hazardous*, then the mixture would be classified as a used oil.

4.) **Mixtures of Used Oil and Wastewaters.**

In some cases, a used oil may become mixed with a wastewater of some type. Typically, such mixtures would be classified in the same way as in the previous Section for antifreeze.⁵ That is, a hazardous waste determination must be performed on the wastewater in order to determine whether or not it is hazardous. If the wastewater is hazardous, the procedures in Section 1 above would define whether the mixture is classified as a hazardous waste or as a used oil. If the wastewater is non-hazardous, then the mixture would be classified as a used oil.

If the used oil is contained in the wastewater at the point of generation (i.e., the two are not mixed together after the point of initial generation), the material would not be regulated as a mixture, but under the provisions for “materials containing or otherwise contaminated with used oil.” For more information on these materials, see DEP’s Used Oil Fact Sheet #4, “Materials Containing or Otherwise Contaminated with Used Oil.” The last section of this fact sheet provides information on how to obtain a copy of Used Oil Fact Sheet #4.

5.) **Mixtures of Used Oil and Virgin Fuel.**

Used oils are often mixed with a fuel of some type. Usually, this is done for fuel blending purposes. As outlined below, such mixtures may be subject to differing requirements, depending on the exact type of fuel involved:

Mixtures of Used Oil and Diesel Fuel Mixed on-Site by the Generator of the Used Oil for Use in the Generator’s own Vehicles. The manufacturers of some diesel engines recommend adding used oil to the diesel fuel prior to use. Such mixtures are not subject to regulation as used oil. However, up until the point that used oil is actually mixed with the diesel fuel, it must be managed in compliance with all applicable used oil requirements.

Other Mixtures of Used Oil and Virgin Fuels. Mixtures of used oil and a virgin fuel *other than* diesel fuel as described above are subject to regulation as used oils.

Mixtures of Used Oil and Off-Specification Virgin Fuels that Are Burned for Energy Recovery. Virgin fuels may sometimes become contaminated such that they are no longer suitable for their original intended purpose. For example, gasoline may become contaminated with water so that it is no longer usable as a motor vehicle fuel. When these kinds of off-spec fuels are mixed with used oil prior to being burned for energy recovery, the resulting mixtures are regulated as used oil.

⁵ Note: any oil/wastewater mixture that is not legitimately recyclable is not considered to be a used oil and must have a hazardous waste determination performed on it to determine if it is regulated as a hazardous waste. Also, DEP’s used oil regulations include an exemption from used oil requirements for wastewaters that are contaminated with de minimis quantities of used oil and that are discharged in accordance with Clean Water Act requirements. See DEP Used Oil Fact Sheet # 4, “Materials Containing or Otherwise Contaminated with Used Oil” for more information on such wastewaters.

Mixtures of Used Oil and Off-Specification Virgin Fuels which Are Recycled but Are NOT Burned for Energy Recovery. If an off-spec virgin fuel is mixed with used oil prior to being recycled in some way other than burning for energy recovery (for example, re-refining), the resulting mixture is classified in the manner described in Section 3 above. That is, a hazardous waste determination must first be performed in order to determine whether or not the off-spec virgin fuel is hazardous. If it is hazardous, the procedures in Section 1 above would define whether the mixture is classified as a hazardous waste or as a used oil. If the off-spec virgin fuel is non-hazardous, then the mixture would be classified as a used oil.

6.) A Special Note about Used Oil Mixtures which Contain PCBs.

Occasionally, used oils may become contaminated with PCBs, or may be mixed with other used oils that contain PCBs. In such cases, the mixture may be subject to special PCB regulations pursuant to the Toxic Substances Control Act (or “TSCA”). The used oil and PCB requirements apply differently, depending upon which of the three following categories the concentration of PCBs in the used oil falls, *prior to any mixing*:

PCB CONCENTRATION PRIOR TO MIXING	APPLICABLE REGULATIONS
1.) 50 parts per million (ppm) or more PCBs.	TSCA Rules Only (40 CFR 761).
2.) Greater than or equal to 2 ppm, but less than 50 ppm.	Used Oil Requirements, <u>and</u> TSCA Rules at 40 CFR 761.20(d) and (e).
3.) Demonstrated to contain less than 2 ppm.	Used Oil Requirements <u>and</u> TSCA Rules at 40 CFR 761.20(d), (e)(2), and (e)(4).

If you have any questions regarding PCB management and disposal, visit the PCB page on the DEP website (www.ct.gov/dep), or call DEP’s PCB program at (860) 424-3368.

7.) Other Important Notes Concerning Mixtures.

Used Oil Mixtures that Are Sent for Disposal. Sections 1 – 5 above apply only to used oil mixtures that are recycled, not those that are sent for disposal. Mixtures that are disposed of require a full hazardous waste determination and, if found to be hazardous, must be managed accordingly.

Mixing May Be Subject to Hazardous Waste Treatment Requirements. The definition of “treatment” in 40 CFR 260.10 includes any activity that renders hazardous waste non-hazardous. Therefore, whenever used oil is added to hazardous waste so that the resulting mixture is non-hazardous, this mixing constitutes hazardous waste treatment. While under the terms of a special DEP policy,⁶ generators may treat their hazardous waste in accumulation tanks or containers without a permit, all other types of handlers (such as used oil transporters, used oil transfer facilities, and used oil

⁶This policy is described in an October 3, 1991 DEP document entitled, “Small/Large Quantity Generators - Treatment in Accumulation Containers and Tanks.” Copies of this document may be obtained by contacting DEP at the address/telephone numbers listed at the beginning of this fact sheet.

processors and re-refiners) may not treat hazardous waste without a permit.⁷

Mixing May Be Subject to Used Oil Processor Requirements. Under DEP's used oil regulations, activities such as blending used oil with virgin petroleum products and blending used oil to meet the fuel specification are subject to special requirements for used oil processors. However, some exemptions apply, including: 1.) the consolidation of different sources of used oil at the generation site; 2.) incidental processing that occurs during the normal course of transportation; and, 3.) incidental processing that occurs during the normal course of used oil management prior to burning.

Concerns about Incompatible Materials. Some materials are incompatible with used oil. Mixing such materials with used oil could result in a chemical reaction, fire, explosion, or other potentially dangerous condition. It could also make it difficult or impossible to recycle the used oil, which in turn would make it difficult to find a facility that would accept it. Anyone considering mixing any material with their used oil should be sure that it is compatible with the used oil, and that their hauler and receiving facility are able to accept the resulting mixture.

Materials that Contain or Are Otherwise Contaminated with Used Oil. Materials of this type (which include items such as spent absorbents and used oil filters) are not considered mixtures and are not addressed by this fact sheet. For more information on these materials, please refer to DEP's Used Oil Fact Sheet #4, entitled "Materials Containing or Otherwise Contaminated with Used Oil." See section 8 below for information on how to obtain Used Oil Fact Sheet #4.

8.) How to Get Additional Information about Used Oil.

More information on how to comply with used oil regulations may be found in DEP's comprehensive, 41-page used oil guidance document entitled Management of Used Oils in Connecticut. DEP also has a number of other helpful fact sheets on the subject of used oil. To obtain copies of any of these documents, or if you have any questions concerning used oil, please contact DEP via the address/telephone numbers listed at the top of this page. Information on used oil and other DEP requirements is also available on the DEP website at www.ct.gov/dep.

⁷ While the mixing of used oil and hazardous waste is considered hazardous waste treatment, it is not considered impermissible dilution under 40 CFR 268.3, provided the resulting mixture is going to be recycled.

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