



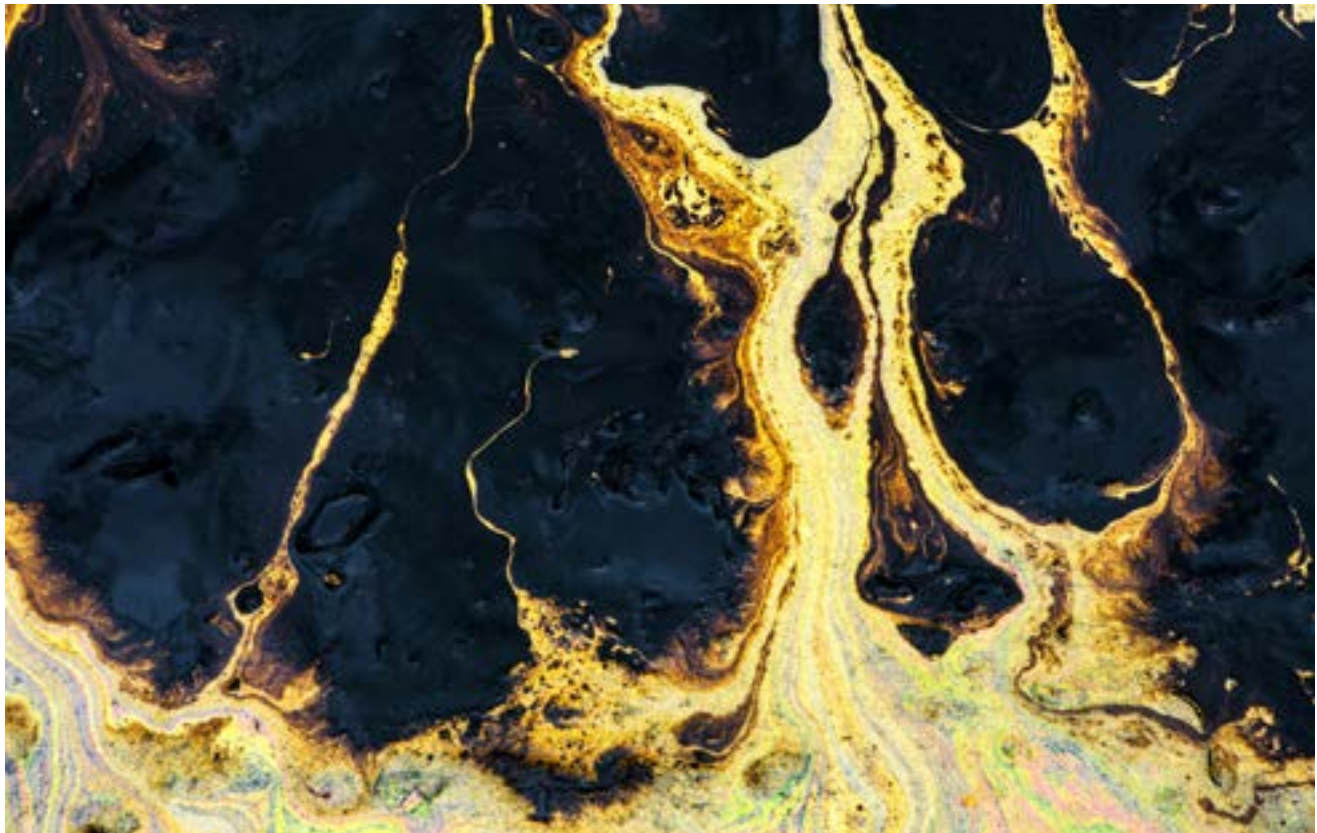
PAPER

BEST MANAGEMENT PRACTICES FOR

USED OIL



Best Management Practices for Used Oil



Industry uses more than 711 million gallons of lubricating oil annually, according to the Energy Information Administration. This oil is used in engines and machines to keep parts moving and reduce friction. Over time, oil wears out or picks up contaminants and needs to be removed and replaced.

Properly managing used oil prevents it from ending up in landfills, storm drains, groundwater and drinking water. Used oil is a valuable resource that can be re-refined (cleaned) an indefinite number of times to produce oil that is the same quality as virgin refined oil products. It is also a desirable feedstock for fuels blending processes that are used to produce heat energy.

Because used oil is a valued commodity, the Environmental Protection Agency (EPA) offers incentives for recycling it instead of disposing of it in a landfill. Facilities that choose to recycle their used oil can manage it under the Used Oil Management Standard [40 CFR 279] instead of as a fully regulated Resource Conservation and Recovery Act (RCRA) hazardous waste. This means fewer requirements to meet, less recordkeeping and lower fluid management costs when compared to hazardous waste disposal.

In this PIG Paper, you'll learn what the EPA considers used oil, when used oil qualifies for hazardous waste exemptions and how to responsibly store and manage it.



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What Is Used Oil?

The EPA established used oil management regulations in 1992 to encourage recycling [40 CFR 279]. The EPA defines used oil as “any oil that was refined from crude oil or any synthetic oil, and that is used and as a result of such use is contaminated by physical or chemical impurities.”

Qualified oils that can be managed under this standard include:

Used Oil Is:

- Used synthetic oil — usually derived from coal, shale or polymer-based starting material
- Used engine oil — typically includes gasoline and diesel engine crankcase oils and piston-engine oils for automobiles, trucks, boats, airplanes, locomotives and heavy equipment
- Used transmission or industrial hydraulic fluid
- Used industrial process, refrigeration, compressor, electrical insulating or laminating oil
- Used metalworking fluids and oils
- Used copper and aluminum wire drawing solution
- Oils used as buoyants

Used Oil Is Not:

- Waste oil that is bottom cleanout waste from virgin fuel storage tanks, virgin fuel oil spill cleanups or other oil wastes that have not actually been used
- Products, such as antifreeze and kerosene
- Vegetable and animal oil
- Petroleum distillates used as solvents

Source: US EPA



Recycling Presumption



Used oil is a valuable commodity, and the EPA, therefore, presumes that it will be recycled. The two most common methods of recycling are burning for energy recovery and re-refining.

Burning oil for energy recovery is a process that involves removing water and physical contaminants from the used oil, then using it to power either an industrial process or to produce heat for cement kilns. Because used oil burns well, it is a valuable feedstock that can be used in place of virgin materials to produce heat energy.

Re-refining oil removes contaminants. It is a preferred recycling method because it only takes about one-third of the energy that it would normally take to refine oil from crude. Plus, you only need about one gallon of used oil to produce two quarts of new oil compared to 42 gallons of crude that would be needed to produce the same amount.

Facilities may still choose to dispose of their used oil instead of recycling it. But, this subjects the used oil to full management as an RCRA hazardous waste while it is onsite and cradle-to-grave liability under RCRA and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Rebuttable Presumption

The EPA presumes that used oil containing more than 1,000 ppm of halogens (chlorine, fluorine, bromine or iodine) has been mixed with a hazardous waste unless the facility can rebut this presumption, or prove by analysis, process knowledge or other documentation that the halogens were not intentionally mixed with a halogenated waste. Facilities that choose not to rebut the presumption must manage oils containing more than 1,000 ppm halogens as hazardous waste.

An example of used oil that may contain more than 1,000 ppm halogens is cutting oil that contains halogenated additives to give it a greater resistance to high working temperatures. Under the rebuttable presumption rule, the facility could show that the oil naturally has this property and has not been mixed with a chlorinated compound. Rebutting the presumption allows the oil to be managed under the used oil standard instead of as a fully regulated RCRA hazardous waste.



The rebuttable presumption rule applies to:

- Metalworking oils containing chlorinated paraffins that will be recycled by any method other than a tolling arrangement
- Used oils containing chlorofluorocarbons (CFCs) that have been mixed from sources other than refrigeration units

The rebuttable presumption rule does not apply to:

- Metalworking oils containing chlorinated paraffins that will be processed through a tolling arrangement
- Used oil contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units if the CFCs will be reclaimed

In the two instances above where the rebuttable presumption rule does not apply, the generator does not need to prove that their used oil has not been mixed with a hazardous waste. It may be managed under the used oil standards.

Used oil that contains more than 4,000 ppm total halogens is considered “off specification” and must be re-refined or managed as hazardous waste, regardless of how the halogens came to be present in the oil. Read on to learn about used oil specifications.



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Used Oil Specifications

There are contaminants other than halogens that can cause problems when used oil is burned for energy recovery. Because of this, the EPA created specifications for used oil to protect human health and the environment when the oil is burned for energy recovery.

Used oil that contains more than the allowable amount of arsenic, cadmium, chromium or lead; has a low flashpoint; or contains more than 4,000 ppm total halogens and will be burned for energy recovery is considered "off specification" and may only be burned in industrial and utility boilers, industrial furnaces, used oil-fired space heaters or regulated hazardous waste incinerators.



Constituent/property	Allowable level
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flashpoint	100°F minimum
Total halogens	4,000 ppm maximum

Used Oil Storage Requirements

Used oil must be stored and managed properly so that it does not present a threat to the environment. Proper management also makes recycling used oil easier for the generator, as well as handlers and facilities that will eventually recycle the used oil.

The used oil management standards are performance based. This means that facilities may choose how to meet basic storage and good housekeeping requirements.

Unlike hazardous wastes that have accumulation time limits, used oil that will be recycled is considered a commodity, so there is no time limit for accumulation. This helps generators accumulate enough used oil to facilitate economical hauling and recycling. But, it should be noted that facilities that store large quantities of used oil (1,320 gallons aboveground or 42,000 gallons underground) are subject to the EPA's Spill Control and Countermeasures (SPCC) requirements.



While the used oil is onsite, it must be kept in containers and tanks that are in good condition. The container needs to be leak-free and must not have any signs of rust or other deterioration. If underground storage tanks are used to store used oil, they must meet the conditions specified in 40 CFR 280.

Containers and tanks that store used oil, as well as fill pipes and other items used to transfer used oil, must also be marked with the words "Used Oil" to clearly identify them and help prevent the oil from being unintentionally mixed with a hazardous waste. Containers and tanks must also be inspected regularly to ensure that they are in compliance with the storage requirements and that everything is still in good condition.

Establishing written processes for handling used oil that is stored in containers and tanks will also help to minimize the chance for leaks and spills. Train employees on these procedures and the importance of managing used oil properly so that containers and tanks will not be punctured, ruptured or otherwise compromised.



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Used Oil Releases

Storing and managing used oil in containers and tanks that are in good condition and inspecting them regularly are best management practices that help to minimize the chance of leaks, spills or storage failures that could result in environmental pollution. But, even with these safeguards in place, facilities must still be prepared to stop, contain and clean up spills that may happen if a container leaks or a tank ruptures.

Written plans need to describe the processes, tools and resources that are available in the event of a leak or spill of used oil. Similar to the storage requirements, facilities may choose the containment and cleanup methods that best suit their needs. Most facilities use a combination of response techniques to prepare for a variety of release scenarios.



Secondary containment berms and sumps can be used both indoors and out to retain used oil and prevent it from reaching soil, drains and other environmentally sensitive areas should a container or tank leak or fail. It also allows the oil to be recovered and placed into a new container or tank so that it can still be recycled.

Absorbent booms, socks and mats can be used to quickly contain and soak up used oil leaks and spills. Like used oil, spent absorbents can be recycled through fuels blending to minimize environmental impact and limit the liability associated with landfilling.

Drain covers, earthen dikes, vacuums and other items may also be part of spill response plans. Employees should receive training on spill response techniques and be permitted to use that knowledge in response drills at least annually so that they will be able to perform their response functions whenever the need may arise.

Storing used oil properly and being prepared to quickly contain and control releases prevents leaks and spills contaminating water and soil. It also allows it to be managed under the used oil management standards, which helps preserve natural resources, encourages recycling and lessens regulatory requirements.



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