



Guide for Used Oil Burner Operators

It is estimated that more than 60% of the used oil generated in the Yukon is recovered through burning in approved furnaces. Given the absence of a recycling facility for these lubricants, these furnaces provide a cost-effective disposal option for Yukon used oil, but only when they are operated in accordance with the manufacturer's specifications and in accordance with the Special Waste Regulations and a Special Waste Permit.

Approvals and Permits

Any used oil burner that is operated in the Yukon must be approved by the Canadian Standards Association (CSA), the Underwriters Laboratory (UL), the Underwriters Laboratory Canada (ULC), or by the YTG Protective Services Branch.

If an operator of a used oil burner accepts used oil from other generators, then he or she will require a Special Waste Facility Permit. If the operator burns only used oil generated at his or her own facility, then the operator will require a Special Waste Disposal Permit. The Environmental Programs Branch issues these permits free of cost.

Mixing Wastes and Contaminants in Used Oil

It is illegal and can be dangerous to mix special wastes with used oil that will be burned in a furnace. When aqueous substances like antifreeze are mixed with the furnace's feedstock, they can clog up the jets in the burner and repairs can be costly. When mixed with used oil fuel, solvents and other flammable liquids increase the flashpoint of the fuel. This may result in a fire or explosion hazard, and this practice can void your fire insurance. Burning brake fluid or chlorinated solvents like methyl-ethyl ketone results in the production of hydrochloric acid, which in turn can corrode parts of the furnace and cause acid rain. When released to the atmosphere, chlorine from brake fluid and some solvents can deplete the ozone layer. Burning any substance other than oil in an oil furnace may void the manufacturer's warranty.

The Environmental Programs Branch has a policy that disallows burning of used oil that contains specific contaminants in excess of allowable levels. Burning oil containing these contaminants results in their release to the environment. These contaminants have been proven to be harmful to the health of both humans and the environment. For this reason, the Branch requires that every burner operator have their used oil tested annually to ensure that arsenic, cadmium, chromium, lead and total organic halogens do not occur in levels that are unsafe. Used oil analysis may seem costly, but when you compare the cost of regular heating fuel, analysis costs are relatively low. Operators can avoid contaminating used oil by not accepting used aircraft engine oil, not mixing special wastes, educating staff who deal with oil and/or the burner, and by accepting used oil only from trusted sources.

The following table summarizes the contaminants of concern that may be found in used oil:

Contaminant Name	Possible Sources	Human Health Risks	Environment and Other Risks	Allowable Level (ppm)
arsenic	engine wear	poisonous, carcinogenic, tumor causing, fumes toxic when heated	plant and soil impacts, carcinogenic to animals	5
cadmium	cadmium can be used to coat bolts which wear with engine use and contaminate oil	suspected carcinogen, can be toxic	reduced plant growth/reproduction, toxic to some animals	2
chromium	engine wear, chromium is used to plate some piston rings, hexavalent chromium (Cr ⁺⁶) is most commonly used in engines	Cr ⁺⁶ may cause skin ulcers, irritation of respiratory tract, fibrosis of lungs and various forms of cancer	cancer in animals, root and foliar damage to plants, mortality to aquatic fauna	10
lead	trace amounts are inherent in virgin oil, leaded gasoline, contamination from piston engine aircraft oil	lead is easily stored in organic matter, so it can be magnified up to food chain to humans and result in poisoning; early exposure to infants and unborn fetuses can result in developmental problems	root and foliar damage in plants, muscular atrophy, paralysis, internal lesions in waterfowl, liver, kidney and spleen impairment in mammals	100
organic halogens (chlorine)	inherent, contamination from addition of brake fluid, chlorinated solvents	May form hydrochloric acid in combustion, can be toxic by inhalation, eye and mucous membrane irritant	acid rain forming, may accelerate boiler corrosion, leading to lower efficiency and greater release of all contaminants, ozone depletion	1000
polychlorinated biphenyls	mixing of other contaminated oils (transformer oils)	toxic by ingestion, carcinogenic	persistent organic pollutant (POP) – does not break down and can be magnified and accumulated up the food chain; POPs tend to accumulate at the poles	2

For more information on operating oil burners, contaminant testing, or for information on the Special Waste Regulations, please contact:

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Copies of Yukon regulations may be viewed online at <http://environmentyukon.gov.yk.ca/monitoringenvironment/> under the "Standards & Approvals" section, or at any Yukon Public Library, territorial agent, territorial representative or regional services office. You may purchase copies at the Inquiry Centre, Yukon Government Administration Building, 2071-2nd Avenue in Whitehorse, or by mail from the Subscriptions Clerk, Yukon Government Queen's Printer, Box 2703, Whitehorse, Yukon, Y1A 2C6 (phone (867) 667-5783 or toll free 1-800-661-0408 extension 5783).

