

Oil & Water

Use waste oil to save money and improve the wash process

The laws of science tell us that, from a physical perspective, oil and water are incompatible. Governmental and independent groups also remind us that, environmentally, these substances do not mix. In fact, used oil is the uncontested, largest source of pollution in our rivers and lakes. The Used Oil Management Association puts it in perspective, noting, "One gallon of used oil can ruin 1 million gallons of water and create an eight-acre slick on surface water."

That's a pretty grim illustration of how oil and water work against each other, but what if I were to tell you that used oil and water can be made to work together for the financial benefit of your carwash or car care facility, as well as the good of the environment?

Responsible & Beneficial

There is a technologically advanced, environmentally friendly, and economically wise way to use these substances in tandem without the assistance of an ancient alchemist. Used-oil-fired boilers can recycle typical shop waste oils into abundant, clean, free hot water that is suitable for process applications, including carwashes. The results can provide substantial savings in cleaning chemicals and help produce cleaner vehicles.

In addition, water heated by used-oil-fired boilers can provide comfortable facility heating through remote hydronic heaters and/or modern in-floor radiant tubing. Boilers also can be used to promote employee and customer safety by melting snow and ice from exterior walkways and parking lots.

Considering the swings in standard heating fuel costs, used oils have become very valuable, perhaps worth as much as \$3 or more per gallon. As a result, used crankcase oils, automatic transmission fluids, hydraulic oils, No. 1 fuel oil, No. 2 or diesel oil, and gear oil up to 50 weight SAE are all precious commodities.

However, there also are liabilities associated with used oils. Today's informed public and environmentally conscious consumers are aware of the "cradle-to-grave" liabilities inherent in handling used oils and the penalties associated with their improper disposal. Though typical used oil is not classified as hazardous waste, those who generate it are responsible for it from the moment it is created, thus owning it forever.

The bottom-line advantage to recycling used oils on-site is that the hot water generated can provide big savings for carwashes and other car care facilities by lowering the costs associated with heating wash water or providing heat on-site. Business owners can use "free" fuel while conserving valuable fossil fuel energy, eliminating possible haul-off costs, and controlling the liabilities associated with handling and transporting used oils.

For many operators, the decision to own a boiler and recycle used oil provides peace of mind because it enables the business to adopt environmental best practices while also yielding an excellent return on investment.

The U.S. Environmental Protection Agency and 49 states have approved the "recycling" of used oils on-site; however, waste oil can-

not be recycled on-site by burning in California or in the five boroughs that make up New York City.

Businesses that generate used oils and also have a need for hot water should consider the benefits of a used-oil-fired boiler. Fast lubes, carwashes, truck washes, automotive repair, truck and heavy equipment dealerships, and municipal fleet maintenance shops are perfect candidates.

Heating cost savings depends on the degree of winter weather and the length of the heating season. The colder the weather or longer the heating season, the more a business can save! Boilers can be fitted into existing shops or designed into new facilities to fulfill year-round hot-water needs.

Keep in mind, though, that heating is only one of the benefits of recycling used oils on-site. For many business owners, the total elimination of liabilities associated with shipping used oils off-site is the primary motivation to purchase.

How It Works

Modern used-oil-fired burners make it easier than ever to recycle used oils on-site. Major advances in burner technology and design features make for dependable performance and significantly lower maintenance than in the past.

Here's how it works: Oils are delivered to a burner specifically designed for their combustion. They are preheated and then mixed with compressed air to create an atomized-type fuel. Primary combustion is accomplished in the boiler combustion chamber. The resulting heat is then transferred to the incoming water from the combustion chamber and heat exchanger sections of the boiler. The heated water can then be directed to carwash cleaning equipment or, in the case of facility heating, looped to remote hydronic unit heaters or in-floor radiant heating systems.

Boilers vary in size from a midrange of approximately 350,000 Btu to a maximum of 500,000 Btu input. Basic runtime hourly consumption can be determined by dividing the Btu input by 140,000, the approximate Btu value of a typical gallon of used oil. Units are thermostatically controlled. Oil consumption will vary depending on the size of the unit, facility characteristics, temperature setting and quantity of hot water required.

Seeing a Return

ROI is determined by several variables, such as the size of the boiler, facility design and heating requirements, and can be calculated by factoring the amount of used oil available against typical heating and haul-off costs. However, the most basic factor of the equation is whether or not a business generates used oils and in what quantity.

For example, if a carwash is considering a boiler but does not generate the required quantity of waste oil required, "on-spec" lubricants (used oils that have been processed or cleaned) are available in many areas at a much lower cost than conventional fuels.

These lubricants are no longer considered “waste” or “used” oil and are excellent primary or supplementary fuels for businesses that do not produce enough used oils to justify a unit purchase. Even though these fuels are not “free,” like the waste oil collected at a fast lube facility, they are much less expensive than typical heating oils, natural gas or propane.

Typical costs for purchasing and installing a used-oil-fired boiler usually can be recouped within a couple of years of operation. Thereafter, business owners can enjoy abundant, free hot water for carwashes, truck washes, facility heating, or any other hot-water need.

Maintenance

Consistent maintenance is the key to dependable and efficient operation. This includes removal of ash from the heat exchanger, based on hours of operation and the oils being recycled. An annual tune-up of the burner is recommended and may include the cleaning or replacement of the nozzle and electrodes. Oil filters also need to be cleaned or replaced as necessary. Fuel tanks should be monitored to prevent contamination of the oil and drained of water or antifreeze as required.

Boilers should be chosen wisely. Units vary by manufacturer as to their configuration, materials, capacity and water flow. Proper sizing depends on the quantity of oils available for recycling; facility type, size and layout; and the amount of hot water needed. Units may be placed as standalone units inside existing or new facilities or can be looped into existing boiler installations.

Pricing will factor into the purchase decision but should not be the major concern since ROI is usually very favorable. Look for fuel-atomizing equipment that is designed and assembled by experienced

manufacturers. Units should be completely packaged, including onboard air compressors and metering pumps (for consistent fuel delivery regardless of oil mixture or viscosity). They also should be factory tested, including pre-firing, and safety listed by a recognized testing laboratory. Boilers should only be installed by licensed plumbing contractors.

Warm customers are happy customers. Warm employees are productive employees. Dry surroundings are safe surroundings. Car care facility operators can enjoy these benefits by harnessing the power of oil and water with a used-oil-fired boiler.

Getting oil and water to work together is environmentally green by protecting our water resources and reducing our requirements for fossil fuels. The practice also is economically green by keeping your money in your pocket!

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