

DOWNLOADABLE RESOURCES INCLUDE:

- **Waste Oil Pointers**
A guide to successfully burning waste oil in your plant.
- **Astec Burner**
User manuals and performance & setup data.
- **Nozzle Wear Memo**
A guide to identifying & replacing worn nozzles.

Call Astec's Parts Department
to purchase viscometers,
thermometers and replacement parts
for Astec Burners and Plants.

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HOT MIX INDUSTRY



Don't Let This Happen To Your Baghouse



Preparation of waste oils and
setup of the burner are critical
to the performance and
longevity of your hot mix plant.

The Hot Mix Industry is being exposed to problems associated with the increased use of waste oil because of economic pressures.

Avoid these problems at your facility by staying on top of your fuel quality and preparation.

WHAT IS WASTE OIL?

Waste oil comes from a number of sources – from used crankcase oil, industrial processes, and cooking oils. Where the oil originates affects important properties of the oil such as the heating value, chemical makeup, and consistency. These properties can have a great impact on plant components such as the drum and baghouse. The key elements in successfully running waste oil may be stated in terms of avoiding potential problems. These problems are associated with specific characteristics of the oil.

The best thing to do is always assume that your waste oil has all of the problem characteristics.

CONSISTENCY

No two loads of waste oil are the same – all of the characteristics listed below can change drastically on the next load. Just because your supplier has been consistent does not ENSURE that the supply will remain consistent.

CONTAMINATION

Waste oil is often heavily contaminated with cellulose filter fiber and other trash. These contaminants clog strainers and foul the nozzle. They must be filtered out before the oil is delivered to the burner.

RADIANT ENERGY

Waste oil contains more carbon than lighter fuels. The presence of carbon in a fuel causes the flame to give off more of its heat as radiant energy. When burned properly, waste oil is more radiant than No. 2 Fuel Oil. When burned improperly the radiation can damage plant equipment.

SULFUR CONTENT

The sulfur content of waste oil can be problematic, especially if it is in the form of sulfuric acid. Sulfuric acid is sometimes used to strip heavy metals from oils used in industrial processes.

VISCOSITY

Viscosity is often much higher than that of No. 2 Fuel Oil. Waste oil must be preheated so that the viscosity is in the appropriate range for your burner.

Maintaining the correct viscosity is the single most important factor in successfully burning waste oil.

Viscosity refers to how resistant a fluid is to flowing. When liquids that are very viscous are heated, the viscosity decreases. You can see this every day as hot AC runs and mixes very freely with aggregate yet becomes extremely viscous at ambient temperatures. You can easily measure the viscosity of your waste oil in units of Saybolt Seconds Universal (SSU) by using a simple, handheld viscometer. Your waste oil supply can and will vary from load to load. You must check the viscosity of each and every load of fuel. If viscosity is not maintained below its upper limit by keeping the temperature of the fuel going to the burner above a target temperature, fuel will not atomize properly in the burner and can even pass to the bag house unburned.



Astec Part # 004404 (Kit includes thermometer)

The viscosity in SSU (Saybolt Seconds Universal) is the number of seconds it takes the fluid to run out of the cup.

BURNER SETUP

It is essential that the burner, regardless of manufacturer, be properly set up and diligently maintained. All of the setup problems listed can result in decreased plant capacity and possible damage to plant equipment. The following are things to look for and fix.

ATOMIZING AIR PRESSURE

Low atomizing air pressure causes poor fuel atomization. Poor atomization may lead to unburned fuel collecting in the ducts or baghouse.

INSPECT FUEL NOZZLE FREQUENTLY

Debris inside the nozzle or nozzle wear will also cause poor atomization. Inspect for debris and measure for nozzle wear. The nozzle wears out long before wear becomes visible (shown below), so use the methods outlined in the Nozzle Wear memo to detect wear.



NEW NOZZLE
Notice thickness of pintle.



WORN NOZZLE
Notice edge.

PROPER SETUP OF BURNER NOSE

Improper nozzle and oil guide tube position can cause drum damage or cause your burner flame to go out. (See manufacturer's burner manuals for proper setup).

INTERNAL OIL LEAK

This is another source of poorly atomized fuel that can find its way into the baghouse.

OIL & DUST BUILDUP ON THE NOSE OR INSIDE THE BURNER

Lack of attention to this possible buildup can cause drum damage and problems keeping the burner lit.

See the burner manufacturer's published literature for more information on these maintenance items & more.