

THE PRINCIPLE OF AIR CURTAIN INCINERATION

OPERATION

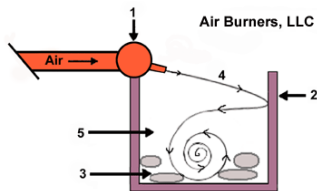
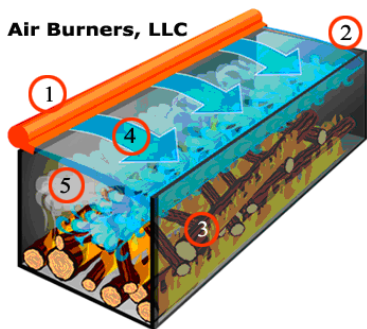
The operating principle of the air curtain within an incineration device lies in the introduction of controlled high velocity air across the upper portion of the combustion chamber in which clean wood waste is loaded. The powerful curtain of air created in this process traps unburned particles under the curtain in the high temperature zone where temperatures can reach 1,832° F (1,000° C).

The increased combustion time and turbulence result in a re-burn of the trapped particles or smoke. The escaping particulates are reduced to near their base elements. The resulting emissions from a properly operating air curtain burner will have an opacity rate below 10 percent during most steady state operations.



S-327 Firebox in Full Operation

For proper operation, the air curtain machine has to be designed to provide a curtain of air over the fire that has a mass flow and velocity that are in balance with the potential mass flow and velocity of the burning wood waste. If the curtain velocity is too high the box or trench can become over pressurized and over agitated. The higher pressure will lift the curtain and cause it to become ineffective. The over agitation will cause embers and ash to be blown out of the box or pit past the ineffective curtain. If the mass flow of the curtain is too low then the unburned particles (smoke) will penetrate the curtain on account of the high velocity of the hot gasses being generated from the burning wood.



The Principle of Air Curtain Incineration
"The Wood Waste Is The Fuel"

1. Air curtain machine manifold and nozzles directing high velocity air flow into refractory lined fire box or earthen trench.
2. Refractory lined wall as on the S-Series machines, or earthen wall as used with the T-Series trench burners.
3. Material to be burned.
4. Initial airflow forms a high velocity "curtain" over fire.
5. Continued air flow over-oxygenates fire keeping temperatures high. Higher temperatures provide a cleaner and more complete burn.

APPLICATION

The ash from typical wood waste is a very useful soil additive, and as such offers a commodity that can be marketed to plant nurseries, farms, etc. as a potting soil additive. This beneficial reuse aspect of the residual ash may be important to the overall profitability of the Air Burners System in certain applications. Recycling our resources is not only socially and politically imperative, but it often reaps the additional benefit of tax incentives or tax credits. Solid waste landfills are diminishing rapidly, and permits are difficult to secure for new sites. The Air Burners System provides an affordable and environmentally sound alternative to indiscriminate depositing of wood debris into landfills.

In the past, diseased animal carcasses were usually buried and forgotten. Little was known about the agents that caused the deadly diseases that have wiped out many herds of cattle and entire chicken farms. What is important to understand is that certain pathogens have been known to survive more than fifty years in the soil where they have been buried along with animal carcasses that perished from the disease. The most practical approach to the elimination of diseased carcasses is high temperature incineration best in the fields, so the carcasses do not need to be transported. Air Burners Air Curtain Systems are ideally suited for this task and have repeatedly been employed for that purpose with the approval of the US, Canadian and many other foreign governments.

© 2007, Air Burners, LLC. All Rights Reserved.

Air Burners, LLC

4390 Cargo Way, Palm City, FL 34990 – (772) 220-7303 – (888)-566-3900

<http://www.airburners.com/> info@airburners.com