AIR BURNERS, LLC

"Simple Fact Sheet Series"

GOVERNMENT SERVICE ENFORCEMENT

This section of our web site is designed to help regulatory authorities with understanding and developing rules for the enforcement of rules governing the operation of air curtain burners.

S-327 - Full Operation

In our opinion the absolute best way to enforce the rules is by results. The litmus test is opacity. If the unit is generating smoke in excess of 10 or 20 percent (after a one hour start-up period) then it is not being operated correctly. Some regulators have latched on to airflow citing manifold velocities and mass flows. These regulations are unfortunately flawed. Refer back to our PRINCIPLE OF OPERATIONS for an understanding of the basic operating principles.

The problem with specifying flow is that you can create a good air curtain by using either high velocity and low mass flow or by using high mass flow and low velocity. This is some of the "black art" that goes into the engineering of an air curtain. Additionally there is a limit as to how much airflow you can have for a particular size trench or box. Too much air and you destroy the curtain by over pressurizing the fire area and you over-agitate the ash causing a high release of embers and ash. If you pick one manufacturer's airflow specs you may preclude a better development and possibly a better machine later on. As an example our airflow specs changed significantly just four years ago and they are about to change again as new technology has become available.

Ultimately our goals are to provide you the best performing machine, the best price and the best quality.

Our suggestion is: "measure the results not the machine."

What should the operation look like?

With the machine set up the actual burning operation are almost identical for Fire Box or Trench Burner.

1. Load pit with finer materials easily burned material such as smaller branches, small logs, etc
2. Load the pit to approximately half full.
3. Pour and accelerant like diesel fuel on the fine material.
4. Load some heavier logs to just under the manifold level.
5. Light the accelerant, light from the bottom you want the fire to burn up, not down.
6. Once the fire has fully engaged (usually 15-20 minutes) turn the air on lowest setting.
7. Watch you don't blow the fire out with too much air.
8. As the fire progresses increase the air to normal operating.
9. For the first hour load very slowly to allow the fire to burn through, overloading smothers the fire, traps unburned material low in the pit, increases smoke and slows thru-put.
10. The amount to be loaded will increase with each hour of burn as the coal base builds and gets hotter. They key to high thru-put is "not to get ahead of the fire."
11. After your last load allow the fire to burn down decreasing the air as smoke begins to appear.

GOVERNMENT SERVICE — ENFORCEMENT (Continued)

Why would the opacity be high?

The opacity can change for a variety or reason, listed are some of the most common.

Getting ahead of the fire is the most common problem. It simply means the operator has loaded the machine too quickly. The result is some of the material has become insulated towards the middle of the burn pile. As this material is starved for oxygen the fire soon cools and subsequent loads do not ignite very quickly again causing more smoke. It is not uncommon in these situations to see strong fire around the sides, which initially gives the impression all is burning well. The fix is to stop loading and let the fire burn down and catch up. Once the fire has caught up start loading with finer materials this will bring the temperature up quickly. Slowly add some big material. Once all this is engulfed the operator is back to a steady loading routine.

Overloading the pit. Overloading the pit or box will break the air curtain allowing smoke to escape. The fix is to let the fire burn down and keep the loads below the curtain.

Loading dense materials. Loading dense materials such as leaves, pine needles, grass etc. will smother the fire. Dense materials can be loaded but they have to be introduced slowly and spread out across the pit. The fix is to let it burn down or try and stir the fire with a log grappled in the excavator bucket.

Fire too low. Once the fire has burned down below half way the air usually needs to be turned down. On a low fire full air tends to over agitate and cause more ash suspension allowing some to escape. The fix is to start decreasing fan speed until the unit clears up.

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