

Lessons Learned: Air Curtain Burners

Considering an Air Curtain Burner? Some Lessons from the Field

The following is excerpted from conversations in an online workspace for members of the Fire Networks.

- ▶ Check with state and local fire and air quality regulatory agencies before investing in a burner. One member was unable to get their air curtain burner up and running for nearly a year because the state's department of environmental quality was unable to figure out how to permit it. You may need to educate and negotiate to avoid an inappropriate categorization of the burner. A member found that the permit to operate the burner could run upwards of \$20,000—in a location where burning the material in a pile (which is riskier and produces more smoke) can be done with a free permit that can be gotten in a day. Lesson: get your permit before purchase.
- ▶ It may take some time to learn what a "full" burn box looks like—which is important, since overloading causes less efficient burning, and can break the air curtain and allow smoke and embers to escape.
- ▶ Burning should be done when winds are fairly still. One member found that they were unable to burn on days where winds exceed about 10 mph, mainly due to erratic winds breaking the air curtain.
- ▶ Having a vented cover is recommended. The cover can be used at the end of the day, or in case winds pick up unexpectedly. It is also a good practice to clear a large perimeter around the burner, in case some embers do escape.
- ▶ Start-up time is pretty rapid (about 20 minutes), but you need to allow for adequate burn down time at the end of the day. For example, allow a couple hours closely supervised, then cover the box for a night with a screened/vented cover.

The Fire Networks are part of *Promoting Ecosystem Resilience and Fire Adapted Communities Together*, a cooperative agreement between The Nature Conservancy, USDA Forest Service and agencies of the Department of the Interior. For more information about PERFACT, contact Marek Smith at marek_smith@tnc.org.

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The unit pictured has been used to burn somewhere between 60 and 100 yards of material per day; this varies with the kind of material being loaded, and may increase with more experience. The ash produced is minimal. Nine days of burning yielded about a cubic yard of ash.



Pine needles can be burned if they are mixed in as a layer with other material. Large quantities will need to be stirred to be consumed. Alternately, smaller quantities of pine needles can be burned in compostable bags, which keeps them from compacting and eliminates the need for stirring.

For more about air curtain burners:

Susan Zahn (2005). "The Use of Air Curtain Destructors for Fuel Reduction and Disposal," *USDA Forest Service Fire Management Tech Tips*.

C. Andrew Miller & Paul M. Lemieux (2007). "Emissions from the Burning of Vegetative Debris in Air Curtain Destructors," *Journal of the Air & Waste Management Association*, 57(8):959-967.

Disclaimer: Always read and follow all instructions in the manual for the unit you select.