

# El Diablo Grande

Yet another whitepaper on an alcohol stove by Ian MacLeod



Come on ... you can say so. It's okay to admit you knew ahead. I couldn't sit still with El Diablo and his 1:35 second boil times. I had to do something on a grander scale and I did.

I simply up-sized El Diablo and did something a little different with the burner cup this time. I short: I forgot the canted air intake holes and used a standard 2-row CAT arrangement. I also upsized everything.

I used a powdered milk tin (900g) and a Tuna Fish Tin (173g) and a lot of patience because I am not a metal worker!

*El Diablo Grande is 60% larger all round than his smaller but older brother, El Diablo I*



I started with milk and tuna tins.

I use the plastic lid on the bottom of the finished cooker to sit it evenly on the kitchen table. It keeps the metal from scratching my wife's tables. Important!!!

*Prepared for destruction ... or is it construction.*



I cut out the center of the bottom of the milk tin. This was no easy feat and took me over an hour with a hacksaw blade and a hell of a lot of patience.

I threw out the piece I cut out as it is of no use.

*This is no easy task unless you are a really mechanical kind of guy.*



*I inserted my CAT (Turbo Tuna Surprise) in the hole. The fringe you see is aluminium stripping from a soda tin I used to fill a slightly oversized hole.*

In the above picture the stripping pretty well covers the top row of holes, but this makes no noticeable difference as I have tried it both ways. Fact is, this unit gets plenty of air for the flame I want. The air intake holes on the bottom are huge, but still not 100%.



*You can see the bottom of the Turbo Tuna Surprise protruding into the space below.*

These holes I drilled were worthless. I had to cut huge holes later to provide sufficient airflow. Still not *optimal* airflow, I have *acceptable* airflow. See the **huge holes** below.



*I have the Turbo Tuna mounted here.*



*This is a 120mm Computer Fan*

The fan provides too much air, so I have found that a single 9V battery is sufficient. With two batteries I get a little too much lift with the flame and efficiency drops!



*This is what you've come here for. You know it and so do I. You've been dying to see this photo so here it is. The only fully defined cyclonic alcohol stove in the world. Hail El Diablo Grande! Just wait till you see the boil times. **NO, THIS ISN'T PHOTOSHOP!** Fact is, it's my Blackberry 9000 Storm. Great pics for a phone. I want a digital camera!*

*Here is the other half of what you've come here for:*

Water quantity: 250ml (about 1 cup)  
Water temperature: 38F (about 3.3C)  
Pot material: Thick walled stainless steel (not the most conductive)  
Pot cover: Glass rimmed with metal. (Lets me see inside as it cooks)  
Fuel used: 95% Isopropyl Alcohol. (contents rated at  $\pm 5\%$ )  
Quantity Fuel used: 25ml. (measured with a syringe)  
Ambient temperature: 36F (about 2C)  
Warm-up Time permitted: None. This baby needs NO WARMUP TIME.

**Soft boil time:** **1:10** For soft boil, bubbles regularly jumping off the bottom of the pot, this is a very impressive boil time. *It beats El Diablo I by nearly 18 seconds!*

**Hard boil time:** **1:19** For hard boil, water rolling and tumbling on the surface, this is my best time yet. *It beats El Diablo I by over 10 seconds!*

**Burn Time:** **4:57** Considering the heat generated, this is a very good burn duration. El Diablo Grande is as at home cooking without the fan as with. Without the fan it generates a clean and even heat perfect for frying, Dutch oven, or simmering if you use a round-pod of 5 rows rather than 2 as I have done.



*I'll make a larger round-pod for it.*

A burning giant slowly runs out of fuel. The flame grows more orange as we go and eventually races around the bottom of the burner cup and dies.

The El Diablo Grande is as at home with 70% as 95% Isopropyl or Ethyl Alcohol. It burns Whiskey too!





*Adios my friends from El Diablo Grande, the bigger, younger brother to El Diablo I*

**My summary:** It kicks butt. Never hits the ground but stays flying high from start to finish. Fuel-efficient, hot, super easy to light, no warm-up time, not very heavy, all steel construction. One of Don's round-pods on top and away you go!