

Woodgas Camp Stoves

RENEWABLE ENERGY TRAINING CENTER

MORRISVILLE STATE COLLEGE



<http://retc.morrisville.edu>

Tools & supplies for making a woodgas camp stove



1

Carefully punch 12 to 15 vent/draft holes.



2



3

Mark a reference line about 1 inch from top for burner air inlets.



Punch and expand holes.

4

10 holes: 3/16" diam. (0.5 cm), evenly spaced*

Alternate burner designs: Cut slits or punch holes.



5

Remove top.



6

Punch air vent holes in the tin can.



7

Assemble stove: nest cans by seating soda can snugly in/on bottom. The stove is now complete!

*You can use these bars to mark 10 evenly-spaced holes around the perimeter of the soda can.

Scale Bar = 1"

Using the Woodgas Camp Stove



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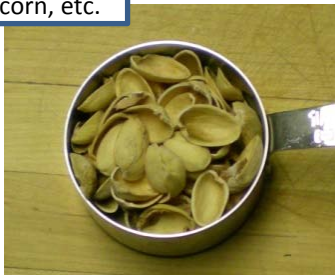
8

Select a fuel: wood pellets, chips, twigs, nut shells, corn, etc.



9

Load the fuel into the soda can (maximum level up to burner air inlet ports).



11

Soak 6-8 pellets in starter gel/oil and load them on **top** of the fuel in the soda can.



10

Starter gel/lamp oil (smokeless, non-explosive)



12

Ignition source/lighter – light the **top** of the fuel in soda can.



13



Woodgas production & combustion (shortly after ignition)



14

Steps 12-17: Placing the stove in a gallon can with sand or gravel in the bottom serves as a windbreak and safety measure (vent holes optional). Wire mesh can support a pot or pan to cook, boil water, etc.

Test it out. Boil some water, and enjoy a hot beverage!



15



16

Charcoal burn (after woodgas combustion ends**)



17

Make good use of the hot charcoal embers...toast some marshmallows!



CAUTION: Although these camp stoves generally burn cleanly and efficiently, if they are not fired properly, they can produce **carbon monoxide** (CO) gas and some smoke (tars). Carbon monoxide is a significantly toxic gas, but it is difficult to detect because it is colorless, odorless, tasteless, and non-irritating. Therefore, stoves should only be used outdoors with adequate ventilation. ****After woodgas flames go out, there is typically a small amount of smoke (and potentially CO) produced for 30-60 seconds while the stove transitions to charcoal burning. New cans may also produce unpleasant fumes during the first firing. These stoves are not toys! Adult supervision required. Never leave any fire unattended.**

Gasification Reaction Zones in the Woodgas Camp Stove "Inverted Downdraft Gasifier"

