

**Pyrolysis**

**Goal:** *To demonstrate and understand the physics of fire – solid fuel is gasified with the application of heat and the gas itself burns*

**Fire intensity:** *Similar to a small fire without a flue*

**Space Requirements**

* Outdoor recommended, unless fume hood available
  + Excellent outside demo outside unless wind is strong
  + If inside, must be under a fume hood
* Solid table
* Participants 5ft back from table

**Supplies**

* Camping stove & fuel
* Ring stand with clamp
* Distillation flask/flask with small outlet
* Wood shavings & funnel
* Lighter
* Tar catchment beaker

**Personal Protective Equipment**

* Protective goggles
* Nomex lab coat or jacket
* Leather gloves
* Long cotton/nomex pants
* Hard hat
* Fire extinguisher

**Standard Operating Procedure**

* Make sure distillation flask is empty of charred fuel
* Check distillation flask for any cracks/chips
* Make sure there is sufficient fuel for the demo (fuel canister not empty)
* Fill flask ½ way with wood shavings and cap with stopper
* Put on all PPE described above
* Set up flask on ring stand with stove underneath
  + Be sure there is no risk of flask tipping
    - Set up on flat, even surface
    - Make sure flask is not pulling ring stand over in a direction that is less stable
* Place drip catcher (small flask) directly under distillation tube (where pyrolyte will be exiting)
* Set up stove underneath flask
* Light stove
* Proceed with demo, making sure nobody gets too close
  + GLASS IS VERY HOT!
* When done, turn off stove, but leave it set up until it cools off naturally
* Empty out used fuel, and store back into padded protective box