

Burning Money

History:

Greenbacks have been around since 1861. The first paper money ever was made by the Tang and Song dynasties of China in the 7th century. Money nowadays is made of 25% cotton and 75% linen^[1] among other things, making it more durable than just plain paper and also harder to burn.

Significance:

Boiling points and combustion chemistry are both complex and useful tools. We use combustion for many things from cooking to explosives and weapons. Combustion takes 3 things: a fuel, oxygen, and a heat or ignition source (in our case a lighter).

How it works:

You soak a dollar bill in a 50/50 solution of isopropyl alcohol and water. You burn the soaked money which actually only combusts the alcohol and boils off some water (b.p. of water is 212°F/ 100°C). Paper money should combust at around 765° F/ 407°C^[2] (ignition temperature of cotton). The flame won't last long enough or get hot enough to burn the money so the alcohol fuel gets burned up and most of the water boiled off leaving a slightly damp dollar bill.

Materials:

1. Dollar bill
2. Isopropyl alcohol
3. Water
4. Tongs
5. 2 beakers
6. Lighter

Procedure:

1. Make 50/50 solution of isopropyl alcohol and with enough to soak a dollar bill in a large beaker.
2. Using tongs submerge dollar in solution for several seconds.
3. Take and try to get some drips off. Use tongs to bring to lighter flame, wait for flames to go out.
4. Once flames are almost gone make sure and blow off dollar a little (just to be safe) and hand it back.

References:

¹ <http://blog.usa.gov/post/14974906003/what-is-money-made-out-of>

² Scharnow, R.: Codiertes Handbuch der Güter des Seetransports, VE Kombinat
Seeverkehr und Hafenwirtschaft - Deutfracht/Seereederei - Ingenieurhochschule für
Seefahrt Warnemünde/Wustrow, Rostock 1986, Bd. 1: Stückgut A-K, Bd. 2: Stückgut L-
Z, Bd. 3: Spezialgut