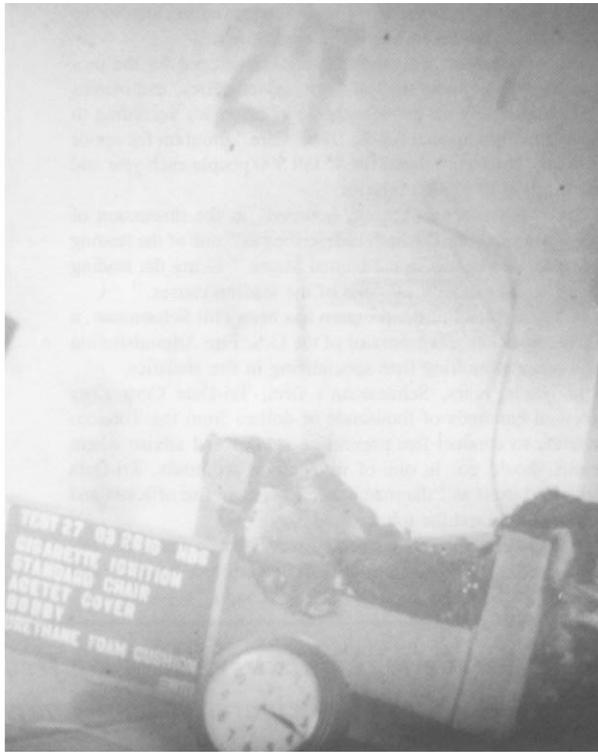


What I learned about cigarette fires



Cigarette placed on armchair smoldered for a long time before igniting

A cigarette dropped on a sofa or easy chair may smolder at 700 degrees © for 30 to 60 minutes, according to fire experts, which is more than enough time to ignite many types of furnishings.

Cigarettes tend to cause smoldering fires, which can transition to flaming fires

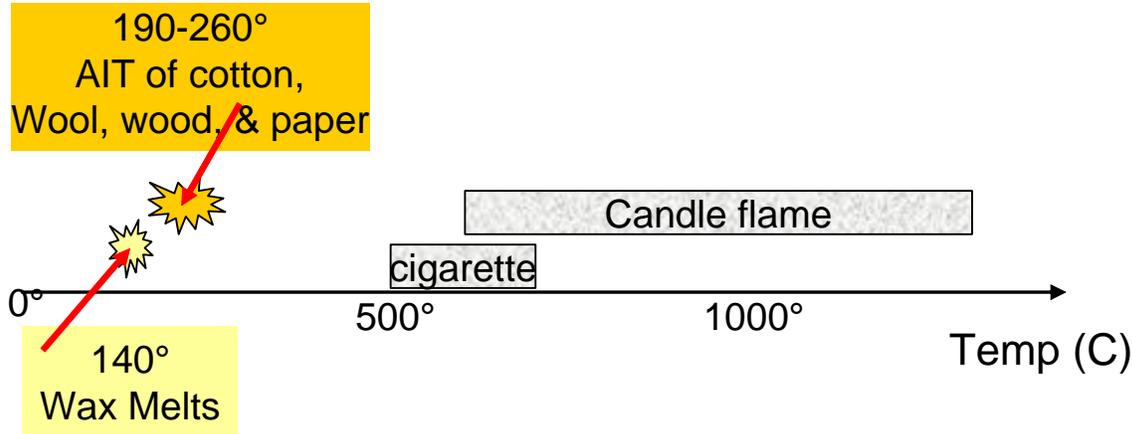
Source: www.aliciapatterson.org/APF1004/Levin/Levin.html

Just an interesting image(s)



Information about candles and cigarettes

- A free-burning Cigarette has a temperature of 930-1300 deg F (500-700 deg C)
- A cigarette lying on a surface has a lower temp



- Open Flames have a temperature of (1000-2300 deg C) (candles)
- Candle Flames: 600 deg C to 1400 deg C (<http://webexhibits.org/causesofcolor/3B.html>)
- Peak Candle Temp ~1400 deg C (<http://www.doctorfire.com/flametmp.html>)
- Wax melts at 120-167 deg F (49-75 deg C)
- Cotton ignites at 250 dec C
- Wool AIT = 205-230 deg C (Ignition Handbook)
- Paper ignites at 218-246 deg C
- Wood ignites at 190 - 260 deg C

Three elements are necessary for a cigarette fire to occur:

1. Contact between the cigarette and the potential fuel source
2. Susceptibility of the fuel source to ignition
3. Propensity of the cigarette to ignite fires when put in this position.

25.4.5 Smoking Materials. Modern upholstery fabrics and materials, by their chemical nature, are generally difficult to ignite with a cigarette. Ignition may occur if a lighted cigarette is buried in paper, tissues, or other debris, or if the seat material comes into contact with open flame. Urethane foam seating burns readily, once ignited with a flame, and adds substantially to the intensity of a vehicle fire.

Cigarette-initiated fires account for only 10% of residential fires (which is a larger percent than candle-initiated fires)

25 to 33 percent of upholstered furniture fires are caused by small flames, the rest by cigarettes.

September 18, 2002:

CAMP PENDLETON (CA)- A wildfire that scorched 247 acres on the base Monday afternoon was started by a cigarette butt tossed by a passing motorist, fire investigators said.

The fire burned for about four hours along Vandegrift Boulevard, near the airfield, before firefighters got it under control. Scott Simpson, an investigator with the Camp Pendleton Fire Department, said there are thousands of cigarette butts on the ground in that area, but he was able to find the specific one that ignited Monday's fire. "Burn patterns helped indicate the point of origin," Simpson said

Candle Burn





<-Beading seen on copper wire, from auto fire

The effects of stray current are usually unmistakable. This is the remnant of a zinc anode attached to a bonding system that was subjected to a full twelve volts, leaving an obvious burn pattern. The zinc did its job and the problem was caught in time before serious damage occurred. ->



< - TV Fire

Christmas Tree Fire: ->



Opinion:

A cigarette did not cause this fire

Support:

- No cigarette butt was found in the debris. There is little information on the web about whether the butts even survive the fire, however, the Camp Pendleton fire burned for much longer than ours and they found several butts, including the one that caused it.
- Homeowner was only gone for 30 minutes, and sometimes it can take longer for a cigarette to smolder into a fire. Plus, he claims to use ashtrays
- Electrical fires are more common than cigarette fires.
- The fact that the wire from the laptop power adapter to the power strip is severed, points strongly to an electrical arc (however, this could have been caused by the fire, instead of the arc causing the fire)
- We're going to be getting more information about electrical fires in class

Additional resources:

<http://www.firesafety.gov/directory/public/electrical.shtm>

http://www.interfire.org/res_file/patterns.asp

<http://www.interfire.org/features/burnpatterns.asp>