

## FLUORESCENT LIGHT BALLAST HAZARDS

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By Frank Montagna

We are often called to homes or businesses for electrical odors. A common source of these odors is the fluorescent light ballast. When called to such an incident, you typically will find an electrical odor or a haze of smoke. Overheating ballasts give off a distinctive odor; with experience, you will learn to easily recognize the odor at subsequent incidents. If there is only one fluorescent light present, it will be easy to identify the offending fixture. Unfortunately, that is not usually the case. It is not uncommon for there to be several such lights in a residence and dozens or more in commercial occupancies.

Overheating ballasts often exhibit symptoms. They may cause the bulb to flicker, shine, dim, or not work at all. Sometimes, smoke stains can be seen around the fixture. A light exhibiting such symptoms should be considered suspect and examined. A further test would be to check for heat from the ballast. Ballasts usually run hot, about 140 degrees F, but if one is so hot that you can't keep your hands on it, it is likely the culprit.

When faced with numerous fluorescent lights, or lights that are attached to high ceilings, use a thermal imaging camera to quickly spot the overheating ballast, facilitating the job of identifying the source of the odor.

Once you identify the offending light, shut it off. Killing the power to the light fixture will stop the heating, but your job is not over yet. The ballast will heat up again if someone turns the switch on after you leave. You should disassemble the fixture, expose the ballast, and disconnect the wires leading to it. An overheating ballast can become hot enough to ignite combustible ceiling tiles or any other combustible it contacts. Check behind the fixture for fire extension.

Ballasts contain a transformer and a small capacitor. In some ballasts, both are embedded in pitch, which holds them in place, lowers their operating temperature, and reduces hum. This pitch when heated gives off an electrical odor. If the heating continues, the pitch can liquefy and drip from the light fixture. If heating has progressed to a high enough temperature, the leaking pitch can ignite and drip fire down onto the floor and items stored below. When checking for heat or disconnecting wires, be careful that you do not cause hot melted pitch to spill onto your hands.

The capacitor contains a small amount of dielectric fluid, which in older lights may contain PCBs, a known carcinogen. Gloves will protect you from burns as well as PCB contamination. PCBs when heated may be released into the air. This poses a health hazard to responding firefighters and occupants; thus, prudence dictates SCBA usage at these incidents as you will not know if PCBs are present or not.

The overheated ballast may seem like a "routine" emergency, but remember: There are no "routine" responses.

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