



R2 Focus Materials (FM) Training Presentation

What are Focus Materials?

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🧠 Focus Materials are defined by R2 as

- CRTs*, CRT Glass*
- Batteries
- Mercury containing equipment (e.g., fluorescent tubes, thermostats*, thermometers*)
- Polychlorinated Biphenyls (PCBs)*
- Circuit Boards or anything containing a circuit board (printers, mice, keyboards, etc.)
- *Not Accepted Material at Exit (Non-Conforming Product)

CRTs

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- 💡 CRT stands for cathode ray tube. The CRT shoots one or more beams of electrons to strike specific points on the surface of phosphors, making those phosphors glow.
- 💡 Lead is used in CRTs to protect users from potentially harmful exposure to x-rays. The lead in CRTs is bound in a glass matrix as lead oxide and is stable and immobile. Breaking or crushing a CRT can release lead and cadmium dust.



Alkaline Batteries

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- 💡 Alkaline batteries contain zinc and manganese dioxide. Potassium hydroxide electrolyte, a strong alkali, is contained within the cells of alkaline batteries.
- 💡 **Typical Size/Shape** - (AAA, AA, C, D and 9 volt)



Lithium-ion Batteries

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- 💡 Rechargeable
- 💡 Lithium-ion batteries contain flammable electrolytes, which when shorted or overheated can ignite or explode.
- 💡 An average laptop battery contains the same amount of energy as 30,000 firecrackers when exploding.
- 💡 Found in laptops, cell phones, tablets, cameras and other rechargeable items.

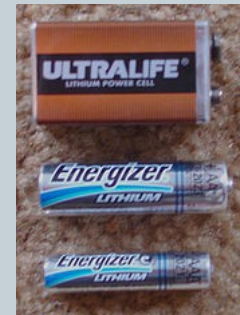


Lithium Batteries

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- 💡 Non-rechargeable (primary cell)
- 💡 Lithium batteries contain the lithium, a metal which is reactive with water, and may cause serious fires.
- 💡 Found on circuit boards and consumer electronics.

Found on circuit boards



Lead Acid Batteries

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- 💡 Lead acid batteries contain lead and highly corrosive sulfuric acid electrolyte solution.
- 💡 Found in UPS, Controllers, Car Batteries, Specialized Equipment



Ni-Cad Batteries

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- 🔊 Nickel-cadmium (NiCad) batteries contain cadmium, a metal that is toxic to humans when inhaled or ingested. Ni-Cad batteries typically contain 10-15% cadmium per cell.
- 🔊 Found in cell phones, laptops, other rechargeable appliances



Lamps and Mercury-Containing Equipment

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- Fluorescent lamps and tubes: found in lighting, laptops, flat panel monitors and televisions
- Compact fluorescents, including low mercury lamps.
- High Intensity Discharge (HID) Lamps: Metal halide lamps, such as floodlights for large indoor and outdoor areas and gymnasiums.
- Sodium lamps, such as those sometimes used as security lighting and outdoor floodlights.
- Mercury-containing equipment includes thermostats, thermometers, barometers, etc.

Mercury Containing Devices

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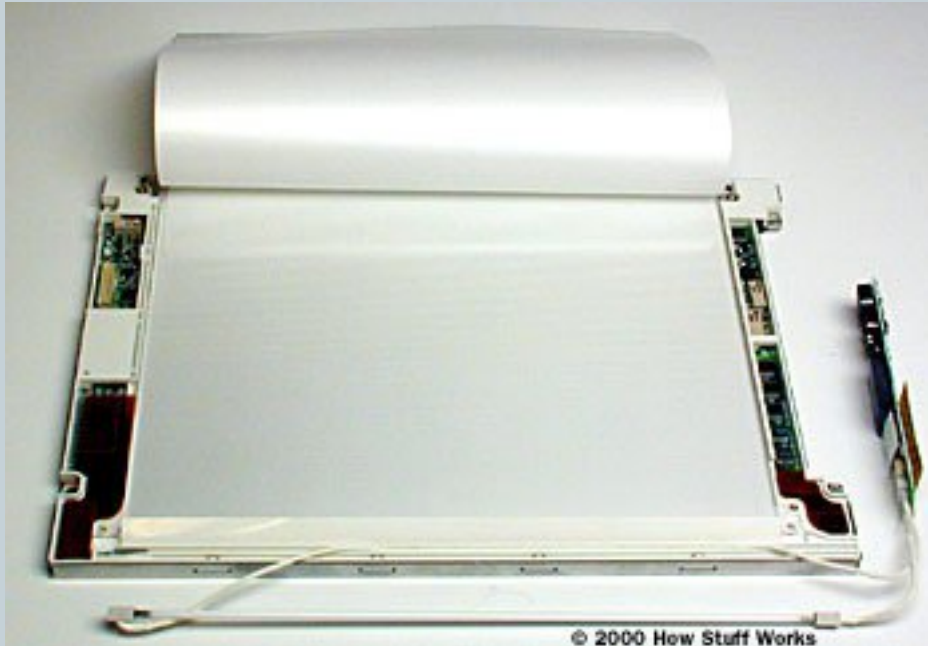
- 💡 All fluorescent lamps and tubes are considered hazardous because they contain mercury. Mercury vapors from broken lamps or tubes can be absorbed through the lungs into the bloodstream. Examples include;
- 💡 Fluorescent lamps and tubes- found in lighting applications.



Mercury Containing Devices

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- 💡 Fluorescent lamps and tubes are also found in laptops and flat panel monitors.



Mercury Containing Devices

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- 💡 Fluorescent tubes are also found in flat screen televisions.



Mercury Containing Devices

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- ☛ Mercury is also found thermostats, thermometers, and barometers.



PCB Capacitors and Ballasts

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- 💡 PCB's (polychlorinated biphenyls) are contained in electrical transformers and capacitors in televisions, telephone cabinets and fluorescent light ballasts manufactured prior to 1980.
- 💡 PCBs have been demonstrated to cause cancer, as well as a variety of other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system.

PCB Capacitors and Ballasts

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- The Toxic Substances Control Act (TSCA), passed by the Congress in 1979, banned the manufacture and use of PCBs. Material containing transformers and capacitors manufactured prior to 1980, should be inspected and potentially PCB containing material will be removed, labeled and stored appropriately.
- If it does not say “NO PCBs” – you must assume it has PCBs.

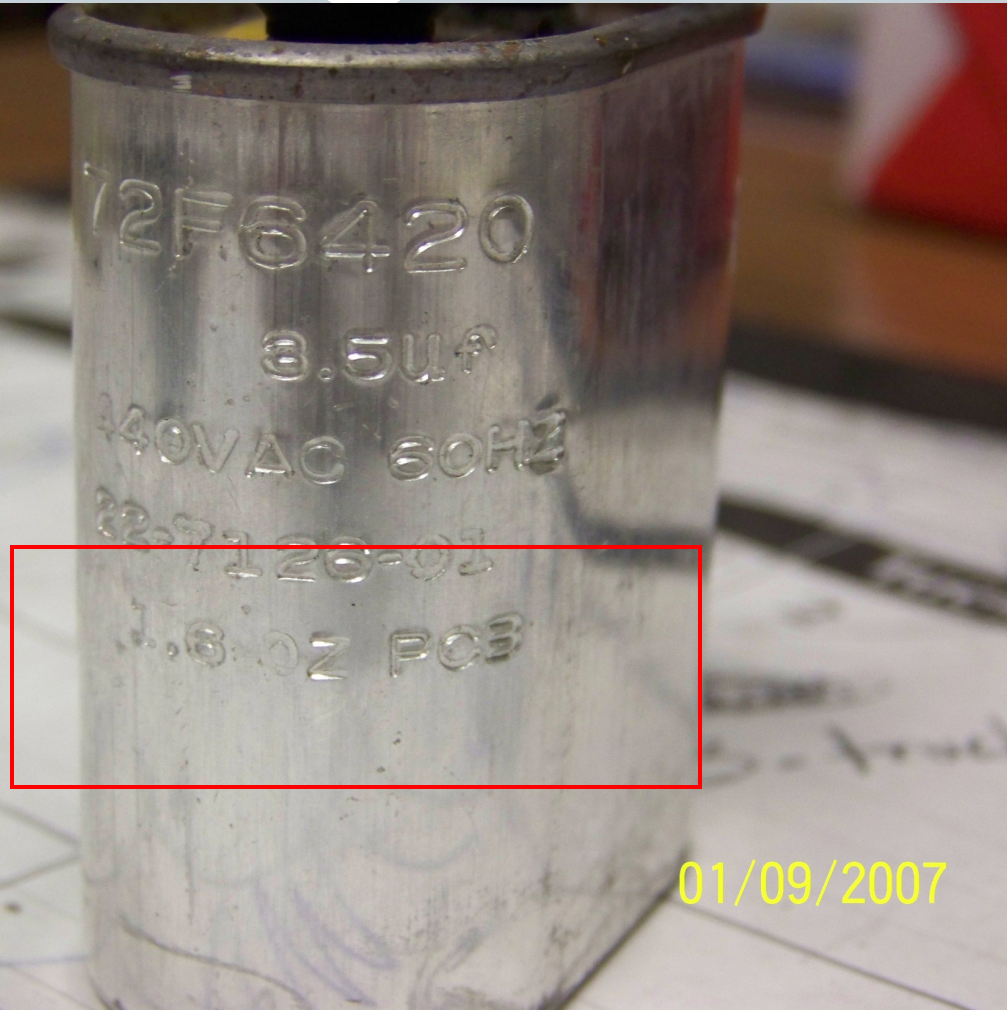
Non-PCB Capacitor

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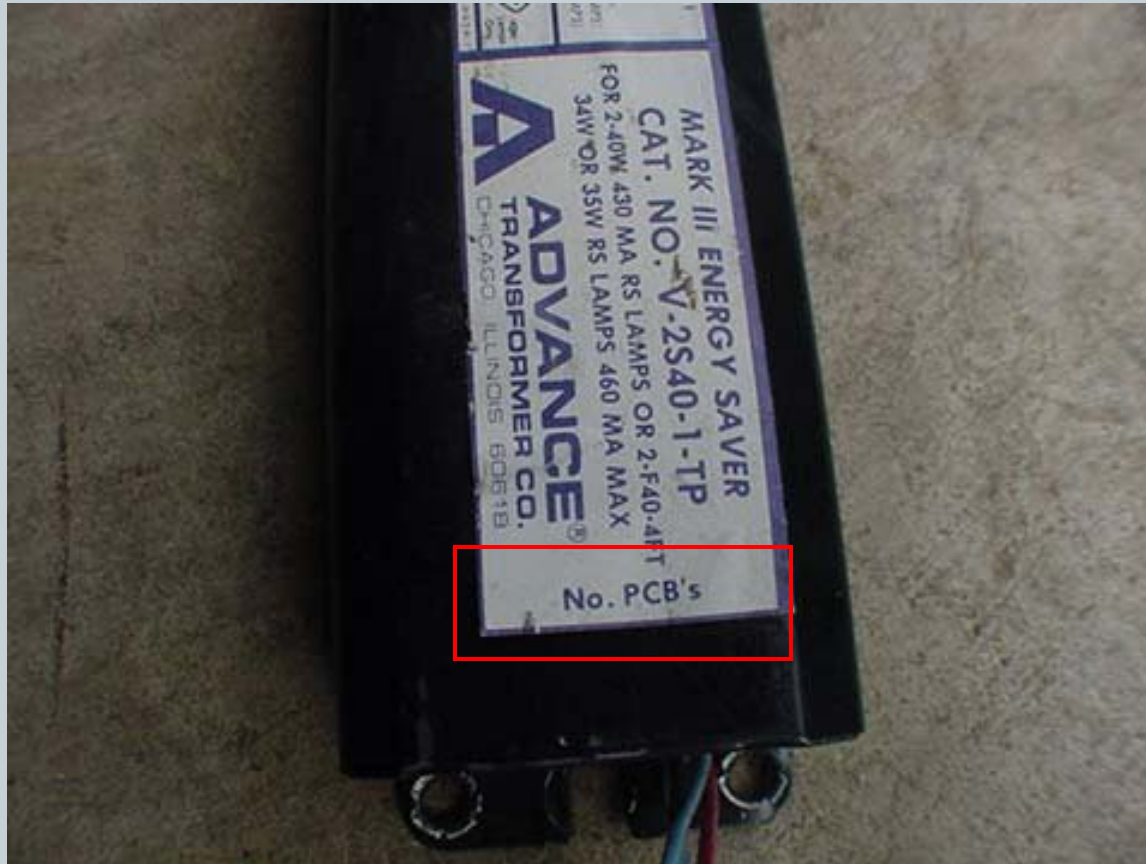
PCB Capacitor

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Non-PCB Ballast

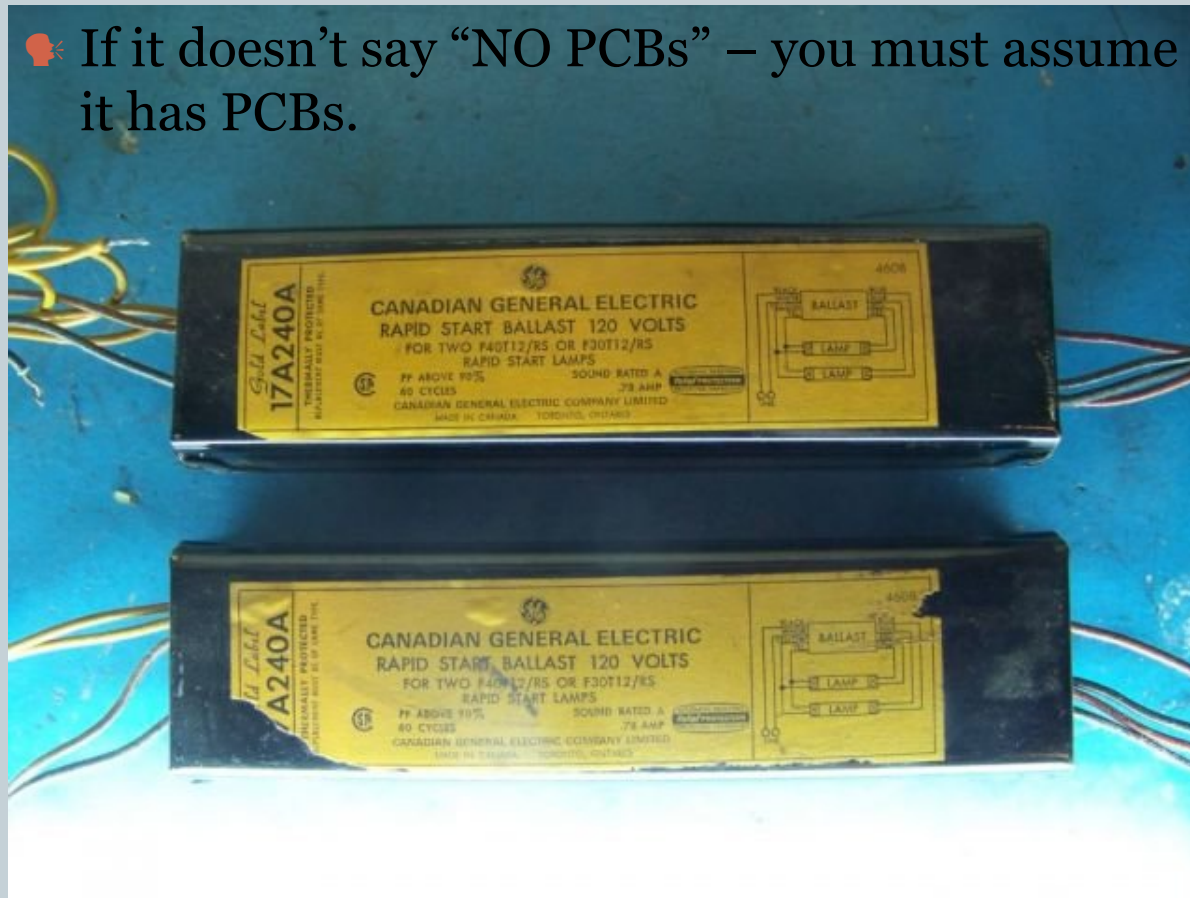
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PCB Ballast

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💡 If it doesn't say "NO PCBs" – you must assume it has PCBs.



Circuit Boards

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- 💡 Circuit boards are sheets made of fiberglass, plastic, or other material on to which resistors, capacitors, inductors, transformers, ICs and other parts are mounted with lead or unleaded solder to create electrical circuits.



Circuit Boards w/ mercury switches

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- ☛ Mercury relays and switches contain mercury, which is a toxic heavy metal. Mercury relays are commonly used in switching equipment.



Circuit Boards w/mercury switches

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- ☛ Mercury relays have either a circular or a rectangular base. The ones with a rectangular base have prongs on either the bottom or the other side of the relay.

☛ Identification Labels on the Switch

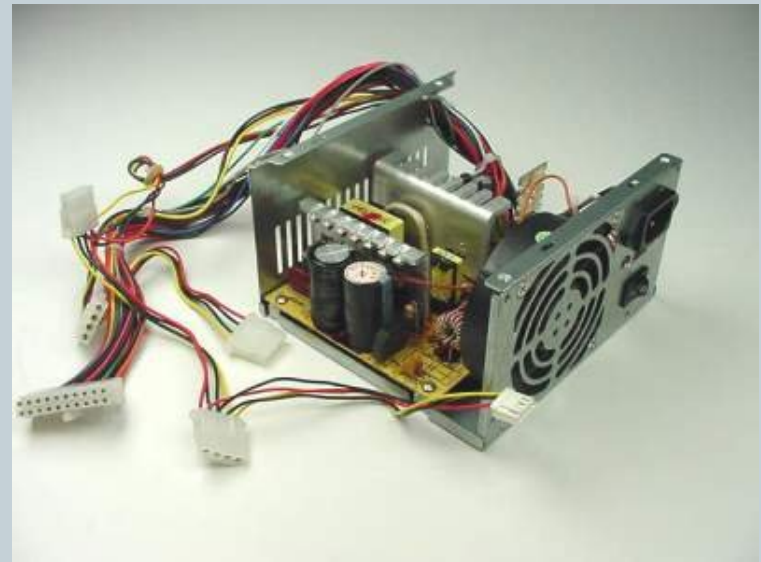
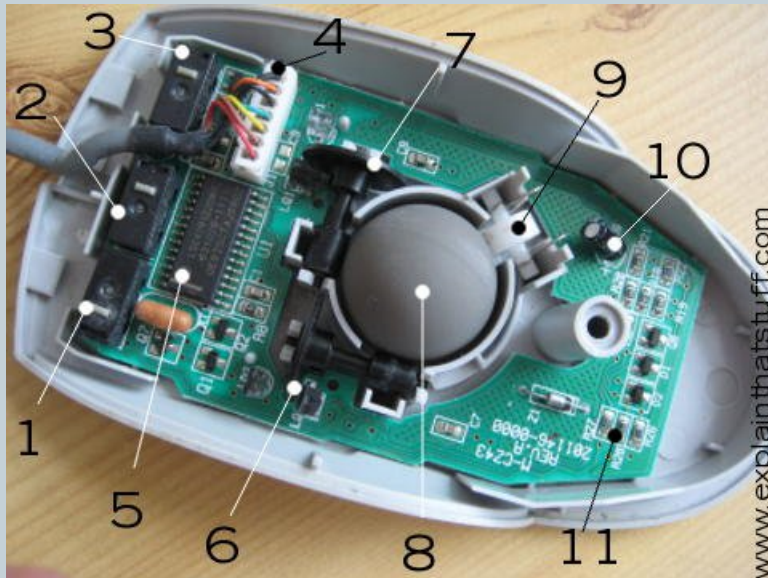
- ☛ UP
- ☛ Danger, Do Not Open
- ☛ High Pressure, Do Not Open
- ☛ An arrow pointing up

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Material containing Circuit Boards

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- 🔦 Circuit boards are found in many electronics including printers, mice, keyboards, power supplies, AC adapters, etc.



Focus Material Requirements

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- 💡 If you are unsure how to handle a Focus Material, contact your Supervisor.
- 💡 Questions?