



### Fact Sheet: Benzo[a]pyrene, a PAH (Polycyclic/Polynuclear Aromatic Hydrocarbon)

Benzo[a]pyrene is one of many Polynuclear Aromatic Hydrocarbon (PAHs). Some of this information is about benzo[a]pyrene specifically, and some is generally true about PAHs.

**Sources:** PAHs come from burning something. They are found in smoke (including cigarette smoke), as well as ash, tar, asphalt, creosote, and waste from any industrial process that involves fire or burning. Grilling meat and vegetables also creates PAHs. PAHs enter the air mostly as releases from forest fires, burning coal, automobile exhaust, and volcanoes.

**Physical Properties:** PAHs go into the air when they are created, then they settle into soil and water. Some PAHs can volatilize easily (evaporate and go into the air) even after they have settled, but benzo[a]pyrene does *not* volatilize easily. It tends to stick to soil.

**Exposures:** Mostly from breathing in smoke, fumes, and car exhaust. Some exposure from ingesting (eating or drinking) contaminated soil or water. PAH levels are generally higher in cities than in rural areas. People who work around sources of PAHs have higher exposure. Contaminated soil can also blow in the wind, and be carried from place to place on people's shoes and clothes. PAHs can accumulate in fish and shellfish in a way that concentrates the PAHs.

**Health Effects:** Exposure to benzo[a]pyrene can cause cancer, as well as reproductive and developmental difficulties.



## Check Your Answers: Benzo[a]pyrene

Compare your ratings to these ones by Jim Luker, an Environmental Professional. (On a scale of 1 to 10, the least risky exposure is a 1, and the most risky is a 10.)

Type of Exposure	Risk	An environmental professional speaks:
Living or working in a building where contaminants are present in the air	9	Exposure is very high if you breathe PAHs close to their source.  Tip: If you smell smoke or something burning, that may mean PAHs. Identify the source. If PAHs are coming from outside, close windows that face the source. If an old furnace is the cause, replace it. Use home air filters, especially in bedrooms. If exposed at work, ask your employer about testing the air.
Working in or playing in contaminated dirt	8	Benzo[a]pyrene sticks to soil. You can be exposed by touching soil, or eating with dirty hands. Small children are most vulnerable.  Tip: Wear gloves if working in contaminated soil. Wash hands well before eating. Keep children away from contaminated soil.
Ingesting (drinking or cooking with) contaminated water	7-8	Ingesting PAHs can cause cancer and reproductive problems.  Tip: Avoid drinking water with PAHs. When you grill food over flame, don't char or blacken the food. Avoid fish and seafood from contaminated waters.
Showering in contaminated water	7	Benzo[a]pyrene does not volatilize, so you probably won't breathe it while showering unless contamination is high. But skin contact may lead to rashes and possible skin tumors.  Tip: Have your water tested if you suspect it may be impacted.
Swimming or wading in contaminated water	7	This leads to similar types of exposure as showering.  Tip: Avoid touching water that has high levels of PAHs.
Using contaminated water for cleaning or laundry	3	Benzo[a]pyrene does not easily volatilize. It might release vapors into the building if concentrations are very high.  Tip: Make sure your laundry room is well-ventilated.
Living or working in a building where the soil beneath the building is contaminated	3	Benzo[a]pyrene does not easily volatilize. Unless contaminated soil itself is blown into the air as dust, you probably won't inhale it.  Tip: Avoid directly breathing or touching contaminated dust or soil.
Eating food grown in contaminated soil or with contaminated water	3	PAHs don't accumulate much inside plants unless levels are very high in the soil or water. You are more at risk from contaminated soil on the surface of the plant or fruit.  Tip: Wash your food and hands well with soap and water.