**Gasoline Engine Exhaust**

**Why am I being warned about exposure to gasoline engine exhaust?**

- Many chemicals in gasoline engine exhaust are on the Proposition 65 list because they can cause cancer and/or birth defects or other reproductive harm. Exposure to them may increase your risk for these effects.
- Gasoline engine exhaust (condensates/extracts), which is essentially the sooty residue of gasoline engine exhaust, is also on the Proposition 65 list because it can cause cancer.
- Proposition 65 requires businesses to determine if they must provide a warning about exposures to listed chemicals.

**What is gasoline engine exhaust?**

- Gasoline engine exhaust is a mixture of many chemicals. It is produced when engines, including those in cars, trucks, boats, and motorized equipment, burn gasoline.
- These chemicals include benzene, formaldehyde, carbon monoxide, ethylbenzene, and 1,3-butadiene.
- The sooty residue of gasoline engine exhaust is also a mixture of many chemicals. These include benzo(a)pyrene and other members of a group of Proposition 65-listed chemicals called polycyclic aromatic hydrocarbons.

**How does exposure to gasoline engine exhaust occur?**

- Exposure occurs by breathing in air containing gasoline engine exhaust. Sources include gasoline-powered cars and trucks, recreational boats and other pleasure craft, generators, landscaping equipment (including lawnmowers, hedge trimmers, leaf blowers and chainsaws), and other machinery.
- Exposure also occurs from contact with the sooty residue of gasoline engine exhaust, which can be absorbed through the skin or unintentionally ingested. This residue can settle on surfaces and stick to dust particles.
Main ways you can be exposed to chemicals in gasoline engine exhaust:

Breathing in air and dust containing gasoline exhaust

Gasoline engine exhaust exposure

Swallowing soot and dust from gasoline engine exhaust that are deposited on the hands and transferred to the mouth

Touching surfaces and dust that contain chemicals in gasoline engine exhaust, and absorbing them through the skin

How can I reduce my exposure to gasoline engine exhaust?

- Always start, run and service gasoline engines in well-ventilated areas. Avoid operating them in enclosed spaces.
- Whenever practical:
  - Try not to idle gasoline engines, especially in enclosed parking facilities.
  - Do not stand or allow your children to stand next to operating engines. Distance yourself from the source of the exhaust.
  - Stay no longer than necessary at service stations.
  - Stay out of work areas while at vehicle-repair facilities.
- Do not modify or tamper with a gasoline engine’s exhaust system.
- Perform regular maintenance and frequent tune-ups of all gasoline-powered vehicles and equipment.
- When servicing or maintaining gasoline-powered engines, prevent skin contact with exhaust by wearing gloves. Wash your hands when done, and before preparing food and eating.
- Install backup and portable gasoline-powered generators away from your home so that exhaust does not come in through open windows and doors.
- Consider using hybrid or electric (low-emission or zero-emission) vehicles, and electric-powered landscaping equipment, where possible.

For more information:

General Fact Sheets and Resources

- Agency for Toxic Substances & Disease Registry (ATSDR)
  - Toxic Substances Portal, Gasoline, Automotive
• California Environmental Protection Agency (CalEPA)
  California Air Resources Board (ARB)
  ▸ Low-Emission Vehicle Program
    https://www.arb.ca.gov/msprog/levprog/levprog.htm
  ▸ Zero Emission Vehicle (ZEV) Program
    https://www.arb.ca.gov/msprog/zevprog/zevprog.htm
  ▸ Zero-Emission Landscaping Equipment
    https://ww2.arb.ca.gov/our-work/programs/zero-emission-landscaping-equipment

Office of Environmental Health Hazard Assessment
  ▸ Benzene
    https://www.p65warnings.ca.gov/fact-sheets/benzene
  ▸ Carbon Monoxide
    https://www.p65warnings.ca.gov/fact-sheets/carbon-monoxide
  ▸ Enclosed Parking Facilities
    https://www.p65warnings.ca.gov/fact-sheets/enclosed-parking-facilities
  ▸ Formaldehyde
    https://www.p65warnings.ca.gov/fact-sheets/formaldehyde

• US Department of Energy Clean Cities Coalition Network
  ▸ IdleBox Toolkit for Idling Reduction Project
    https://cleancities.energy.gov/technical-assistance/idlebox/

Scientific Information on Gasoline Engine Exhaust
• California Environmental Protection Agency (CalEPA)
  Office of Environmental Health Hazard Assessment (OEHHA)
  ▸ Gasoline-Related Air Pollutants in California

• International Agency for Research on Cancer (IARC)
  ▸ Diesel and Gasoline Engine Exhaust and Some Nitroarenes (2014)
    https://monographs.iarc.fr/ENG/Monographs/vol105/mo105.pdf

Proposition 65
• California Environmental Protection Agency (CalEPA)
  Office of Environmental Health Hazard Assessment (OEHHA)
  ▸ Proposition 65: Background
    https://www.p65warnings.ca.gov/faq
  ▸ Proposition 65: The Chemical List
    https://www.p65warnings.ca.gov/chemicals