

Diesel School Buses

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Topics

- Health effects of diesel exhaust
- Children Health Risk
- School Buses
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- Information

Health Effects of Diesel Exhaust

- Contains 41 chemicals identified by the State of California as toxic air contaminants
- Over 90% of particulates are less than 1 micrometer in size
 - Decreased lung function
 - Enters blood stream and exacerbate heart conditions
- Emits high levels of nitrogen oxides, which are a known lung irritant
- California South Coast Air Quality District estimates that 71% of cancer risk is associated with diesel emissions

Children Health Risk

- More susceptible to health effect of diesel exhaust exhaust
 - Lung development
 - Faster metabolism
 - Narrower airways
- Effects
 - Decreased lung function
 - Increased risk of bronchitis and asthma
- Higher exposure to pollutants
 - School buses
 - Spend more time outdoors

School Buses

- Over 98% of the school buses in the U.S. are diesel
- Nationally, nearly 600,000 school buses transport 24 million children to school daily
- Time spent on school buses varies from 20 minutes a day to several hours
- CARB study has found significantly higher concentrations of pollutants on school buses than general ambient conditions and roadside conditions

School Buses

- Significantly increased concentration of air pollutants inside school buses than in general ambient air and roadside air
- Causes
 - Exhaust entering from bus's own engine
 - Closed windows doubled pollutant concentrations
 - Riding behind other diesel vehicles increased concentrations
 - Idling

Solutions

- Cleaner Fuels School Buses
 - Natural Gas
 - Propane
 - Ultra-low Sulfur Diesel Fuel
 - Biodiesel with low NO_x additive
- Engine and Exhaust Controls
 - Diesel Particulate Filters
 - Diesel Oxidation Catalysts
 - Cooled Exhaust Gas Recirculation
 - Lean NO_x Catalysts
 - NO_x Adsorbers

Studies and Reports

- California Air Resources Board
 - Characterizing The Range of Children's Pollutant Exposure During School Bus Commutes
 - <http://www.arb.ca.gov/research/schoolbus/schoolbus.htm>
- Environment and Human Health
 - Children's Exposure to Diesel Exhaust on School Buses
 - www.ehhi.org
- National Resources Defense Council
 - No Breathing in the Aisles
 - <http://www.nrdc.org/air/transportation/schoolbus/sbusinx.asp>
- Union of Concerned Scientist
 - Rolling Smokestacks: Cleaning Up America's Trucks and Buses
 - www.ucsusa.org

Information

- www.epa.gov/cleanschoolbus
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- www.ehhi.org
- www.arb.ca.gov