

## Technology Forecast

### ***A Breath of Fresh Air: Reducing Emissions***

To meet future clean-air laws, cars and trucks will have to produce fewer harmful emissions. Engineers are working on many new technologies to reduce vehicle emissions.

More efficient refining of gasoline and diesel fuels is an important goal. Our future fuels must burn cleaner and without the use of sulfur, a known pollutant. Scientists are also developing fuel cells that produce power from hydrogen. The only emission is water, a harmless substance.

An advanced engine control system could become standard on future vehicles. This system would monitor the conditions in each cylinder. It would then send the right amount of air and fuel to that cylinder so the mix would burn cleanly.

New catalytic converters are also being studied. These units would work much like today's units by removing harmful compounds from the exhaust. Future catalytic converters would be electrically heated before the engine starts. Since most emissions are produced while the engine is cold, a warm converter can better remove harmful hydrocarbons (unburned fuel), oxides of nitrogen (NO<sub>x</sub>), and carbon monoxide. Engineers are also studying the use of traps as a way to improve catalytic converters.

#### **Action Activity**

Traps can be found on diesel systems. Research how these traps remove harmful compounds from engine exhaust. Prepare an illustration that shows how a trap works. Label the major parts and processes in the catalytic converter.