



CLEANER  
BURNING  
GASOLINE

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## Fact Sheet 3

# Comparison of Federal and California Reformulated Gasoline

Reformulated gasoline (RFG) is cleaner-burning gasoline that pollutes less. This is important in California and other areas in the country that need to reduce health-threatening levels of air pollution. Since January 1, 1995, the U.S. Environmental Protection Agency has required federal Phase I RFG in the nine worst-polluted areas in the nation, including southern California. Lower polluting federal Phase II RFG will be required in these areas in the year 2000.

However, because California has the most serious air quality problems in the nation, the state's Air Resources Board (ARB) requires the statewide production of even lower-polluting gasoline—California RFG—beginning March 1996. This fuel will reduce air pollution emissions more than federal RFG and will satisfy federal RFG requirements.

### Health Benefits

Both federal and California RFG reduce levels of lung-damaging ozone (the main ingredient of smog), carbon monoxide, and airborne toxic chemicals that can cause cancer. Initially, California RFG will cut smog-forming air pollution twice as much as federal Phase I RFG. It will also reduce sulfur dioxide emissions, which can damage lung tissues and impair vehicle smog control systems.

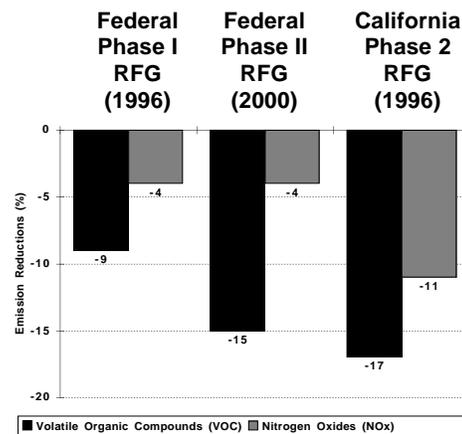
### Performance

Since its introduction, federal Phase I RFG has performed well in all gasoline-powered vehicles and equipment. With over three billion gallons already sold to southern California motorists, no performance problems have been reported.

The ARB and industry are currently testing the performance of California RFG in over 800 motor vehicles and in other gasoline-powered equipment such as lawn mowers, boats, and snowmobiles. Results from ARB's test program will be available in early 1996.

### Reductions of Smog-forming Emissions

(Compared to California 1994 Conventional Gasoline\*)



\* Exhaust and evaporative emission reductions from California gasoline-fueled vehicles.

*California RFG will pollute significantly less than federal RFG. In addition to reducing smog-forming gases, federal and California RFG will also reduce emissions of carbon monoxide, sulfur dioxide, and air toxics.*



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## Production Cost

RFG costs more to produce than California 1994 conventional gasoline. To make California RFG, most refiners must invest in new equipment, add processing steps, and use more expensive blending ingredients. Depending on the refiner, this will increase production costs by about 5 to 15 cents per gallon (an average of 10 cents). This includes the additional 2 to 5 cents per gallon needed to make federal Phase I RFG.

However, even though RFG will cost more, it makes economic as well as environmental sense. When compared with other methods of reducing air pollution such as additional controls on businesses or RFG is a very cost-effective way to clean the air.

## Price at the Pump

The price of gasoline cannot be accurately predicted because it is influenced by many factors including production costs, weather, crude oil prices, and product supply and demand. However, it is expected that increased RFG production costs will be reflected in the price at the pump.

### Federal and California Reformulated Gasolines Compared to California 1994 Conventional Gasoline

Implementation Dates	Federal RFG		California RFG
	Phase I 1/1/95 (retail)	Phase II 1/1/2000 (retail)	3/1/96 (producer) <sup>1</sup> 6/1/96 (retail)
Areas Affected	L.A. County Orange Riverside Sacramento (6/96) San Bern. (part) Ventura San Diego	Same as 1995	Statewide
Emission Reductions (%) (Date)	(1996)	(2000)	(1996)
Volatile Organic Compounds	9	15	17
Nitrogen Oxides	4	4	11
Carbon Monoxide	11	11	11
Sulfur Dioxide	0	0	80
Reduced Cancer Risk (%) <sup>2</sup>	20-30	30-40	30-40
Fuel Properties <sup>3</sup>			
Reid Vapor Pressure (RVP), psi	7.0	6.7	6.8
Oxygen, wt.%	2	2	2
Benzene, v.%	0.8	0.8	0.8
Aromatics, v.%	27	25	22
Olefins, v.%	8.5	8.5	4
Sulfur, ppm	130	130	30
Distillation temperatures			
T50, °F	210	207	200
T90, °F	329	321	290
Production Cost Increase (cents/gallon)	2-5	unknown	5-15 <sup>4</sup>

1. California RFG will satisfy federal Phase 2 RFG requirements.
2. Analysis includes an adjustment for methyl tertiary butyl ether (MTBE).
3. Specifications for gasolines that could comply with Federal and California RFG regulations.
4. Average of 10 cents per gallon—based on individual refiner production costs.