

Phase 2 Reformulated Gasoline

Performance Subcommittee

Final
Meeting Summary
July 18, 1995

California Air Resources Board

I. Introduction

The performance subcommittee discussed the following key issues regarding the Phase 2 Reformulated Gasoline performance and compatibility testing program:

- On-Road Vehicle Test Program
- Off-Road Vehicle and Equipment Test Program
- Preliminary Results of the Texaco (Bakersfield) Test Program
- Chevron Test Program
- GM Bench Test Program
- Technical Review Panel Report

The minutes from the previous meeting, May 16, 1995, were approved with changes to the section regarding Chevron's Test Program. Copies of presentations or materials given at this meeting are enclosed with this summary.

II. On-Road Vehicle Test Program

The test program is scheduled to end at the end of August. Fuel supply more than adequate for the allotted time. Incidents have been reported fleets and ARB inspectors; they will be characterized in the Technical Review Panel Report section (section VII) of this summary.

III. Off-Road Vehicle and Equipment Test Program

The utility lawn and garden testing at Fresno has seen two incidents thus far. One was a trimmer with a worn piston and the other, a blower with a broken gear. The equipment has been shipped to the manufacturer for analysis. Seven PPEMA member companies have their own CaRFG test programs. Kiort has completed testing, five others have begun their own testing, and the seventh has its test program on hold at this time (See attachment for details). Harley-Davidson Motorcycles has logged 43,000 miles on eight vehicles to test CaRFG emissions, fuel economy, and durability. Harley-Davidson reported an engine failure at 67,000 miles, but they consider it the end of the engine's useful life. Two additional marine test sites have been added to the test program, they are Lake Cachuma Boat Rentals and Paradise Watercraft Boat Rentals.

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IV. Preliminary Results of the Texaco Test Program

Texaco's Bakersfield gasoline test program is complete. It evaluated five percent and ten percent aromatic hydrocarbon content gasoline. The fleet tested comprised 27 refinery vehicles, of which 14 vehicles operated on ten percent aromatic fuel for two weeks then switched to five percent for an additional two weeks. The other 13 vehicles operated on conventional gasoline for two weeks and switched to five percent for the final two weeks. The Bakersfield refinery site is considered a severe climate due to the heat and dust at the refinery. The results of the test program will be reviewed by the Technical Review Panel. At this time, Texaco reported five vehicles with fuel system component failures, four of which were on the five percent aromatic fuel. Five other incidents were still undecided. Texaco's preliminary conclusions are that a combination of fuel system component failure and a change to lower aromatic gasoline could possibly lead to some fuel system component failures, and some vehicles may require tune-ups after switching to lower aromatic gasoline.

Contact: Chris Paul, Texaco (409) 989-2949

V. Chevron Test Program

The Chevron test program is complete. They used an employee test fleet of 115 vehicles on a reformulated gasoline and a control fleet of 115 vehicles on conventional gasoline. The fleet was chosen to emphasize an older fleet and imported vehicles. The overall number of incidents reported were 33 for the test fleet and 22 for the control fleet. Of those incidents, the test fleet had six elastomer incidents and the control fleet had one. Chevron's findings are that at the 94 percent confidence level, vehicles operating on CaRFG experienced a greater proportion of fuel system elastomer incidents than those operating on conventional gasoline.

Contact: Randy Barber (510) 242-2448

VI. GM Bench Test Program

The GM bench test program began the second week of June and is evaluating five test fuels (includes fuel switching). The components being tested include five elastomeric materials, 3 plastic materials and 2 foam materials. As of July 17, 1995, no potential problems have been indicated by preliminary property test results.

VII. Technical Review Panel Report

The Technical review panel is in the process of reviewing incidents that have been reported by the fleets, and ARB inspectors. The ARB CaRFG test program has about 800 test vehicles and about 500 control vehicles, and this time, 60 incidents have been reported. From the test fleet, 49 incidents were reported, but 31 were not attributable to CaRFG, the remaining 18 are still being investigated. For the control fleet, 11 incidents were reported, one is not fuel related, and the remaining 10 still under investigation. Attachment 7 of this summary provides a table listing each of the incidents reported on a fleet by fleet basis.

Attachments

[CBG Program Advisory and Subcommittee Activities](#)