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EVALUATION OF TECHNOL G, A FUEL ADDITIVE

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16. Abstracts A test program was conducted to evaluate Technol G, a fuel additive. The manufacturer recommends that Technol G be mixed with gasoline in the volumetric proportion of one part Technol G to every one-thousand parts of gasoline. Baseline and additive tests were performed using a 1962 Chevrolet equipped with a 283 CID engine and automatic transmission. Technol G was added to Indolene 30 in the proportions recommended by the manufacturer. The vehicle was driven about 15 miles after fuel treatment to insure mixing and mixture delivery to the engine fuel system. All testing was performed in accordance with the 1975 Federal emission test procedure. Complete test results for the baseline and additive are presented in the Appendix. Test data indicate that no beneficial effect on hydrocarbon or carbon monoxide emission could be measured due to normal test variability masking. A small adverse effect on oxides of nitrogen emission was measured. Due to the low magnitude of the emission changes measured, to adequately evaluate Technol G, a fleet evaluation would be necessary to definitively show the overall effect.

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Vehicles
Hydrocarbon
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Carbon dioxide
Nitrogen oxides

17b. Identifiers/Open-Ended Terms

Technol G
Federal Test Procedure (1975)

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Background

The Office of Air Programs was requested to evaluate Technol G, a fuel additive. With the request the Oil Technology Corporation supplied a test report on Technol G from the Stevens Institute of Technology. Using the 7-mode/7-cycle Federal procedure with a cold start, Stevens Institute reported a 12% reduction in hydrocarbon level and a 17% reduction in carbon monoxide level on a 1967 Oldsmobile with the use of Technol G. No effect on the oxides of nitrogen level was reported. The Test and Evaluation Branch arranged a confirmatory evaluation in the Ann Arbor laboratory.

Additive Description

The manufacturer recommends that Technol G be mixed with gasoline in the volumetric proportion of one part Technol G to every one-thousand parts of gasoline. The manufacturer further states that Technol G is a petroleum distillate containing "no salts, acids or heavy metals". The odor of Technol G suggests that the additive contains naphthalene. No description of the full composition of the additive was provided.

Test Procedure

Baseline and additive tests were performed using a 1962 Chevrolet equipped with a 283 CID engine and automatic transmission. Technol G was added to Indolene 30, a standard test fuel specified in the Federal procedures, in the proportions recommended by the manufacturer. The vehicle was driven about 15 miles after fuel treatment to insure mixing and mixture delivery to the engine fuel system.

All testing was performed in accordance with the standard Federal emission test procedure as specified for 1975. Details of this procedure are presented in the July 2, 1971, Federal Register. Testing was conducted from a cold start.

Test Results

Complete test results for the baseline and additive are presented in the Appendix of this report. The following effects using Technol G were measured.

Hydrocarbon	6% reduction
Carbon Monoxide	4% reduction
Carbon Dioxide	4% reduction
Oxides of Nitrogen	12% increase

The changes in hydrocarbon, carbon monoxide, and carbon dioxide are well within the expected bounds of test variability for a single vehicle evaluation. Oxides of nitrogen emissions seem to have been adversely affected with the addition of Technol G.

Conclusions

1. No beneficial effect on hydrocarbon or carbon monoxide emission could be measured due to normal test variability masking.

2. A small adverse effect on oxides of nitrogen emission was measured.

3. Due to the low magnitude of the emission changes measured, to adequately evaluate Technol G, a fleet evaluation would be necessary to definitively show the overall effect.

1975 Federal Emission Test Results
(all results in grams per mile)

Technol G

Baseline	HC	CO	CO_2	NOx
6/29/72	4.93	44.13	559.87	3.74
7/03/72	4.97	40.97	544.92	3.68
7/05/72	4.51	33.20	545.20	3.58
7/06/72	4.34	33.08	553.92	4.17
Average	4.69	37.84	550.98	3.79

Technol G	HC	CO	CO_2	NOx
7/12/72	4.61	36.55	519.89	4.22
7/13/72	4.21	36.03	541.45	4.27
Average	4.41	36.29	530.67	4.25
Percent Reduction from Baseline	6%	4%	4%	-12%*

*increase