

California Environmental Engineering

ENVIRONMENTAL TESTING LABORATORY
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**SUMMARY REPORT ON EMISSIONS TESTING
OF
FUEL ADDITIVE OMSTAR D-1280X**

December 1994

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FORWARD


Omstar D-1280X is registered with the Environmental Protection Agency as a "combustion improver (anti-smoke agent), upper cylinder lubricant, gum solvent, valve lubricant, cetane improver, carburetor and choke cleaner," for diesel and gasoline. It has been marketed as such since 1984.

Emissions and fuel efficiency testing on the additive began in 1984 and continues to the present day. The purpose of the current report is to put the results of these tests into a readable context.

Taken as a whole, the ten years of tests, conducted at a cost of more than \$400,000, show a consistent pattern of improved fuel economy and reduced emissions.

Third party, controlled studies conducted by the  Board and two independent laboratories have shown D-1280X to improve fuel economy in the 4% to 16% range while reducing all primary smog producing emissions. (These results were obtained under various test and driving conditions in different makes and models of engines utilizing commercial and certification fuels.)

When these data are combined with fleet and other field tests measuring smoke opacity, engine performance and fuel economy, indications are strong that D-1280X does in fact, produce significant and positive effects on emissions and fuel economy in both laboratory and real-life environments. The following report provides a summary of details in support of this conclusion.



Larry Swiencki
Manager
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THIRD PARTY CONTROLLED EMISSION'S TESTS ON D-1280X

1984*- Olson Engineering, Huntington Beach California

A 1981 Peugeot 505 S Turbo Diesel with 2,500 mile road test.

- **Hydrocarbons -65.7%; CO -31.5%; NO_x -3.6%;
Particulates -10.6%; Fuel Economy + 4.7%.**

1987*- California Air Resources Board

A 1987 Volkswagen Rabbit and 1987 light duty pick-up truck in 1,500 mile road test-

- * **Hydrocarbons -20%; CO -3%; NO_x -4%;
Particulates -20%; Fuel Economy +4%**

1988- California Environmental Engineering

Twenty diesel generator and refrigeration units operated by American President Lines after six weeks of operation.

- **Smoke opacity - 67%; Fuel economy +16%.**

1988-1990- California Air Resources Board

Eight light duty diesel trucks in 1,500 mile road test. (At 95% or 90% confidence levels.)**

- **HC -27%; CO-10.1%; Fuel economy +4.1%**

* Tested with D-1280 an earlier formulation of the additive

** All other gases reduced, but not at <90% level.

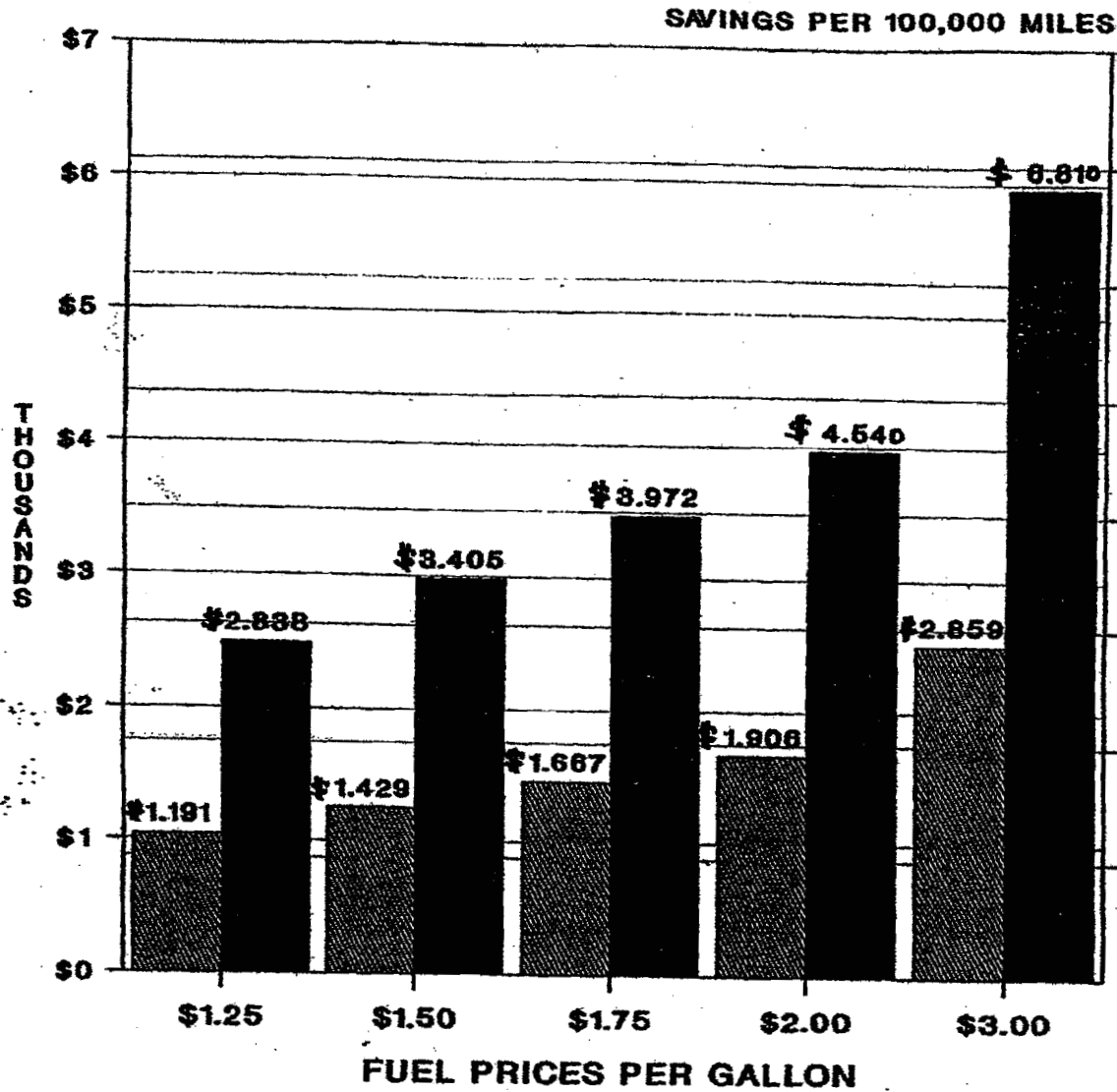
RESULTS OF CUSTOMER TESTING

more than 500 vehicles with varying engine configurations have been tested by Instar's clients for smoke opacity and/or fuel economy during the past ten years. The following accounts of tests have been verified by California Environmental Engineering.)

- **Airport Cruiser Corporation in a six week test on 10 buses.**
Opacity -37%; Fuel Economy +15%
- **Antelope Valley Bus Company in six month test on 20 buses.**
Opacity -63%; Fuel Economy +5%
- **Chandler Arizona Fire Department in 22 day test on seven fire engines.**
Opacity -59.5%
- **CEMAK Trucking in a three month test on 60 cement mixing trucks.**
Opacity -67%; Fuel Economy +5%
- **Great Western Reclamation, Inc., in three month test on 50 trash trucks.**
Opacity -35%
- **Keep On Trucking Co., in six month test on 6 heavy duty trucks.**
Opacity -57%; Fuel Economy +6%
- **Hudson General Aviation in 3 million mile/ 4 year test of 30 buses,**
Opacity -76%

OMSTAR D-1280X SAVINGS PROJECTION

FROM 5 TO 5.25 M.P.G. = 5% INCREASE
 FROM 5 TO 5.64 M.P.G. = 12.8% INCREASE



5% M.P.G. Increase
 12.8% M.P.G. Increase

ALL VALUES EXPRESSED IN THOUSANDS