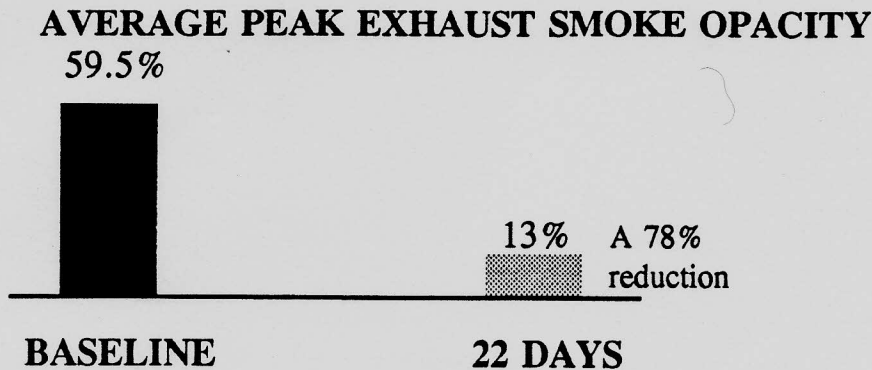


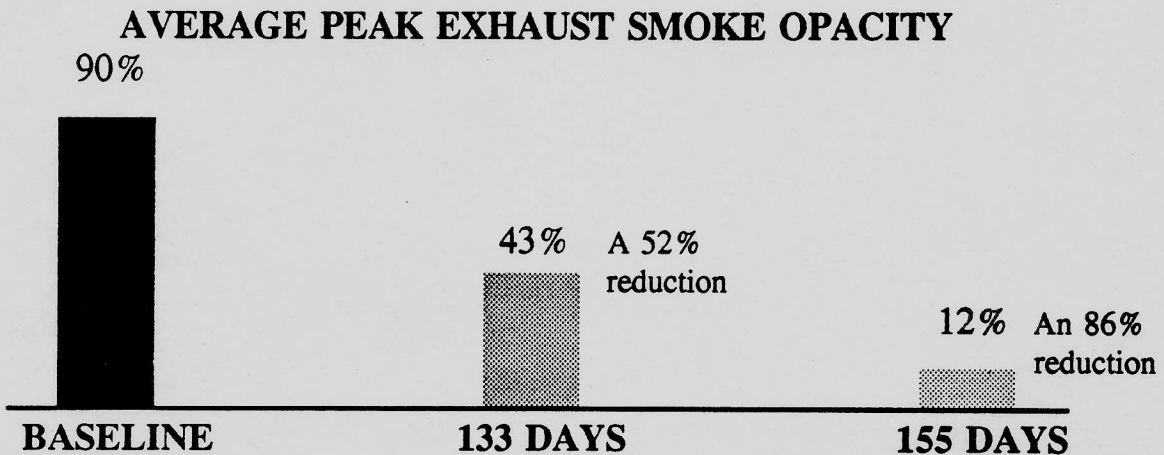
1

SMOKE OPACITY TESTS OF OMSTAR D-1280X[®] IN THE FUEL OF CHANDLER FIRE DEPARTMENT DIESEL TRUCKS

Summary of test results. Seven fire trucks of the Chandler, Arizona, Fire Department were tested (snap idle test) in 1990 for peak exhaust smoke opacity, with and without ("Baseline") Omstar D-1280X[®] in the fuel. A Wager Model 650 Smoke Opacity Meter was used. Final tests were made by the State of Arizona. (All trucks passed the Yearly Emission Test.). Six trucks used D-1280X[®] for 22 days:



One "heavy smoker" truck had a test period of 155 days, with these results:



Test supervisor: William (Bart) Beckwith, Fire Chief.

Omstar D-1280X[®]: Omstar D-1280X[®], Dr. M. Z. Fainman's patented conditioner, contains an expensive, low molecular weight, synthetic ester solvent that cleans and lubricates dirty fuel injectors and other internal engine parts. It also contains a specially designed, heavy molecular weight "penta" synthetic ester which, in the patented "chemisorption" process, increases lubricity because molecules of D-1280X[®] become chemisorbed, or bonded, to the metal rubbing surfaces in injectors and inside the cylinder. Engine performance and fuel economy improve with time, and air pollution decreases, as more and more of the molecules become bonded to metal rubbing surfaces. The 133-day and 155-day tests illustrate that effect.

**TEST OF EFFECT OF OMSTAR FUEL CONDITIONER D-1280X
ON EXHAUST SMOKE OPACITY OF CHANDLER FIRE DEPARTMENT DIESEL TRUCKS**

TEST SAMPLE SUMMARY: After 22 days of use of Omstar D-1280X in 6 trucks, average peak smoke opacity dropped from 59.5% to 13.0%, a 78% reduction in the sample tested.

STATISTICAL ANALYSIS RESULTS: WITH 95% CONFIDENCE (a 5% chance of error), a test of the entire fleet would show an average Baseline opacity of 59.5% +/- 25.9%, with opacity after 22 days of 13.0% +/- 4.9%. THE PERCENT REDUCTION WOULD BE IN THE RANGE FROM 47% TO 91%. (The test sample reduction was 78%).

....BASELINE....			D-1280X FOR 22 DAYS		
VEH. I.D.	OPAC. *X1	X1-X1ave SQUARED	OPAC. *X2	X2-X2ave SQUARED	
355	59	0.25	12	1.00	NOTE: THE WIDE VARIABILITY AMONG THE EQUIPMENT TESTED (BASELINE OPACITY FROM 11% TO 78%) INCREASED THE LIKELIHOOD OF STATISTICAL NON-SIGNIFICANCE. HOWEVER, THE LARGE REDUCTION CAUSED BY THE ADDITIVE OVERCAME THE OBSTACLE, AND STATISTICAL SIGNIFICANCE DID OCCUR, AT THE HIGH CONFIDENCE SELECTED (95%). THAT IS, THE CONFIDENCE INTERVALS DID NOT OVERLAP. (See next page for details.).
356	65	30.25	5	64.00	
357	72	156.25	13	0.00	
358	78	342.25	16	9.00	
359	72	156.25	19	36.00	
371	11	2352.25	13	0.00	

AVE. OPACITY... (NO ADDITIVE)	59.50 (X1ave)	AVE. OPACITY.....	13.00 (X2ave)
		PERCENT CHANGE..	-78.2

n = 6 TEST SCORES X1	n = 6 TEST SCORES X2	
SUM X1..... 357.0	SUM X2..... 78.0	
SUM (X1-X1ave)SQD..... 3037.50	SUM (X2-X2ave)SQD..... 110.00	
DEG. OF FREEDOM (n-1)... 5	DEGREES OF FREEDOM(n-1) 5	
VARIANCE (STD.DEV.SQD).. 607.50	VARIANCE..... 22.00	
STANDARD DEVIATION..... 24.65	STANDARD DEVIATION..... 4.69	(Computer formula calcu-
CK:Computer formula 24.65	CK:Computer formula .. 4.69	..(lation, as a check against
SQ.ROOT of SAMPLE SIZE n 2.45	SQ.ROOT of SAMPLE SIZE n 2.45	(step-by-step calculations
STD ERROR OF MEAN..... 10.06	STD ERROR OF MEAN..... 1.91	(shown above.
CONFIDENCE LEVEL..... 95%	CONFIDENCE LEVEL..... 95%	...5% chance of error
DEGREES OF FREEDOM (df) 5	DEGREES OF FREEDOM (df) 5	("Student t" for 95% Confid.
t FACTOR (from Table)... 2.571	t FACTOR (from Table)... 2.571	...Level & sample size of 6)
CONFIDENCE INTERVL +/-.. 25.9	CONFIDENCE INTERVL +/-.. 4.9	...("t" x Std Error of Mean)
AVE.OPACITY (measured).. 59.5	AVE.OPACITY (measured).. 13.0	
CONFIDENCE INTERV: 33.6 to 85.4	CONFIDENCE INTERV: 7.9 to 17.9	(Predicted range of average opacity in total fleet test)

WITH 95% CONFIDENCE: AFTER A USE OF D-1280X FOR 22 DAYS, THE PER CENT REDUCTION IN AVERAGE OPACITY WOULD LIE SOMEWHERE IN THE RANGE OF 47% TO 91%.

BASELINE (W/O ADD.)		AFTER 22 DAYS		CHANGE IN PERCENT OPACITY	PER CENT CHANGE IN OPACITY
CONFIDENCE INTERVAL		CONFIDENCE INTERVAL			
LOWER	UPPER	LOWER	UPPER		
33.6	85.4	7.9	17.9	-15.7	-46.7
				-77.5	-90.7