

University of Denver

Digital Commons @ DU

Fuel Efficiency Automobile Test Publications

Fuel Efficiency Automobile Test Data Repository

2022

2022 Oakland CA Data Summary

Gary Bishop

Follow this and additional works at: https://digitalcommons.du.edu/feat_publications



Part of the **Environmental Chemistry Commons**

2022 Oakland CA Data Summary

Publication Statement

Copyright is held by the author. User is responsible for all copyright compliance.

Publication Statement

Copyright is held by the author. User is responsible for all copyright compliance.

Oakland March / April 2022

Table 1. Oakland Validity Summary.

	CO	HC	NO	NH ₃	NO ₂
Attempted Measurements	30,955				
Valid Measurements	28,634	28,584	28,633	28,592	24,030
Percent of Attempts	92.5%	92.3%	92.5%	92.4%	77.6%
Submitted Plates	26,700	26,655	26,699	26662	22,423
Percent of Attempts	86.3%	86.1%	86.3%	86.1%	72.4%
Percent of Valid Measurements	93.2%	93.3%	93.2%	93.2%	93.3%
Matched Plates	26,105	26,061	26,104	26,068	21,921
Percent of Attempts	84.3%	84.2%	84.3%	84.2%	70.8%
Percent of Valid Measurements	91.2%	91.2%	91.2%	91.2%	91.2%
Percent of Submitted Plates	97.8%	97.8%	97.8%	97.8%	97.8%

Table 2. Number of measurements of repeat vehicles.

Number of Times Measured	Number of Vehicles
1	16,312
2	2,250
3	754
4	378
5	159
6	59
7	21
>7	24

998 Electric Cars (3.2% of attempts). These vehicles are only in the Oakland22_org.dbf file with the license number of 'E'. This includes Chevy Volts and Prius Primes when we did not measure any exhaust but does not include other plug in hybrids or other battery electric cars with a range extending engine onboard.

There were an additional 37 Volts and 62 Prius Primes that we measured exhaust. These vehicles are identified in the Oakland_2022.dbf file.

Measurements for medium and heavy-duty vehicles in the Oakland_2022.dbf file.

GVW_Class	Measurements
6	60
7	8
8	23

Explanation of the Oakland_2022.dbf and the Oakland22_org.dbf databases.

These are Microsoft FoxPro database file, and can be opened by any version of MS FoxPro. The files can also be read by a number of other programs such as Excel. The following is an explanation of the data fields found in this database:

License	California license plate.
Date	Date of measurement, in standard format.
Time	Time of measurement, in standard format.
Percent_CO	Carbon monoxide concentration, in percent.
CO_err	Standard error of the carbon monoxide measurement.
Percent_HC	Hydrocarbon concentration (propane equivalents), in percent.
HC_err	Standard error of the hydrocarbon measurement.
Percent_NO	Nitric oxide concentration, in percent.
NO_err	Standard error of the nitric oxide measurement.
PercentSO2	Sulfur dioxide concentration, in percent.
SO2_err	Standard error of the sulfur dioxide measurement.
PercentNH3	Ammonia concentration, in percent.
NH3_err	Standard error of the ammonia measurement.
PercentNO2	Nitrogen dioxide concentration, in percent.
NO2_err	Standard error of the nitrogen dioxide measurement.
PercentCO2	Carbon dioxide concentration, in percent.
CO2_err	Standard error of the carbon dioxide measurement.
Opacity	Opacity measurement, in percent.
Opac_err	Standard error of the opacity measurement.
Restart	Number of times data collection is interrupted and restarted by a close-following vehicle, or the rear wheels of tractor trailer.
HC_flag	Indicates a valid hydrocarbon measurement by a "V", invalid by an "X".

NO_flag	Indicates a valid nitric oxide measurement by a “V”, invalid by an “X”.
SO2_flag	Indicates a valid sulfur dioxide measurement by a “V”, invalid by an “X”.
NH3_flag	Indicates a valid ammonia measurement by a “V”, invalid by an “X”.
NO2_flag	Indicates a valid nitrogen dioxide measurement by a “V”, invalid by an “X”.
Opac_flag	Indicates a valid opacity measurement by a “V”, invalid by an “X”.
CO2_max	Reports the highest absolute concentration of carbon dioxide measured by the remote sensor over an 8 cm path; indicates plume strength.
Speed_flag	Indicates a valid speed measurement by a “V”, an invalid by an “X”, and slow speed (excluded from the data analysis) by an “S”.
Speed	Measured speed of the vehicle, in mph.
Accel	Measured acceleration of the vehicle, in mph/s.
Tag_name	File name for the digital picture of the rear of the vehicle.
Front_name	File name for the digital picture of the front of the vehicle.

The Oakland22_org.dbf ends at this field while the Oakland_2022.dbf files also includes the additional fields below the line.

Vin	Vehicle identification number truncated by the State of California.
Make	Manufacturer of the vehicle.
Year	Model year.
Series	Vehicle series.
Model	Vehicle model within a particular series
Body	DMV body designation abbreviation
Fuel	Fuel type G (gasoline), D (diesel), N (natural gas) and Q (hybrid).
Disp_ci	DMV engine displacement cubic inches.
Gvw	DMV unladen vehicle weight in pounds.
Gvw_code	DMV gross vehicle weight class code.
Zipcode	DMV registration zipcode.
V_body	VIN decoded body description.
V_cyl	VIN decoded number of engine cylinders.
V_drive	VIN decoded vehicle drive configuration.
V_engine	VIN decoded engine model.
V_fuel	VIN decoded fuel type.

V_gwvr	VIN decoded vehicle weight class.
V_make	VIN decoded make.
V_model	VIN decoded model.
V_year	VIN decoded model year.
V_series	VIN decoded series.
V_trans	VIN decoded transmission.
V_trim	VIN decoded vehicle trim.
V_type	VIN decoded vehicle classification (BUS, INC, MPV, PAS, TRK)
V_hp	VIN decoded engine horsepower
V_engman	VIN decoded engine manufacturer
CO_gkg	Grams of CO per kilogram of fuel using 860 gC/kg of fuel.
HC_gkg	Grams of HC per kilogram of fuel using 860 gC/kg of fuel and the molecular weight of propane which is our calibration gas.
NO_gkg	Grams of NO per kilogram of fuel using 860 gC/kg of fuel.
Nh3_gkg	Grams of NH ₃ per kilogram of fuel using 860 gC/kg of fuel.
NO2_gkg	Grams of NO ₂ per kilogram of fuel using 860 gC/kg of fuel.
NOx_gkg	Grams of NO _x per kilogram of fuel using 860 gC/kg of fuel.
HC_offset	Hydrocarbon concentrations after offset adjustment.
Hcgkg_off	Grams of HC per kilogram of fuel using 860 gC/kg of fuel and using the HC_offset value for this calculation.
VSP	Vehicles specific power (kw/tonne)