Section XX: Fuel Combustion—Manufacturing and Industrial

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EMISSION INVENTORY SOURCE CATEGORY

Manufacturing and Industrial

EMISSION INVENTORY CODES (CES CODES) AND DESCRIPT

050-040-1200-0000 (82099) Industrial Stationary IC Engines-Diesel
050-995-1220-0000 (66803) Industrial Distillate Oil Combustion

METHOD SUMMARY

CES 82099 and CES 66803 account for stationary industrial diesel/distillate oil combustion.

Energy Information Adminstration (2001a) State Energy Data Report, available from http://www.eia.doe.gov/emeu/sedr/contents.html, provides 1999 statewide fuel consumption from commercial, industrial and other sectors. From the report introduction, the industrial sector includes manufacturing, agriculture, forestry, fisheries, mining and construction. It represents fuel consumption for producing, processing and assembling goods. The fuel consumption from offroad equipment (i.e. forklifts, cranes, farm equipment, bulldozers, etc.) is included in the sector of its primary use. Therefore, to avoid double-counting, industrial offroad fuel consumption must be subtracted from the EIA industrial usage data. The 1999 California statewide industrial distillate fuel consumption is 366,954,000 gallons. The amount of 43,771,000 gallons is estimated for manufacturing combustion by applying 11.9%, which is the percent of US manufacturing sub-sector (NAICS 31) to the US Industrial sector in the 1998 EIA data on manufacturing. The amount of fuel apportioned to Sacramento (779 mgal/yr) is based on percent of Sacramento industrial (NAICS 31) employment to California commercial employment, which is 1.78%.

The amount of diesel consumed by industrial off-road equipment is estimated using 1999 CEIDARS NOx emissions from industrial off-road equipment area source category, EIC 860-886-1210-0000 (Industrial Equipment - Diesel) and NOX uncontrolled emission factor of 604 lbs/mgal. Subtracting 338 mgal/yr from off-road equipment from a total of 779 mgal/yr from the Sacramento commercial sector, yields an estimate 441 mgal/yr of stationary diesel consumption for Sacramento manufacturing sub-sector. There is an asphalt plant point source, which uses 345 mgal/yr of diesel. The combustion emissions from this plant are accounted under asphalt concrete production. Therefore, its 345 mgal/yr diesel usage is subtracted from 441 mgal/yr. The remaining 96 mgal/yr is the stationary diesel/distillate oil consumption estimate for manufacturing and industrial diesel combustion in Sacramento County.

From district database, there are 3 small diesel boilers using a total of less than 20 mgal/yr. From district survey, diesel consumed in natural gas boilers is generally used for testing and as standby fuel. The industrial IC engines, except those used in sand and gravel operations, are standby emergency generators. Sand and gravel operations are not

in manufacturing sub-sector, NAICS 31, and, therefore its diesel consumption is not included in the 96 mgal/yr estimate. Sand and gravel is quantified under mining sub-sector. Its diesel IC engine emissions may or may not be accounted in off-road mining and construction category. However, since its IC engines emissions are reconciled under EIC 050-040-1200-0000, its associated diesel consumption of about 100 mgal/yr must be added to this EIC category. Assuming a even split of the 96 mgal/yr among the engines and the boilers, the diesel process rate for industrial IC engine combustion is 148 mgal/yr. Whereas, it is 48 mgal/yr for industrial distillate oil combustion. The AP42 emission factors used are:

Emission Factors (lbs/mgals)

	IC Engines <600(70%);>600(30%)	Boilers
PM	32.05	3.39
SOX	7.05	7.05
NOX	550.3	10
CO	124.3	5
TOG	45.76	0.556
ROG	40.58	0.34

ACTIVITY DATA SOURCE: Energy Information Administration, State Energy Data Report

EMISSION FACTOR SOURCE: AP-42, Permit Database.

TEMPORAL INFORMATION:
Daily Activity: 24 hours/day
Weekly Activity: 7 days/week
Monthly Activity: 365 days/year

MOST RECENT UPDATE:

GROWTH PARAMETER: Manufacturing Employment

EMISSION SUMMARY (1999-ANNUAL AVERAGE TONS/DAY) UNRECONCILED

CES#	TOG	ROG	CO	NOX	SOX	PM	PM10
82099	0.01	0.01	0.03	0.11	0.00	0.01	0.01
66803	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NEEDED CLARIFICATIONS/CORRECTIONS TO CURRENT METHOD

None.

FUTURE PLANS FOR METHOD UPDATE/REVISION

None.

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