Annex 2C. Non-energy Uses of Fossil Fuels (IPCC 2B, 2D)
to the Technical Support Document for California's Greenhouse Gas Emissions Inventory and the 1990 Emissions Level

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Variables Used in the Emissions Estimation Equations

Values last updated on Monday, November 19, 2007

IPCC category =2B — Chemical Industry

► ***Sector = Manufacturing : Chemicals & Allied Products >***

Activity = Fuel consumption - LPG

- Variable Name -	- Year -	- Value and Units -	- Reference -
Fuel consumption - LPG	1990	106,758,151 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1991	122,511,573 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1992	123,676,867 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1993	119,883,038 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1994	137,833,802 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1995	141,411,927 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1996	147,056,893 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1997	148,866,689 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1998	155,467,849 gal	Murtishaw et al. 2005
Fuel consumption - LPG	1999	161,883,375 gal	Murtishaw et al. 2005
Fuel consumption - LPG	2000	147,868,572 gal	Murtishaw et al. 2005
Fuel consumption - LPG	2001	138,057,455 gal	Murtishaw et al. 2005
Fuel consumption - LPG	2002	150,428,788 gal	Average of latest 5 years available
Fuel consumption - LPG	2003	150,428,788 gal	Average of latest 5 years available
Fuel consumption - LPG	2004	150,428,788 gal	Average of latest 5 years available
Fuel CO2 emission	1990	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0622 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0624 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1996	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0623 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0623 g / btu	Murtishaw et al. 2005
Heat content	1990	86,310 btu / gal	Murtishaw et al. 2005
Heat content	1991	86,048 btu / gal	Murtishaw et al. 2005
Heat content	1992	86,286 btu / gal	Murtishaw et al. 2005
Heat content	1993	85,857 btu / gal	Murtishaw et al. 2005
Heat content	1994	86,548 btu / gal	Murtishaw et al. 2005
Heat content	1995	86,262 btu / gal	Murtishaw et al. 2005
Heat content	1996	86,024 btu / gal	Murtishaw et al. 2005
Heat content	1997	86,095 btu / gal	Murtishaw et al. 2005
Heat content	1998	86,048 btu / gal	Murtishaw et al. 2005
Heat content	1999	86,095 btu / gal	Murtishaw et al. 2005
Heat content	2000	85,881 btu / gal	Murtishaw et al. 2005
Heat content	2001	85,881 btu / gal	Murtishaw et al. 2005
Heat content	2002	85,881 btu / gal	Murtishaw et al. 2005
Heat content	2003	85,881 btu / gal	Murtishaw et al. 2005
Heat content	2004	85,881 btu / gal	Murtishaw et al. 2005

Proportion of carbon stored	1990	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1991	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1992	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1993	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1994	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1995	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1996	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1997	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1998	0.91	Murtishaw et al. 2005
Proportion of carbon stored	1999	0.91	Murtishaw et al. 2005
Proportion of carbon stored	2000	0.91	Murtishaw et al. 2005
Proportion of carbon stored	2001	0.91	Murtishaw et al. 2005
Proportion of carbon stored	2002	0.91	Murtishaw et al. 2005
Proportion of carbon stored	2003	0.91	Murtishaw et al. 2005
Proportion of carbon stored	2004	0.91	Murtishaw et al. 2005

Activity = Fuel consumption - Natural gas

- Variable Name -	*- Year -*	*- Value and Units -*	*- Reference -*
Fuel consumption - Natural gas	1990	15,756,231,068 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1991	14,123,794,070 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1992	10,861,130,055 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1993	8,628,133,684 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1994	10,182,579,098 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1995	10,099,987,583 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1996	10,357,307,162 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1997	8,930,646,696 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1998	11,511,020,129 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	1999	9,569,625,821 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	2000	12,161,458,085 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	2001	10,047,336,912 scf	Murtishaw et al. 2005
Fuel consumption - Natural gas	2002	10,444,017,529 scf	Average of latest 5 years available
Fuel consumption - Natural gas	2003	10,444,017,529 scf	Average of latest 5 years available
Fuel consumption - Natural gas	2004	10,444,017,529 scf	Average of latest 5 years available
Fuel CO2 emission	1990	0.053 g / btu	USEPA, 2007c
Fuel CO2 emission	1991	0.053 g / btu	USEPA, 2007c
Fuel CO2 emission	1992	0.053 g / btu	USEPA, 2007c
Fuel CO2 emission	1993	0.053 g / btu	USEPA, 2007c
Fuel CO2 emission	1994	0.0529 g / btu	USEPA, 2007c
Fuel CO2 emission	1995	0.0529 g / btu	USEPA, 2007c
Fuel CO2 emission	1996	0.053 g / btu	USEPA, 2007c
Fuel CO2 emission	1997	0.0529 g / btu	USEPA, 2007c
Fuel CO2 emission	1998	0.0534 g / btu	USEPA, 2007c
Fuel CO2 emission	1999	0.0529 g / btu	USEPA, 2007c
Fuel CO2 emission	2000	0.054 g / btu	USEPA, 2007c
Fuel CO2 emission	2001	0.0529 g / btu	USEPA, 2007c
Fuel CO2 emission	2002	0.054 g / btu	USEPA, 2007c
Fuel CO2 emission	2003	0.0529 g / btu	USEPA, 2007c
Fuel CO2 emission	2004	0.0529 g / btu	USEPA, 2007c
Heat content	1990	1,032 btu / scf	EIA, 2007a
Heat content	1991	1,027 btu / scf	EIA, 2007a
Heat content	1992	1,027 btu / scf	EIA, 2007a
Heat content	1993	1,038 btu / scf	EIA, 2007a
Heat content	1994	1,020 btu / scf	EIA, 2007a
Heat content	1995	1,011 btu / scf	EIA, 2007a
Heat content	1996	1,034 btu / scf	EIA, 2007a
Heat content	1997	1,017 btu / scf	EIA, 2007a

Heat content	1998	1,056 btu / scf	EIA, 2007a
Heat content	1999	1,014 btu / scf	EIA, 2007a
Heat content	2000	956 btu / scf	EIA, 2007a
Heat content	2001	1,016 btu / scf	EIA, 2007a
Heat content	2002	987 btu / scf	EIA, 2007a
Heat content	2003	1,021 btu / scf	EIA, 2007a
Heat content	2004	1,009 btu / scf	EIA, 2007a
Proportion of carbon stored	1990	0	Murtishaw et al. 2005
Proportion of carbon stored	1991	0	Murtishaw et al. 2005
Proportion of carbon stored	1992	0	Murtishaw et al. 2005
Proportion of carbon stored	1993	0	Murtishaw et al. 2005
Proportion of carbon stored	1994	0	Murtishaw et al. 2005
Proportion of carbon stored	1995	0	Murtishaw et al. 2005
Proportion of carbon stored	1996	0	Murtishaw et al. 2005
Proportion of carbon stored	1997	0	Murtishaw et al. 2005
Proportion of carbon stored	1998	0	Murtishaw et al. 2005
Proportion of carbon stored	1999	0	Murtishaw et al. 2005
Proportion of carbon stored	2000	0	Murtishaw et al. 2005
Proportion of carbon stored	2001	0	Murtishaw et al. 2005
Proportion of carbon stored	2002	0	Murtishaw et al. 2005
Proportion of carbon stored	2003	0	Murtishaw et al. 2005
Proportion of carbon stored	2004	0	Murtishaw et al. 2005

Activity = Fuel consumption - Petroleum feedstocks

- Variable Name -	*- Year -*	*- Value and Units -*	*- Reference -*
Fuel consumption - Petroleum feedstocks	1990	196,091,716 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1991	124,481,158 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1992	132,427,749 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1993	132,439,635 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1994	137,547,398 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1995	130,481,607 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1996	74,520,443 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1997	86,034,672 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1998	86,641,589 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	1999	80,826,673 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	2000	82,877,600 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	2001	71,496,178 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	2002	75,525,436 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	2003	81,494,489 gal	Murtishaw et al. 2005
Fuel consumption - Petroleum feedstocks	2004	95,173,527 gal	Murtishaw et al. 2005
Fuel CO2 emission	1990	0.0709 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.0709 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0709 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0709 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0709 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0709 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1996	0.0719 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0716 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0721 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.0717 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0729 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0731 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0729 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0727 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0727 g / btu	Murtishaw et al. 2005
Heat content	1990	138,690 btu / gal	Murtishaw et al. 2005

Heat content	1991	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1992	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1993	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1994	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1995	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1996	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1997	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1998	138,690 btu / gal	Murtishaw et al. 2005
Heat content	1999	138,690 btu / gal	Murtishaw et al. 2005
Heat content	2000	138,690 btu / gal	Murtishaw et al. 2005
Heat content	2001	138,690 btu / gal	Murtishaw et al. 2005
Heat content	2002	138,690 btu / gal	Murtishaw et al. 2005
Heat content	2003	138,690 btu / gal	Murtishaw et al. 2005
Heat content	2004	138,690 btu / gal	Murtishaw et al. 2005
Proportion of carbon stored	1990	0.536	Murtishaw et al. 2005
Proportion of carbon stored	1991	0.536	Murtishaw et al. 2005
Proportion of carbon stored	1992	0.536	Murtishaw et al. 2005
Proportion of carbon stored	1993	0.536	Murtishaw et al. 2005
Proportion of carbon stored	1994	0.536	Murtishaw et al. 2005
Proportion of carbon stored	1995	0.586	Murtishaw et al. 2005
Proportion of carbon stored	1996	0.547	Murtishaw et al. 2005
Proportion of carbon stored	1997	0.558	Murtishaw et al. 2005
Proportion of carbon stored	1998	0.541	Murtishaw et al. 2005
Proportion of carbon stored	1999	0.556	Murtishaw et al. 2005
Proportion of carbon stored	2000	0.511	Murtishaw et al. 2005
Proportion of carbon stored	2001	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2002	0.51	Murtishaw et al. 2005
Proportion of carbon stored	2003	0.517	Murtishaw et al. 2005
Proportion of carbon stored	2004	0.517	Murtishaw et al. 2005

IPCC category = 2D1 — Non-Energy Products from Fuels and Solvent Use - Lubricant Use

► *Sector = Not Specified Industrial >*

Activity = Fuel consumption - Lubricants

- Variable Name -	*- Year -*	*- Value and Units -*	*- Reference -*
Fuel consumption - Lubricants	1990	90,426,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1991	80,892,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1992	82,488,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1993	84,000,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1994	87,780,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1995	86,268,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1996	83,748,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1997	88,452,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1998	92,610,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1999	93,576,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2000	92,148,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2001	112,595,025 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2002	111,262,897 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2003	102,862,423 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2004	104,208,678 gal	Murtishaw et al. 2005
Fuel CO2 emission	1990	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0742 g / btu	Murtishaw et al. 2005

Fuel CO2 emission	1996	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0742 g / btu	Murtishaw et al. 2005
Heat content	1990	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1991	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1992	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1993	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1994	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1995	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1996	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1997	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1998	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1999	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2000	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2001	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2002	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2003	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2004	144,405 btu / gal	Murtishaw et al. 2005
Proportion of carbon stored	1990	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1991	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1992	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1993	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1994	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1995	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1996	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1997	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1998	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1999	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2000	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2001	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2002	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2003	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2004	0.5	Murtishaw et al. 2005

► *Sector = Not Specified Transportation >*

Activity = Fuel consumption - Lubricants

- Variable Name -	*- Year -*	*- Value and Units -*	*- Reference -*
Fuel consumption - Lubricants	1990	120,582,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1991	107,856,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1992	109,998,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1993	111,972,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1994	117,054,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1995	115,038,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1996	111,636,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1997	117,936,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1998	123,480,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	1999	124,782,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2000	122,892,000 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2001	84,446,268 gal	Murtishaw et al. 2005

Fuel consumption - Lubricants	2002	83,447,173 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2003	77,146,817 gal	Murtishaw et al. 2005
Fuel consumption - Lubricants	2004	78,156,509 gal	Murtishaw et al. 2005
Fuel CO2 emission	1990	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1996	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0742 g / btu	Murtishaw et al. 2005
Heat content	1990	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1991	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1992	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1993	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1994	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1995	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1996	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1997	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1998	144,405 btu / gal	Murtishaw et al. 2005
Heat content	1999	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2000	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2001	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2002	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2003	144,405 btu / gal	Murtishaw et al. 2005
Heat content	2004	144,405 btu / gal	Murtishaw et al. 2005
Proportion of carbon stored	1990	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1991	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1992	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1993	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1994	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1995	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1996	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1997	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1998	0.5	Murtishaw et al. 2005
Proportion of carbon stored	1999	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2000	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2001	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2002	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2003	0.5	Murtishaw et al. 2005
Proportion of carbon stored	2004	0.5	Murtishaw et al. 2005

IPCC category = 2D2 — Non-Energy Products from Fuels and Solvent Use - Paraffin Wax Use

► *Sector = Not Specified Industrial >*

Activity = Fuel consumption - Waxes

- Variable Name -	*- Year -*	*- Value and Units -*	*- Reference -*
Fuel consumption - Waxes	1990	24,639,253 gal	Murtishaw et al. 2005

Fuel consumption - Waxes	1991	30,462,949 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1992	32,311,663 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1993	34,712,589 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1994	35,197,576 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1995	35,202,378 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1996	40,875,098 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1997	36,740,616 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1998	35,587,240 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	1999	31,443,456 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	2000	27,787,998 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	2001	30,522,615 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	2002	27,020,630 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	2003	26,071,885 gal	Murtishaw et al. 2005
Fuel consumption - Waxes	2004	25,834,699 gal	Murtishaw et al. 2005
Fuel CO2 emission	1990	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1996	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0726 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0726 g / btu	Murtishaw et al. 2005
Heat content	1990	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1991	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1992	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1993	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1994	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1995	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1996	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1997	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1998	131,833 btu / gal	Murtishaw et al. 2005
Heat content	1999	131,833 btu / gal	Murtishaw et al. 2005
Heat content	2000	131,833 btu / gal	Murtishaw et al. 2005
Heat content	2001	131,833 btu / gal	Murtishaw et al. 2005
Heat content	2002	131,833 btu / gal	Murtishaw et al. 2005
Heat content	2003	131,833 btu / gal	Murtishaw et al. 2005
Heat content	2004	131,833 btu / gal	Murtishaw et al. 2005
Proportion of carbon stored	1990	1	Murtishaw et al. 2005
Proportion of carbon stored	1991	1	Murtishaw et al. 2005
Proportion of carbon stored	1992	1	Murtishaw et al. 2005
Proportion of carbon stored	1993	1	Murtishaw et al. 2005
Proportion of carbon stored	1994	1	Murtishaw et al. 2005
Proportion of carbon stored	1995	1	Murtishaw et al. 2005
Proportion of carbon stored	1996	1	Murtishaw et al. 2005
Proportion of carbon stored	1997	1	Murtishaw et al. 2005
Proportion of carbon stored	1998	1	Murtishaw et al. 2005
Proportion of carbon stored	1999	1	Murtishaw et al. 2005
Proportion of carbon stored	2000	1	Murtishaw et al. 2005
Proportion of carbon stored	2001	1	Murtishaw et al. 2005

Proportion of carbon stored	2002	1	Murtishaw et al. 2005
Proportion of carbon stored	2003	1	Murtishaw et al. 2005
Proportion of carbon stored	2004	1	Murtishaw et al. 2005

IPCC category = 2D4 — Non-Energy Products from Fuels and Solvent Use - Other (please specify)

► Sector = Not Specified Industrial >

Activity = Fuel consumption - Asphalt

- Variable Name -	- Year -	- Value and Units -	- Reference -
Fuel consumption - Asphalt	1990	624,204,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1991	598,542,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1992	569,436,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1993	522,186,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1994	513,954,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1995	512,904,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1996	520,758,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1997	483,504,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1998	654,024,000 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	1999	818,439,237 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	2000	793,008,678 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	2001	804,134,562 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	2002	818,505,996 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	2003	573,320,517 gal	Murtishaw et al. 2005
Fuel consumption - Asphalt	2004	582,446,634 gal	Murtishaw et al. 2005
Fuel CO2 emission	1990	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1996	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0757 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0757 g / btu	Murtishaw et al. 2005
Heat content	1990	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1991	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1992	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1993	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1994	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1995	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1996	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1997	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1998	158,000 btu / gal	Murtishaw et al. 2005
Heat content	1999	158,000 btu / gal	Murtishaw et al. 2005
Heat content	2000	158,000 btu / gal	Murtishaw et al. 2005
Heat content	2001	158,000 btu / gal	Murtishaw et al. 2005
Heat content	2002	158,000 btu / gal	Murtishaw et al. 2005
Heat content	2003	158,000 btu / gal	Murtishaw et al. 2005
Heat content	2004	158,000 btu / gal	Murtishaw et al. 2005
Proportion of carbon stored	1990	1	Murtishaw et al. 2005

Proportion of carbon stored	1991	1	Murtishaw et al. 2005
Proportion of carbon stored	1992	1	Murtishaw et al. 2005
Proportion of carbon stored	1993	1	Murtishaw et al. 2005
Proportion of carbon stored	1994	1	Murtishaw et al. 2005
Proportion of carbon stored	1995	1	Murtishaw et al. 2005
Proportion of carbon stored	1996	1	Murtishaw et al. 2005
Proportion of carbon stored	1997	1	Murtishaw et al. 2005
Proportion of carbon stored	1998	1	Murtishaw et al. 2005
Proportion of carbon stored	1999	1	Murtishaw et al. 2005
Proportion of carbon stored	2000	1	Murtishaw et al. 2005
Proportion of carbon stored	2001	1	Murtishaw et al. 2005
Proportion of carbon stored	2002	1	Murtishaw et al. 2005
Proportion of carbon stored	2003	1	Murtishaw et al. 2005
Proportion of carbon stored	2004	1	Murtishaw et al. 2005

Activity = Fuel consumption - Naphtha

- Variable Name -	*- Year -*	*- Value and Units -*	*- Reference -*
Fuel consumption - Naphtha	1990	103,068,883 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1991	82,981,477 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1992	98,616,601 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1993	98,631,449 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1994	76,438,383 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1995	66,792,022 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1996	53,409,852 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1997	51,777,926 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1998	76,862,207 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	1999	104,176,285 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	2000	69,770,473 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	2001	56,237,521 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	2002	73,365,223 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	2003	57,666,396 gal	Murtishaw et al. 2005
Fuel consumption - Naphtha	2004	36,567,925 gal	Murtishaw et al. 2005
Fuel CO2 emission	1990	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1996	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0728 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0728 g / btu	Murtishaw et al. 2005
Heat content	1990	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1991	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1992	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1993	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1994	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1995	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1996	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1997	124,952 btu / gal	Murtishaw et al. 2005
Heat content	1998	124,952 btu / gal	Murtishaw et al. 2005

Heat content	1999	124,952 btu / gal	Murtishaw et al. 2005
Heat content	2000	124,952 btu / gal	Murtishaw et al. 2005
Heat content	2001	124,952 btu / gal	Murtishaw et al. 2005
Heat content	2002	124,952 btu / gal	Murtishaw et al. 2005
Heat content	2003	124,952 btu / gal	Murtishaw et al. 2005
Heat content	2004	124,952 btu / gal	Murtishaw et al. 2005
Proportion of carbon stored	1990	0	Murtishaw et al. 2005
Proportion of carbon stored	1991	0	Murtishaw et al. 2005
Proportion of carbon stored	1992	0	Murtishaw et al. 2005
Proportion of carbon stored	1993	0	Murtishaw et al. 2005
Proportion of carbon stored	1994	0	Murtishaw et al. 2005
Proportion of carbon stored	1995	0	Murtishaw et al. 2005
Proportion of carbon stored	1996	0	Murtishaw et al. 2005
Proportion of carbon stored	1997	0	Murtishaw et al. 2005
Proportion of carbon stored	1998	0	Murtishaw et al. 2005
Proportion of carbon stored	1999	0	Murtishaw et al. 2005
Proportion of carbon stored	2000	0	Murtishaw et al. 2005
Proportion of carbon stored	2001	0	Murtishaw et al. 2005
Proportion of carbon stored	2002	0	Murtishaw et al. 2005
Proportion of carbon stored	2003	0	Murtishaw et al. 2005
Proportion of carbon stored	2004	0	Murtishaw et al. 2005

Activity = Fuel consumption - Other petroleum products

- Variable Name -	*- Year -*	*- Value and Units -*	*- Reference -*
Fuel consumption - Other petroleum products	1990	23,828,357 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1991	16,473,083 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1992	10,799,807 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1993	10,223,033 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1994	11,424,749 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1995	10,482,644 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1996	5,285,067 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1997	5,802,530 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1998	7,063,156 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	1999	6,643,062 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	2000	7,076,231 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	2001	7,414,783 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	2002	7,965,275 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	2003	7,477,057 gal	Murtishaw et al. 2005
Fuel consumption - Other petroleum products	2004	6,732,861 gal	Murtishaw et al. 2005
Fuel CO2 emission	1990	0.0739 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1991	0.074 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1992	0.0741 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1993	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1994	0.0741 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1995	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1996	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1997	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1998	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	1999	0.074 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2000	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2001	0.0744 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2002	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2003	0.0742 g / btu	Murtishaw et al. 2005
Fuel CO2 emission	2004	0.0742 g / btu	Murtishaw et al. 2005
Heat content	1990	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1991	138,000 btu / gal	Murtishaw et al. 2005

Heat content	1992	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1993	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1994	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1995	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1996	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1997	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1998	138,000 btu / gal	Murtishaw et al. 2005
Heat content	1999	138,000 btu / gal	Murtishaw et al. 2005
Heat content	2000	138,000 btu / gal	Murtishaw et al. 2005
Heat content	2001	138,000 btu / gal	Murtishaw et al. 2005
Heat content	2002	138,000 btu / gal	Murtishaw et al. 2005
Heat content	2003	138,000 btu / gal	Murtishaw et al. 2005
Heat content	2004	138,000 btu / gal	Murtishaw et al. 2005
Proportion of carbon stored	1990	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1991	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1992	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1993	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1994	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1995	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1996	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1997	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1998	0.1	Murtishaw et al. 2005
Proportion of carbon stored	1999	0.1	Murtishaw et al. 2005
Proportion of carbon stored	2000	0.1	Murtishaw et al. 2005
Proportion of carbon stored	2001	0.1	Murtishaw et al. 2005
Proportion of carbon stored	2002	0.1	Murtishaw et al. 2005
Proportion of carbon stored	2003	0.1	Murtishaw et al. 2005
Proportion of carbon stored	2004	0.1	Murtishaw et al. 2005