

Oxygenate Type Analysis 1995 RFG Survey Data

*% of Samples with Majority of Oxygen from: **

AREA	MTBE	Ethanol	ETBE	TAME	Combo/Other**
Atlantic City, NJ	97.96	1.02	0.00	1.02	0.00
Baltimore, MD	99.74	0.00	0.00	0.26	0.00
Boston-Worcester, MA	95.78	0.30	0.00	3.31	0.60
Chicago-Lake Co., IL, Gary, IN	17.11	82.89	0.00	0.00	0.00
Covington, KY	66.20	32.39	1.41	0.00	0.00
Dallas-Fort Worth, TX	87.17	0.00	2.81	0.00	10.02
Hartford, CT	99.27	0.49	0.00	0.24	0.00
Houston-Galveston, TX	99.56	0.00	0.00	0.22	0.22
Knox Co. and Lincoln Co., ME	100.00	0.00	0.00	0.00	0.00
Louisville, KY	57.71	24.00	17.14	0.00	1.14
Manchester, NH	99.43	0.00	0.00	0.57	0.00
Milwaukee-Racine, WI	16.09	82.59	1.32	0.00	0.00
NY-NJ-Long Is.-CT	98.62	1.38	0.00	0.00	0.00
Norfolk-Virginia Beach, VA	98.68	0.00	0.00	1.32	0.00
Phila.-Wilm, DE-Trenton, NJ	98.45	1.29	0.00	0.26	0.00
Portland, Me	100.00	0.00	0.00	0.00	0.00
Portsmouth-Dover, NH	100.00	0.00	0.00	0.00	0.00
Poughkeepsie, NY	98.96	1.04	0.00	0.00	0.00
Queen Anne Co.-Kent Co., MD	100.00	0.00	0.00	0.00	0.00
Rhode Island	92.73	2.73	0.00	4.55	0.00
Richmond, VA	100.00	0.00	0.00	0.00	0.00
Springfield-MA	96.98	2.11	0.00	0.91	0.00
Sussex County, DE	100.00	0.00	0.00	0.00	0.00
Washington, D.C.-area	99.65	0.35	0.00	0.00	0.00

*RFG Survey samples taken at retail gasoline stations. Categorization based on the oxygenate providing more than 50% by weight of total oxygen in a sample.

**The "Other" category is composed of samples containing combinations of oxygenates with no single oxygenate providing more than 50% of total oxygen.

02/20/96

Oxygenate Type Analysis 1996 RFG Survey Data

*% of Samples with Majority of Oxygen from: **

AREA	MTBE	Ethanol	ETBE	TAME	Combo/Other **
Atlantic City, NJ	98.64	0.00	0.00	0.68	0.68
Baltimore, MD	97.42	0.00	0.32	1.94	0.32
Boston-Worcester, MA	95.63	1.31	0.00	3.06	0.00
CT - remainder	99.35	0.65	0.00	0.00	0.00
Chicago-Lake Co., IL, Gary, IN	6.05	93.95	0.00	0.00	0.00
Dallas-Fort Worth, TX	93.89	0.00	0.00	4.20	2.29
Hartford, CT	98.99	1.01	0.00	0.00	0.00
Houston-Galveston, TX	95.00	0.00	0.00	4.06	0.94
Los Angeles, CA	100.00	0.00	0.00	0.00	0.00
Louisville, KY	75.58	24.42	0.00	0.00	0.00
Milwaukee-Racine, WI	3.02	96.64	0.00	0.00	0.34
NY-NJ-Long Is.-CT	99.70	0.30	0.00	0.00	0.00
Norfolk-Virginia Beach, VA	100.00	0.00	0.00	0.00	0.00
Phila.-Wilm, DE-Trenton, NJ	97.99	0.57	0.00	0.57	0.86
Portland, ME	100.00	0.00	0.00	0.00	0.00
Portsmouth-Dover, NH	99.03	0.97	0.00	0.00	0.00
Rhode Island	97.76	1.79	0.00	0.45	0.00
Richmond, VA	100.00	0.00	0.00	0.00	0.00
Sacramento, CA	100.00	0.00	0.00	0.00	0.00
San Diego, CA	100.00	0.00	0.00	0.00	0.00
Springfield-MA	97.79	1.66	0.00	0.00	0.55
Washington, D.C.-area	99.19	0.00	0.00	0.41	0.41

*RFG Survey samples taken at retail gasoline stations. Categorization based on the oxygenate providing more than 50% by weight of total oxygen in a sample.

**The "Other" category is composed of samples containing combinations of oxygenates with no single oxygenate providing more than 50% of total oxygen.

07/02/97

Oxygenate Type Analysis 1997 RFG Survey Data

*% of Samples with Majority of Oxygen from: **

AREA	MTBE	Ethanol	ETBE	TAME	Combo/Other **
Atlantic City, NJ	97.47	1.27	0.00	1.27	0.00
Baltimore, MD	98.94	0.00	0.00	1.06	0.00
Boston-Worcester, MA	95.93	1.74	0.00	2.33	0.00
Chicago-Lake Co., IL, Gary, IN	5.84	94.16	0.00	0.00	0.00
Dallas-Fort Worth, TX	100.00	0.00	0.00	0.00	0.00
Hartford, CT	98.44	1.56	0.00	0.00	0.00
Houston-Galveston, TX	92.73	0.00	0.00	6.57	0.69
Los Angeles, CA	100.00	0.00	0.00	0.00	0.00
Louisville, KY	74.75	25.25	0.00	0.00	0.00
Manchester, NH	100.00	0.00	0.00	0.00	0.00
Milwaukee-Racine, WI	4.60	95.40	0.00	0.00	0.00
NY-NJ-Long Is.-CT	98.93	1.07	0.00	0.00	0.00
Norfolk-Virginia Beach, VA	100.00	0.00	0.00	0.00	0.00
Phila.-Wilm, DE-Trenton, NJ	98.69	0.65	0.00	0.98	0.00
Phoenix, AZ	49.18	50.82	0.00	0.00	0.00
Portland, ME	100.00	0.00	0.00	0.00	0.00
Poughkeepsie, NY	97.76	2.24	0.00	0.00	0.00
Rhode Island	98.82	1.18	0.00	0.00	0.00
Richmond, VA	100.00	0.00	0.00	0.00	0.00
Sacramento, CA	100.00	0.00	0.00	0.00	0.00
San Diego, CA	100.00	0.00	0.00	0.00	0.00
Springfield-MA	98.20	1.80	0.00	0.00	0.00
Washington, D.C.-area	98.07	0.00	0.00	1.54	0.39

*RFG Survey samples taken at retail gasoline stations. Categorization based on the oxygenate providing more than 50% by weight of total oxygen in a sample.

**The "Other" category is composed of samples containing combinations of oxygenates with no single oxygenate providing more than 50% of total oxygen.

01/26/98

1995 RFG SURVEYS Oxygenate Information
Average of Survey Averages

Survey Area	No. of samples	No. of surveys	Average * oxygen wgt. %	Average oxygenate weight percentages *			Percent of total oxygen from each oxygenate *				
				MTBE wgt.%	Ethanol wgt. %	TAME wgt. %	MTBE O2	Ethanol O2	TAME O2		
Atlantic City, NJ	98	2	2.41	12.59	0.07	0.06	0.28	94.8%	1.1%	0.4%	1.8%
Baltimore, MD	392	17	2.20	11.19	0.00	0.11	0.67	92.1%	0.0%	0.8%	4.8%
Boston-Worcester, MA	332	4	2.16	10.00	0.02	0.03	1.80	84.1%	0.3%	0.2%	13.1%
Chicago-Lake Co., IL, Gary, IN	460	17	2.85	2.05	6.97	0.01	0.02	13.0%	85.1%	0.0%	0.1%
Covington, KY	70	2	2.00	7.56	1.58	0.20	0.01	68.5%	27.4%	1.6%	0.1%
Dallas-Fort Worth, TX	499	6	2.03	9.16	0.03	0.91	1.01	81.9%	0.4%	7.1%	7.8%
Hartford, CT	411	17	2.17	10.50	0.12	0.06	0.99	88.0%	1.9%	0.5%	7.1%
Houston-Galveston, TX	468	17	2.09	10.39	0.00	0.02	0.88	90.1%	0.0%	0.1%	6.6%
Knox Co. and Lincoln Co., ME	41	2	2.18	11.78	0.00	0.01	0.02	98.0%	0.0%	0.1%	0.1%
Louisville, KY	175	2	2.01	5.57	1.49	2.48	0.11	50.3%	25.6%	19.3%	0.9%
Manchester, NH	174	4	2.10	10.30	0.00	0.02	1.15	89.2%	0.0%	0.2%	8.6%
Milwaukee-Racine, WI	388	17	2.81	2.06	6.65	0.40	0.10	13.3%	82.2%	2.2%	0.5%
NY-NJ-Long Is.-CT	434	18	2.37	11.91	0.23	0.06	0.41	91.2%	3.3%	0.4%	2.7%
Norfolk-Virginia Beach, VA	151	2	2.05	9.92	0.00	0.36	0.90	87.7%	0.0%	2.7%	6.8%
Phila.-Wilm, DE-Trenton, NJ	388	16	2.19	10.95	0.25	0.05	0.34	90.8%	3.9%	0.4%	2.5%
Portland, Me	116	2	2.21	11.92	0.00	0.00	0.06	97.7%	0.0%	0.0%	0.4%
Portsmouth-Dover, NH	71	2	2.11	10.93	0.00	0.04	0.54	93.8%	0.0%	0.3%	4.0%
Poughkeepsie, NY	96	2	2.27	11.89	0.06	0.02	0.26	95.1%	1.0%	0.1%	1.8%
Queen Anne Co.-Kent Co., MD	73	2	2.17	10.77	0.00	0.01	0.98	90.0%	0.0%	0.0%	7.1%
Rhode Island	110	2	2.25	10.83	0.12	0.01	1.15	87.3%	1.9%	0.0%	8.0%
Richmond, VA	137	2	2.14	10.49	0.00	0.02	1.08	88.9%	0.0%	0.1%	7.9%
Springfield-MA	331	3	2.15	10.24	0.12	0.05	1.23	86.3%	2.0%	0.3%	8.9%
Sussex County, DE	73	2	2.10	9.70	0.00	0.05	1.63	83.7%	0.0%	0.3%	12.1%
Washington, D.C.-area	288	4	2.28	11.15	0.02	0.04	1.05	88.9%	0.3%	0.2%	7.2%

* e.g. for Atlantic City, NJ the 'average' gallon had 2.41 wgt % oxygen. It is 12.59% MTBE by wgt., therefore about 94.8 % of its oxygen comes from MTBE since the oxygen mass fraction in MTBE is 0.1815

1996 RFG SURVEYS Oxygenate Information
Average of Survey Averages

Survey Area	No. of samples	No. of surveys	Average * oxygen wgt. %	Average oxygenate weight percentages *			Percent of total oxygen from each oxygenate *				
				MTBE wgt. %	Ethanol wgt. %	TAME wgt. %	MTBE O2	Ethanol O2	E/TBE O2	TAME O2	
Atlantic City, NJ	147	4	1.89	9.83	0.00	0.02	0.37	94.4%	0.0%	0.2%	3.1%
Baltimore, MD	310	12	1.85	8.55	0.00	0.16	1.50	84.0%	0.0%	1.4%	12.7%
Boston-Worcester, MA	229	6	2.02	9.54	0.14	0.01	1.32	85.6%	2.5%	0.1%	10.2%
CT - remainder	154	5	2.03	10.07	0.07	0.01	0.91	90.1%	1.1%	0.1%	7.0%
Chicago-Lake Co., IL, Gary, IN	347	11	3.44	0.60	9.50	0.01	0.00	3.2%	96.0%	0.0%	0.0%
Dallas-Fort Worth, TX	262	6	1.88	8.90	0.00	0.03	1.37	85.8%	0.0%	0.2%	11.4%
Hartford, CT	298	11	2.05	10.03	0.19	0.02	0.74	88.9%	3.2%	0.1%	5.7%
Houston-Galveston, TX	320	12	1.85	8.68	0.00	0.02	1.42	85.2%	0.0%	0.1%	12.1%
Los Angeles, CA	90	2	2.05	10.84	0.00	0.00	0.32	95.8%	0.1%	0.0%	2.4%
Louisville, KY	258	6	2.01	7.78	1.54	0.02	0.12	70.4%	26.7%	0.2%	0.9%
Milwaukee-Racine, WI	298	11	3.14	0.29	8.79	0.05	0.01	1.7%	97.0%	0.3%	0.1%
NY-NJ-Long Is.-CT	338	11	2.23	11.57	0.05	0.01	0.43	94.1%	0.8%	0.1%	3.0%
Norfolk-Virginia Beach, VA	178	5	1.87	8.81	0.00	0.11	1.35	85.7%	0.0%	0.9%	11.3%
Phila.-Wilm, DE-Trenton, NJ	349	12	1.91	9.60	0.06	0.01	0.69	91.0%	1.0%	0.1%	5.6%
Portland, ME	134	4	2.10	11.17	0.00	0.03	0.26	96.8%	0.0%	0.2%	1.9%
Portsmouth-Dover, NH	103	4	1.99	10.37	0.08	0.00	0.38	94.5%	1.3%	0.0%	3.0%
Rhode Island	223	5	2.01	9.77	0.12	0.01	0.95	88.0%	2.1%	0.1%	7.4%
Richmond, VA	143	4	1.85	8.68	0.00	0.02	1.45	85.0%	0.0%	0.1%	12.2%
Sacramento, CA	88	2	2.11	11.55	0.00	0.00	0.02	99.2%	0.0%	0.0%	0.2%
San Diego, CA	86	2	2.02	10.55	0.00	0.00	0.54	94.6%	0.0%	0.0%	4.1%
Springfield-MA	181	5	2.05	10.12	0.15	0.00	0.79	89.8%	2.6%	0.0%	6.0%
Washington, D.C.-area	246	6	1.90	9.01	0.00	0.05	1.26	86.3%	0.0%	0.4%	10.4%

* e.g. for Atlantic City, NJ the 'average' gallon had 1.89 wgt % oxygen. It is 9.83% MTBE by wgt., therefore about 94.4 % of its oxygen comes from MTBE since the oxygen mass fraction in MTBE is 0.1815

1997 RFG SURVEYS Oxygenate Information
Average of Survey Averages

Survey Area	No. of samples	No. of surveys	Average * oxygen wgt. %	Average oxygenate weight percentages *			Percent of total oxygen from each oxygenate *				
				MTBE wgt.%	Ethanol wgt. %	TAME wgt. %	MTBE O2	Ethanol O2	E/TBE O2	TAME O2	
Atlantic City, NJ	158	4	2.09	11.02	0.07	0.00	0.30	1.2%	0.0%	0.0%	2.2%
Baltimore, MD	282	9	1.94	9.39	0.00	0.00	1.34	0.0%	0.0%	0.0%	10.8%
Boston-Worcester, MA	172	4	2.06	9.95	0.05	0.00	1.36	87.8%	0.9%	0.0%	10.4%
Chicago-Lake Co., IL, Gary, IN	308	9	3.49	0.57	9.76	0.00	0.01	3.0%	97.0%	0.0%	0.0%
Dallas-Fort Worth, TX	260	6	1.96	9.91	0.00	0.00	0.89	91.9%	0.0%	0.0%	7.1%
Hartford, CT	256	9	2.09	10.31	0.23	0.00	0.72	89.7%	3.8%	0.0%	5.4%
Houston-Galveston, TX	289	9	1.94	9.31	0.00	0.00	1.38	87.2%	0.0%	0.0%	11.1%
Los Angeles, CA	178	4	2.04	10.79	0.00	0.04	0.29	96.2%	0.0%	0.3%	2.2%
Los Angeles, CA	198	5	2.23	7.77	2.33	0.00	0.00	63.2%	36.3%	0.0%	0.0%
Louisville, KY	114	4	2.01	10.37	0.00	0.00	0.74	93.5%	0.0%	0.0%	5.7%
Manchester, NH	239	8	2.97	0.47	8.30	0.00	0.00	2.9%	97.1%	0.0%	0.0%
Milwaukee-Racine, WI	280	9	2.35	12.14	0.15	0.00	0.44	93.7%	2.3%	0.0%	2.9%
NY-NJ-Long Is.-CT	193	5	1.91	9.47	0.00	0.00	1.10	89.8%	0.0%	0.0%	9.0%
Norfolk-Virginia Beach, VA	306	9	2.05	10.43	0.06	0.00	0.74	92.2%	1.1%	0.0%	5.6%
Phila.-Wilm, DE-Trenton, NJ	183	4	2.73	5.08	5.09	0.00	0.23	33.8%	64.8%	0.0%	1.3%
Phoenix, AZ	148	4	2.10	11.37	0.00	0.00	0.17	98.1%	0.0%	0.0%	1.3%
Portland, ME	134	4	2.24	11.51	0.16	0.00	0.51	93.2%	2.5%	0.0%	3.6%
Poughkeepsie, NY	169	4	1.95	9.71	0.07	0.00	0.95	90.3%	1.2%	0.0%	7.6%
Rhode Island	187	5	1.92	9.17	0.00	0.00	1.47	86.7%	0.0%	0.0%	12.0%
Richmond, VA	166	4	2.03	10.85	0.00	0.00	0.37	96.9%	0.0%	0.0%	2.9%
Sacramento, CA	170	4	2.09	10.87	0.00	0.06	0.58	94.5%	0.0%	0.4%	4.4%
San Diego, CA	167	4	2.06	10.40	0.10	0.00	0.67	91.7%	1.7%	0.0%	5.1%
Springfield-MA	259	6	1.96	9.65	0.00	0.00	1.20	89.2%	0.0%	0.0%	9.6%
Washington, D.C.-area											

* e.g. for Atlantic City, NJ the 'average' gallon had 2.09 wgt % oxygen. It is 11.02% MTBE by wgt., therefore about 95.5 % of its oxygen comes from MTBE since the oxygen mass fraction in MTBE is 0.1815