Table E1. Chemical Properties of Selected Compounds[a]

	Benzene[2]	MTBE[2]	Ethanol[3]	ETBE[1]	TAME[1]	TBA[3]	Alkylates (isooctane)
Molecular Weight (g/mol)	78.11	88.2	46.1	102.2	102.2	74.1	114.2
Boiling Point (^{0} C)	80.1	55.2	78.5	72.2	86.3	82.4	99.2
Vapor Pressure (mm Hg at 20 ^{0} C)	73	240	44	130	75	41	72
Density (g/L)	0.88	0.74	0.79	0.74	0.77	0.79	0.69
Octane Number	94	110	115	112	105	100	100
Neat Solubility (g/100g H_20)	0.178	4.8	miscible	1.2	1.2	miscible	<< 0.01
Solubility into H_20 from Gasoline (g/100g H_20)	<.01	0.55	5.7[b]	0.33	0.24	2.5[b]	-
Taste Threshold in Water (ug/L)	500	20 to 40	-	47	128	-	-
Odor Threshold (ppm)	0.5	0.053	49	0.013	0.027	21	-

[a] Adapted from USGS. For a detailed discussion of the solubility in water from gasoline mixture containing 2% oxygen, see p. 2-50 - 2-53 of the National Science and Technology Council. *Interagency Assessment of Oxygenated Fuels* (June 1997).

[b] The water solubilities of the alcohols are estimates based on partitioning properties.

Sources:

[1] D.L. Conrad, Texaco Research and Development Department, *The Impacts of Gasoline Oxygenate Releases to the Environment -- A Review of the Literature* (Port Arthur, Texas, 1995).

[2] Donald Mackay, W.Y. Shiu, and K.C. Ma, *Illustrated Handbook of Physical-Chemical Properties and Environmental Fate for Organic Chemicals: Vol. III, Volatile Organic Compounds* (Boca Raton, FL: Lewis Publishers, Inc, 1993) p. 916.

[3] Donald Mackay, W.Y. Shiu, and K.C. Ma, *Illustrated Handbook of Physical-Chemical Properties and Environmental Fate for Organic*

Chemicals: Vol. III, Volatile Organic Compounds (Boca Raton, FL: Lewis Publishers, Inc, 1993) p. 962.

Key:

" - " signifies "Not Applicable."

g/mol = Grams Per Mole

^{x0}C = Degrees Celsius

mm Hg = Millimeters of Mercury

g/L = Grams Per Liter

g/100g H_20 - Grams Per 100 Grams of Water

ug/L = Micrograms Per Liter

ppm = Parts Per Million

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url: http://www.epa.gov/otaq/consumer/fuels/oxypanel/r99021.htm
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