

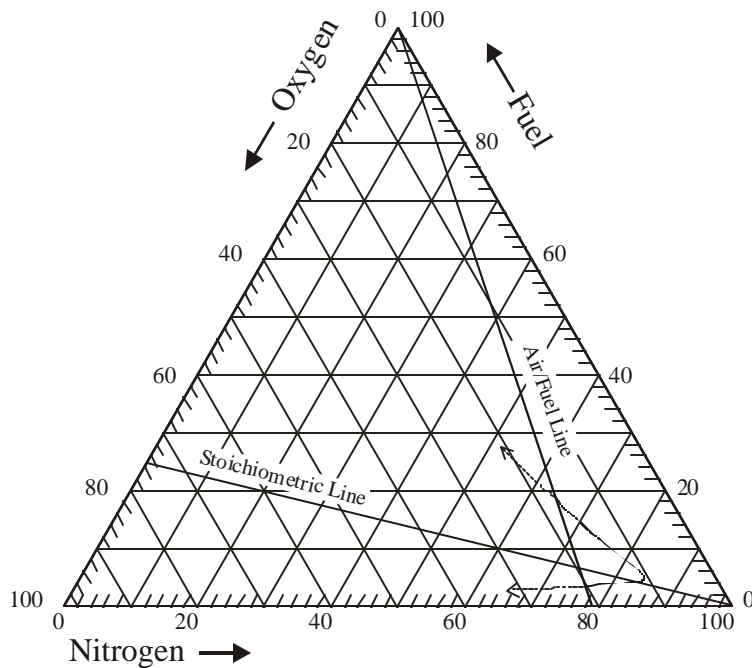
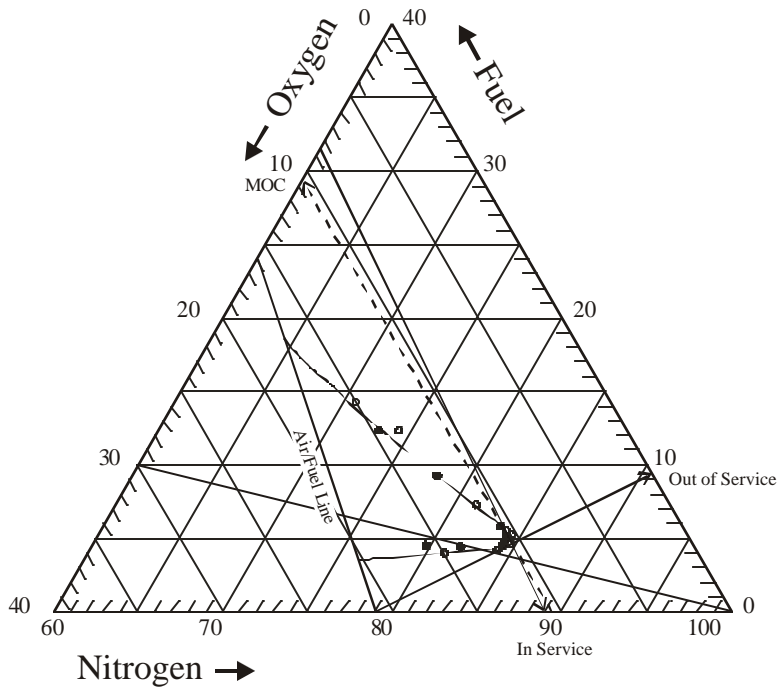
# Ethanol



25°C and Atmospheric Pressure



Triangular Plot Data From Reference 2



Molecular weight:	46.07
Boiling point: <sup>1</sup>	78.4°C
LFL: <sup>2</sup>	3.5%
UFL: <sup>2</sup>	18.7%
MOC:	10.5% O <sub>2</sub>
Flash point: <sup>3</sup>	12°C

Vapor Pressure	
Equation: <sup>4</sup>	$\ln P = A - \frac{B}{T(K) + C}$
	P (mmHg)
	270 to 369K
	A = 18.9119
	B = 3803.98
	C = -41.68

Concentration of vapor in air at 1 atm.: 7.8%

From Figure:

In service	89% N <sub>2</sub>
Concentrations:	11% O <sub>2</sub>
Out of service	9.5% Fuel
Concentrations:	90.5% N <sub>2</sub>

<sup>1</sup>Lide, D. R., Editor in chief, *Handbook of Chemistry and Physics*, 71<sup>st</sup> ed., CRC Press, Inc., Boston, 1991

<sup>2</sup>Zabetakis, M. G., *Flammability Characteristics of Combustible Gases and Vapors*, U.S. Dept. of the Interior, Bureau of Mines, No. 627, 1965

<sup>3</sup>Stephenson, R. M., *Flash Points of Organic and Organometallic Compounds*, Elsevier Science Publishing Co., Inc., New York, 1987

<sup>4</sup>Reid, R. C., Prausnitz, J. M., and Sherwood, T. R., *The Properties of Gases and Liquids*, 3<sup>rd</sup> ed. McGraw Hill, New York, 1977