

**TABLE 8-2
NORTHSTAR CRUDE OIL CHEMICAL CHARACTERISTICS**

Component	Mole ¹ Percent	Chemical Formula	Molecular Weight (gram/g-mole)	Weight Percent	Boiling Point °F (°C) at 1 atm	Solubility in 100 Parts of Water (cm ³)	Cumulative Percent by Weight
Carbon dioxide	5.43	CO ₂	44.01	4.39	-109 (-78.5) sublimates	179.7	4.39
Nitrogen	0.61	N ₂	28.02	0.31	-321 (-196)	2.35	4.7
Methane	56.88	CH ₄	16.04	16.76	-259 (-161.4)	0.4	21.46
Ethane	7.12	C ₂ H ₆	30.07	3.93	-127 (-88.6)	4.7	25.39
Propane	4.94	C ₃ H ₈	44.09	4.00	-44 (-42.2)	6.5	29.39
Iso-butane	0.97	C ₄ H ₁₀	58.12	1.04	14 (-10)	Insoluble	30.43
N-butane	2.26	C ₄ H ₁₀	58.12	2.41	31 (-0.6)	Insoluble	32.84
Iso-pentane	0.94	C ₅ H ₁₂	72.15	1.25	82 (28)	Insoluble	34.09
N-pentane	1.14	C ₅ H ₁₂	72.15	1.51	97 (36.3)	0.036	35.6
Hexanes	1.79	C ₆ H ₁₄	86.17	2.83	140 to 156 (60 to 69)	Insoluble	38.43
Heptane plus ²	17.92	C ₇	187	61.56	194 (90+)	Insoluble	100
Total	100	--	--	100	--	--	--

Notes: 1 = Percent of total given in moles, which are equal to 6.02×10^{23} (Avogadro's number) molecules of the substances.
 2 = Specific gravity of Heptane plus is 0.83 (60°F); molecular weight is 187.
 atm = Atmosphere
 °C = Degrees Celsius
 °F = Degrees Fahrenheit
 cm³ = Cubic centimeters

Sources: Chemical composition of crude from BPXA, 1997a:Table 3.3-1 (Appendix A)
 Physical properties from Perry's Chemical Engineer's Handbook, 1984:Table 3-2