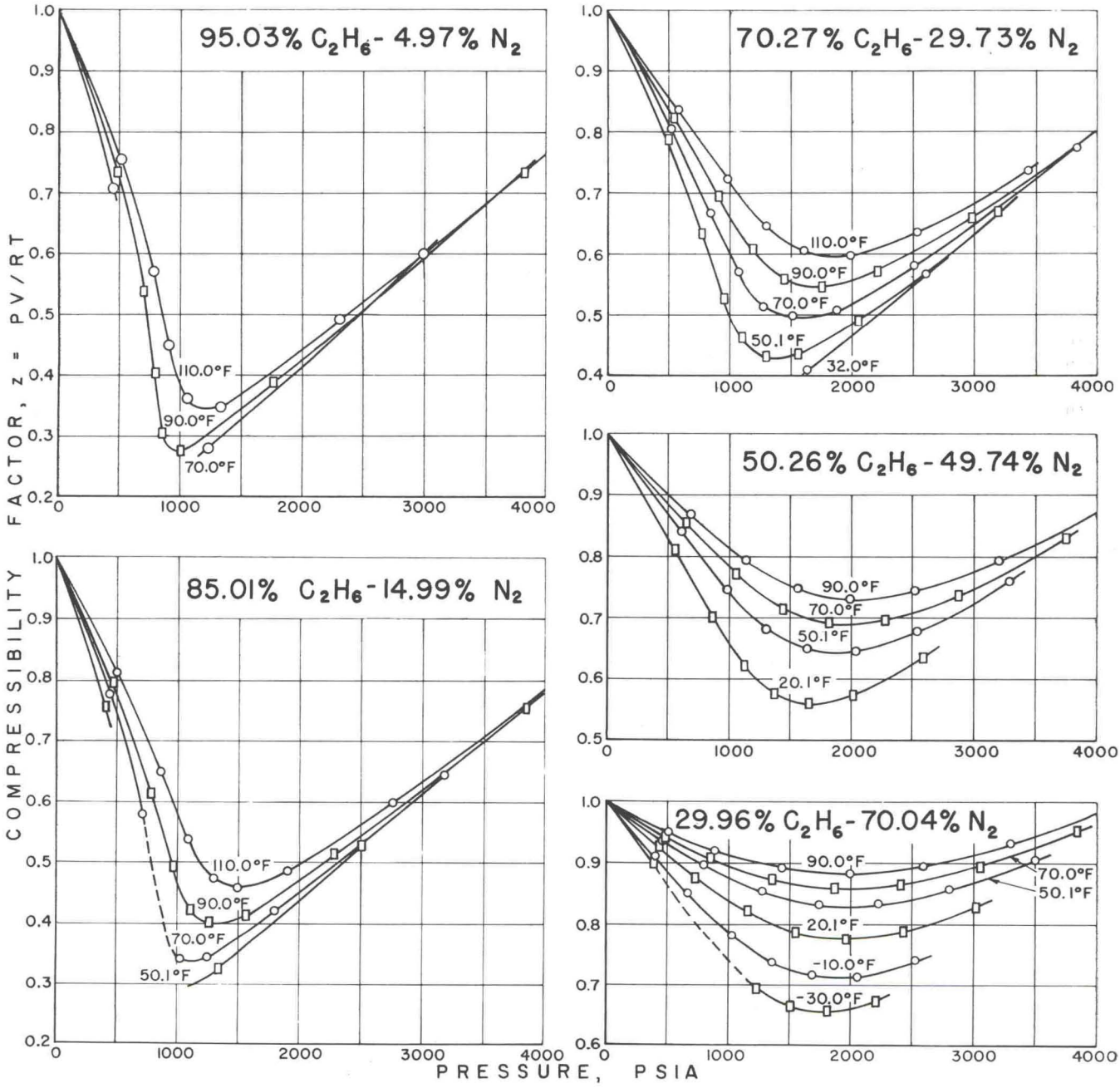

Fig. K.—COMPRESSIBILITY CHARTS FOR ETHANE-NITROGEN MIXTURES INVESTIGATED

Table F.—CALCULATED SATURATED LIQUID AND VAPOR DENSITIES FOR ETHANE-NITROGEN MIXTURES

Saturated Liquid Densities Calculated from Phase Equilibrium Data

95.02% C_2H_6, 4.98% N_2

Temp °F	Density gm/cc
52.0	0.3713
32.0	0.4061
10.0	0.4344
—20.0	0.4632
—20.0	0.4678
—50.0	0.4947
—80.0	0.5202
—120.0	0.5509
—155.0	0.5757
—187.0	0.6011

84.99% C_2H_6 — 15.01% N_2

Run 1 Temp °F	Run 1 Density gm/cc	Run 2 Temp °F	Run 2 Density gm/cc
61.5	0.2823	23.4	0.3961
58.7	0.2974	—0.4	0.4355
54.0	0.3179	—45.7	0.4923
50.0	0.3315	—47.4	0.4771
42.0	0.3545	—70.0	0.5006
—45.0	0.4880	—100.0	0.5282
—70.0	0.5103	—100.0	0.5303
—100.0	0.5360	—130.0	0.5642
—130.0	0.5670	—155.0	0.5760
—155.0	0.5850	—184.0	0.5970
—184.0	0.6058	—184.0	0.6031
—197.8	0.6209	—220.5	0.6276
—220.0	0.6341	—249.0	0.6414
		—276.4	0.6611

68.31% C_2H_6, 31.69% N_2

Temp °F	Density gm/cc
—150.0	0.5915
—155.0	0.5967
—155.0	0.5929
—165.0	0.6029
—172.8	0.6122
—184.0	0.6185
—197.8	0.6289
—207.0	0.6359
—207.0	0.6386
—213.0	0.6433
—220.5	0.6497
—238.0	0.6600

15.03% C_2H_6, 84.97% N_2

Temp °F	Density gm/cc
—146.5	0.4247
—173.2	0.4921
—202.0	0.5528

5.1% C_2H_6, 94.9% N_2

Temp °F	Density gm/cc
—155.8	0.2328
—169.2	0.2721
—193.2	0.3341
—221.0	0.4111
—230.8	0.4956

1.98% C_2H_6, 98.02% N_2

Temp °F	Density gm/cc
—228.1	0.3940
—232.0	0.4288
—240.0	0.488
—249.0	0.525
—268.0	0.583

Saturated Vapor Densities Calculated with Equation of State

14.94% C_2H_6, 85.06% N_2

Temp °F	Density gm/cc
—76.7	0.1841
—71.7	0.1305
—76.6	0.0821
—85.0	0.0575
—94.8	0.0411
—118.9	0.0193
—135.0	0.0117
—170.0	0.0090

5.10% C_2H_6, 94.90% N_2

Temp °F	Density gm/cc
—200.3	0.3573
—180.9	0.2556
—156.4	0.2320
—135.5	0.0487

1.98% C_2H_6, 98.02% N_2

Temp °F	Density gm/cc
—197.6	0.2615
—178.9	0.1838
—172.0	0.1515
—178.3	0.0429
—188.0	0.0275

Saturated Vapor and Liquid Densities Calculated from P-V-T Data

95.03% C_2H_6, 4.97% N_2

Temp °F	Density gm/cc
9.3	0.4251
45.7	0.3720
75.8	0.2998
82.9	0.2306
82.1	0.1600*
72.5	0.1073*
37.3	0.0547*

85.01% C_2H_6, 14.99% N_2

Temp °F	Density gm/cc
3.0	0.4144
35.9	0.3611
56.4	0.3079
66.0	0.2550
69.9	0.2152
70.1	0.1599*
60.0	0.1039*
21.5	0.0483*

70.27% C_2H_6, 29.73% N_2

Temp °F	Density gm/cc
—13.8	0.4129
12.0	0.3614
30.4	0.3094
40.4	0.2577
48.2	0.2068*
50.6	0.1563*
40.8	0.1052*
12.1	0.0540*

50.26% C_2H_6, 49.74% N_2

Temp °F	Density gm/cc
—27.4	0.3702*
—8.4	0.3197*
5.1	0.2679*
15.0	0.2161*
20.0	0.1651*
14.5	0.1134*
—7.6	0.0628*

29.96% C_2H_6, 70.04% N_2

Temp °F	Density gm/cc
—59.5	0.3272*
—40.9	0.2767*
—28.8	0.2262*
—23.2	0.1762*
—23.8	0.1264*
—35.6	0.0758*
—56.5	0.0421*

* Vapor densities