

TABLES OF THE THERMODYNAMIC PROPERTIES
OF NITROGEN FROM 100 TO 1500°K

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ABSTRACT

Tables of the thermodynamic properties of nitrogen are presented for the range of temperatures from 100 to 1500°K. In the first table, in which temperature and pressure are the independent variables, the range of pressures extends from one to 10^4 atm. In the second table, with temperature and density as independent variables, the range of densities extends from 10^{-7} to 630 amagats. In addition to pressure and density, the tabulated properties are the compressibility factor Z and the dimensionless functions E/RT , H/RT , and S/R . The source data and the tables are discussed.

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TABLES

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NOMENCLATURE

A	Free energy function, $E - TS$
E	Internal energy in dimensionless function E/RT
H	Enthalpy in dimensionless function H/RT
log	Common logarithm
P	Planck function, $S/R - H/RT$
p	Pressure, atm
R	Gas constant
S	Entropy in dimensionless function S/R
T	Temperature, °K
Z	Compressibility factor
ρ/ρ_0	Density in amagat units based on density at 0°C and one atm of pressure (c. f. Appendix)

1.0 INTRODUCTION

These tables were prepared for the purposes of data reduction in the operation of wind tunnels at the Arnold Engineering Development Center (AEDC), Air Force Systems Command (AFSC), USAF, in which nitrogen is sometimes used as the working gas. Their format is the one currently being used by the National Bureau of Standards and others, in which the dimensionless quantities Z , E/RT , H/RT , and S/R are the principal entries.

The sources are the tables of Hilsenrath, Beckett, et al. (Ref. 1) and of Din (Ref. 2), both of which are formulated in terms of temperature and pressure as independent variables. The range of pressures in Ref. 1 extends from 10^{-2} to 10^2 atm, and its pressure-tabulation intervals are rather large. In Ref. 2 the tabulations begin at one atmosphere and extend upwards, sometimes as high as 10^4 atm. The machine-computed interpolations were made on the IBM 7070 computer at AEDC.

Two sets of tables are presented. In one, the independent variables are temperature and pressure through the range of temperature from 100 to 1500°K and of pressure from one to 10^4 atm. In the other, the independent variables are temperature and density. The range of temperatures is the same as above, and the density varies from about 10^{-7} to 630 amagats. The extension of the density range down to 10^{-7} amagats is based on the assumption of perfect gas conditions.

2.0 DATA CONVERSION

Numerical values of the gas constant and reference density are given in the Appendix.

The tables of Ref. 1 are based on the assumption that the internal energy of the perfect gas is zero at 0°K , as if to say that the gas has neither liquefied nor solidified in being cooled to absolute zero. On the other hand, the tables of Ref. 2 assume that the internal energy of the perfect crystal is zero at 0°K , so its tabulated values of energy involve provisions for the latent heats and the specific heats of the liquid and solid states.

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All the entries of Ref. 1 have the desired form, with the exception of the enthalpy function $(H - E_0)/RT_0$ which must be multiplied by the ratio T_0/T in order to yield the function H/RT . In this expression T_0 is equal to 273.16°K.

In the tables of Ref. 2, the gas volume is expressed in cm^3/mole , and these entries are converted to density in amagats by the relation

$$\frac{\rho}{\rho_0} = \frac{2.24035 (10)^4}{\text{Tabulated value}} \quad (1)$$

The compressibility factor Z is found from the relation

$$Z = \frac{p}{(\rho/\rho_0) RT} \quad (2)$$

in which the pressure p is given in atm, the relative density ρ/ρ_0 in amagats, and the temperature in °K. The gas constant in this instance is numerically equal to $3.661 (10)^{-3}$.

The entropies in Ref. 2 are given in joules/mole-°K and are converted to dimensionless form by the relation*

$$S/R = 1.2027 (10)^{-1} (\text{Tabulated value}) \quad (3)$$

The enthalpies in Ref. 2 are expressed in joules/mole and are converted to dimensionless form by the relation

$$H/RT = \frac{0.12173 (\text{Tabulated value}) - 848.0}{T} \quad (4)$$

in which the two constants are averages of many numerical comparisons of corresponding pairs of entries in Refs. 1 and 2. The average deviation of entries computed from Eq. (4) is 0.2 percent. The dimensionless internal energy function follows from the relation

$$E/RT = H/RT - Z \quad (5)$$

The appearance of negative enthalpies and internal energies is discussed in the air tables of Humphrey and Neel (Ref. 3).

The entries of Table 2 below a pressure of 10^{-2} were computed by assuming a perfect gas for which enthalpy is a function of temperature only and isothermal variations of entropy are proportional to the logarithm of the pressure.

*Attention is directed to the misprint in the last line on p. 123 of Ref. 2. The author no doubt intended the constant 0.31439 to be 8.31439, the reciprocal of which is 0.12027.

In the real gas domain of Table 2, the isothermal loci of Z , E/RT , H/RT , S/R , and $\log p$, plotted as functions of $\log (\rho/\rho_0)$ are so nearly linear in any given region that interpolations were made with the following ratio:

$$\frac{\log (\rho/\rho_0)_a - \log (\rho/\rho_0)_b}{\log (\rho/\rho_0)_c - \log (\rho/\rho_0)_b}$$

in which the subscript a denotes the desired value of density, the subscript b refers to the value of density nearest to and less than $(\rho/\rho_0)_a$, and the subscript c denotes the value of density nearest to and greater than the desired value. The simple procedure is adequate because entries are available at fairly small intervals of density.

3.0 CHECKING

Table 1 was checked and tested for internal consistency in various ways. The obvious one was to compare its entries with those of Ref. 1. Average agreement between the two was found to be within 0.2 percent. Both Tables 1 and 2 were plotted isothermally as functions of pressure and density to verify consistency.

In checking for internal consistency, the verification of the general gas law

$$p = RT(\rho/\rho_0)$$

was tested throughout both tables. The largest error disclosed by this test was one of 0.4 percent which occurred at 750°K, where fairing had been necessary to smooth the data. However, the most interesting tests developed as the result of a question relating to the validity of Eq. (4) for the calculation of the function H/RT at high pressures. The constants in Eq. (4) were found by comparing pairs of values in Refs. 1 and 2 in the region from one to 100 atm through which their tables overlapped. The question remained whether Eq. (4) would give consistent results at the higher pressures.

This question was examined by the method of characteristics functions (Ref. 4). For instance, on forming what is essentially the Planck function

$$P = S/R - H/RT$$

and letting $x = \log p$, it is easy to show that

$$(\partial P/\partial x)_T = -Z$$

Also, on forming the free energy

$$A = E - TS$$

it follows that

$$(\partial A / \partial u)_T = ZRT \text{ where } u = \log \rho$$

and

$$(\partial A / \partial T)_u = - S/R$$

These three differential relationships were tested with machine-computed derivatives. The average inconsistency turned out to be 0.35 percent, and its values were slightly over 0.5 percent in about one-third of the test points.

REFERENCES

1. Hilsenrath, J., Beckett, C. W., et al. "Tables of Thermal Properties of Gases." National Bureau of Standards, Circular 564, November 1955.
2. Din, F. Thermodynamic Functions of Gases, Vol. 3. Butterworths Scientific Publications, London, 1961.
3. Humphrey, R. L. and Neel, C. A. "Tables of Thermodynamic Properties of Air from 90 to 1500°K." AEDC-TN-61-103, August 1961.
4. Planck, M. Treatise on Thermodynamics. Dover Publications, Inc., New York, 1945. (Third Edition)

APPENDIX

Density at 0°C and p = 1 atm

$$\rho_0 = 4.46338 \times 10^{-5} \text{ mole/cm}^3$$

$$1.25046 \times 10^{-3} \text{ g/cm}^3$$

$$7.8064 \times 10^{-2} \text{ lb/ft}^3$$

Gas Constant

$$R = 1.98719 \text{ cal/mole-}^\circ\text{K}$$

$$7.09305 \times 10^{-2} \text{ cal/gm-}^\circ\text{K}$$

$$1.98588 \text{ Btu/lb-mole-}^\circ\text{R}$$

$$3.19666 \times 10^3 \text{ ft}^2/\text{sec}^2$$

$$3.661 \times 10^{-3} \text{ atm/amagat-}^\circ\text{K}$$

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TABLE 1

**Tables of the Thermodynamic Properties of Nitrogen
from 100 to 1500°K with Independent Variables of
Temperature and Pressure**

Contrails

$T = 100 \text{ } ^\circ\text{K}$

$p, \text{ atm}$	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.8160-01	2.4351+00	3.4167+00	1.9171+01	2.7827+00
2.0+00	9.6270-01	2.4065+00	3.3692+00	1.8448+01	5.6746+00
3.0+00	9.4332-01	2.3772+00	3.3205+00	1.8014+01	8.6869+00
5.0+00	9.0649-01	2.3118+00	3.2193+00	1.7434+01	1.5066+01
7.0+00	8.6797-01	2.2200+00	3.0880+00	1.7010+01	2.2029+01

Contrails

AEDC-TDR-62-170

T = 110 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.8591-01	2.4466+00	3.4325+00	1.9509+01	2.5187+00
2.0+00	9.7139-01	2.4235+00	3.3949+00	1.8792+01	5.1126+00
3.0+00	9.5632-01	2.3999+00	3.3562+00	1.8364+01	7.7898+00
5.0+00	9.2717-01	2.3493+00	3.2765+00	1.7796+01	1.3391+01
7.0+00	8.9768-01	2.2869+00	3.1846+00	1.7401+01	1.9363+01
1.0+01	8.5124-01	2.1818+00	3.0330+00	1.6939+01	2.9171+01

T = 120 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.8910-01	2.4556+00	3.4447+00	1.9816+01	2.3013+00
2.0+00	9.7782-01	2.4365+00	3.4143+00	1.9104+01	4.6558+00
3.0+00	9.6593-01	2.4169+00	3.3828+00	1.8680+01	7.0696+00
5.0+00	9.4287-01	2.3770+00	3.3199+00	1.8124+01	1.2071+01
7.0+00	9.1039-01	2.3411+00	3.2520+00	1.7744+01	1.7340+01
1.0+01	8.8292-01	2.2605+00	3.1434+00	1.7313+01	2.5781+01
1.5+01	8.1079-01	2.1196+00	2.9304+00	1.6756+01	4.2112+01
2.0+01	7.1934-01	1.8865+00	2.6058+00	1.6217+01	6.3287+01

Contrails

AEDC-TDR-62-170

T = 130 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9151-01	2.4626+00	3.4541+00	2.0097+01	2.1191+00
2.0+00	9.8251-01	2.4473+00	3.4298+00	1.9390+01	4.2771+00
3.0+00	9.7322-01	2.4313+00	3.4045+00	1.8969+01	6.4769+00
5.0+00	9.5475-01	2.3983+00	3.3530+00	1.8421+01	1.1004+01
7.0+00	9.3552-01	2.3632+00	3.2987+00	1.8049+01	1.5722+01
1.0+01	9.0692-01	2.3066+00	3.2135+00	1.7633+01	2.3168+01
1.5+01	8.5322-01	2.2076+00	3.0608+00	1.7122+01	3.6939+01
2.0+01	7.9100-01	2.0882+00	2.8792+00	1.6706+01	5.3127+01
2.5+01	7.1934-01	1.9342+00	2.6535+00	1.6320+01	7.3023+01
3.0+01	6.0211-01	1.7124+00	2.3145+00	1.5869+01	1.0469+02
3.5+01	3.8406-01	1.0718+00	1.4559+00	1.4914+01	1.9148+02
4.0+01	2.4460-01	2.1963-01	4.6423-01	1.3867+01	3.4361+02
4.5+01	2.3972-01	-1.2945-01	1.1027-01	1.3470+01	3.9443+02
5.0+01	2.4853-01	-3.3677-01	-8.8242-02	1.3239+01	4.2271+02
6.0+01	2.8023-01	-5.1923-01	-2.3900-01	1.3030+01	4.4987+02
7.0+01	3.1644-01	-6.4814-01	-3.3170-01	1.2889+01	4.6480+02
8.0+01	3.5414-01	-7.1862-01	-3.6448-01	1.2817+01	4.7465+02
9.0+01	3.9250-01	-7.6821-01	-3.7571-01	1.2763+01	4.8180+02
1.0+02	4.3048-01	-8.1275-01	-3.8227-01	1.2709+01	4.8809+02
1.2+02	5.0420-01	-8.9396-01	-3.8976-01	1.2619+01	5.0008+02
1.4+02	5.7773-01	-9.6936-01	-3.9163-01	1.2535+01	5.0917+02
1.6+02	6.4975-01	-1.0376+00	-3.8788-01	1.2459+01	5.1740+02
1.8+02	7.2084-01	-1.0984+00	-3.7758-01	1.2386+01	5.2467+02
2.0+02	7.8968-01	-1.1532+00	-3.6354-01	1.2319+01	5.3215+02
2.5+02	9.6131-01	-1.2659+00	-3.0455-01	1.2201+01	5.4643+02
3.0+02	1.1283+00	-1.3598+00	-2.3151-01	1.2093+01	5.5869+02
3.5+02	1.2900+00	-1.4419+00	-1.5192-01	1.1993+01	5.7006+02
4.0+02	1.4481+00	-1.5148+00	-6.6705-02	1.1901+01	5.8040+02
4.5+02	1.6038+00	-1.5815+00	2.2252-02	1.1814+01	5.8957+02
5.0+02	1.7585+00	-1.6426+00	1.1589-01	1.1731+01	5.9743+02
6.0+02	2.0539+00	-1.7367+00	3.1721-01	1.1586+01	6.1379+02
7.0+02	2.3437+00	-1.8167+00	5.2696-01	1.1455+01	6.2755+02
8.0+02	2.6260+00	-1.8818+00	7.4420-01	1.1338+01	6.4010+02
9.0+02	2.9036+00	-1.9365+00	9.6706-01	1.1232+01	6.5126+02
1.0+03	3.1700+00	-1.9763+00	1.1937+00	1.1137+01	6.6283+02
1.5+03	4.4736+00	-2.1301+00	2.3435+00	1.0737+01	7.0451+02
2.0+03	5.7022+00	-2.1769+00	3.5253+00	1.0418+01	7.3696+02
2.5+03	6.8699+00	-2.2191+00	4.6508+00	1.0142+01	7.6462+02
3.0+03	7.9906+00	-2.2395+00	5.7511+00	9.8827+00	7.8886+02
4.0+03	1.0166+01	-2.2725+00	7.8935+00	9.4425+00	8.2670+02

T = 140 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9332-01	2.4680+00	3.4613+00	2.0358+01	1.9642+00
2.0+00	9.8601-01	2.4561+00	3.4421+00	1.9653+01	3.9575+00
3.0+00	9.7869-01	2.4441+00	3.4228+00	1.9235+01	5.9806+00
5.0+00	9.6406-01	2.4146+00	3.3787+00	1.8693+01	1.0119+01
7.0+00	9.4856-01	2.3857+00	3.3343+00	1.8327+01	1.4398+01
1.0+01	9.2574-01	2.3391+00	3.2648+00	1.7920+01	2.1076+01
1.5+01	8.8503-01	2.2598+00	3.1448+00	1.7432+01	3.3068+01
2.0+01	8.4109-01	2.1733+00	3.0144+00	1.7052+01	4.6394+01
2.5+01	7.9424-01	2.0723+00	2.8665+00	1.6725+01	6.1413+01
3.0+01	7.3676-01	1.9428+00	2.6796+00	1.6405+01	7.9445+01
3.5+01	6.5869-01	1.7679+00	2.4266+00	1.6030+01	1.0367+02
4.0+01	5.6781-01	1.5692+00	2.1370+00	1.5663+01	1.3744+02
4.5+01	4.9300-01	1.3371+00	1.8301+00	1.5279+01	1.7809+02
5.0+01	4.3631-01	1.0747+00	1.5110+00	1.4914+01	2.2359+02
6.0+01	3.7413-01	6.1689-01	9.9102-01	1.4294+01	3.1290+02
7.0+01	3.5845-01	1.5870-01	5.1715-01	1.3755+01	3.8101+02
8.0+01	3.7831-01	-6.8970-02	3.0934-01	1.3497+01	4.1259+02
9.0+01	4.1149-01	-1.6041-01	2.5108-01	1.3395+01	4.2673+02
1.0+02	4.4589-01	-2.2437-01	2.2152-01	1.3313+01	4.3757+02
1.2+02	5.1417-01	-3.3178-01	1.8239-01	1.3188+01	4.5536+02
1.4+02	5.8401-01	-4.2162-01	1.6239-01	1.3082+01	4.6771+02
1.6+02	6.5211-01	-5.0189-01	1.5022-01	1.2987+01	4.7871+02
1.8+02	7.1795-01	-5.7469-01	1.4326-01	1.2899+01	4.8916+02
2.0+02	7.8205-01	-6.3618-01	1.4587-01	1.2821+01	4.9896+02
2.5+02	9.4272-01	-7.6120-01	1.8152-01	1.2679+01	5.1740+02
3.0+02	1.0973+00	-8.6274-01	2.3456-01	1.2555+01	5.3342+02
3.5+02	1.2497+00	-9.5254-01	2.9716-01	1.2443+01	5.4643+02
4.0+02	1.4004+00	-1.0337+00	3.6672-01	1.2341+01	5.5730+02
4.5+02	1.5480+00	-1.1056+00	4.4237-01	1.2246+01	5.6718+02
5.0+02	1.6939+00	-1.1707+00	5.2323-01	1.2157+01	5.7593+02
6.0+02	1.9699+00	-1.2667+00	7.0322-01	1.2004+01	5.9426+02
7.0+02	2.2373+00	-1.3437+00	8.9364-01	1.1870+01	6.1045+02
8.0+02	2.5012+00	-1.4084+00	1.0928+00	1.1749+01	6.2405+02
9.0+02	2.7589+00	-1.4618+00	1.2971+00	1.1641+01	6.3646+02
1.0+03	3.0132+00	-1.5074+00	1.5058+00	1.1545+01	6.4750+02
1.5+03	4.2455+00	-1.6502+00	2.5953+00	1.1142+01	6.8934+02
2.0+03	5.3820+00	-1.7129+00	3.6691+00	1.0823+01	7.2503+02
2.5+03	6.4663+00	-1.7503+00	4.7160+00	1.0550+01	7.5433+02
3.0+03	7.5244+00	-1.7833+00	5.7411+00	1.0293+01	7.7790+02
4.0+03	9.5448+00	-1.8117+00	7.7331+00	9.8562+00	8.1765+02
5.0+03	1.1496+01	-1.8274+00	9.6686+00	9.4713+00	8.4862+02

T = 150 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9464-01	2.4729+00	3.4675+00	2.0600+01	1.8308+00
2.0+00	9.8871-01	2.4626+00	3.4513+00	1.9898+01	3.6836+00
3.0+00	9.8270-01	2.4515+00	3.4342+00	1.9481+01	5.5592+00
5.0+00	9.7132-01	2.4279+00	3.3992+00	1.8944+01	9.3738+00
7.0+00	9.5872-01	2.4041+00	3.3628+00	1.8583+01	1.3296+01
1.0+01	9.4043-01	2.3656+00	3.3060+00	1.8185+01	1.9363+01
1.5+01	9.0906-01	2.3003+00	3.2094+00	1.7712+01	3.0048+01
2.0+01	8.7687-01	2.2311+00	3.1080+00	1.7354+01	4.1534+01
2.5+01	8.4330-01	2.1567+00	3.0000+00	1.7054+01	5.3984+01
3.0+01	8.0859-01	2.0722+00	2.8808+00	1.6789+01	6.7562+01
3.5+01	7.7238-01	1.9744+00	2.7468+00	1.6528+01	8.2517+01
4.0+01	7.2893-01	1.8678+00	2.5967+00	1.6282+01	9.9926+01
4.5+01	6.8435-01	1.7436+00	2.4279+00	1.6023+01	1.1974+02
5.0+01	6.3481-01	1.6057+00	2.2405+00	1.5771+01	1.4343+02
6.0+01	5.4670-01	1.3261+00	1.8728+00	1.5297+01	1.9985+02
7.0+01	4.8135-01	1.0336+00	1.5149+00	1.4841+01	2.6482+02
8.0+01	4.5648-01	7.1522-01	1.1717+00	1.4431+01	3.1914+02
9.0+01	4.6526-01	5.2462-01	9.8988-01	1.4188+01	3.5226+02
1.0+02	4.9175-01	4.0480-01	8.9655-01	1.4034+01	3.7031+02
1.2+02	5.5207-01	2.6658-01	8.1865-01	1.3864+01	3.9582+02
1.4+02	6.1108-01	1.5157-01	7.6265-01	1.3716+01	4.1720+02
1.6+02	6.7106-01	4.7770-02	7.1883-01	1.3586+01	4.3418+02
1.8+02	7.3154-01	-4.6800-02	6.8474-01	1.3469+01	4.4807+02
2.0+02	7.9168-01	-1.3128-01	6.6040-01	1.3361+01	4.6003+02
2.5+02	9.4084-01	-3.0154-01	6.3930-01	1.3161+01	4.8388+02
3.0+02	1.0851+00	-4.3120-01	6.5390-01	1.3001+01	5.0345+02
3.5+02	1.2261+00	-5.3324-01	6.9286-01	1.2868+01	5.1980+02
4.0+02	1.3655+00	-6.2070-01	7.4480-01	1.2752+01	5.3342+02
4.5+02	1.5033+00	-6.9602-01	8.0728-01	1.2649+01	5.4510+02
5.0+02	1.6378+00	-7.6235-01	8.7545-01	1.2553+01	5.5592+02
6.0+02	1.8971+00	-8.6100-01	1.0361+00	1.2393+01	5.7593+02
7.0+02	2.1507+00	-9.4170-01	1.2090+00	1.2253+01	5.9269+02
8.0+02	2.3994+00	-1.0078+00	1.3916+00	1.2129+01	6.0714+02
9.0+02	2.6408+00	-1.0609+00	1.5799+00	1.2019+01	6.2060+02
1.0+03	2.8774+00	-1.1044+00	1.7730+00	1.1921+01	6.3287+02
1.5+03	4.0234+00	-1.2368+00	2.7866+00	1.1516+01	6.7889+02
2.0+03	5.1045+00	-1.3148+00	3.7897+00	1.1197+01	7.1349+02
2.5+03	6.1327+00	-1.3643+00	4.7684+00	1.0925+01	7.4233+02
3.0+03	7.1203+00	-1.3927+00	5.7276+00	1.0670+01	7.6724+02
4.0+03	9.0060+00	-1.4151+00	7.5909+00	1.0237+01	8.0879+02
5.0+03	1.0827+01	-1.4256+00	9.4014+00	9.8574+00	8.4097+02
6.0+03	1.2582+01	-1.4270+00	1.1155+01	9.5146+00	8.6835+02

T = 160 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9573-01	2.4765+00	3.4722+00	2.0826+01	1.7145+00
2.0+00	9.9093-01	2.4660+00	3.4569+00	2.0125+01	3.4456+00
3.0+00	9.8597-01	2.4588+00	3.4448+00	1.9711+01	5.1944+00
5.0+00	9.7690-01	2.4390+00	3.4159+00	1.9177+01	8.7377+00
7.0+00	9.6654-01	2.4189+00	3.3854+00	1.8821+01	1.2364+01
1.0+01	9.5252-01	2.3865+00	3.3390+00	1.8429+01	1.7923+01
1.5+01	9.2745-01	2.3325+00	3.2599+00	1.7968+01	2.7611+01
2.0+01	9.0268-01	2.2758+00	3.1785+00	1.7625+01	3.7825+01
2.5+01	8.7765-01	2.2164+00	3.0940+00	1.7342+01	4.8629+01
3.0+01	8.5178-01	2.1525+00	3.0043+00	1.7097+01	6.0127+01
3.5+01	8.2572-01	2.0827+00	2.9084+00	1.6869+01	7.2363+01
4.0+01	7.9890-01	2.0068+00	2.8057+00	1.6664+01	8.5477+01
4.5+01	7.7188-01	1.9242+00	2.6961+00	1.6455+01	9.9527+01
5.0+01	7.4297-01	1.8352+00	2.5782+00	1.6261+01	1.1489+02
6.0+01	6.8033-01	1.6453+00	2.3256+00	1.5881+01	1.5056+02
7.0+01	6.2089-01	1.4392+00	2.0601+00	1.5515+01	1.9247+02
8.0+01	5.7913-01	1.2345+00	1.8136+00	1.5184+01	2.3583+02
9.0+01	5.6305-01	1.0703+00	1.6333+00	1.4933+01	2.7288+02
1.0+02	5.6999-01	9.4611-01	1.5161+00	1.4750+01	2.9951+02
1.2+02	6.0900-01	7.8620-01	1.3952+00	1.4517+01	3.3639+02
1.4+02	6.5396-01	6.4454-01	1.2985+00	1.4317+01	3.6547+02
1.6+02	7.0593-01	5.0967-01	1.2156+00	1.4145+01	3.8693+02
1.8+02	7.5988-01	3.9562-01	1.1555+00	1.4000+01	4.0440+02
2.0+02	8.1231-01	3.0739-01	1.1197+00	1.3874+01	4.2033+02
2.5+02	9.4681-01	1.0599-01	1.0528+00	1.3626+01	4.5077+02
3.0+02	1.0790+00	-4.8300-02	1.0307+00	1.3428+01	4.7465+02
3.5+02	1.2108+00	-1.6870-01	1.0421+00	1.3269+01	4.9347+02
4.0+02	1.3411+00	-2.6470-01	1.0764+00	1.3138+01	5.0917+02
4.5+02	1.4676+00	-3.4250-01	1.1251+00	1.3025+01	5.2345+02
5.0+02	1.5926+00	-4.0970-01	1.1829+00	1.2922+01	5.3597+02
6.0+02	1.8334+00	-5.0750-01	1.3259+00	1.2755+01	5.5869+02
7.0+02	2.0750+00	-5.9240-01	1.4826+00	1.2609+01	5.7593+02
8.0+02	2.3043+00	-6.5430-01	1.6500+00	1.2482+01	5.9269+02
9.0+02	2.5375+00	-7.1330-01	1.8242+00	1.2369+01	6.0550+02
1.0+03	2.7661+00	-7.6310-01	2.0030+00	1.2269+01	6.1718+02
1.5+03	3.8406+00	-8.9030-01	2.9503+00	1.1861+01	6.6677+02
2.0+03	4.8617+00	-9.7110-01	3.8906+00	1.1542+01	7.0230+02
2.5+03	5.8104+00	-1.0007+00	4.8097+00	1.1272+01	7.3454+02
3.0+03	6.7438+00	-1.0326+00	5.7112+00	1.1019+01	7.5944+02
4.0+03	8.5346+00	-1.0720+00	7.4626+00	1.0590+01	8.0013+02
5.0+03	1.0249+01	-1.0844+00	9.1646+00	1.0215+01	8.3284+02
6.0+03	1.1887+01	-1.0730+00	1.0814+01	9.8779+00	8.6167+02

Contrails

AEDC-TDR-62-170

T = 170 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9661-01	2.4800+00	3.4766+00	2.1038+01	1.6122+00
2.0+00	9.9274-01	2.4721+00	3.4648+00	2.0338+01	3.2370+00
3.0+00	9.8865-01	2.4641+00	3.4527+00	1.9925+01	4.8756+00
5.0+00	9.8112-01	2.4472+00	3.4283+00	1.9395+01	8.1884+00
7.0+00	9.7294-01	2.4304+00	3.4033+00	1.9043+01	1.1560+01
1.0+01	9.6175-01	2.4036+00	3.3653+00	1.8656+01	1.6707+01
1.5+01	9.4153-01	2.3586+00	3.3001+00	1.8204+01	2.5598+01
2.0+01	9.2202-01	2.3108+00	3.2328+00	1.7870+01	3.4853+01
2.5+01	9.0241-01	2.2617+00	3.1641+00	1.7598+01	4.4513+01
3.0+01	8.8258-01	2.2099+00	3.0925+00	1.7366+01	5.4616+01
3.5+01	8.6275-01	2.1553+00	3.0180+00	1.7157+01	6.5183+01
4.0+01	8.4284-01	2.0972+00	2.9400+00	1.6968+01	7.6254+01
4.5+01	8.2298-01	2.0353+00	2.8583+00	1.6785+01	8.7857+01
5.0+01	8.0218-01	1.9716+00	2.7738+00	1.6615+01	1.0015+02
6.0+01	7.6682-01	1.8309+00	2.5977+00	1.6300+01	1.2572+02
7.0+01	7.2293-01	1.6915+00	2.4144+00	1.6004+01	1.5558+02
8.0+01	6.8506-01	1.5553+00	2.2404+00	1.5735+01	1.8763+02
9.0+01	6.6742-01	1.4240+00	2.0914+00	1.5508+01	2.1667+02
1.0+02	6.6412-01	1.3070+00	1.9711+00	1.5319+01	2.4194+02
1.2+02	6.7990-01	1.1373+00	1.8172+00	1.5036+01	2.8359+02
1.4+02	7.0686-01	9.8714-01	1.6940+00	1.4802+01	3.1823+02
1.6+02	7.4817-01	8.5063-01	1.5988+00	1.4612+01	3.4361+02
1.8+02	7.9393-01	7.3537-01	1.5293+00	1.4453+01	3.6428+02
2.0+02	8.3768-01	6.4722-01	1.4849+00	1.4316+01	3.8362+02
2.5+02	9.5566-01	4.3974-01	1.3954+00	1.4037+01	4.2033+02
3.0+02	1.0758+00	2.7670-01	1.3525+00	1.3817+01	4.4807+02
3.5+02	1.1974+00	1.4860-01	1.3460+00	1.3641+01	4.6968+02
4.0+02	1.3196+00	4.6500-02	1.3661+00	1.3498+01	4.8703+02
4.5+02	1.4394+00	-3.6100-02	1.4033+00	1.3377+01	5.0232+02
5.0+02	1.5563+00	-1.0430-01	1.4520+00	1.3267+01	5.1621+02
6.0+02	1.7815+00	-2.0280-01	1.5787+00	1.3091+01	5.4115+02
7.0+02	2.0081+00	-2.8690-01	1.7212+00	1.2940+01	5.6009+02
8.0+02	2.2262+00	-3.5100-01	1.8752+00	1.2810+01	5.7741+02
9.0+02	2.4463+00	-4.1000-01	2.0363+00	1.2695+01	5.9112+02
1.0+03	2.6608+00	-4.5840-01	2.2024+00	1.2592+01	6.0387+02
1.5+03	3.6792+00	-5.8890-01	3.0903+00	1.2181+01	6.5507+02
2.0+03	4.6474+00	-6.7270-01	3.9747+00	1.1861+01	6.9147+02
2.5+03	5.5582+00	-7.1710-01	4.8411+00	1.1592+01	7.2269+02
3.0+03	6.4332+00	-7.4070-01	5.6925+00	1.1343+01	7.4928+02
4.0+03	8.1186+00	-7.7340-01	7.3452+00	1.0917+01	7.9164+02
5.0+03	9.7180+00	-7.6600-01	8.9520+00	1.0547+01	8.2670+02
6.0+03	1.1231+01	-7.2100-01	1.0510+01	1.0216+01	8.5837+02

T = 180 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9733-01	2.4820+00	3.4793+00	2.1237+01	1.5216+00
2.0+00	9.9408-01	2.4750+00	3.4691+00	2.0537+01	3.0531+00
3.0+00	9.9082-01	2.4682+00	3.4590+00	2.0126+01	4.5946+00
5.0+00	9.8452-01	2.4542+00	3.4387+00	1.9599+01	7.7067+00
7.0+00	9.7816-01	2.4396+00	3.4178+00	1.9249+01	1.0860+01
1.0+01	9.6861-01	2.4174+00	3.3860+00	1.8867+01	1.5667+01
1.5+01	9.5242-01	2.3788+00	3.3312+00	1.8422+01	2.3900+01
2.0+01	9.3664-01	2.3385+00	3.2751+00	1.8096+01	3.2403+01
2.5+01	9.2102-01	2.2966+00	3.2176+00	1.7831+01	4.1190+01
3.0+01	9.0548-01	2.2532+00	3.1587+00	1.7608+01	5.0277+01
3.5+01	8.8997-01	2.2085+00	3.0985+00	1.7409+01	5.9679+01
4.0+01	8.7459-01	2.1617+00	3.0363+00	1.7231+01	6.9404+01
4.5+01	8.5986-01	2.1129+00	2.9728+00	1.7063+01	7.9417+01
5.0+01	8.4431-01	2.0629+00	2.9072+00	1.6908+01	8.9866+01
6.0+01	8.1729-01	1.9573+00	2.7746+00	1.6626+01	1.1140+02
7.0+01	7.8992-01	1.8488+00	2.6387+00	1.6368+01	1.3447+02
8.0+01	7.6405-01	1.7428+00	2.5068+00	1.6133+01	1.5889+02
9.0+01	7.5043-01	1.6333+00	2.3837+00	1.5923+01	1.8199+02
1.0+02	7.4170-01	1.5325+00	2.2742+00	1.5739+01	2.0460+02
1.2+02	7.4861-01	1.3700+00	2.1186+00	1.5445+01	2.4325+02
1.4+02	7.6053-01	1.2344+00	1.9949+00	1.5203+01	2.7935+02
1.6+02	7.9223-01	1.1060+00	1.8982+00	1.5006+01	3.0648+02
1.8+02	8.2785-01	9.9795-01	1.8258+00	1.4841+01	3.2995+02
2.0+02	8.6294-01	9.1276-01	1.7757+00	1.4696+01	3.5170+02
2.5+02	9.6691-01	7.0939-01	1.6763+00	1.4401+01	3.9236+02
3.0+02	1.0770+00	5.4460-01	1.6216+00	1.4169+01	4.2271+02
3.5+02	1.1901+00	4.1790-01	1.6080+00	1.3984+01	4.4628+02
4.0+02	1.3032+00	3.1500-01	1.6182+00	1.3832+01	4.6577+02
4.5+02	1.4143+00	2.3230-01	1.6466+00	1.3704+01	4.8283+02
5.0+02	1.5240+00	1.6450-01	1.6885+00	1.3589+01	4.9786+02
6.0+02	1.7354+00	6.4700-02	1.8001+00	1.3405+01	5.2467+02
7.0+02	1.9487+00	-1.8800-02	1.9299+00	1.3249+01	5.4510+02
8.0+02	2.1621+00	-9.0100-02	2.0720+00	1.3116+01	5.6149+02
9.0+02	2.3714+00	-1.5000-01	2.2214+00	1.2998+01	5.7593+02
1.0+03	2.5739+00	-1.9830-01	2.3756+00	1.2893+01	5.8957+02
1.5+03	3.5358+00	-3.2500-01	3.2108+00	1.2478+01	6.4378+02
2.0+03	4.4434+00	-3.9810-01	4.0453+00	1.2157+01	6.8303+02
2.5+03	5.3172+00	-4.5220-01	4.8650+00	1.1889+01	7.1349+02
3.0+03	6.1571+00	-4.8530-01	5.6718+00	1.1643+01	7.3939+02
4.0+03	7.7489+00	-5.1220-01	7.2367+00	1.1221+01	7.8334+02
5.0+03	9.2458+00	-4.8610-01	8.7597+00	1.0857+01	8.2064+02
6.0+03	1.0689+01	-4.5200-01	1.0237+01	1.0531+01	8.5184+02

Contrails

AEDC-TDR-62-170

T = 190 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9784-01	2.4842+00	3.4820+00	2.1426+01	1.4407+00
2.0+00	9.9514-01	2.4785+00	3.4736+00	2.0728+01	2.8893+00
3.0+00	9.9258-01	2.4721+00	3.4647+00	2.0316+01	4.3451+00
5.0+00	9.8725-01	2.4602+00	3.4474+00	1.9792+01	7.2810+00
7.0+00	9.8193-01	2.4475+00	3.4294+00	1.9444+01	1.0249+01
1.0+01	9.7410-01	2.4278+00	3.4019+00	1.9065+01	1.4759+01
1.5+01	9.6101-01	2.3948+00	3.3558+00	1.8625+01	2.2439+01
2.0+01	9.4817-01	2.3601+00	3.3083+00	1.8305+01	3.0324+01
2.5+01	9.3560-01	2.3247+00	3.2603+00	1.8047+01	3.8415+01
3.0+01	9.2308-01	2.2879+00	3.2110+00	1.7829+01	4.6723+01
3.5+01	9.1095-01	2.2501+00	3.1610+00	1.7638+01	5.5235+01
4.0+01	8.9889-01	2.2115+00	3.1104+00	1.7468+01	6.3973+01
4.5+01	8.8737-01	2.1711+00	3.0585+00	1.7308+01	7.2904+01
5.0+01	8.7560-01	2.1303+00	3.0059+00	1.7164+01	8.2094+01
6.0+01	8.5436-01	2.0471+00	2.9015+00	1.6903+01	1.0096+02
7.0+01	8.3549-01	1.9603+00	2.7958+00	1.6668+01	1.2045+02
8.0+01	8.1829-01	1.8737+00	2.6920+00	1.6455+01	1.4055+02
9.0+01	8.0796-01	1.7828+00	2.5908+00	1.6261+01	1.6014+02
1.0+02	8.0084-01	1.6939+00	2.4947+00	1.6084+01	1.7952+02
1.2+02	8.0161-01	1.5464+00	2.3480+00	1.5792+01	2.1521+02
1.4+02	8.0854-01	1.4222+00	2.2307+00	1.5550+01	2.4893+02
1.6+02	8.3164-01	1.3069+00	2.1385+00	1.5351+01	2.7659+02
1.8+02	8.5821-01	1.2091+00	2.0673+00	1.5184+01	3.0153+02
2.0+02	8.8683-01	1.1280+00	2.0148+00	1.5034+01	3.2422+02
2.5+02	9.8019-01	9.2951-01	1.9097+00	1.4727+01	3.6667+02
3.0+02	1.0800+00	7.7270-01	1.8527+00	1.4490+01	3.9935+02
3.5+02	1.1859+00	6.4820-01	1.8341+00	1.4299+01	4.2431+02
4.0+02	1.2911+00	5.4750-01	1.8386+00	1.4141+01	4.4540+02
4.5+02	1.3947+00	4.6570-01	1.8604+00	1.4008+01	4.6384+02
5.0+02	1.4984+00	3.9790-01	1.8963+00	1.3891+01	4.7973+02
6.0+02	1.6479+00	2.9770-01	1.9956+00	1.3700+01	5.0802+02
7.0+02	1.9001+00	2.1340-01	2.1135+00	1.3538+01	5.2963+02
8.0+02	2.0996+00	1.4460-01	2.2442+00	1.3401+01	5.4776+02
9.0+02	2.2486+00	8.4600-02	2.3832+00	1.3280+01	5.6290+02
1.0+03	2.4898+00	3.7500-02	2.5273+00	1.3173+01	5.7741+02
1.5+03	3.4074+00	-9.3300-02	3.3141+00	1.2755+01	6.3287+02
2.0+03	4.2737+00	-1.6960-01	4.1041+00	1.2432+01	6.7278+02
2.5+03	5.1015+00	-2.1960-01	4.8819+00	1.2165+01	7.0451+02
3.0+03	5.8908+00	-2.4200-01	5.6488+00	1.1922+01	7.3214+02
4.0+03	7.4180+00	-2.8290-01	7.1351+00	1.1505+01	7.7521+02
5.0+03	8.8554+00	-2.7170-01	8.5837+00	1.1147+01	8.1172+02
6.0+03	1.0203+01	-2.1490-01	9.9881+00	1.0826+01	8.4542+02

T = 200 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9788-01	2.4865+00	3.4844+00	2.1604+01	1.3681+00
2.0+00	9.9608-01	2.4810+00	3.4771+00	2.0907+01	2.7422+00
3.0+00	9.9388-01	2.4753+00	3.4692+00	2.0497+01	4.1225+00
5.0+00	9.8946-01	2.4644+00	3.4539+00	1.9973+01	6.9015+00
7.0+00	9.8515-01	2.4536+00	3.4387+00	1.9627+01	9.7044+00
1.0+01	9.7861-01	2.4364+00	3.4150+00	1.9251+01	1.3956+01
1.5+01	9.6800-01	2.4074+00	3.3754+00	1.8815+01	2.1163+01
2.0+01	9.5758-01	2.3777+00	3.3353+00	1.8500+01	2.8525+01
2.5+01	9.4734-01	2.3472+00	3.2945+00	1.8246+01	3.6042+01
3.0+01	9.3728-01	2.3152+00	3.2525+00	1.8033+01	4.3714+01
3.5+01	9.2750-01	2.2824+00	3.2099+00	1.7847+01	5.1538+01
4.0+01	9.1808-01	2.2492+00	3.1673+00	1.7683+01	5.9505+01
4.5+01	9.0884-01	2.2159+00	3.1247+00	1.7531+01	6.7623+01
5.0+01	8.9979-01	2.1817+00	3.0815+00	1.7392+01	7.5893+01
6.0+01	8.8296-01	2.1120+00	2.9950+00	1.7145+01	9.2807+01
7.0+01	8.6882-01	2.0398+00	2.9086+00	1.6925+01	1.1004+02
8.0+01	8.5687-01	1.9665+00	2.8234+00	1.6725+01	1.2751+02
9.0+01	8.4622-01	1.8912+00	2.7394+00	1.6542+01	1.4491+02
1.0+02	8.4370-01	1.8141+00	2.6578+00	1.6376+01	1.6188+02
1.2+02	8.4200-01	1.6631+00	2.5251+00	1.6090+01	1.9464+02
1.4+02	8.4919-01	1.5688+00	2.4180+00	1.5853+01	2.2516+02
1.6+02	8.6614-01	1.4661+00	2.3322+00	1.5656+01	2.5229+02
1.8+02	8.8662-01	1.3780+00	2.2646+00	1.5488+01	2.7727+02
2.0+02	9.1076-01	1.3021+00	2.2129+00	1.5337+01	2.9991+02
2.5+02	9.9367-01	1.1151+00	2.1088+00	1.5025+01	3.4361+02
3.0+02	1.0860+00	9.6620-01	2.0522+00	1.4786+01	3.7729+02
3.5+02	1.1833+00	8.4700-01	2.0303+00	1.4591+01	4.0396+02
4.0+02	1.2812+00	7.4970-01	2.0309+00	1.4429+01	4.2641+02
4.5+02	1.3790+00	6.6900-01	2.0480+00	1.4292+01	4.4566+02
5.0+02	1.4759+00	6.0310-01	2.0790+00	1.4173+01	4.6269+02
6.0+02	1.6664+00	5.0090-01	2.1673+00	1.3975+01	4.9174+02
7.0+02	1.8584+00	4.1660-01	2.2750+00	1.3808+01	5.1443+02
8.0+02	2.0478+00	3.4830-01	2.3961+00	1.3669+01	5.3354+02
9.0+02	2.2363+00	2.8880-01	2.5251+00	1.3545+01	5.4964+02
1.0+03	2.4189+00	2.4140-01	2.6603+00	1.3435+01	5.6460+02
1.5+03	3.2937+00	1.0970-01	3.4034+00	1.3013+01	6.2197+02
2.0+03	4.1173+00	3.6000-02	4.1533+00	1.2691+01	6.6341+02
2.5+03	4.9043+00	-1.0900-02	4.8934+00	1.2424+01	6.9619+02
3.0+03	5.6621+00	-3.8300-02	5.6238+00	1.2183+01	7.2363+02
4.0+03	7.1081+00	-6.8000-02	7.0401+00	1.1771+01	7.6656+02
5.0+03	8.4675+00	-4.5800-02	8.4217+00	1.1417+01	8.0646+02
6.0+03	9.7623+00	-1.5000-03	9.7608+00	1.1101+01	8.3940+02

Contrails

AEDC-TDR-62-170

T = 210 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9824-01	2.4878+00	3.4860+00	2.1774+01	1.3025+00
2.0+00	9.9684-01	2.4828+00	3.4796+00	2.1077+01	2.6077+00
3.0+00	9.9501-01	2.4782+00	3.4732+00	2.0667+01	3.9217+00
5.0+00	9.9135-01	2.4686+00	3.4599+00	2.0145+01	6.5603+00
7.0+00	9.8782-01	2.4588+00	3.4466+00	1.9800+01	9.2173+00
1.0+01	9.8246-01	2.4438+00	3.4263+00	1.9426+01	1.3239+01
1.5+01	9.7381-01	2.4177+00	3.3915+00	1.8994+01	2.0035+01
2.0+01	9.6540-01	2.3913+00	3.3567+00	1.8683+01	2.6947+01
2.5+01	9.5695-01	2.3645+00	3.3214+00	1.8433+01	3.3981+01
3.0+01	9.4891-01	2.3371+00	3.2860+00	1.8225+01	4.1122+01
3.5+01	9.4104-01	2.3091+00	3.2501+00	1.8042+01	4.8377+01
4.0+01	9.3358-01	2.2799+00	3.2135+00	1.7883+01	5.5730+01
4.5+01	9.2618-01	2.2508+00	3.1770+00	1.7734+01	6.3197+01
5.0+01	9.1906-01	2.2214+00	3.1405+00	1.7600+01	7.0763+01
6.0+01	9.0606-01	2.1608+00	3.0669+00	1.7362+01	8.6134+01
7.0+01	8.9491-01	2.0984+00	2.9933+00	1.7152+01	1.0174+02
8.0+01	8.8620-01	2.0346+00	2.9208+00	1.6959+01	1.1742+02
9.0+01	8.7941-01	1.9707+00	2.8501+00	1.6786+01	1.3312+02
1.0+02	8.7610-01	1.9062+00	2.7823+00	1.6631+01	1.4847+02
1.2+02	8.7506-01	1.7901+00	2.6652+00	1.6353+01	1.7837+02
1.4+02	8.8191-01	1.6870+00	2.5689+00	1.6122+01	2.0648+02
1.6+02	8.9549-01	1.5952+00	2.4907+00	1.5929+01	2.3240+02
1.8+02	9.1233-01	1.5152+00	2.4275+00	1.5763+01	2.5663+02
2.0+02	9.3358-01	1.4446+00	2.3782+00	1.5611+01	2.7865+02
2.5+02	1.0082+00	1.2698+00	2.2780+00	1.5298+01	3.2254+02
3.0+02	1.0928+00	1.1301+00	2.2229+00	1.5058+01	3.5708+02
3.5+02	1.1826+00	1.0171+00	2.1997+00	1.4861+01	3.8494+02
4.0+02	1.2738+00	9.2470-01	2.1985+00	1.4697+01	4.0845+02
4.5+02	1.3661+00	8.4640-01	2.2125+00	1.4558+01	4.2845+02
5.0+02	1.4573+00	7.8240-01	2.2397+00	1.4436+01	4.4628+02
6.0+02	1.6350+00	6.7950-01	2.3185+00	1.4233+01	4.7616+02
7.0+02	1.8215+00	5.9620-01	2.4177+00	1.4062+01	4.9985+02
8.0+02	2.0019+00	5.2820-01	2.5301+00	1.3920+01	5.1930+02
9.0+02	2.1810+00	4.6970-01	2.6507+00	1.3794+01	5.3674+02
1.0+03	2.3554+00	4.2220-01	2.7776+00	1.3682+01	5.5222+02
1.5+03	3.1900+00	2.9020-01	3.4802+00	1.3255+01	6.1162+02
2.0+03	3.9770+00	2.1730-01	4.1943+00	1.2933+01	6.5412+02
2.5+03	4.7274+00	1.7240-01	4.8998+00	1.2666+01	6.8786+02
3.0+03	5.4534+00	1.4370-01	5.5971+00	1.2428+01	7.1554+02
4.0+03	6.8323+00	1.1830-01	6.9506+00	1.2020+01	7.6151+02
5.0+03	8.1311+00	1.4000-01	8.2711+00	1.1671+01	7.9934+02
6.0+03	9.3637+00	1.8850-01	9.5522+00	1.1361+01	8.3346+02

T = 220 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9855-01	2.4895+00	3.4880+00	2.1936+01	1.2428+00
2.0+00	9.9747-01	2.4850+00	3.4825+00	2.1240+01	2.4895+00
3.0+00	9.9597-01	2.4804+00	3.4764+00	2.0830+01	3.7398+00
5.0+00	9.9295-01	2.4719+00	3.4648+00	2.0309+01	6.2520+00
7.0+00	9.9005-01	2.4631+00	3.4531+00	1.9965+01	8.7785+00
1.0+01	9.8569-01	2.4497+00	3.4354+00	1.9593+01	1.2596+01
1.5+01	9.7868-01	2.4263+00	3.4050+00	1.9164+01	1.9030+01
2.0+01	9.7183-01	2.4028+00	3.3746+00	1.8855+01	2.5551+01
2.5+01	9.6499-01	2.3791+00	3.3441+00	1.8608+01	3.2166+01
3.0+01	9.5758-01	2.3555+00	3.3131+00	1.8403+01	3.8898+01
3.5+01	9.5238-01	2.3298+00	3.2822+00	1.8223+01	4.5628+01
4.0+01	9.4634-01	2.3049+00	3.2512+00	1.8068+01	5.2480+01
4.5+01	9.4044-01	2.2792+00	3.2196+00	1.7923+01	5.9410+01
5.0+01	9.3493-01	2.2532+00	3.1881+00	1.7793+01	6.6400+01
6.0+01	9.2506-01	2.1994+00	3.1245+00	1.7562+01	8.0530+01
7.0+01	9.1630-01	2.1445+00	3.0608+00	1.7358+01	9.4850+01
8.0+01	9.0976-01	2.0885+00	2.9983+00	1.7172+01	1.0918+02
9.0+01	9.0478-01	2.0332+00	2.9380+00	1.7006+01	1.2350+02
1.0+02	9.0223-01	1.9782+00	2.8804+00	1.6858+01	1.3761+02
1.2+02	9.0245-01	1.8762+00	2.7786+00	1.6590+01	1.6510+02
1.4+02	9.0932-01	1.7830+00	2.6923+00	1.6365+01	1.9116+02
1.6+02	9.2041-01	1.7005+00	2.6209+00	1.6175+01	2.1583+02
1.8+02	9.3570-01	1.6277+00	2.5634+00	1.6012+01	2.3884+02
2.0+02	9.5543-01	1.5626+00	2.5180+00	1.5863+01	2.5990+02
2.5+02	1.0226+00	1.4002+00	2.4228+00	1.5550+01	3.0353+02
3.0+02	1.1001+00	1.2702+00	2.3703+00	1.5309+01	3.3857+02
3.5+02	1.1832+00	1.1638+00	2.3470+00	1.5111+01	3.6727+02
4.0+02	1.2682+00	1.0766+00	2.3448+00	1.4946+01	3.9160+02
4.5+02	1.3552+00	1.0018+00	2.3570+00	1.4805+01	4.1228+02
5.0+02	1.4417+00	9.3910-01	2.3808+00	1.4681+01	4.3059+02
6.0+02	1.6147+00	8.3750-01	2.4522+00	1.4475+01	4.6136+02
7.0+02	1.7884+00	7.5510-01	2.5435+00	1.4300+01	4.8598+02
8.0+02	1.9610+00	6.8760-01	2.6486+00	1.4156+01	5.0652+02
9.0+02	2.1318+00	6.2970-01	2.7615+00	1.4028+01	5.2418+02
1.0+03	2.2982+00	5.8280-01	2.8810+00	1.3914+01	5.4023+02
1.5+03	3.0966+00	4.5000-01	3.5466+00	1.3482+01	6.0144+02
2.0+03	3.8494+00	3.7890-01	4.2283+00	1.3160+01	6.4508+02
2.5+03	4.5679+00	3.3440-01	4.9023+00	1.2893+01	6.7951+02
3.0+03	5.2637+00	3.0590-01	5.5696+00	1.2657+01	7.0763+02
4.0+03	6.5838+00	2.8220-01	6.8660+00	1.2253+01	7.5433+02
5.0+03	7.8224+00	3.0850-01	8.1309+00	1.1909+01	7.9361+02
6.0+03	9.0612+00	3.5800-01	9.3592+00	1.1605+01	8.2761+02

Contrails

AEDC-TDR-62-170

T = 230 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9881-01	2.4905+00	3.4893+00	2.2091+01	1.1885+00
2.0+00	9.9800-01	2.4865+00	3.4845+00	2.1395+01	2.3600+00
3.0+00	9.9678-01	2.4824+00	3.4792+00	2.0985+01	3.5743+00
5.0+00	9.9430-01	2.4749+00	3.4692+00	2.0465+01	5.9720+00
7.0+00	9.9194-01	2.4667+00	3.4586+00	2.0123+01	8.3808+00
1.0+01	9.8842-01	2.4543+00	3.4427+00	1.9752+01	1.2015+01
1.5+01	9.8272-01	2.4336+00	3.4163+00	1.9325+01	1.8127+01
2.0+01	9.7718-01	2.4126+00	3.3898+00	1.9018+01	2.4307+01
2.5+01	9.7180-01	2.3915+00	3.3633+00	1.8774+01	3.0552+01
3.0+01	9.6674-01	2.3696+00	3.3363+00	1.8571+01	3.6854+01
3.5+01	9.6181-01	2.3470+00	3.3088+00	1.8394+01	4.3217+01
4.0+01	9.5693-01	2.3249+00	3.2818+00	1.8242+01	4.9642+01
4.5+01	9.5251-01	2.3018+00	3.2543+00	1.8100+01	5.6107+01
5.0+01	9.4808-01	2.2792+00	3.2273+00	1.7972+01	6.2632+01
6.0+01	9.4082-01	2.2309+00	3.1717+00	1.7747+01	7.5739+01
7.0+01	9.3435-01	2.1824+00	3.1167+00	1.7549+01	8.8973+01
8.0+01	9.2916-01	2.1335+00	3.0627+00	1.7370+01	1.0225+02
9.0+01	9.2603-01	2.0843+00	3.0103+00	1.7208+01	1.1542+02
1.0+C2	9.2396-01	2.0371+00	2.9611+00	1.7066+01	1.2853+02
1.2+C2	9.2555-01	1.9467+00	2.8722+00	1.6807+01	1.5398+02
1.4+C2	9.3213-01	1.8633+00	2.7954+00	1.6588+01	1.7037+02
1.6+C2	9.4230-01	1.7886+00	2.7309+00	1.6401+01	2.0165+02
1.8+C2	9.5704-01	1.7215+00	2.6785+00	1.6240+01	2.2336+02
2.0+C2	9.7538-01	1.6618+00	2.6372+00	1.6093+01	2.4352+02
2.5+C2	1.0363+00	1.5120+00	2.5483+00	1.5783+01	2.8649+02
3.0+C2	1.1075+00	1.3905+00	2.4980+00	1.5543+01	3.2170+02
3.5+C2	1.1845+00	1.2913+00	2.4758+00	1.5344+01	3.5093+02
4.0+C2	1.2642+00	1.2089+00	2.4731+00	1.5178+01	3.7577+02
4.5+C2	1.3461+00	1.1376+00	2.4837+00	1.5036+01	3.9701+02
5.0+C2	1.4286+00	1.0763+00	2.5049+00	1.4911+01	4.1565+02
6.0+C2	1.5932+00	9.7730-01	2.5705+00	1.4702+01	4.4726+02
7.0+C2	1.7589+00	8.9630-01	2.6552+00	1.4525+01	4.7265+02
8.0+C2	1.9240+00	8.2910-01	2.7531+00	1.4377+01	4.9380+02
9.0+C2	2.0873+00	7.7220-01	2.8595+00	1.4249+01	5.1208+02
1.0+03	2.2460+00	7.2620-01	2.9722+00	1.4133+01	5.2876+02
1.5+03	3.0104+00	5.9370-01	3.6041+00	1.3696+01	5.9175+02
2.0+03	3.7330+00	5.2320-01	4.2562+00	1.3374+01	6.3628+02
2.5+03	4.4223+00	4.7960-01	4.9019+00	1.3108+01	6.7137+02
3.0+03	5.0905+00	4.5070-01	5.5412+00	1.2874+01	6.9489+02
4.0+03	6.3548+00	4.3070-01	6.7855+00	1.2473+01	7.4753+02
5.0+03	7.5433+00	4.5640-01	7.9997+00	1.2134+01	7.8719+02
6.0+03	8.6703+00	5.1010-01	9.1804+00	1.1836+01	8.2185+02

T = 240 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9902-01	2.4920+00	3.4910+00	2.2239+01	1.1387+00
2.0+00	9.9846-01	2.4879+00	3.4864+00	2.1543+01	2.2797+00
3.0+00	9.9748-01	2.4844+00	3.4819+00	2.1134+01	3.4230+00
5.0+00	9.9547-01	2.4772+00	3.4727+00	2.0614+01	5.7165+00
7.0+00	9.9357-01	2.4700+00	3.4636+00	2.0273+01	8.0184+00
1.0+01	9.9072-01	2.4592+00	3.4499+00	1.9904+01	1.1488+01
1.5+01	9.8613-01	2.4400+00	3.4261+00	1.9479+01	1.7312+01
2.0+01	9.8168-01	2.4210+00	3.4027+00	1.9174+01	2.3187+01
2.5+01	9.7754-01	2.4014+00	3.3789+00	1.8932+01	2.9107+01
3.0+01	9.7355-01	2.3816+00	3.3551+00	1.8730+01	3.5071+01
3.5+01	9.6974-01	2.3615+00	3.3312+00	1.8555+01	4.1077+01
4.0+01	9.6583-01	2.3416+00	3.3074+00	1.8405+01	4.7135+01
4.5+01	9.6266-01	2.3208+00	3.2835+00	1.8266+01	5.3202+01
5.0+01	9.5912-01	2.3006+00	3.2597+00	1.8140+01	5.9331+01
6.0+01	9.5404-01	2.2575+00	3.2115+00	1.7920+01	7.1577+01
7.0+01	9.4947-01	2.2143+00	3.1638+00	1.7727+01	8.3908+01
8.0+01	9.4571-01	2.1715+00	3.1172+00	1.7554+01	9.6276+01
9.0+01	9.4368-01	2.1283+00	3.0720+00	1.7397+01	1.0854+02
1.0+02	9.4236-01	2.0865+00	3.0289+00	1.7259+01	1.2077+02
1.2+02	9.4490-01	2.0054+00	2.9503+00	1.7006+01	1.4454+02
1.4+C2	9.5161-01	1.9307+00	2.8823+00	1.6793+01	1.6744+02
1.6+C2	9.6156-01	1.8629+00	2.8245+00	1.6611+01	1.8938+02
1.8+02	9.7569-01	1.8011+00	2.7768+00	1.6452+01	2.0997+02
2.0+02	9.9367-01	1.7461+00	2.7398+00	1.6308+01	2.2907+02
2.5+02	1.0490+00	1.6087+00	2.6577+00	1.6001+01	2.7123+02
3.0+02	1.1145+00	1.4955+00	2.6100+00	1.5760+01	3.0635+02
3.5+02	1.1863+00	1.4024+00	2.5887+00	1.5562+01	3.3578+02
4.0+C2	1.2613+00	1.3243+00	2.5856+00	1.5396+01	3.6094+02
4.5+02	1.3387+00	1.2566+00	2.5953+00	1.5253+01	3.8257+02
5.0+02	1.4174+00	1.1966+00	2.6140+00	1.5126+01	4.0150+02
6.0+02	1.5743+00	1.1006+00	2.6749+00	1.4915+01	4.3376+02
7.0+02	1.7325+00	1.0215+00	2.7540+00	1.4737+01	4.5984+02
8.0+02	1.8906+00	9.5520-01	2.8458+00	1.4586+01	4.8159+02
9.0+02	2.0465+00	8.9980-01	2.9463+00	1.4457+01	5.0053+02
1.0+03	2.1987+00	8.5460-01	3.0533+00	1.4340+01	5.1764+02
1.5+03	2.9315+00	7.2280-01	3.6543+00	1.3899+01	5.8236+02
2.0+03	3.6252+00	6.5350-01	4.2787+00	1.3576+01	6.2790+02
2.5+03	4.2889+00	6.0960-01	4.8985+00	1.3310+01	6.6341+02
3.0+03	4.9318+00	5.8040-01	5.5122+00	1.3077+01	6.9232+02
4.0+03	6.1469+00	5.6230-01	6.7092+00	1.2681+01	7.4061+02
5.0+03	7.2849+00	5.9190-01	7.8768+00	1.2347+01	7.8115+02
6.0+03	8.3669+00	6.4660-01	9.0135+00	1.2054+01	8.1616+02

Contrails

AEDC-TDR-62-170

T = 250 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9921-01	2.4929+00	3.4921+00	2.2381+01	1.0930+00
2.0+00	9.9889-01	2.4893+00	3.4882+00	2.1685+01	2.1876+00
3.0+00	9.9808-01	2.4862+00	3.4843+00	2.1277+01	3.2841+00
5.0+00	9.9647-01	2.4795+00	3.4760+00	2.0758+01	5.4823+00
7.0+00	9.9493-01	2.4728+00	3.4677+00	2.0417+01	7.6872+00
1.0+01	9.9269-01	2.4629+00	3.4556+00	2.0048+01	1.1006+01
1.5+01	9.8904-01	2.4456+00	3.4346+00	1.9626+01	1.6571+01
2.0+01	9.8553-01	2.4282+00	3.4137+00	1.9322+01	2.2173+01
2.5+01	9.8233-01	2.4104+00	3.3927+00	1.9082+01	2.7806+01
3.0+01	9.7923-01	2.3926+00	3.3718+00	1.8883+01	3.3473+01
3.5+01	9.7636-01	2.3740+00	3.3504+00	1.8709+01	3.9167+01
4.0+01	9.7343-01	2.3560+00	3.3294+00	1.8560+01	4.4897+01
4.5+01	9.7111-01	2.3374+00	3.3085+00	1.8423+01	5.0629+01
5.0+01	9.6855-01	2.3191+00	3.2876+00	1.8300+01	5.6404+01
6.0+01	9.6504-01	2.2807+00	3.2457+00	1.8084+01	6.7931+01
7.0+01	9.6202-01	2.2423+00	3.2043+00	1.7895+01	7.9501+01
8.0+01	9.5978-01	2.2041+00	3.1639+00	1.7727+01	9.1071+01
9.0+01	9.5860-01	2.1659+00	3.1245+00	1.7574+01	1.0258+02
1.0+02	9.5831-01	2.1287+00	3.0870+00	1.7439+01	1.1401+02
1.2+02	9.6153-01	2.0563+00	3.0178+00	1.7193+01	1.3636+02
1.4+02	9.6816-01	1.9887+00	2.9569+00	1.6985+01	1.5799+02
1.6+02	9.7850-01	1.9263+00	2.9048+00	1.6805+01	1.7866+02
1.8+02	9.9196-01	1.8700+00	2.8620+00	1.6649+01	1.9826+02
2.0+02	1.0095+00	1.8189+00	2.8284+00	1.6507+01	2.1646+02
2.5+02	1.0605+00	1.6929+00	2.7534+00	1.6204+01	2.5757+02
3.0+02	1.1213+00	1.5873+00	2.7086+00	1.5965+01	2.9232+02
3.5+02	1.1884+00	1.4998+00	2.6882+00	1.5766+01	3.2180+02
4.0+02	1.2592+00	1.4256+00	2.6848+00	1.5600+01	3.4707+02
4.5+02	1.3326+00	1.3609+00	2.6935+00	1.5456+01	3.6896+02
5.0+02	1.4075+00	1.3031+00	2.7106+00	1.5330+01	3.8814+02
6.0+02	1.5576+00	1.2095+00	2.7671+00	1.5116+01	4.2088+02
7.0+02	1.7086+00	1.1329+00	2.8415+00	1.4936+01	4.4762+02
8.0+02	1.8599+00	1.0683+00	2.9282+00	1.4785+01	4.6997+02
9.0+02	2.0094+00	1.0143+00	3.0237+00	1.4654+01	4.8937+02
1.0+03	2.1556+00	9.6980-01	3.1254+00	1.4536+01	5.0687+02
1.5+03	2.8596+00	8.3840-01	3.6980+00	1.4091+01	5.7313+02
2.0+03	3.5270+00	7.7000-01	4.2970+00	1.3767+01	6.1957+02
2.5+03	4.1661+00	7.2680-01	4.8929+00	1.3503+01	6.5565+02
3.0+03	4.7857+00	6.9740-01	5.4831+00	1.3271+01	6.8491+02
4.0+03	5.9537+00	6.8290-01	6.6366+00	1.2879+01	7.3406+02
5.0+03	7.0496+00	7.1180-01	7.7614+00	1.2548+01	7.7494+02
6.0+03	8.0879+00	7.6950-01	8.8574+00	1.2259+01	8.1055+02

T = 260° K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9937-01	2.4941+00	3.4935+00	2.2518+01	1.0507+00
2.0+00	9.9920-01	2.4911+00	3.4903+00	2.1822+01	2.1028+00
3.0+00	9.9859-01	2.4879+00	3.4865+00	2.1415+01	3.1562+00
5.0+00	9.9733-01	2.4817+00	3.4790+00	2.0895+01	5.2670+00
7.0+00	9.9612-01	2.4754+00	3.4715+00	2.0556+01	7.3827+00
1.0+01	9.9433-01	2.4665+00	3.4608+00	2.0187+01	1.0566+01
1.5+01	9.9151-01	2.4505+00	3.4420+00	1.9767+01	1.5894+01
2.0+01	9.8879-01	2.4345+00	3.4233+00	1.9475+01	2.1250+01
2.5+01	9.8640-01	2.4182+00	3.4046+00	1.9225+01	2.6626+01
3.0+01	9.8406-01	2.4018+00	3.3859+00	1.9027+01	3.2028+01
3.5+01	9.8197-01	2.3851+00	3.3671+00	1.8856+01	3.7445+01
4.0+01	9.7988-01	2.3685+00	3.3484+00	1.8708+01	4.2886+01
4.5+01	9.7829-01	2.3518+00	3.3301+00	1.8573+01	4.8325+01
5.0+01	9.7632-01	2.3356+00	3.3119+00	1.8452+01	5.3803+01
6.0+01	9.7407-01	2.3013+00	3.2754+00	1.8239+01	6.4713+01
7.0+01	9.7229-01	2.2670+00	3.2393+00	1.8054+01	7.5636+01
8.0+01	9.7125-01	2.2325+00	3.2037+00	1.7889+01	8.6533+01
9.0+01	9.7111-01	2.1980+00	3.1691+00	1.7740+01	9.7364+01
1.0+02	9.7163-01	2.1652+00	3.1368+00	1.7609+01	1.0813+02
1.2+02	9.7576-01	2.1001+00	3.0759+00	1.7368+01	1.2920+02
1.4+02	9.8279-01	2.0388+00	3.0216+00	1.7164+01	1.4966+02
1.6+02	9.9264-01	1.9822+00	2.9748+00	1.6988+01	1.6934+02
1.8+02	1.0061+00	1.9298+00	2.9359+00	1.6834+01	1.8795+02
2.0+02	1.0232+00	1.8823+00	2.9055+00	1.6695+01	2.0535+02
2.5+02	1.0706+00	1.7670+00	2.8376+00	1.6395+01	2.4533+02
3.0+02	1.1277+00	1.6682+00	2.7959+00	1.6157+01	2.7948+02
3.5+02	1.1907+00	1.5856+00	2.7763+00	1.5959+01	3.0880+02
4.0+02	1.2577+00	1.5148+00	2.7725+00	1.5793+01	3.3413+02
4.5+02	1.3273+00	1.4532+00	2.7805+00	1.5647+01	3.5618+02
5.0+02	1.3988+00	1.3971+00	2.7959+00	1.5521+01	3.7552+02
6.0+02	1.5424+00	1.3064+00	2.8488+00	1.5306+01	4.0867+02
7.0+02	1.6869+00	1.2326+00	2.9195+00	1.5125+01	4.3595+02
8.0+02	1.8026+00	1.1759+00	2.9785+00	1.4973+01	4.6625+02
9.0+02	1.9756+00	1.1172+00	3.0928+00	1.4840+01	4.7860+02
1.0+03	2.1158+00	1.0739+00	3.1897+00	1.4721+01	4.9653+02
1.5+03	2.7925+00	9.4400-01	3.7365+00	1.4273+01	5.6432+02
2.0+03	3.4354+00	8.7650-01	4.3119+00	1.3949+01	6.1162+02
2.5+03	4.0516+00	8.3390-01	4.8855+00	1.3684+01	6.4825+02
3.0+03	4.6495+00	8.0480-01	5.4543+00	1.3454+01	6.7787+02
4.0+03	5.7773+00	7.8990-01	6.5672+00	1.3066+01	7.2739+02
5.0+03	6.8324+00	8.2060-01	7.6530+00	1.2739+01	7.6882+02
6.0+03	7.8331+00	8.7800-01	8.7111+00	1.2455+01	8.0472+02

Contrails

AEDC-TDR-62-170

T = 270 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9951-01	2.4949+00	3.4944+00	2.2651+01	1.0117+00
2.0+00	9.9449-01	2.4918+00	3.4913+00	2.1954+01	2.0244+00
3.0+00	9.9902-01	2.4891+00	3.4881+00	2.1547+01	3.0380+00
5.0+00	9.9805-01	2.4834+00	3.4814+00	2.1027+01	5.0682+00
7.0+00	9.9712-01	2.4780+00	3.4751+00	2.0688+01	7.1021+00
1.0+01	9.9575-01	2.4694+00	3.4651+00	2.0321+01	1.0160+01
1.5+01	9.9367-01	2.4548+00	3.4485+00	1.9901+01	1.5272+01
2.0+01	9.9164-01	2.4402+00	3.4318+00	1.9599+01	2.0404+01
2.5+01	9.8983-01	2.4253+00	3.4151+00	1.9362+01	2.5551+01
3.0+01	9.8812-01	2.4103+00	3.3984+00	1.9165+01	3.0715+01
3.5+01	9.8669-01	2.3950+00	3.3817+00	1.8997+01	3.5886+01
4.0+01	9.8532-01	2.3802+00	3.3655+00	1.8850+01	4.1070+01
4.5+01	9.8432-01	2.3650+00	3.3493+00	1.8717+01	4.6250+01
5.0+01	9.8283-01	2.3502+00	3.3330+00	1.8596+01	5.1467+01
6.0+01	9.8161-01	2.3194+00	3.3010+00	1.8387+01	6.1837+01
7.0+01	9.8085-01	2.2887+00	3.2695+00	1.8205+01	7.2199+01
8.0+01	9.8080-01	2.2576+00	3.2384+00	1.8043+01	8.2517+01
9.0+01	9.8148-01	2.2267+00	3.2082+00	1.7898+01	9.2768+01
1.0+02	9.8261-01	2.1972+00	3.1798+00	1.7769+01	1.0296+02
1.2+02	9.8730-01	2.1388+00	3.1261+00	1.7533+01	1.2296+02
1.4+02	9.9507-01	2.0828+00	3.0779+00	1.7333+01	1.4233+02
1.6+02	1.0050+00	2.0309+00	3.0359+00	1.7160+01	1.6106+02
1.8+02	1.0185+00	1.9823+00	3.0008+00	1.7009+01	1.7880+02
2.0+02	1.0350+00	1.9378+00	2.9728+00	1.6872+01	1.9549+02
2.5+02	1.0796+00	1.8319+00	2.9115+00	1.6576+01	2.3427+02
3.0+02	1.1336+00	1.7396+00	2.8732+00	1.6339+01	2.6773+02
3.5+02	1.1933+00	1.6609+00	2.8542+00	1.6140+01	2.9674+02
4.0+02	1.2564+00	1.5942+00	2.8506+00	1.5974+01	3.2207+02
4.5+02	1.3227+00	1.5351+00	2.8578+00	1.5829+01	3.4419+02
5.0+02	1.3910+00	1.4808+00	2.8718+00	1.5701+01	3.6363+02
6.0+02	1.5286+00	1.3937+00	2.9223+00	1.5486+01	3.9708+02
7.0+02	1.6671+00	1.3224+00	2.9895+00	1.5304+01	4.2479+02
8.0+02	1.8059+00	1.2620+00	3.0679+00	1.5151+01	4.4816+02
9.0+02	1.9439+00	1.2106+00	3.1545+00	1.5017+01	4.6840+02
1.0+03	2.0795+00	1.1679+00	3.2474+00	1.4898+01	4.8650+02
1.5+03	2.7304+00	1.0404+00	3.7708+00	1.4447+01	5.5578+02
2.0+03	3.3506+00	9.7340-01	4.3240+00	1.4122+01	6.0387+02
2.5+03	3.9467+00	9.3010-01	4.8768+00	1.3858+01	6.4083+02
3.0+03	4.5247+00	9.0120-01	5.4259+00	1.3628+01	6.7076+02
4.0+03	5.6139+00	8.8730-01	6.5012+00	1.3244+01	7.2083+02
5.0+03	6.6312+00	9.1960-01	7.5508+00	1.2922+01	7.6280+02
6.0+03	7.5971+00	9.7660-01	8.5737+00	1.2642+01	7.9898+02

T = 280 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9963-01	2.4961+00	3.4957+00	2.2777+01	9.7542-01
2.0+00	9.9955-01	2.4936+00	3.4931+00	2.2081+01	1.9515+00
3.0+00	9.9940-01	2.4907+00	3.4901+00	2.1673+01	2.9284+00
5.0+00	9.9868-01	2.4853+00	3.4840+00	2.1154+01	4.8841+00
7.0+00	9.9797-01	2.4798+00	3.4778+00	2.0815+01	6.8426+00
1.0+01	9.9698-01	2.4722+00	3.4692+00	2.0450+01	9.7849+00
1.5+01	9.9548-01	2.4585+00	3.4540+00	2.0031+01	1.4699+01
2.0+01	9.9402-01	2.4452+00	3.4392+00	1.9730+01	1.9628+01
2.5+01	9.9280-01	2.4316+00	3.4244+00	1.9495+01	2.4565+01
3.0+01	9.9162-01	2.4180+00	3.4096+00	1.9299+01	2.9513+01
3.5+01	9.9077-01	2.4041+00	3.3949+00	1.9132+01	3.4462+01
4.0+01	9.8984-01	2.3907+00	3.3805+00	1.8986+01	3.9422+01
4.5+01	9.8934-01	2.3769+00	3.3662+00	1.8854+01	4.4372+01
5.0+01	9.8844-01	2.3634+00	3.3518+00	1.8735+01	4.9347+01
6.0+01	9.8810-01	2.3355+00	3.3236+00	1.8528+01	5.9237+01
7.0+01	9.8818-01	2.3075+00	3.2957+00	1.8350+01	6.9104+01
8.0+01	9.8862-01	2.2802+00	3.2688+00	1.8190+01	7.8941+01
9.0+01	9.8992-01	2.2524+00	3.2423+00	1.8047+01	8.8692+01
1.0+02	9.9149-01	2.2255+00	3.2170+00	1.7920+01	9.8390+01
1.2+02	9.9698-01	2.1727+00	3.1697+00	1.7689+01	1.1742+02
1.4+02	1.0053+00	2.1213+00	3.1266+00	1.7493+01	1.3586+02
1.6+02	1.0158+00	2.0734+00	3.0892+00	1.7323+01	1.5366+02
1.8+02	1.0291+00	2.0284+00	3.0575+00	1.7173+01	1.7063+02
2.0+02	1.0442+00	1.9876+00	3.0318+00	1.7038+01	1.8685+02
2.5+02	1.0873+00	1.8893+00	2.9766+00	1.6745+01	2.2430+02
3.0+02	1.1387+00	1.8027+00	2.9414+00	1.6511+01	2.5701+02
3.5+02	1.1955+00	1.7281+00	2.9236+00	1.6312+01	2.8561+02
4.0+02	1.2556+00	1.6645+00	2.9201+00	1.6146+01	3.1077+02
4.5+02	1.3185+00	1.6081+00	2.9266+00	1.6001+01	3.3294+02
5.0+02	1.3840+00	1.5557+00	2.9397+00	1.5872+01	3.5242+02
6.0+02	1.5158+00	1.4721+00	2.9879+00	1.5657+01	3.8613+02
7.0+02	1.6490+00	1.4033+00	3.0523+00	1.5475+01	4.1411+02
8.0+02	1.7822+00	1.3449+00	3.1271+00	1.5320+01	4.3791+02
9.0+02	1.9148+00	1.2953+00	3.2101+00	1.5187+01	4.5852+02
1.0+03	2.0457+00	1.2535+00	3.2992+00	1.5066+01	4.7687+02
1.5+03	2.6734+00	1.1280+00	3.8014+00	1.4613+01	5.4736+02
2.0+03	3.2728+00	1.0611+00	4.3339+00	1.4287+01	5.9615+02
2.5+03	3.8493+00	1.0181+00	4.8674+00	1.4022+01	6.3358+02
3.0+03	4.4075+00	9.9030-01	5.3978+00	1.3795+01	6.6400+02
4.0+03	5.4604+00	9.7170-01	6.4381+00	1.3414+01	7.1463+02
5.0+03	6.4467+00	1.0074+00	7.4541+00	1.3096+01	7.5662+02
6.0+03	7.3807+00	1.0638+00	8.4445+00	1.2820+01	7.9304+02

Contrails

AEDC-TDR-62-170

T = 290 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	9.9973-01	2.4970+00	3.4967+00	2.2898+01	9.4168-01
2.0+00	9.9972-01	2.4947+00	3.4944+00	2.2203+01	1.8839+00
3.0+00	9.9970-01	2.4918+00	3.4915+00	2.1796+01	2.8265+00
5.0+00	9.9920-01	2.4868+00	3.4860+00	2.1277+01	4.7133+00
7.0+00	9.9869-01	2.4818+00	3.4805+00	2.0938+01	6.6019+00
1.0+01	9.9804-01	2.4746+00	3.4726+00	2.0574+01	9.4374+00
1.5+01	9.9697-01	2.4621+00	3.4591+00	2.0156+01	1.4171+01
2.0+01	9.9607-01	2.4496+00	3.4457+00	1.9857+01	1.8912+01
2.5+01	9.9525-01	2.4375+00	3.4327+00	1.9622+01	2.3660+01
3.0+01	9.9464-01	2.4247+00	3.4193+00	1.9426+01	2.8409+01
3.5+01	9.9413-01	2.4121+00	3.4062+00	1.9260+01	3.3161+01
4.0+01	9.9371-01	2.3999+00	3.3936+00	1.9116+01	3.7914+01
4.5+01	9.9363-01	2.3875+00	3.3811+00	1.8985+01	4.2657+01
5.0+01	9.9325-01	2.3753+00	3.3685+00	1.8868+01	4.7415+01
6.0+01	9.9363-01	2.3497+00	3.3433+00	1.8662+01	5.6876+01
7.0+01	9.9443-01	2.3245+00	3.3189+00	1.8487+01	6.6302+01
8.0+01	9.9523-01	2.2998+00	3.2950+00	1.8329+01	7.5713+01
9.0+01	9.9741-01	2.2745+00	3.2719+00	1.8189+01	8.4991+01
1.0+02	9.9935-01	2.2500+00	3.2493+00	1.8065+01	9.4251+01
1.2+02	1.0055+00	2.2018+00	3.2073+00	1.7837+01	1.1241+02
1.4+02	1.0141+00	2.1550+00	3.1691+00	1.7645+01	1.3003+02
1.6+02	1.0252+00	2.1103+00	3.1355+00	1.7477+01	1.4700+02
1.8+02	1.0383+00	2.0687+00	3.1070+00	1.7329+01	1.6329+02
2.0+02	1.0527+00	2.0312+00	3.0839+00	1.7195+01	1.7894+02
2.5+02	1.0940+00	1.9399+00	3.0339+00	1.6906+01	2.1523+02
3.0+02	1.1432+00	1.8588+00	3.0020+00	1.6673+01	2.4717+02
3.5+02	1.1973+00	1.7883+00	2.9856+00	1.6476+01	2.7533+02
4.0+02	1.2550+00	1.7273+00	2.9823+00	1.6310+01	3.0019+02
4.5+02	1.3151+00	1.6731+00	2.9882+00	1.6164+01	3.2231+02
5.0+02	1.3777+00	1.6231+00	3.0008+00	1.6036+01	3.4183+02
6.0+02	1.5042+00	1.5427+00	3.0469+00	1.5819+01	3.7571+02
7.0+02	1.6322+00	1.4764+00	3.1086+00	1.5638+01	4.0396+02
8.0+02	1.7601+00	1.4203+00	3.1804+00	1.5482+01	4.2812+02
9.0+02	1.8881+00	1.3721+00	3.2602+00	1.5348+01	4.4897+02
1.0+03	2.0142+00	1.3316+00	3.3458+00	1.5226+01	4.6762+02
1.5+03	2.6197+00	1.2088+00	3.8285+00	1.4772+01	5.3932+02
2.0+03	3.2003+00	1.1416+00	4.3419+00	1.4446+01	5.8864+02
2.5+03	3.7586+00	1.0987+00	4.8573+00	1.4181+01	6.2650+02
3.0+03	4.2984+00	1.0719+00	5.3703+00	1.3955+01	6.5738+02
4.0+03	5.3192+00	1.0589+00	6.3781+00	1.3576+01	7.0830+02
5.0+03	6.2727+00	1.0898+00	7.3625+00	1.3262+01	7.5079+02
6.0+03	7.1766+00	1.1463+00	8.3229+00	1.2990+01	7.8747+02

T = 300 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0000+00	2.4976+00	3.4976+00	2.3016+01	9.1023-01
2.0+00	9.9991-01	2.4957+00	3.4956+00	2.2321+01	1.8207+00
3.0+00	9.9984-01	2.4934+00	3.4932+00	2.1915+01	2.7316+00
5.0+00	9.9964-01	2.4887+00	3.4883+00	2.1396+01	4.5541+00
7.0+00	9.9931-01	2.4841+00	3.4834+00	2.1057+01	6.3779+00
1.0+01	9.9891-01	2.4772+00	3.4761+00	2.0694+01	9.1149+00
1.5+01	9.9830-01	2.4656+00	3.4639+00	2.0276+01	1.3681+01
2.0+01	9.9782-01	2.4540+00	3.4518+00	1.9978+01	1.8250+01
2.5+01	9.9743-01	2.4426+00	3.4400+00	1.9745+01	2.2821+01
3.0+01	9.9721-01	2.4310+00	3.4282+00	1.9550+01	2.7391+01
3.5+01	9.9698-01	2.4195+00	3.4165+00	1.9384+01	3.1964+01
4.0+01	9.9700-01	2.4081+00	3.4051+00	1.9241+01	3.6529+01
4.5+01	9.9708-01	2.3966+00	3.3937+00	1.9111+01	4.1092+01
5.0+01	9.9733-01	2.3855+00	3.3828+00	1.8996+01	4.5647+01
6.0+01	9.9830-01	2.3622+00	3.3605+00	1.8791+01	5.4723+01
7.0+01	9.9968-01	2.3393+00	3.3390+00	1.8618+01	6.3755+01
8.0+01	1.0011+00	2.3168+00	3.3179+00	1.8463+01	7.2762+01
9.0+01	1.0037+00	2.2939+00	3.2976+00	1.8324+01	8.1645+01
1.0+02	1.0063+00	2.2714+00	3.2777+00	1.8202+01	9.0483+01
1.2+02	1.0129+00	2.2275+00	3.2404+00	1.7978+01	1.0786+02
1.4+02	1.0219+00	2.1848+00	3.2067+00	1.7789+01	1.2474+02
1.6+02	1.0333+00	2.1434+00	3.1767+00	1.7623+01	1.4099+02
1.8+02	1.0461+00	2.1046+00	3.1507+00	1.7477+01	1.5667+02
2.0+02	1.0599+00	2.0697+00	3.1296+00	1.7344+01	1.7181+02
2.5+02	1.0999+00	1.9846+00	3.0845+00	1.7059+01	2.0694+02
3.0+02	1.1472+00	1.9085+00	3.0557+00	1.6827+01	2.3811+02
3.5+02	1.1991+00	1.8420+00	3.0411+00	1.6631+01	2.6576+02
4.0+02	1.2543+00	1.7836+00	3.0379+00	1.6465+01	2.9035+02
4.5+02	1.3120+00	1.7316+00	3.0436+00	1.6320+01	3.1229+02
5.0+02	1.3720+00	1.6837+00	3.0557+00	1.6191+01	3.3181+02
6.0+02	1.4933+00	1.6071+00	3.1004+00	1.5974+01	3.6583+02
7.0+02	1.6165+00	1.5431+00	3.1596+00	1.5793+01	3.9429+02
8.0+02	1.7398+00	1.4888+00	3.2286+00	1.5638+01	4.1868+02
9.0+02	1.8629+00	1.4424+00	3.3053+00	1.5502+01	4.3989+02
1.0+03	1.9849+00	1.4027+00	3.3876+00	1.5380+01	4.5871+02
1.5+03	2.5701+00	1.2826+00	3.8527+00	1.4924+01	5.3139+02
2.0+03	3.1326+00	1.2155+00	4.3481+00	1.4597+01	5.8131+02
2.5+03	3.6729+00	1.1739+00	4.8468+00	1.4333+01	6.1974+02
3.0+03	4.1978+00	1.1461+00	5.3439+00	1.4108+01	6.5070+02
4.0+03	5.1858+00	1.1351+00	6.3209+00	1.3733+01	7.0730+02
5.0+03	6.1124+00	1.1633+00	7.2757+00	1.3422+01	7.4480+02
6.0+03	6.9886+00	1.2196+00	8.2082+00	1.3154+01	7.8170+02
7.0+03	7.8234+00	1.2953+00	9.1187+00	1.2912+01	8.1467+02
8.0+03	8.6256+00	1.3834+00	1.0009+01	1.2690+01	8.4446+02
9.0+03	9.4112+00	1.4678+00	1.0879+01	1.2482+01	8.7072+02
1.0+04	1.0185+01	1.5480+00	1.1733+01	1.2287+01	8.9399+02

Contrails

AEDC-TDR-62-170

T = 320 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0001+00	2.4996+00	3.4997+00	2.3241+01	8.5321-01
2.0+00	1.0002+00	2.4975+00	3.4977+00	2.2547+01	1.7064+00
3.0+00	1.0002+00	2.4958+00	3.4960+00	2.2141+01	2.5598+00
5.0+00	1.0002+00	2.4915+00	3.4917+00	2.1622+01	4.2664+00
7.0+00	1.0003+00	2.4872+00	3.4875+00	2.1283+01	5.9732+00
1.0+01	1.0003+00	2.4815+00	3.4818+00	2.0921+01	8.5330+00
1.5+01	1.0004+00	2.4715+00	3.4719+00	2.0505+01	1.2798+01
2.0+01	1.0005+00	2.4619+00	3.4624+00	2.0209+01	1.7063+01
2.5+01	1.0008+00	2.4521+00	3.4529+00	1.9977+01	2.1322+01
3.0+01	1.0012+00	2.4421+00	3.4433+00	1.9783+01	2.5578+01
3.5+01	1.0016+00	2.4322+00	3.4338+00	1.9620+01	2.9828+01
4.0+01	1.0022+00	2.4225+00	3.4247+00	1.9478+01	3.4069+01
4.5+01	1.0028+00	2.4132+00	3.4160+00	1.9350+01	3.8303+01
5.0+01	1.0036+00	2.4032+00	3.4068+00	1.9236+01	4.2528+01
6.0+01	1.0056+00	2.3841+00	3.3897+00	1.9035+01	5.0929+01
7.0+01	1.0079+00	2.3651+00	3.3730+00	1.8866+01	5.9284+01
8.0+01	1.0104+00	2.3496+00	3.3600+00	1.8713+01	6.7582+01
9.0+01	1.0136+00	2.3263+00	3.3399+00	1.8577+01	7.5790+01
1.0+02	1.0173+00	2.3070+00	3.3243+00	1.8457+01	8.3908+01
1.2+02	1.0255+00	2.2695+00	3.2950+00	1.8240+01	9.9882+01
1.4+02	1.0343+00	2.2337+00	3.2680+00	1.8056+01	1.1554+02
1.6+02	1.0461+00	2.1975+00	3.2436+00	1.7894+01	1.3056+02
1.8+02	1.0582+00	2.1645+00	3.2227+00	1.7751+01	1.4519+02
2.0+02	1.0714+00	2.1342+00	3.2056+00	1.7621+01	1.5934+02
2.5+02	1.1095+00	2.0600+00	3.1695+00	1.7342+01	1.9234+02
3.0+02	1.1539+00	1.9927+00	3.1466+00	1.7115+01	2.2193+02
3.5+02	1.2019+00	1.9333+00	3.1352+00	1.6921+01	2.4857+02
4.0+02	1.2529+00	1.8804+00	3.1333+00	1.6756+01	2.7252+02
4.5+02	1.3066+00	1.8324+00	3.1390+00	1.6611+01	2.9397+02
5.0+02	1.3617+00	1.7891+00	3.1508+00	1.6482+01	3.1342+02
6.0+02	1.4740+00	1.7187+00	3.1927+00	1.6265+01	3.4745+02
7.0+02	1.5882+00	1.6596+00	3.2478+00	1.6084+01	3.7621+02
8.0+02	1.7033+00	1.6088+00	3.3121+00	1.5929+01	4.0092+02
9.0+02	1.8181+00	1.5655+00	3.3836+00	1.5793+01	4.2255+02
1.0+03	1.9321+00	1.5284+00	3.4605+00	1.5670+01	4.4180+02
1.5+03	2.4815+00	1.4119+00	3.8934+00	1.5212+01	5.1597+02
2.0+03	3.0100+00	1.3467+00	4.3567+00	1.4884+01	5.6718+02
2.5+03	3.5196+00	1.3054+00	4.8250+00	1.4620+01	6.0632+02
3.0+03	4.0132+00	1.2797+00	5.2929+00	1.4396+01	6.3809+02
4.0+03	4.9440+00	1.2706+00	6.2146+00	1.4026+01	6.9061+02
5.0+03	5.8199+00	1.2963+00	7.1162+00	1.3724+01	7.3334+02
6.0+03	6.6478+00	1.3498+00	7.9976+00	1.3462+01	7.7041+02
7.0+03	7.4438+00	1.4150+00	8.8588+00	1.3229+01	8.0271+02
8.0+03	8.2084+00	1.4926+00	9.7010+00	1.3013+01	8.3192+02
9.0+03	8.9533+00	1.5717+00	1.0525+01	1.2815+01	8.5804+02
1.0+04	9.6929+00	1.6411+00	1.1334+01	1.2627+01	8.8064+02

T = 340 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0006+00	2.5008+00	3.5014+00	2.3453+01	8.0294-01
2.0+00	1.0006+00	2.4979+00	3.4985+00	2.2759+01	1.6058+00
3.0+00	1.0007+00	2.4975+00	3.4982+00	2.2352+01	2.4084+00
5.0+00	1.0009+00	2.4941+00	3.4950+00	2.1835+01	4.0132+00
7.0+00	1.0011+00	2.4907+00	3.4918+00	2.1496+01	5.6174+00
1.0+01	1.0014+00	2.4854+00	3.4868+00	2.1135+01	8.0225+00
1.5+01	1.0020+00	2.4769+00	3.4789+00	2.0720+01	1.2026+01
2.0+01	1.0026+00	2.4684+00	3.4710+00	2.0424+01	1.6025+01
2.5+01	1.0034+00	2.4597+00	3.4631+00	2.0195+01	2.0016+01
3.0+01	1.0042+00	2.4514+00	3.4556+00	2.0002+01	2.3999+01
3.5+01	1.0052+00	2.4425+00	3.4477+00	1.9840+01	2.7973+01
4.0+01	1.0062+00	2.4340+00	3.4402+00	1.9699+01	3.1937+01
4.5+01	1.0073+00	2.4258+00	3.4331+00	1.9572+01	3.5892+01
5.0+01	1.0084+00	2.4175+00	3.4259+00	1.9460+01	3.9836+01
6.0+01	1.0112+00	2.4007+00	3.4119+00	1.9261+01	4.7667+01
7.0+01	1.0141+00	2.3842+00	3.3983+00	1.9094+01	5.5454+01
8.0+01	1.0173+00	2.3678+00	3.3851+00	1.8944+01	6.3180+01
9.0+01	1.0211+00	2.3515+00	3.3726+00	1.8810+01	7.0808+01
1.0+02	1.0252+00	2.3352+00	3.3604+00	1.8691+01	7.8361+01
1.2+02	1.0340+00	2.3035+00	3.3375+00	1.8481+01	9.3231+01
1.4+02	1.0437+00	2.2723+00	3.3160+00	1.8300+01	1.0776+02
1.6+02	1.0511+00	2.2416+00	3.2967+00	1.8142+01	1.2182+02
1.8+02	1.0670+00	2.2128+00	3.2798+00	1.8001+01	1.3553+02
2.0+02	1.0801+00	2.1854+00	3.2655+00	1.7873+01	1.4876+02
2.5+02	1.1166+00	2.1203+00	3.2369+00	1.7600+01	1.7988+02
3.0+02	1.1586+00	2.0604+00	3.2190+00	1.7377+01	2.0802+02
3.5+02	1.2038+00	2.0069+00	3.2107+00	1.7186+01	2.3359+02
4.0+02	1.2512+00	1.9595+00	3.2107+00	1.7022+01	2.5683+02
4.5+02	1.3013+00	1.9162+00	3.2175+00	1.6879+01	2.7782+02
5.0+02	1.3524+00	1.8773+00	3.2297+00	1.6751+01	2.9701+02
6.0+02	1.4570+00	1.8121+00	3.2691+00	1.6535+01	3.3083+02
7.0+02	1.5636+00	1.7574+00	3.3210+00	1.6353+01	3.5966+02
8.0+02	1.6711+00	1.7104+00	3.3815+00	1.6198+01	3.8461+02
9.0+02	1.7789+00	1.6696+00	3.4485+00	1.6061+01	4.0645+02
1.0+03	1.8859+00	1.6349+00	3.5208+00	1.5937+01	4.2600+02
1.5+03	2.4038+00	1.5223+00	3.9261+00	1.5478+01	5.0131+02
2.0+03	2.9025+00	1.4586+00	4.3611+00	1.5149+01	5.5358+02
2.5+03	3.3843+00	1.4182+00	4.8025+00	1.4886+01	5.9347+02
3.0+03	3.8492+00	1.3955+00	5.2447+00	1.4665+01	6.2615+02
4.0+03	4.7292+00	1.3884+00	6.1176+00	1.4300+01	6.7951+02
5.0+03	5.5582+00	1.4143+00	6.9725+00	1.4003+01	7.2269+02
6.0+03	6.3450+00	1.4639+00	7.8089+00	1.3749+01	7.5970+02
7.0+03	7.1013+00	1.5253+00	8.6266+00	1.3522+01	7.9192+02
8.0+03	7.8317+00	1.5948+00	9.4265+00	1.3315+01	8.2064+02
9.0+03	8.5428+00	1.6672+00	1.0210+01	1.3124+01	8.4637+02
1.0+04	9.2482+00	1.7308+00	1.0979+01	1.2945+01	8.6869+02

Contrails

AEDC-TDR-62-170

T = 360 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0007+00	2.5027+00	3.5034+00	2.3652+01	7.5826-01
2.0+00	1.0009+00	2.5011+00	3.5020+00	2.2959+01	1.5162+00
3.0+00	1.0010+00	2.4997+00	3.5007+00	2.2552+01	2.2740+00
5.0+00	1.0014+00	2.4966+00	3.4980+00	2.2035+01	3.7886+00
7.0+00	1.0017+00	2.4936+00	3.4953+00	2.1697+01	5.3022+00
1.0+01	1.0023+00	2.4889+00	3.4912+00	2.1336+01	7.5703+00
1.5+01	1.0033+00	2.4815+00	3.4848+00	2.0922+01	1.1344+01
2.0+01	1.0043+00	2.4741+00	3.4784+00	2.0628+01	1.5110+01
2.5+01	1.0054+00	2.4665+00	3.4719+00	2.0399+01	1.8866+01
3.0+01	1.0067+00	2.4588+00	3.4655+00	2.0208+01	2.2612+01
3.5+01	1.0079+00	2.4515+00	3.4594+00	2.0047+01	2.6348+01
4.0+01	1.0092+00	2.4441+00	3.4533+00	1.9907+01	3.0072+01
4.5+01	1.0106+00	2.4370+00	3.4476+00	1.9781+01	3.3786+01
5.0+01	1.0121+00	2.4294+00	3.4415+00	1.9669+01	3.7483+01
6.0+01	1.0154+00	2.4146+00	3.4300+00	1.9472+01	4.4834+01
7.0+01	1.0187+00	2.4001+00	3.4188+00	1.9306+01	5.2138+01
8.0+01	1.0225+00	2.3859+00	3.4084+00	1.9158+01	5.9363+01
9.0+01	1.0266+00	2.3716+00	3.3982+00	1.9027+01	6.6519+01
1.0+02	1.0309+00	2.3578+00	3.3887+00	1.8910+01	7.3599+01
1.2+02	1.0404+00	2.3301+00	3.3705+00	1.8703+01	8.7514+01
1.4+02	1.0507+00	2.3029+00	3.3536+00	1.8525+01	1.0110+02
1.6+02	1.0615+00	2.2769+00	3.3384+00	1.8370+01	1.1436+02
1.8+02	1.0735+00	2.2513+00	3.3248+00	1.8232+01	1.2722+02
2.0+02	1.0865+00	2.2268+00	3.3133+00	1.8107+01	1.3967+02
2.5+02	1.1219+00	2.1695+00	3.2914+00	1.7839+01	1.6908+02
3.0+02	1.1618+00	2.1164+00	3.2782+00	1.7618+01	1.9592+02
3.5+02	1.2044+00	2.0684+00	3.2728+00	1.7430+01	2.2049+02
4.0+02	1.2492+00	2.0256+00	3.2748+00	1.7269+01	2.4296+02
4.5+02	1.2959+00	1.9867+00	3.2826+00	1.7127+01	2.6348+02
5.0+02	1.3439+00	1.9515+00	3.2954+00	1.7000+01	2.8230+02
6.0+02	1.4419+00	1.8911+00	3.3330+00	1.6784+01	3.1572+02
7.0+02	1.5417+00	1.8406+00	3.3823+00	1.6602+01	3.4451+02
8.0+02	1.6424+00	1.7974+00	3.4398+00	1.6448+01	3.6957+02
9.0+02	1.7438+00	1.7596+00	3.5034+00	1.6311+01	3.9160+02
1.0+03	1.8444+00	1.7269+00	3.5713+00	1.6187+01	4.1138+02
1.5+03	2.3348+00	1.6173+00	3.9521+00	1.5727+01	4.8746+02
2.0+03	2.8069+00	1.5553+00	4.3622+00	1.5396+01	5.4063+02
2.5+03	3.2631+00	1.5168+00	4.7799+00	1.5134+01	5.8131+02
3.0+03	3.7034+00	1.4957+00	5.1991+00	1.4915+01	6.1464+02
4.0+03	4.5382+00	1.4904+00	6.0286+00	1.4555+01	6.6876+02
5.0+03	5.3240+00	1.5182+00	6.8422+00	1.4264+01	7.1258+02
6.0+03	6.0717+00	1.5664+00	7.6381+00	1.4016+01	7.4978+02
7.0+03	6.7921+00	1.6251+00	8.4172+00	1.3796+01	7.8197+02
8.0+03	7.4888+00	1.6913+00	9.1801+00	1.3597+01	8.1055+02
9.0+03	8.1688+00	1.7589+00	9.9277+00	1.3414+01	8.3595+02
1.0+04	8.8428+00	1.8182+00	1.0661+01	1.3242+01	8.5804+02

T = 380 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0007+00	2.5044+00	3.5051+00	2.3841+01	7.1829-01
2.0+00	1.0010+00	2.5030+00	3.5040+00	2.3147+01	1.4362+00
3.0+00	1.0012+00	2.5017+00	3.5029+00	2.2741+01	2.1538+00
5.0+00	1.0017+00	2.4992+00	3.5009+00	2.2225+01	3.5880+00
7.0+00	1.0022+00	2.4965+00	3.4987+00	2.1887+01	5.0208+00
1.0+01	1.0029+00	2.4923+00	3.4952+00	2.1526+01	7.1671+00
1.5+01	1.0042+00	2.4855+00	3.4897+00	2.1114+01	1.0737+01
2.0+01	1.0056+00	2.4787+00	3.4843+00	2.0819+01	1.4296+01
2.5+01	1.0070+00	2.4722+00	3.4792+00	2.0592+01	1.7846+01
3.0+01	1.0085+00	2.4655+00	3.4740+00	2.0402+01	2.1384+01
3.5+01	1.0100+00	2.4589+00	3.4689+00	2.0242+01	2.4909+01
4.0+01	1.0116+00	2.4525+00	3.4641+00	2.0103+01	2.8424+01
4.5+01	1.0131+00	2.4462+00	3.4593+00	1.9977+01	3.1927+01
5.0+01	1.0150+00	2.4395+00	3.4545+00	1.9866+01	3.5409+01
6.0+01	1.0186+00	2.4263+00	3.4449+00	1.9670+01	4.2343+01
7.0+01	1.0224+00	2.4135+00	3.4359+00	1.9506+01	4.9217+01
8.0+01	1.0265+00	2.4008+00	3.4273+00	1.9360+01	5.6023+01
9.0+01	1.0306+00	2.3887+00	3.4193+00	1.9230+01	6.2772+01
1.0+02	1.0351+00	2.3765+00	3.4116+00	1.9115+01	6.9447+01
1.2+02	1.0449+00	2.3523+00	3.3972+00	1.8910+01	8.2548+01
1.4+02	1.0556+00	2.3284+00	3.3840+00	1.8736+01	9.5334+01
1.6+02	1.0668+00	2.3054+00	3.3722+00	1.8583+01	1.0781+02
1.8+02	1.0788+00	2.2828+00	3.3616+00	1.8447+01	1.1993+02
2.0+02	1.0915+00	2.2611+00	3.3526+00	1.8323+01	1.3171+02
2.5+02	1.1257+00	2.2106+00	3.3363+00	1.8060+01	1.5964+02
3.0+02	1.1638+00	2.1629+00	3.3267+00	1.7842+01	1.8529+02
3.5+02	1.2043+00	2.1201+00	3.3244+00	1.7657+01	2.0891+02
4.0+02	1.2467+00	2.0816+00	3.3283+00	1.7498+01	2.3063+02
4.5+02	1.2906+00	2.0466+00	3.3372+00	1.7358+01	2.5063+02
5.0+02	1.3357+00	2.0147+00	3.3504+00	1.7232+01	2.6908+02
6.0+02	1.4280+00	1.9589+00	3.3869+00	1.7017+01	3.0202+02
7.0+02	1.5221+00	1.9119+00	3.4340+00	1.6836+01	3.3058+02
8.0+02	1.6171+00	1.8717+00	3.4888+00	1.6682+01	3.5561+02
9.0+02	1.7124+00	1.8369+00	3.5493+00	1.6544+01	3.7780+02
1.0+03	1.8073+00	1.8064+00	3.6137+00	1.6421+01	3.9772+02
1.5+03	2.2721+00	1.7007+00	3.9728+00	1.5959+01	4.7455+02
2.0+03	2.7208+00	1.6403+00	4.3611+00	1.5628+01	5.2838+02
2.5+03	3.1539+00	1.6034+00	4.7573+00	1.5366+01	5.6977+02
3.0+03	3.5730+00	1.5832+00	5.1562+00	1.5148+01	6.0354+02
4.0+03	4.3648+00	1.5820+00	5.9468+00	1.4793+01	6.5873+02
5.0+03	5.1127+00	1.6102+00	6.7229+00	1.4509+01	7.0297+02
6.0+03	5.8253+00	1.6578+00	7.4831+00	1.4268+01	7.4037+02
7.0+03	6.5110+00	1.7169+00	8.2279+00	1.4054+01	7.7280+02
8.0+03	7.1742+00	1.7831+00	8.9573+00	1.3861+01	8.0156+02
9.0+03	7.8255+00	1.8472+00	9.6727+00	1.3684+01	8.2670+02
1.0+04	8.4704+00	1.9046+00	1.0375+01	1.3521+01	8.4862+02

Contrails

AEDC-TDR-62-170

T = 400 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.5062+00	3.5070+00	2.4021+01	6.8235-01
2.0+00	1.0010+00	2.5051+00	3.5061+00	2.3327+01	1.3643+00
3.0+00	1.0014+00	2.5037+00	3.5051+00	2.2920+01	2.0458+00
5.0+00	1.0019+00	2.5014+00	3.5033+00	2.2405+01	3.4077+00
7.0+00	1.0025+00	2.4990+00	3.5015+00	2.2067+01	4.7680+00
1.0+01	1.0035+00	2.4953+00	3.4988+00	2.1707+01	6.8048+00
1.5+01	1.0050+00	2.4892+00	3.4942+00	2.1295+01	1.0192+01
2.0+01	1.0066+00	2.4830+00	3.4896+00	2.1002+01	1.3568+01
2.5+01	1.0082+00	2.4772+00	3.4854+00	2.0774+01	1.6933+01
3.0+01	1.0099+00	2.4712+00	3.4811+00	2.0584+01	2.0286+01
3.5+01	1.0117+00	2.4651+00	3.4768+00	2.0426+01	2.3625+01
4.0+01	1.0134+00	2.4595+00	3.4729+00	2.0287+01	2.6953+01
4.5+01	1.0153+00	2.4536+00	3.4689+00	2.0162+01	3.0267+01
5.0+01	1.0171+00	2.4479+00	3.4650+00	2.0052+01	3.3568+01
6.0+01	1.0210+00	2.4364+00	3.4574+00	1.9857+01	4.0128+01
7.0+01	1.0250+00	2.4251+00	3.4501+00	1.9694+01	4.6635+01
8.0+01	1.0293+00	2.4138+00	3.4431+00	1.9550+01	5.3076+01
9.0+01	1.0339+00	2.4028+00	3.4367+00	1.9421+01	5.9441+01
1.0+02	1.0385+00	2.3921+00	3.4306+00	1.9307+01	6.5757+01
1.2+02	1.0487+00	2.3703+00	3.4190+00	1.9105+01	7.8143+01
1.4+02	1.0591+00	2.3499+00	3.4090+00	1.8933+01	9.0264+01
1.6+02	1.0705+00	2.3293+00	3.3998+00	1.8782+01	1.0207+02
1.8+02	1.0825+00	2.3094+00	3.3919+00	1.8648+01	1.1355+02
2.0+02	1.0949+00	2.2903+00	3.3852+00	1.8527+01	1.2474+02
2.5+02	1.1284+00	2.2450+00	3.3734+00	1.8267+01	1.5129+02
3.0+02	1.1649+00	2.2027+00	3.3676+00	1.8053+01	1.7587+02
3.5+02	1.2035+00	2.1644+00	3.3679+00	1.7870+01	1.9859+02
4.0+02	1.2439+00	2.1295+00	3.3734+00	1.7712+01	2.1960+02
4.5+02	1.2855+00	2.0976+00	3.3831+00	1.7573+01	2.3905+02
5.0+02	1.3282+00	2.0686+00	3.3968+00	1.7449+01	2.5707+02
6.0+02	1.4153+00	2.0174+00	3.4327+00	1.7235+01	2.8949+02
7.0+02	1.5042+00	1.9739+00	3.4781+00	1.7054+01	3.1778+02
8.0+02	1.5943+00	1.9361+00	3.5304+00	1.6900+01	3.4267+02
9.0+02	1.6844+00	1.9038+00	3.5882+00	1.6765+01	3.6488+02
1.0+03	1.7743+00	1.8754+00	3.6497+00	1.6641+01	3.8487+02
1.5+03	2.2166+00	1.7727+00	3.9893+00	1.6178+01	4.6212+02
2.0+03	2.6433+00	1.7146+00	4.3579+00	1.5846+01	5.1669+02
2.5+03	3.0557+00	1.6792+00	4.7349+00	1.5585+01	5.5869+02
3.0+03	3.4547+00	1.6606+00	5.1153+00	1.5368+01	5.9300+02
4.0+03	4.2088+00	1.6622+00	5.8710+00	1.5018+01	6.4900+02
5.0+03	4.9226+00	1.6912+00	6.6138+00	1.4739+01	6.9361+02
6.0+03	5.5999+00	1.7422+00	7.3421+00	1.4503+01	7.3166+02
7.0+03	6.2537+00	1.8020+00	8.0557+00	1.4297+01	7.6436+02
8.0+03	6.8862+00	1.8658+00	8.7520+00	1.4110+01	7.9333+02
9.0+03	7.5083+00	1.9330+00	9.4413+00	1.3942+01	8.1854+02
1.0+04	8.1261+00	1.9889+00	1.0115+01	1.3783+01	8.4034+02

T = 450 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0009+00	2.5103+00	3.5112+00	2.4433+01	6.0648-01
2.0+00	1.0012+00	2.5094+00	3.5106+00	2.3739+01	1.2125+00
3.0+00	1.0016+00	2.5085+00	3.5101+00	2.3333+01	1.8180+00
5.0+00	1.0024+00	2.5066+00	3.5090+00	2.2818+01	3.0279+00
7.0+00	1.0031+00	2.5048+00	3.5079+00	2.2481+01	4.2359+00
1.0+01	1.0043+00	2.5020+00	3.5063+00	2.2121+01	6.0442+00
1.5+01	1.0061+00	2.4972+00	3.5033+00	2.1711+01	9.0494+00
2.0+01	1.0082+00	2.4924+00	3.5006+00	2.1419+01	1.2042+01
2.5+01	1.0101+00	2.4878+00	3.4979+00	2.1193+01	1.5023+01
3.0+01	1.0120+00	2.4832+00	3.4952+00	2.1004+01	1.7993+01
3.5+01	1.0142+00	2.4783+00	3.4925+00	2.0847+01	2.0948+01
4.0+01	1.0162+00	2.4736+00	3.4898+00	2.0709+01	2.3892+01
4.5+01	1.0183+00	2.4691+00	3.4874+00	2.0584+01	2.6824+01
5.0+01	1.0205+00	2.4647+00	3.4852+00	2.0475+01	2.9740+01
6.0+01	1.0248+00	2.4563+00	3.4811+00	2.0284+01	3.5539+01
7.0+01	1.0295+00	2.4476+00	3.4771+00	2.0124+01	4.1274+01
8.0+01	1.0341+00	2.4392+00	3.4733+00	1.9982+01	4.6958+01
9.0+01	1.0390+00	2.4308+00	3.4698+00	1.9856+01	5.2578+01
1.0+02	1.0439+00	2.4229+00	3.4668+00	1.9744+01	5.8146+01
1.2+02	1.0541+00	2.4070+00	3.4611+00	1.9545+01	6.9104+01
1.4+02	1.0647+00	2.3916+00	3.4563+00	1.9377+01	7.9813+01
1.6+02	1.0760+00	2.3762+00	3.4522+00	1.9231+01	9.0264+01
1.8+02	1.0876+00	2.3611+00	3.4487+00	1.9101+01	1.0046+02
2.0+02	1.1000+00	2.3460+00	3.4460+00	1.8984+01	1.1036+02
2.5+02	1.1316+00	2.3117+00	3.4433+00	1.8732+01	1.3410+02
3.0+02	1.1649+00	2.2795+00	3.4444+00	1.8524+01	1.5632+02
3.5+02	1.1994+00	2.2501+00	3.4495+00	1.8346+01	1.7713+02
4.0+02	1.2352+00	2.2232+00	3.4584+00	1.8193+01	1.9657+02
4.5+02	1.2718+00	2.1985+00	3.4703+00	1.8057+01	2.1478+02
5.0+02	1.3093+00	2.1754+00	3.4847+00	1.7936+01	2.3180+02
6.0+02	1.3862+00	2.1336+00	3.5198+00	1.7724+01	2.6274+02
7.0+02	1.4647+00	2.0973+00	3.5620+00	1.7546+01	2.9009+02
8.0+02	1.5441+00	2.0658+00	3.6099+00	1.7394+01	3.1448+02
9.0+02	1.6243+00	2.0378+00	3.6621+00	1.7259+01	3.3634+02
1.0+03	1.7042+00	2.0131+00	3.7173+00	1.7135+01	3.5618+02

Contrails

AEDC-TDR-62-170

T = 500 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0009+00	2.5144+00	3.5153+00	2.4802+01	5.4581-01
2.0+00	1.0013+00	2.5135+00	3.5148+00	2.4108+01	1.0912+00
3.0+00	1.0018+00	2.5127+00	3.5145+00	2.3703+01	1.6360+00
5.0+00	1.0026+00	2.5114+00	3.5140+00	2.3188+01	2.7245+00
7.0+00	1.0034+00	2.5099+00	3.5133+00	2.2851+01	3.8112+00
1.0+01	1.0046+00	2.5077+00	3.5123+00	2.2492+01	5.4377+00
1.5+01	1.0057+00	2.5039+00	3.5106+00	2.2083+01	8.1396+00
2.0+01	1.0089+00	2.5000+00	3.5089+00	2.1792+01	1.0830+01
2.5+01	1.0110+00	2.4965+00	3.5075+00	2.1567+01	1.3508+01
3.0+01	1.0132+00	2.4928+00	3.5060+00	2.1379+01	1.6176+01
3.5+01	1.0154+00	2.4891+00	3.5045+00	2.1223+01	1.8630+01
4.0+01	1.0176+00	2.4855+00	3.5031+00	2.1087+01	2.1474+01
4.5+01	1.0198+00	2.4818+00	3.5016+00	2.0962+01	2.4105+01
5.0+01	1.0222+00	2.4780+00	3.5002+00	2.0854+01	2.6722+01
6.0+01	1.0266+00	2.4716+00	3.4982+00	2.0664+01	3.1927+01
7.0+01	1.0315+00	2.4648+00	3.4963+00	2.0506+01	3.7073+01
8.0+01	1.0362+00	2.4581+00	3.4943+00	2.0365+01	4.2175+01
9.0+01	1.0411+00	2.4518+00	3.4929+00	2.0240+01	4.7225+01
1.0+02	1.0461+00	2.4455+00	3.4916+00	2.0130+01	5.2223+01
1.2+02	1.0563+00	2.4334+00	3.4897+00	1.9934+01	6.2060+01
1.4+02	1.0668+00	2.4214+00	3.4882+00	1.9769+01	7.1691+01
1.6+02	1.0780+00	2.4093+00	3.4873+00	1.9627+01	8.1084+01
1.8+02	1.0894+00	2.3974+00	3.4868+00	1.9500+01	9.0264+01
2.0+02	1.1012+00	2.3853+00	3.4865+00	1.9385+01	9.9218+01
2.5+02	1.1310+00	2.3589+00	3.4899+00	1.9139+01	1.2075+02
3.0+02	1.1616+00	2.3342+00	3.4958+00	1.8935+01	1.4109+02
3.5+02	1.1931+00	2.3114+00	3.5045+00	1.8762+01	1.6025+02
4.0+02	1.2255+00	2.2902+00	3.5157+00	1.8613+01	1.7832+02
4.5+02	1.2586+00	2.2703+00	3.5289+00	1.8480+01	1.9532+02
5.0+02	1.2924+00	2.2513+00	3.5437+00	1.8359+01	2.1135+02
6.0+02	1.3614+00	2.2169+00	3.5783+00	1.8151+01	2.4077+02
7.0+02	1.4319+00	2.1866+00	3.6185+00	1.7976+01	2.6706+02
8.0+02	1.5033+00	2.1597+00	3.6630+00	1.7824+01	2.9073+02
9.0+02	1.5755+00	2.1357+00	3.7112+00	1.7691+01	3.1207+02
1.0+03	1.6474+00	2.1145+00	3.7619+00	1.7568+01	3.3161+02

T = 550 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0009+00	2.5184+00	3.5193+00	2.5138+01	4.9618-01
2.0+00	1.0014+00	2.5177+00	3.5191+00	2.4444+01	9.9192-01
3.0+00	1.0018+00	2.5170+00	3.5188+00	2.4039+01	1.4872+00
5.0+00	1.0026+00	2.5160+00	3.5186+00	2.3524+01	2.4766+00
7.0+00	1.0035+00	2.5147+00	3.5182+00	2.3187+01	3.4643+00
1.0+01	1.0048+00	2.5129+00	3.5177+00	2.2827+01	4.9426+00
1.5+01	1.0070+00	2.5098+00	3.5168+00	2.2420+01	7.3978+00
2.0+01	1.0092+00	2.5068+00	3.5160+00	2.2130+01	9.8425+00
2.5+01	1.0114+00	2.5037+00	3.5151+00	2.1905+01	1.2276+01
3.0+01	1.0136+00	2.5006+00	3.5142+00	2.1717+01	1.4699+01
3.5+01	1.0159+00	2.4976+00	3.5135+00	2.1562+01	1.7110+01
4.0+01	1.0181+00	2.4945+00	3.5126+00	2.1427+01	1.9512+01
4.5+01	1.0204+00	2.4916+00	3.5120+00	2.1302+01	2.1902+01
5.0+01	1.0228+00	2.4885+00	3.5113+00	2.1194+01	2.4278+01
6.0+01	1.0273+00	2.4833+00	3.5106+00	2.1005+01	2.9005+01
7.0+01	1.0321+00	2.4779+00	3.5100+00	2.0849+01	3.3684+01
8.0+01	1.0369+00	2.4726+00	3.5095+00	2.0709+01	3.8316+01
9.0+01	1.0416+00	2.4677+00	3.5093+00	2.0586+01	4.2910+01
1.0+02	1.0465+00	2.4628+00	3.5093+00	2.0476+01	4.7455+01
1.2+02	1.0566+00	2.4529+00	3.5095+00	2.0283+01	5.6404+01
1.4+02	1.0670+00	2.4432+00	3.5102+00	2.0120+01	6.5164+01
1.6+02	1.0779+00	2.4332+00	3.5111+00	1.9979+01	7.3720+01
1.8+02	1.0889+00	2.4235+00	3.5124+00	1.9854+01	8.2094+01
2.0+02	1.1000+00	2.4142+00	3.5142+00	1.9742+01	9.0300+01
2.5+02	1.1282+00	2.3935+00	3.5217+00	1.9501+01	1.1005+02
3.0+02	1.1568+00	2.3740+00	3.5308+00	1.9301+01	1.2880+02
3.5+02	1.1860+00	2.3556+00	3.5416+00	1.9130+01	1.4656+02
4.0+02	1.2159+00	2.3383+00	3.5542+00	1.8984+01	1.6339+02
4.5+02	1.2462+00	2.3222+00	3.5684+00	1.8852+01	1.7933+02
5.0+02	1.2771+00	2.3066+00	3.5837+00	1.8733+01	1.9444+02
6.0+02	1.3400+00	2.2778+00	3.6178+00	1.8529+01	2.2237+02
7.0+02	1.4042+00	2.2519+00	3.6561+00	1.8355+01	2.4758+02
8.0+02	1.4691+00	2.2290+00	3.6981+00	1.8205+01	2.7044+02
9.0+02	1.5346+00	2.2084+00	3.7430+00	1.8073+01	2.9126+02
1.0+03	1.6003+00	2.1899+00	3.7902+00	1.7952+01	3.1034+02

T = 600 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0009+00	2.5223+00	3.5232+00	2.5445+01	4.5483-01
2.0+00	1.0014+00	2.5218+00	3.5232+00	2.4751+01	9.0927-01
3.0+00	1.0018+00	2.5212+00	3.5230+00	2.4345+01	1.3633+00
5.0+00	1.0027+00	2.5203+00	3.5230+00	2.3830+01	2.2702+00
7.0+00	1.0035+00	2.5193+00	3.5228+00	2.3494+01	3.1755+00
1.0+01	1.0048+00	2.5178+00	3.5226+00	2.3134+01	4.5306+00
1.5+01	1.0070+00	2.5152+00	3.5222+00	2.2728+01	6.7811+00
2.0+01	1.0092+00	2.5124+00	3.5216+00	2.2438+01	9.0220+00
2.5+01	1.0114+00	2.5098+00	3.5212+00	2.2214+01	1.1253+01
3.0+01	1.0137+00	2.5071+00	3.5208+00	2.2026+01	1.3473+01
3.5+01	1.0159+00	2.5047+00	3.5206+00	2.1871+01	1.5684+01
4.0+01	1.0181+00	2.5021+00	3.5202+00	2.1737+01	1.7886+01
4.5+01	1.0204+00	2.4996+00	3.5200+00	2.1613+01	2.0077+01
5.0+01	1.0227+00	2.4973+00	3.5200+00	2.1504+01	2.2257+01
6.0+01	1.0273+00	2.4929+00	3.5202+00	2.1317+01	2.6589+01
7.0+01	1.0320+00	2.4884+00	3.5204+00	2.1160+01	3.0880+01
8.0+01	1.0367+00	2.4839+00	3.5206+00	2.1022+01	3.5132+01
9.0+01	1.0413+00	2.4799+00	3.5212+00	2.0899+01	3.9346+01
1.0+02	1.0461+00	2.4759+00	3.5220+00	2.0791+01	4.3519+01
1.2+02	1.0559+00	2.4677+00	3.5236+00	2.0599+01	5.1740+01
1.4+02	1.0651+00	2.4606+00	3.5257+00	2.0438+01	5.9838+01
1.6+02	1.0765+00	2.4516+00	3.5281+00	2.0298+01	6.7664+01
1.8+02	1.0871+00	2.4436+00	3.5307+00	2.0175+01	7.5382+01
2.0+02	1.0977+00	2.4359+00	3.5336+00	2.0064+01	8.2945+01
2.5+02	1.1243+00	2.4192+00	3.5435+00	1.9825+01	1.0123+02
3.0+02	1.1513+00	2.4032+00	3.5545+00	1.9629+01	1.1862+02
3.5+02	1.1788+00	2.3878+00	3.5666+00	1.9461+01	1.3517+02
4.0+02	1.2066+00	2.3736+00	3.5802+00	1.9316+01	1.5092+02
4.5+02	1.2348+00	2.3600+00	3.5948+00	1.9186+01	1.6590+02
5.0+02	1.2633+00	2.3470+00	3.6103+00	1.9069+01	1.8018+02
6.0+02	1.3214+00	2.3223+00	3.6437+00	1.8867+01	2.0671+02
7.0+02	1.3803+00	2.3002+00	3.6805+00	1.8694+01	2.3087+02
8.0+02	1.4398+00	2.2804+00	3.7202+00	1.8546+01	2.5295+02
9.0+02	1.4998+00	2.2626+00	3.7624+00	1.8415+01	2.7318+02
1.0+03	1.5602+00	2.2465+00	3.8067+00	1.8294+01	2.9179+02

T = 650 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0009+00	2.5262+00	3.5271+00	2.5727+01	4.1985-01
2.0+00	1.0013+00	2.5258+00	3.5271+00	2.5033+01	8.3933-01
3.0+00	1.0018+00	2.5253+00	3.5271+00	2.4628+01	1.2585+00
5.0+00	1.0026+00	2.5245+00	3.5271+00	2.4113+01	2.0957+00
7.0+00	1.0035+00	2.5236+00	3.5271+00	2.3776+01	2.9314+00
1.0+01	1.0048+00	2.5223+00	3.5271+00	2.3417+01	4.1824+00
1.5+01	1.0069+00	2.5200+00	3.5269+00	2.3011+01	6.2601+00
2.0+01	1.0091+00	2.5177+00	3.5268+00	2.2722+01	8.3291+00
2.5+01	1.0112+00	2.5156+00	3.5268+00	2.2498+01	1.0389+01
3.0+01	1.0135+00	2.5133+00	3.5268+00	2.2311+01	1.2439+01
3.5+01	1.0156+00	2.5112+00	3.5268+00	2.2156+01	1.4482+01
4.0+01	1.0178+00	2.5090+00	3.5268+00	2.2022+01	1.6514+01
4.5+01	1.0201+00	2.5068+00	3.5269+00	2.1898+01	1.8538+01
5.0+01	1.0223+00	2.5048+00	3.5271+00	2.1789+01	2.0554+01
6.0+01	1.0269+00	2.5008+00	3.5277+00	2.1603+01	2.4554+01
7.0+01	1.0314+00	2.4970+00	3.5284+00	2.1448+01	2.8521+01
8.0+01	1.0360+00	2.4934+00	3.5294+00	2.1310+01	3.2450+01
9.0+01	1.0406+00	2.4899+00	3.5305+00	2.1187+01	3.6946+01
1.0+02	1.0452+00	2.4866+00	3.5318+00	2.1080+01	4.0207+01

T = 700 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0009+00	2.5301+00	3.5310+00	2.5988+01	3.8986-01
2.0+00	1.0013+00	2.5297+00	3.5310+00	2.5294+01	7.7939-01
3.0+00	1.0017+00	2.5295+00	3.5312+00	2.4890+01	1.1686+00
5.0+00	1.0026+00	2.5286+00	3.5312+00	2.4375+01	1.9461+00
7.0+00	1.0034+00	2.5280+00	3.5314+00	2.4039+01	2.7223+00
1.0+01	1.0046+00	2.5269+00	3.5315+00	2.3679+01	3.8841+00
1.5+01	1.0068+00	2.5247+00	3.5315+00	2.3274+01	5.8140+00
2.0+01	1.0088+00	2.5229+00	3.5317+00	2.2985+01	7.7360+00
2.5+01	1.0110+00	2.5209+00	3.5319+00	2.2761+01	9.6496+00
3.0+01	1.0131+00	2.5189+00	3.5320+00	2.2575+01	1.1555+01
3.5+01	1.0153+00	2.5169+00	3.5322+00	2.2420+01	1.3452+01
4.0+01	1.0174+00	2.5150+00	3.5324+00	2.2285+01	1.5342+01
4.5+01	1.0196+00	2.5130+00	3.5326+00	2.2161+01	1.7223+01
5.0+01	1.0217+00	2.5112+00	3.5329+00	2.2054+01	1.9096+01
6.0+01	1.0261+00	2.5077+00	3.5338+00	2.1868+01	2.2816+01
7.0+01	1.0306+00	2.5044+00	3.5350+00	2.1713+01	2.6504+01
8.0+01	1.0350+00	2.5014+00	3.5364+00	2.1574+01	3.0161+01
9.0+01	1.0396+00	2.4984+00	3.5380+00	2.1453+01	3.3781+01
1.0+02	1.0442+00	2.4955+00	3.5397+00	2.1346+01	3.7370+01

T = 750 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.5519+00	3.5527+00	2.6323+01	3.6390-01
2.0+00	1.0013+00	2.5515+00	3.5528+00	2.5629+01	7.2718-01
3.0+00	1.0017+00	2.5513+00	3.5530+00	2.5224+01	1.0905+00
5.0+00	1.0025+00	2.5508+00	3.5533+00	2.4712+01	1.8161+00
7.0+00	1.0034+00	2.5502+00	3.5536+00	2.4375+01	2.5409+00
1.0+01	1.0046+00	2.5495+00	3.5541+00	2.4018+01	3.6252+00
1.5+01	1.0067+00	2.5482+00	3.5549+00	2.3610+01	5.4073+00
2.0+01	1.0088+00	2.5470+00	3.5558+00	2.3321+01	7.1895+00
2.5+01	1.0110+00	2.5456+00	3.5566+00	2.3096+01	8.9716+00
3.0+01	1.0130+00	2.5444+00	3.5574+00	2.2913+01	1.0754+01
3.5+01	1.0152+00	2.5431+00	3.5583+00	2.2758+01	1.2536+01
4.0+01	1.0175+00	2.5416+00	3.5591+00	2.2624+01	1.4318+01
4.5+01	1.0208+00	2.5392+00	3.5600+00	2.2505+01	1.6055+01
5.0+01	1.0235+00	2.5374+00	3.5609+00	2.2398+01	1.7791+01
6.0+01	1.0278+00	2.5350+00	3.5628+00	2.2213+01	2.1265+01
7.0+01	1.0324+00	2.5322+00	3.5646+00	2.2057+01	2.4738+01
8.0+01	1.0360+00	2.5306+00	3.5666+00	2.1921+01	2.8123+01
9.0+01	1.0403+00	2.5282+00	3.5685+00	2.1801+01	3.1509+01
1.0+02	1.0437+00	2.5268+00	3.5705+00	2.1693+01	3.4894+01

T = 800 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.5649+00	3.5657+00	2.6566+01	3.4116-01
2.0+00	1.0013+00	2.5646+00	3.5659+00	2.5872+01	6.8176-01
3.0+00	1.0017+00	2.5644+00	3.5661+00	2.5466+01	1.0224+00
5.0+00	1.0025+00	2.5639+00	3.5664+00	2.4955+01	1.7027+00
7.0+00	1.0033+00	2.5635+00	3.5668+00	2.4618+01	2.3823+00
1.0+01	1.0045+00	2.5629+00	3.5674+00	2.4261+01	3.3990+00
1.5+01	1.0066+00	2.5617+00	3.5683+00	2.3854+01	5.0707+00
2.0+01	1.0087+00	2.5606+00	3.5693+00	2.3565+01	6.7423+00
2.5+01	1.0109+00	2.5594+00	3.5703+00	2.3340+01	8.4140+00
3.0+01	1.0129+00	2.5583+00	3.5712+00	2.3157+01	1.0086+01
3.5+01	1.0150+00	2.5572+00	3.5722+00	2.3002+01	1.1757+01
4.0+01	1.0170+00	2.5562+00	3.5732+00	2.2868+01	1.3429+01
4.5+01	1.0203+00	2.5539+00	3.5742+00	2.2749+01	1.5059+01
5.0+01	1.0229+00	2.5523+00	3.5752+00	2.2643+01	1.6690+01
6.0+01	1.0268+00	2.5505+00	3.5773+00	2.2458+01	1.9951+01
7.0+01	1.0310+00	2.5484+00	3.5794+00	2.2302+01	2.3212+01
8.0+01	1.0349+00	2.5467+00	3.5816+00	2.2166+01	2.6393+01
9.0+01	1.0391+00	2.5446+00	3.5837+00	2.2047+01	2.9573+01
1.0+02	1.0424+00	2.5435+00	3.5859+00	2.1940+01	3.2754+01

T = 850 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.5799+00	3.5807+00	2.6791+01	3.2109-01
2.0+00	1.0013+00	2.5796+00	3.5809+00	2.6097+01	6.4168-01
3.0+00	1.0017+00	2.5794+00	3.5811+00	2.5691+01	9.6226-01
5.0+00	1.0025+00	2.5790+00	3.5815+00	2.5180+01	1.6027+00
7.0+00	1.0032+00	2.5787+00	3.5819+00	2.4843+01	2.2423+00
1.0+01	1.0044+00	2.5782+00	3.5826+00	2.4486+01	3.1994+00
1.5+01	1.0062+00	2.5774+00	3.5836+00	2.4082+01	4.7738+00
2.0+01	1.0082+00	2.5765+00	3.5847+00	2.3795+01	6.3483+00
2.5+01	1.0102+00	2.5755+00	3.5857+00	2.3573+01	7.9227+00
3.0+01	1.0120+00	2.5748+00	3.5868+00	2.3391+01	9.4971+00
3.5+01	1.0143+00	2.5735+00	3.5878+00	2.3237+01	1.1072+01
4.0+01	1.0165+00	2.5724+00	3.5889+00	2.3104+01	1.2646+01
4.5+01	1.0196+00	2.5704+00	3.5900+00	2.2983+01	1.4183+01
5.0+01	1.0216+00	2.5695+00	3.5911+00	2.2875+01	1.5719+01
6.0+01	1.0260+00	2.5673+00	3.5933+00	2.2688+01	1.8793+01
7.0+01	1.0295+00	2.5660+00	3.5955+00	2.2529+01	2.1866+01
8.0+01	1.0338+00	2.5640+00	3.5978+00	2.2394+01	2.4868+01
9.0+01	1.0378+00	2.5624+00	3.6002+00	2.2274+01	2.7869+01
1.0+02	1.0410+00	2.5615+00	3.6025+00	2.2167+01	3.0871+01

T = 900 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.5933+00	3.5941+00	2.7015+01	3.0326-01
2.0+00	1.0013+00	2.5930+00	3.5943+00	2.6322+01	6.0605-01
3.0+00	1.0017+00	2.5928+00	3.5945+00	2.5916+01	9.0884-01
5.0+00	1.0025+00	2.5924+00	3.5949+00	2.5405+01	1.5137+00
7.0+00	1.0031+00	2.5923+00	3.5954+00	2.5069+01	2.1179+00
1.0+01	1.0042+00	2.5919+00	3.5961+00	2.4711+01	3.0223+00
1.5+01	1.0058+00	2.5914+00	3.5972+00	2.4304+01	4.5101+00
2.0+01	1.0076+00	2.5907+00	3.5983+00	2.4016+01	5.9979+00
2.5+01	1.0094+00	2.5900+00	3.5994+00	2.3792+01	7.4857+00
3.0+01	1.0117+00	2.5889+00	3.6006+00	2.3609+01	8.9734+00
3.5+01	1.0136+00	2.5881+00	3.6017+00	2.3454+01	1.0461+01
4.0+01	1.0160+00	2.5868+00	3.6028+00	2.3320+01	1.1949+01
4.5+01	1.0190+00	2.5850+00	3.6040+00	2.3202+01	1.3403+01
5.0+01	1.0212+00	2.5840+00	3.6052+00	2.3095+01	1.4857+01
6.0+01	1.0250+00	2.5825+00	3.6075+00	2.2912+01	1.7765+01
7.0+01	1.0288+00	2.5811+00	3.6099+00	2.2756+01	2.0673+01
8.0+01	1.0326+00	2.5797+00	3.6123+00	2.2621+01	2.3514+01
9.0+01	1.0364+00	2.5783+00	3.6147+00	2.2502+01	2.6354+01
1.0+02	1.0396+00	2.5776+00	3.6172+00	2.2395+01	2.9195+01

T = 950 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.6092+00	3.6100+00	2.7221+01	2.8730-01
2.0+00	1.0011+00	2.6091+00	3.6102+00	2.6527+01	5.7417-01
3.0+00	1.0017+00	2.6088+00	3.6105+00	2.6122+01	8.6105-01
5.0+00	1.0024+00	2.6085+00	3.6109+00	2.5611+01	1.4342+00
7.0+00	1.0030+00	2.6084+00	3.6114+00	2.5274+01	2.0066+00
1.0+01	1.0041+00	2.6080+00	3.6121+00	2.4917+01	2.8635+00
1.5+01	1.0057+00	2.6075+00	3.6132+00	2.4510+01	4.2739+00
2.0+01	1.0074+00	2.6070+00	3.6144+00	2.4222+01	5.6843+00
2.5+01	1.0092+00	2.6064+00	3.6156+00	2.3998+01	7.0948+00
3.0+01	1.0114+00	2.6053+00	3.6167+00	2.3815+01	8.5052+00
3.5+01	1.0133+00	2.6046+00	3.6179+00	2.3660+01	9.9156+00
4.0+01	1.0155+00	2.6036+00	3.6191+00	2.3526+01	1.1326+01
4.5+01	1.0184+00	2.6019+00	3.6203+00	2.3408+01	1.2705+01
5.0+01	1.0207+00	2.6008+00	3.6215+00	2.3302+01	1.4085+01
6.0+01	1.0242+00	2.5997+00	3.6239+00	2.3118+01	1.6844+01
7.0+01	1.0283+00	2.5980+00	3.6263+00	2.2963+01	1.9603+01
8.0+01	1.0315+00	2.5973+00	3.6288+00	2.2828+01	2.2300+01
9.0+01	1.0352+00	2.5961+00	3.6313+00	2.2709+01	2.4996+01
1.0+02	1.0383+00	2.5954+00	3.6337+00	2.2602+01	2.7693+01

Contrails

AEDC-TDR-62-170

T = 1000 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.6236+00	3.6244+00	2.7426+01	2.7294-01
2.0+00	1.0012+00	2.6234+00	3.6246+00	2.6733+01	5.4549-01
3.0+00	1.0016+00	2.6232+00	3.6248+00	2.6327+01	8.1803-01
5.0+00	1.0023+00	2.6230+00	3.6253+00	2.5816+01	1.3625+00
7.0+00	1.0029+00	2.6229+00	3.6258+00	2.5479+01	1.9065+00
1.0+01	1.0040+00	2.6225+00	3.6265+00	2.5122+01	2.7206+00
1.5+01	1.0055+00	2.6222+00	3.6277+00	2.4716+01	4.0613+00
2.0+01	1.0072+00	2.6217+00	3.6289+00	2.4427+01	5.4021+00
2.5+01	1.0090+00	2.6211+00	3.6301+00	2.4204+01	6.7428+00
3.0+01	1.0110+00	2.6203+00	3.6313+00	2.4021+01	8.0835+00
3.5+01	1.0129+00	2.6196+00	3.6325+00	2.3866+01	9.4243+00
4.0+01	1.0150+00	2.6187+00	3.6337+00	2.3732+01	1.0765+01
4.5+01	1.0179+00	2.6170+00	3.6349+00	2.3614+01	1.2076+01
5.0+01	1.0202+00	2.6160+00	3.6362+00	2.3508+01	1.3387+01
6.0+01	1.0237+00	2.6149+00	3.6386+00	2.3324+01	1.6009+01
7.0+01	1.0273+00	2.6138+00	3.6411+00	2.3169+01	1.8631+01
8.0+01	1.0307+00	2.6129+00	3.6436+00	2.3035+01	2.1201+01
9.0+01	1.0341+00	2.6121+00	3.6462+00	2.2916+01	2.3772+01
1.0+02	1.0369+00	2.6118+00	3.6487+00	2.2809+01	2.6342+01

T = 1100 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0008+00	2.6547+00	3.6555+00	2.7804+01	2.4813-01
2.0+00	1.0012+00	2.6545+00	3.6557+00	2.7111+01	4.9593-01
3.0+00	1.0016+00	2.6543+00	3.6559+00	2.6705+01	7.4372-01
5.0+00	1.0022+00	2.6542+00	3.6564+00	2.6194+01	1.2388+00
7.0+00	1.0028+00	2.6541+00	3.6569+00	2.5857+01	1.7334+00
1.0+01	1.0038+00	2.6538+00	3.6576+00	2.5500+01	2.4737+00
1.5+01	1.0053+00	2.6535+00	3.6588+00	2.5094+01	3.6941+00
2.0+01	1.0068+00	2.6533+00	3.6601+00	2.4806+01	4.9145+00
2.5+01	1.0085+00	2.6528+00	3.6613+00	2.4582+01	6.1349+00
3.0+01	1.0103+00	2.6522+00	3.6625+00	2.4400+01	7.3552+00
3.5+01	1.0120+00	2.6518+00	3.6638+00	2.4245+01	8.5756+00
4.0+01	1.0140+00	2.6510+00	3.6650+00	2.4111+01	9.7960+00
4.5+01	1.0166+00	2.6497+00	3.6663+00	2.3993+01	1.0992+01
5.0+01	1.0187+00	2.6488+00	3.6675+00	2.3887+01	1.2188+01
6.0+01	1.0219+00	2.6481+00	3.6700+00	2.3704+01	1.4579+01
7.0+01	1.0255+00	2.6470+00	3.6725+00	2.3549+01	1.6971+01
8.0+01	1.0285+00	2.6466+00	3.6751+00	2.3415+01	1.9315+01
9.0+01	1.0318+00	2.6458+00	3.6776+00	2.3296+01	2.1659+01
1.0+02	1.0345+00	2.6456+00	3.6801+00	2.3190+01	2.4003+01

T = 1200 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0007+00	2.6858+00	3.6865+00	2.8154+01	2.2746-01
2.0+00	1.0011+00	2.6857+00	3.6868+00	2.7461+01	4.5463-01
3.0+00	1.0015+00	2.6855+00	3.6870+00	2.7056+01	6.8181-01
5.0+00	1.0021+00	2.6854+00	3.6875+00	2.6545+01	1.1357+00
7.0+00	1.0026+00	2.6854+00	3.6880+00	2.6208+01	1.5892+00
1.0+01	1.0036+00	2.6851+00	3.6887+00	2.5851+01	2.2681+00
1.5+01	1.0050+00	2.6849+00	3.6899+00	2.5445+01	3.3879+00
2.0+01	1.0064+00	2.6848+00	3.6912+00	2.5157+01	4.5077+00
2.5+01	1.0081+00	2.6843+00	3.6924+00	2.4933+01	5.6276+00
3.0+01	1.0097+00	2.6839+00	3.6936+00	2.4751+01	6.7474+00
3.5+01	1.0114+00	2.6834+00	3.6948+00	2.4596+01	7.8672+00
4.0+01	1.0131+00	2.6830+00	3.6961+00	2.4463+01	8.9870+00
4.5+01	1.0156+00	2.6817+00	3.6973+00	2.4344+01	1.0086+01
5.0+01	1.0176+00	2.6809+00	3.6985+00	2.4239+01	1.1184+01
6.0+01	1.0206+00	2.6804+00	3.7010+00	2.4056+01	1.3382+01
7.0+01	1.0238+00	2.6797+00	3.7035+00	2.3901+01	1.5579+01
8.0+01	1.0267+00	2.6793+00	3.7060+00	2.3767+01	1.7736+01
9.0+01	1.0298+00	2.6788+00	3.7086+00	2.3648+01	1.9892+01
1.0+02	1.0324+00	2.6787+00	3.7111+00	2.3542+01	2.2049+01

T = 1300 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0007+00	2.7163+00	3.7170+00	2.8481+01	2.0997-01
2.0+00	1.0010+00	2.7162+00	3.7172+00	2.7788+01	4.1969-01
3.0+00	1.0014+00	2.7160+00	3.7174+00	2.7382+01	6.2940-01
5.0+00	1.0020+00	2.7159+00	3.7179+00	2.6871+01	1.0485+00
7.0+00	1.0025+00	2.7159+00	3.7184+00	2.6535+01	1.4672+00
1.0+01	1.0034+00	2.7157+00	3.7191+00	2.6178+01	2.0940+00
1.5+01	1.0047+00	2.7156+00	3.7203+00	2.5772+01	3.1287+00
2.0+01	1.0061+00	2.7154+00	3.7215+00	2.5484+01	4.1633+00
2.5+01	1.0077+00	2.7151+00	3.7228+00	2.5261+01	5.1980+00
3.0+01	1.0092+00	2.7148+00	3.7240+00	2.5078+01	6.2327+00
3.5+01	1.0108+00	2.7144+00	3.7252+00	2.4924+01	7.2673+00
4.0+01	1.0124+00	2.7140+00	3.7264+00	2.4790+01	8.3020+00
4.5+01	1.0147+00	2.7129+00	3.7276+00	2.4672+01	9.3185+00
5.0+01	1.0165+00	2.7123+00	3.7288+00	2.4566+01	1.0335+01
6.0+01	1.0193+00	2.7120+00	3.7313+00	2.4383+01	1.2368+01
7.0+01	1.0224+00	2.7113+00	3.7337+00	2.4229+01	1.4401+01
8.0+01	1.0251+00	2.7111+00	3.7362+00	2.4095+01	1.6398+01
9.0+01	1.0278+00	2.7108+00	3.7386+00	2.3977+01	1.8396+01
1.0+02	1.0304+00	2.7107+00	3.7411+00	2.3871+01	2.0393+01

T = 1400 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0007+00	2.7458+00	3.7465+00	2.8787+01	1.9497-01
2.0+00	1.0010+00	2.7457+00	3.7467+00	2.8094+01	3.8972-01
3.0+00	1.0013+00	2.7456+00	3.7469+00	2.7688+01	5.8448-01
5.0+00	1.0019+00	2.7455+00	3.7474+00	2.7178+01	9.7366-01
7.0+00	1.0024+00	2.7455+00	3.7479+00	2.6841+01	1.3625+00
1.0+01	1.0032+00	2.7454+00	3.7486+00	2.6484+01	1.9448+00
1.5+01	1.0044+00	2.7454+00	3.7498+00	2.6078+01	2.9063+00
2.0+01	1.0058+00	2.7451+00	3.7509+00	2.5790+01	3.8679+00
2.5+01	1.0073+00	2.7448+00	3.7521+00	2.5567+01	4.8294+00
3.0+01	1.0087+00	2.7446+00	3.7533+00	2.5384+01	5.7909+00
3.5+01	1.0102+00	2.7443+00	3.7545+00	2.5230+01	6.7525+00
4.0+01	1.0117+00	2.7440+00	3.7557+00	2.5097+01	7.7140+00
4.5+01	1.0139+00	2.7430+00	3.7569+00	2.4978+01	8.6598+00
5.0+01	1.0156+00	2.7425+00	3.7581+00	2.4873+01	9.6057+00
6.0+01	1.0182+00	2.7422+00	3.7604+00	2.4690+01	1.1497+01
7.0+01	1.0211+00	2.7417+00	3.7628+00	2.4536+01	1.3389+01
8.0+01	1.0236+00	2.7416+00	3.7652+00	2.4402+01	1.5250+01
9.0+01	1.0263+00	2.7413+00	3.7676+00	2.4284+01	1.7110+01
1.0+02	1.0288+00	2.7412+00	3.7700+00	2.4178+01	1.8971+01

T = 1500 °K

p, atm	Z	E/RT	H/RT	S/R	(ρ/ρ_0)
1.0+00	1.0007+00	2.7742+00	3.7749+00	2.9075+01	1.8148-01
2.0+00	1.0010+00	2.7741+00	3.7751+00	2.8382+01	3.6376-01
3.0+00	1.0013+00	2.7740+00	3.7753+00	2.7976+01	5.4555-01
5.0+00	1.0018+00	2.7740+00	3.7758+00	2.7466+01	9.0883-01
7.0+00	1.0023+00	2.7739+00	3.7762+00	2.7129+01	1.2718+00
1.0+01	1.0030+00	2.7739+00	3.7769+00	2.6772+01	1.8155+00
1.5+01	1.0041+00	2.7739+00	3.7780+00	2.6366+01	2.7137+00
2.0+01	1.0055+00	2.7737+00	3.7792+00	2.6078+01	3.6120+00
2.5+01	1.0069+00	2.7734+00	3.7803+00	2.5855+01	4.5103+00
3.0+01	1.0082+00	2.7733+00	3.7815+00	2.5673+01	5.4085+00
3.5+01	1.0096+00	2.7730+00	3.7826+00	2.5518+01	6.3067+00
4.0+01	1.0110+00	2.7728+00	3.7838+00	2.5385+01	7.2050+00
4.5+01	1.0130+00	2.7719+00	3.7849+00	2.5267+01	8.0892+00
5.0+01	1.0147+00	2.7714+00	3.7861+00	2.5161+01	8.9733+00
6.0+01	1.0172+00	2.7712+00	3.7884+00	2.4979+01	1.0742+01
7.0+01	1.0198+00	2.7709+00	3.7907+00	2.4824+01	1.2510+01
8.0+01	1.0222+00	2.7708+00	3.7930+00	2.4690+01	1.4251+01
9.0+01	1.0249+00	2.7705+00	3.7954+00	2.4572+01	1.5993+01
1.0+02	1.0272+00	2.7705+00	3.7977+00	2.4467+01	1.7734+01

Contrails

TABLE 2

**Tables of the Thermodynamic Properties of Nitrogen
from 100 to 1500°K with Independent Variables of
Temperature and Density**

Contrails

T = 100 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4902+00	3.4902+00	3.6327+01	3.6610-08
-6.8+00	1.0000+00	2.4902+00	3.4902+00	3.5866+01	5.8023-08
-6.6+00	1.0000+00	2.4902+00	3.4902+00	3.5406+01	9.1960-08
-6.4+00	1.0000+00	2.4902+00	3.4902+00	3.4945+01	1.4575-07
-6.2+00	1.0000+00	2.4902+00	3.4902+00	3.4485+01	2.3099-07
-6.0+00	1.0000+00	2.4902+00	3.4902+00	3.4024+01	3.6610-07
-5.8+00	1.0000+00	2.4902+00	3.4902+00	3.3564+01	5.8023-07
-5.6+00	1.0000+00	2.4902+00	3.4902+00	3.3103+01	9.1960-07
-5.4+00	1.0000+00	2.4902+00	3.4902+00	3.2643+01	1.4575-06
-5.2+00	1.0000+00	2.4902+00	3.4902+00	3.2182+01	2.3099-06
-5.0+00	1.0000+00	2.4902+00	3.4902+00	3.1722+01	3.6610-06
-4.8+00	1.0000+00	2.4902+00	3.4902+00	3.1261+01	5.8023-06
-4.6+00	1.0000+00	2.4902+00	3.4902+00	3.0801+01	9.1960-06
-4.4+00	1.0000+00	2.4902+00	3.4902+00	3.0340+01	1.4575-05
-4.2+00	1.0000+00	2.4902+00	3.4902+00	2.9880+01	2.3099-05
-4.0+00	1.0000+00	2.4902+00	3.4902+00	2.9419+01	3.6610-05
-3.8+00	1.0000+00	2.4902+00	3.4902+00	2.8959+01	5.8023-05
-3.6+00	1.0000+00	2.4902+00	3.4902+00	2.8498+01	9.1960-05
-3.4+00	1.0000+00	2.4902+00	3.4902+00	2.8038+01	1.4575-04
-3.2+00	1.0000+00	2.4902+00	3.4902+00	2.7577+01	2.3099-04
-3.0+00	1.0000+00	2.4902+00	3.4902+00	2.7117+01	3.6610-04
-2.8+00	1.0000+00	2.4902+00	3.4902+00	2.6656+01	5.8023-04
-2.6+00	1.0000+00	2.4902+00	3.4902+00	2.6196+01	9.1960-04
-2.4+00	1.0000+00	2.4902+00	3.4902+00	2.5735+01	1.4575-03
-2.2+00	1.0000+00	2.4902+00	3.4902+00	2.5275+01	2.3099-03
-2.0+00	1.0000+00	2.4902+00	3.4902+00	2.4814+01	3.6610-03
-1.8+00	1.0000+00	2.4902+00	3.4902+00	2.4354+01	5.8023-03
-1.6+00	1.0000+00	2.4902+00	3.4902+00	2.3893+01	9.1960-03
-1.4+00	9.9956-01	2.4898+00	3.4894+00	2.3432+01	1.4574-02
-1.2+00	9.9923-01	2.4894+00	3.4886+00	2.2971+01	2.3090-02
-1.0+00	9.9891-01	2.4888+00	3.4877+00	2.2511+01	3.6584-02
-8.0-01	9.9858-01	2.4882+00	3.4868+00	2.2050+01	5.7964-02
-6.0-01	9.9826-01	2.4877+00	3.4860+00	2.1589+01	9.1838-02
-4.0-01	9.9650-01	2.4856+00	3.4821+00	2.1127+01	1.4533-01
-2.0-01	9.9442-01	2.4831+00	3.4775+00	2.0665+01	2.2993-01
0.0	9.9233-01	2.4806+00	3.4729+00	2.0203+01	3.6377-01
2.0-01	9.8861-01	2.4643+00	3.4529+00	1.9740+01	5.7421-01
4.0-01	9.8307-01	2.4409+00	3.4240+00	1.9275+01	9.0424-01
6.0-01	9.7210-01	2.4207+00	3.3928+00	1.8808+01	1.4167+00
8.0-01	9.5787-01	2.3992+00	3.3571+00	1.8340+01	2.2125+00
1.0+00	9.3390-01	2.3605+00	3.2944+00	1.7866+01	3.4185+00
1.2+00	9.0135-01	2.2996+00	3.2009+00	1.7378+01	5.2294+00

Contrails

AEDC-TDR-62-170

T = 110 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4910+00	3.4910+00	3.6565+01	4.0271-08
-6.8+00	1.0000+00	2.4910+00	3.4910+00	3.6105+01	6.3825-08
-6.6+00	1.0000+00	2.4910+00	3.4910+00	3.5644+01	1.0116-07
-6.4+00	1.0000+00	2.4910+00	3.4910+00	3.5184+01	1.6032-07
-6.2+00	1.0000+00	2.4910+00	3.4910+00	3.4723+01	2.5409-07
-6.0+00	1.0000+00	2.4910+00	3.4910+00	3.4263+01	4.0271-07
-5.8+00	1.0000+00	2.4910+00	3.4910+00	3.3802+01	6.3825-07
-5.6+00	1.0000+00	2.4910+00	3.4910+00	3.3342+01	1.0116-06
-5.4+00	1.0000+00	2.4910+00	3.4910+00	3.2881+01	1.6032-06
-5.2+00	1.0000+00	2.4910+00	3.4910+00	3.2421+01	2.5409-06
-5.0+00	1.0000+00	2.4910+00	3.4910+00	3.1960+01	4.0271-06
-4.8+00	1.0000+00	2.4910+00	3.4910+00	3.1500+01	6.3825-06
-4.6+00	1.0000+00	2.4910+00	3.4910+00	3.1039+01	1.0116-05
-4.4+00	1.0000+00	2.4910+00	3.4910+00	3.0579+01	1.6032-05
-4.2+00	1.0000+00	2.4910+00	3.4910+00	3.0118+01	2.5409-05
-4.0+00	1.0000+00	2.4910+00	3.4910+00	2.9658+01	4.0271-05
-3.8+00	1.0000+00	2.4910+00	3.4910+00	2.9197+01	6.3825-05
-3.6+00	1.0000+00	2.4910+00	3.4910+00	2.8737+01	1.0116-04
-3.4+00	1.0000+00	2.4910+00	3.4910+00	2.8276+01	1.6032-04
-3.2+00	1.0000+00	2.4910+00	3.4910+00	2.7816+01	2.5409-04
-3.0+00	1.0000+00	2.4910+00	3.4910+00	2.7355+01	4.0271-04
-2.8+00	1.0000+00	2.4910+00	3.4910+00	2.6895+01	6.3825-04
-2.6+00	1.0000+00	2.4910+00	3.4910+00	2.6434+01	1.0116-03
-2.4+00	1.0000+00	2.4910+00	3.4910+00	2.5974+01	1.6032-03
-2.2+00	1.0000+00	2.4910+00	3.4910+00	2.5513+01	2.5409-03
-2.0+00	1.0000+00	2.4910+00	3.4910+00	2.5053+01	4.0271-03
-1.8+00	1.0000+00	2.4910+00	3.4910+00	2.4592+01	6.3825-03
-1.6+00	9.9985-01	2.4912+00	3.4910+00	2.4131+01	1.0120-02
-1.4+00	9.9961-01	2.4907+00	3.4903+00	2.3670+01	1.6035-02
-1.2+00	9.9936-01	2.4902+00	3.4896+00	2.3210+01	2.5406-02
-1.0+00	9.9911-01	2.4898+00	3.4889+00	2.2749+01	4.0255-02
-8.0-01	9.9886-01	2.4893+00	3.4882+00	2.2288+01	6.3781-02
-6.0-01	9.9859-01	2.4888+00	3.4874+00	2.1828+01	1.0105-01
-4.0-01	9.9719-01	2.4873+00	3.4845+00	2.1366+01	1.5993-01
-2.0-01	9.9579-01	2.4857+00	3.4815+00	2.0904+01	2.5312-01
0.0	9.9439-01	2.4840+00	3.4784+00	2.0443+01	4.0060-01
2.0-01	9.9080-01	2.4689+00	3.4597+00	1.9980+01	6.3265-01
4.0-01	9.8594-01	2.4468+00	3.4327+00	1.9512+01	9.9734-01
6.0-01	9.7652-01	2.4317+00	3.4082+00	1.9046+01	1.5655+00
8.0-01	9.6386-01	2.4116+00	3.3755+00	1.8578+01	2.4490+00
1.0+00	9.4288-01	2.3765+00	3.3194+00	1.8102+01	3.7966+00
1.2+00	9.1370-01	2.3208+00	3.2345+00	1.7616+01	5.8309+00
1.4+00	8.6819-01	2.2202+00	3.0884+00	1.7108+01	8.7794+00

T = 120 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4921+00	3.4921+00	3.6783+01	4.3932-08
-6.8+00	1.0000+00	2.4921+00	3.4921+00	3.6323+01	6.9628-08
-6.6+00	1.0000+00	2.4921+00	3.4921+00	3.5862+01	1.1035-07
-6.4+00	1.0000+00	2.4921+00	3.4921+00	3.5402+01	1.7490-07
-6.2+00	1.0000+00	2.4921+00	3.4921+00	3.4941+01	2.7719-07
-6.0+00	1.0000+00	2.4921+00	3.4921+00	3.4480+01	4.3932-07
-5.8+00	1.0000+00	2.4921+00	3.4921+00	3.4020+01	6.9628-07
-5.6+00	1.0000+00	2.4921+00	3.4921+00	3.3559+01	1.1035-06
-5.4+00	1.0000+00	2.4921+00	3.4921+00	3.3099+01	1.7490-06
-5.2+00	1.0000+00	2.4921+00	3.4921+00	3.2638+01	2.7719-06
-5.0+00	1.0000+00	2.4921+00	3.4921+00	3.2178+01	4.3932-06
-4.8+00	1.0000+00	2.4921+00	3.4921+00	3.1717+01	6.9628-06
-4.6+00	1.0000+00	2.4921+00	3.4921+00	3.1257+01	1.1035-05
-4.4+00	1.0000+00	2.4921+00	3.4921+00	3.0796+01	1.7490-05
-4.2+00	1.0000+00	2.4921+00	3.4921+00	3.0336+01	2.7719-05
-4.0+00	1.0000+00	2.4921+00	3.4921+00	2.9875+01	4.3932-05
-3.8+00	1.0000+00	2.4921+00	3.4921+00	2.9415+01	6.9628-05
-3.6+00	1.0000+00	2.4921+00	3.4921+00	2.8954+01	1.1035-04
-3.4+00	1.0000+00	2.4921+00	3.4921+00	2.8494+01	1.7490-04
-3.2+00	1.0000+00	2.4921+00	3.4921+00	2.8033+01	2.7719-04
-3.0+00	1.0000+00	2.4921+00	3.4921+00	2.7573+01	4.3932-04
-2.8+00	1.0000+00	2.4921+00	3.4921+00	2.7112+01	6.9628-04
-2.6+00	1.0000+00	2.4921+00	3.4921+00	2.6652+01	1.1035-03
-2.4+00	1.0000+00	2.4921+00	3.4921+00	2.6191+01	1.7490-03
-2.2+00	1.0000+00	2.4921+00	3.4921+00	2.5731+01	2.7719-03
-2.0+00	1.0000+00	2.4921+00	3.4921+00	2.5270+01	4.3932-03
-1.8+00	1.0000+00	2.4921+00	3.4921+00	2.4810+01	6.9628-03
-1.6+00	9.9985-01	2.4922+00	3.4920+00	2.4349+01	1.1036-02
-1.4+00	9.9965-01	2.4918+00	3.4914+00	2.3888+01	1.7488-02
-1.2+00	9.9946-01	2.4913+00	3.4908+00	2.3427+01	2.7713-02
-1.0+00	9.9927-01	2.4909+00	3.4902+00	2.2967+01	4.3914-02
-8.0-01	9.9907-01	2.4905+00	3.4896+00	2.2506+01	6.9509-02
-6.0-01	9.9869-01	2.4899+00	3.4886+00	2.2045+01	1.1025-01
-4.0-01	9.9763-01	2.4885+00	3.4861+00	2.1584+01	1.7455-01
-2.0-01	9.9656-01	2.4869+00	3.4835+00	2.1122+01	2.7634-01
0.0	9.9514-01	2.4836+00	3.4787+00	2.0661+01	4.3731-01
2.0-01	9.9228-01	2.4721+00	3.4644+00	2.0199+01	6.9086-01
4.0-01	9.8770-01	2.4532+00	3.4409+00	1.9727+01	1.0899+00
6.0-01	9.8033-01	2.4407+00	3.4210+00	1.9262+01	1.7145+00
8.0-01	9.6917-01	2.4222+00	3.3914+00	1.8796+01	2.6864+00
1.0+00	9.5098-01	2.3911+00	3.3421+00	1.8320+01	4.1776+00
1.2+00	9.1883-01	2.3501+00	3.2689+00	1.7838+01	6.4391+00
1.4+00	8.8475-01	2.2659+00	3.1506+00	1.7341+01	9.7688+00
1.6+00	8.1905-01	2.1350+00	2.9548+00	1.6820+01	1.4319+01

Contrails

AEDC-TDR-62-170

T = 130 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4927+00	3.4927+00	3.6983+01	4.7593-08
-6.8+00	1.0000+00	2.4927+00	3.4927+00	3.6523+01	7.5430-08
-6.6+00	1.0000+00	2.4927+00	3.4927+00	3.6062+01	1.1955-07
-6.4+00	1.0000+00	2.4927+00	3.4927+00	3.5602+01	1.8947-07
-6.2+00	1.0000+00	2.4927+00	3.4927+00	3.5141+01	3.0029-07
-6.0+00	1.0000+00	2.4927+00	3.4927+00	3.4681+01	4.7593-07
-5.8+00	1.0000+00	2.4927+00	3.4927+00	3.4220+01	7.5430-07
-5.6+00	1.0000+00	2.4927+00	3.4927+00	3.3759+01	1.1955-06
-5.4+00	1.0000+00	2.4927+00	3.4927+00	3.3299+01	1.8947-06
-5.2+00	1.0000+00	2.4927+00	3.4927+00	3.2838+01	3.0029-06
-5.0+00	1.0000+00	2.4927+00	3.4927+00	3.2378+01	4.7593-06
-4.8+00	1.0000+00	2.4927+00	3.4927+00	3.1917+01	7.5430-06
-4.6+00	1.0000+00	2.4927+00	3.4927+00	3.1457+01	1.1955-05
-4.4+00	1.0000+00	2.4927+00	3.4927+00	3.0996+01	1.8947-05
-4.2+00	1.0000+00	2.4927+00	3.4927+00	3.0536+01	3.0029-05
-4.0+00	1.0000+00	2.4927+00	3.4927+00	3.0075+01	4.7593-05
-3.8+00	1.0000+00	2.4927+00	3.4927+00	2.9615+01	7.5430-05
-3.6+00	1.0000+00	2.4927+00	3.4927+00	2.9154+01	1.1955-04
-3.4+00	1.0000+00	2.4927+00	3.4927+00	2.8694+01	1.8947-04
-3.2+00	1.0000+00	2.4927+00	3.4927+00	2.8233+01	3.0029-04
-3.0+00	1.0000+00	2.4927+00	3.4927+00	2.7773+01	4.7593-04
-2.8+00	1.0000+00	2.4927+00	3.4927+00	2.7312+01	7.5430-04
-2.6+00	1.0000+00	2.4927+00	3.4927+00	2.6852+01	1.1955-03
-2.4+00	1.0000+00	2.4927+00	3.4927+00	2.6391+01	1.8947-03
-2.2+00	1.0000+00	2.4927+00	3.4927+00	2.5931+01	3.0029-03
-2.0+00	1.0000+00	2.4927+00	3.4927+00	2.5470+01	4.7593-03
-1.8+00	1.0000+00	2.4927+00	3.4927+00	2.5010+01	7.5430-03
-1.6+00	9.9985-01	2.4927+00	3.4925+00	2.4549+01	1.1960-02
-1.4+00	9.9970-01	2.4923+00	3.4920+00	2.4088+01	1.8952-02
-1.2+00	9.9954-01	2.4921+00	3.4916+00	2.3627+01	3.0031-02
-1.0+00	9.9939-01	2.4917+00	3.4911+00	2.3167+01	4.7587-02
-8.0-01	9.9923-01	2.4914+00	3.4906+00	2.2706+01	7.5405-02
-6.0-01	9.9881-01	2.4908+00	3.4896+00	2.2245+01	1.1945-01
-4.0-01	9.9797-01	2.4898+00	3.4878+00	2.1784+01	1.8916-01
-2.0-01	9.9713-01	2.4889+00	3.4860+00	2.1323+01	2.9955-01
0.0+	9.9581-01	2.4853+00	3.4811+00	2.0861+01	4.7413-01
2.0-01	9.9352-01	2.4755+00	3.4690+00	2.0397+01	7.4969-01
4.0-01	9.8933-01	2.4589+00	3.4482+00	1.9926+01	1.1827+00
6.0-01	9.8343-01	2.4488+00	3.4322+00	1.9462+01	1.8633+00
8.0-01	9.7381-01	2.4323+00	3.4061+00	1.8996+01	2.9243+00
1.0+00	9.5808-01	2.4042+00	3.3623+00	1.8520+01	4.5597+00
1.2+00	9.3493-01	2.3620+00	3.2969+00	1.8040+01	7.0521+00
1.4+00	8.9761-01	2.2894+00	3.1870+00	1.7544+01	1.0728+01
1.6+00	8.4040-01	2.1830+00	3.0234+00	1.7036+01	1.5916+01
1.8+00	7.5226-01	2.0049+00	2.7572+00	1.6497+01	2.2564+01
2.0+00	6.1702-01	1.7406+00	2.3576+00	1.5926+01	2.9312+01
2.2+00	4.4210-01	1.2827+00	1.7248+00	1.5213+01	3.3350+01
2.4+00	3.1146-01	6.8411-01	9.9557-01	1.4428+01	3.7238+01
2.6+00	2.4090-01	-1.5725-01	8.3653-02	1.3439+01	4.5640+01
2.8+00	2.4209+00	-1.8345+00	5.8638-01	1.1423+01	7.2604+02

Contrails

AEDC-TDR-62-170

T = 140 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4933+00	3.4933+00	3.7169+01	5.1254-08
-6.8+00	1.0000+00	2.4933+00	3.4933+00	3.6708+01	8.1232-08
-6.6+00	1.0000+00	2.4933+00	3.4933+00	3.6248+01	1.2874-07
-6.4+00	1.0000+00	2.4933+00	3.4933+00	3.5787+01	2.0405-07
-6.2+00	1.0000+00	2.4933+00	3.4933+00	3.5327+01	3.2339-07
-6.0+00	1.0000+00	2.4933+00	3.4933+00	3.4866+01	5.1254-07
-5.8+00	1.0000+00	2.4933+00	3.4933+00	3.4406+01	8.1232-07
-5.6+00	1.0000+00	2.4933+00	3.4933+00	3.3945+01	1.2874-06
-5.4+00	1.0000+00	2.4933+00	3.4933+00	3.3484+01	2.0405-06
-5.2+00	1.0000+00	2.4933+00	3.4933+00	3.3024+01	3.2339-06
-5.0+00	1.0000+00	2.4933+00	3.4933+00	3.2563+01	5.1254-06
-4.8+00	1.0000+00	2.4933+00	3.4933+00	3.2103+01	8.1232-06
-4.6+00	1.0000+00	2.4933+00	3.4933+00	3.1642+01	1.2874-05
-4.4+00	1.0000+00	2.4933+00	3.4933+00	3.1182+01	2.0405-05
-4.2+00	1.0000+00	2.4933+00	3.4933+00	3.0721+01	3.2339-05
-4.0+00	1.0000+00	2.4933+00	3.4933+00	3.0261+01	5.1254-05
-3.8+00	1.0000+00	2.4933+00	3.4933+00	2.9800+01	8.1232-05
-3.6+00	1.0000+00	2.4933+00	3.4933+00	2.9340+01	1.2874-04
-3.4+00	1.0000+00	2.4933+00	3.4933+00	2.8879+01	2.0405-04
-3.2+00	1.0000+00	2.4933+00	3.4933+00	2.8419+01	3.2339-04
-3.0+00	1.0000+00	2.4933+00	3.4933+00	2.7958+01	5.1254-04
-2.8+00	1.0000+00	2.4933+00	3.4933+00	2.7498+01	8.1232-04
-2.6+00	1.0000+00	2.4933+00	3.4933+00	2.7037+01	1.2874-03
-2.4+00	1.0000+00	2.4933+00	3.4933+00	2.6577+01	2.0405-03
-2.2+00	1.0000+00	2.4933+00	3.4933+00	2.6116+01	3.2339-03
-2.0+00	1.0000+00	2.4933+00	3.4933+00	2.5656+01	5.1254-03
-1.8+00	1.0000+00	2.4933+00	3.4933+00	2.5195+01	8.1232-03
-1.6+00	9.9986-01	2.4932+00	3.4931+00	2.4734+01	1.2880-02
-1.4+00	9.9974-01	2.4930+00	3.4927+00	2.4273+01	2.0411-02
-1.2+00	9.9961-01	2.4927+00	3.4923+00	2.3813+01	3.2343-02
-1.0+00	9.9949-01	2.4924+00	3.4919+00	2.3352+01	5.1252-02
-8.0-01	9.9937-01	2.4921+00	3.4915+00	2.2892+01	8.1216-02
-6.0-01	9.9893-01	2.4916+00	3.4905+00	2.2431+01	1.2866-01
-4.0-01	9.9823-01	2.4907+00	3.4889+00	2.1969+01	2.0377-01
-2.0-01	9.9753-01	2.4898+00	3.4873+00	2.1508+01	3.2272-01
0.0	9.9624-01	2.4871+00	3.4833+00	2.1047+01	5.1083-01
2.0-01	9.9432-01	2.4776+00	3.4719+00	2.0580+01	8.0793-01
4.0-01	9.9075-01	2.4639+00	3.4546+00	2.0111+01	1.2755+00
6.0-01	9.8590-01	2.4560+00	3.4419+00	1.9647+01	2.0117+00
8.0-01	9.7720-01	2.4411+00	3.4183+00	1.9180+01	3.1601+00
1.0+00	9.6439-01	2.4153+00	3.3797+00	1.8705+01	4.9429+00
1.2+00	9.4281-01	2.3740+00	3.3168+00	1.8224+01	7.6532+00
1.4+00	9.0988-01	2.3081+00	3.2180+00	1.7730+01	1.1711+01
1.6+00	8.6095-01	2.2124+00	3.0733+00	1.7224+01	1.7562+01
1.8+00	7.8820-01	2.0587+00	2.8469+00	1.6691+01	2.5483+01
2.0+00	6.6926-01	1.7915+00	2.4608+00	1.6081+01	3.4277+01
2.2+00	5.2667-01	1.4415+00	1.9682+00	1.5452+01	4.2677+01
2.4+00	4.1477-01	9.1613-01	1.3309+00	1.4699+01	5.3259+01
2.6+00	3.6940-01	3.3190-02	4.0259-01	1.3613+01	7.5347+01
2.8+00	2.6452+00	-1.4383+00	1.2069+00	1.1689+01	8.5442+02

Contrails

AEDC-TDR-62-170

T = 150 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4937+00	3.4937+00	3.7341+01	5.4915-08
-6.8+00	1.0000+00	2.4937+00	3.4937+00	3.6881+01	8.7034-08
-6.6+00	1.0000+00	2.4937+00	3.4937+00	3.6420+01	1.3794-07
-6.4+00	1.0000+00	2.4937+00	3.4937+00	3.5960+01	2.1862-07
-6.2+00	1.0000+00	2.4937+00	3.4937+00	3.5499+01	3.4649-07
-6.0+00	1.0000+00	2.4937+00	3.4937+00	3.5039+01	5.4915-07
-5.8+00	1.0000+00	2.4937+00	3.4937+00	3.4578+01	8.7034-07
-5.6+00	1.0000+00	2.4937+00	3.4937+00	3.4117+01	1.3794-06
-5.4+00	1.0000+00	2.4937+00	3.4937+00	3.3657+01	2.1862-06
-5.2+00	1.0000+00	2.4937+00	3.4937+00	3.3196+01	3.4649-06
-5.0+00	1.0000+00	2.4937+00	3.4937+00	3.2736+01	5.4915-06
-4.8+00	1.0000+00	2.4937+00	3.4937+00	3.2275+01	8.7034-06
-4.6+00	1.0000+00	2.4937+00	3.4937+00	3.1815+01	1.3794-05
-4.4+00	1.0000+00	2.4937+00	3.4937+00	3.1354+01	2.1862-05
-4.2+00	1.0000+00	2.4937+00	3.4937+00	3.0894+01	3.4649-05
-4.0+00	1.0000+00	2.4937+00	3.4937+00	3.0433+01	5.4915-05
-3.8+00	1.0000+00	2.4937+00	3.4937+00	2.9973+01	8.7034-05
-3.6+00	1.0000+00	2.4937+00	3.4937+00	2.9512+01	1.3794-04
-3.4+00	1.0000+00	2.4937+00	3.4937+00	2.9052+01	2.1862-04
-3.2+00	1.0000+00	2.4937+00	3.4937+00	2.8591+01	3.4649-04
-3.0+00	1.0000+00	2.4937+00	3.4937+00	2.8131+01	5.4915-04
-2.8+00	1.0000+00	2.4937+00	3.4937+00	2.7670+01	8.7034-04
-2.6+00	1.0000+00	2.4937+00	3.4937+00	2.7210+01	1.3794-03
-2.4+00	1.0000+00	2.4937+00	3.4937+00	2.6749+01	2.1862-03
-2.2+00	1.0000+00	2.4937+00	3.4937+00	2.6289+01	3.4649-03
-2.0+00	1.0000+00	2.4937+00	3.4937+00	2.5828+01	5.4915-03
-1.8+00	1.0000+00	2.4937+00	3.4937+00	2.5368+01	8.7034-03
-1.6+00	9.9987-01	2.4936+00	3.4935+00	2.4907+01	1.3800-02
-1.4+00	9.9977-01	2.4934+00	3.4932+00	2.4446+01	2.1869-02
-1.2+00	9.9967-01	2.4932+00	3.4929+00	2.3985+01	3.4655-02
-1.0+00	9.9957-01	2.4930+00	3.4926+00	2.3525+01	5.4916-02
-8.0-01	9.9947-01	2.4928+00	3.4923+00	2.3064+01	8.7024-02
-6.0-01	9.9905-01	2.4923+00	3.4913+00	2.2603+01	1.3786-01
-4.0-01	9.9849-01	2.4913+00	3.4898+00	2.2142+01	2.1838-01
-2.0-01	9.9794-01	2.4905+00	3.4884+00	2.1681+01	3.4592-01
0.0	9.9633-01	2.4877+00	3.4845+00	2.1219+01	5.4763-01
2.0-01	9.9523-01	2.4781+00	3.4733+00	2.0750+01	8.6633-01
4.0-01	9.9196-01	2.4681+00	3.4601+00	2.0282+01	1.3683+00
6.0-01	9.8758-01	2.4604+00	3.4480+00	1.9819+01	2.1590+00
8.0-01	9.7994-01	2.4458+00	3.4257+00	1.9351+01	3.3953+00
1.0+00	9.6899-01	2.4235+00	3.3925+00	1.8877+01	5.3211+00
1.2+00	9.5017-01	2.3861+00	3.3363+00	1.8397+01	8.2694+00
1.4+00	9.2185-01	2.3270+00	3.2488+00	1.7905+01	1.2714+01
1.6+00	8.8108-01	2.2402+00	3.1213+00	1.7401+01	1.9261+01
1.8+00	8.1917-01	2.0979+00	2.9171+00	1.6870+01	2.8378+01
2.0+00	7.2875-01	1.8673+00	2.5960+00	1.6281+01	4.0019+01
2.2+00	6.0829-01	1.5215+00	2.1298+00	1.5629+01	5.2821+01
2.4+00	4.9362-01	1.0885+00	1.5821+00	1.4927+01	6.8003+01
2.6+00	5.5853-01	2.5349-01	8.1252-01	1.3847+01	1.2204+02
2.8+00	2.8409+00	-1.0977+00	1.7432+00	1.1936+01	9.8387+02

T = 160 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4942+00	3.4942+00	3.7502+01	5.8576-08
-6.8+00	1.0000+00	2.4942+00	3.4942+00	3.7042+01	9.2837-08
-6.6+00	1.0000+00	2.4942+00	3.4942+00	3.6581+01	1.4714-07
-6.4+00	1.0000+00	2.4942+00	3.4942+00	3.6121+01	2.3320-07
-6.2+00	1.0000+00	2.4942+00	3.4942+00	3.5660+01	3.6959-07
-6.0+00	1.0000+00	2.4942+00	3.4942+00	3.5200+01	5.8576-07
-5.8+00	1.0000+00	2.4942+00	3.4942+00	3.4739+01	9.2837-07
-5.6+00	1.0000+00	2.4942+00	3.4942+00	3.4279+01	1.4714-06
-5.4+00	1.0000+00	2.4942+00	3.4942+00	3.3818+01	2.3320-06
-5.2+00	1.0000+00	2.4942+00	3.4942+00	3.3358+01	3.6959-06
-5.0+00	1.0000+00	2.4942+00	3.4942+00	3.2897+01	5.8576-06
-4.8+00	1.0000+00	2.4942+00	3.4942+00	3.2437+01	9.2837-06
-4.6+00	1.0000+00	2.4942+00	3.4942+00	3.1976+01	1.4714-05
-4.4+00	1.0000+00	2.4942+00	3.4942+00	3.1516+01	2.3320-05
-4.2+00	1.0000+00	2.4942+00	3.4942+00	3.1055+01	3.6959-05
-4.0+00	1.0000+00	2.4942+00	3.4942+00	3.0595+01	5.8576-05
-3.8+00	1.0000+00	2.4942+00	3.4942+00	3.0134+01	9.2837-05
-3.6+00	1.0000+00	2.4942+00	3.4942+00	2.9674+01	1.4714-04
-3.4+00	1.0000+00	2.4942+00	3.4942+00	2.9213+01	2.3320-04
-3.2+00	1.0000+00	2.4942+00	3.4942+00	2.8753+01	3.6959-04
-3.0+00	1.0000+00	2.4942+00	3.4942+00	2.8292+01	5.8576-04
-2.8+00	1.0000+00	2.4942+00	3.4942+00	2.7832+01	9.2837-04
-2.6+00	1.0000+00	2.4942+00	3.4942+00	2.7371+01	1.4714-03
-2.4+00	1.0000+00	2.4942+00	3.4942+00	2.6911+01	2.3320-03
-2.2+00	1.0000+00	2.4942+00	3.4942+00	2.6450+01	3.6959-03
-2.0+00	1.0000+00	2.4942+00	3.4942+00	2.5990+01	5.8576-03
-1.8+00	1.0000+00	2.4942+00	3.4942+00	2.5529+01	9.2837-03
-1.6+00	9.9988-01	2.4941+00	3.4940+00	2.5068+01	1.4715-02
-1.4+00	9.9980-01	2.4940+00	3.4938+00	2.4608+01	2.3321-02
-1.2+00	9.9972-01	2.4938+00	3.4935+00	2.4147+01	3.6959-02
-1.0+00	9.9964-01	2.4937+00	3.4933+00	2.3686+01	5.8574-02
-8.0-01	9.9955-01	2.4936+00	3.4931+00	2.3226+01	9.2831-02
-6.0-01	9.9916-01	2.4929+00	3.4921+00	2.2765+01	1.4707-01
-4.0-01	9.9870-01	2.4922+00	3.4909+00	2.2304+01	2.3299-01
-2.0-01	9.9825-01	2.4916+00	3.4898+00	2.1842+01	3.6910-01
0.0	9.9724-01	2.4888+00	3.4860+00	2.1381+01	5.8438-01
2.0-01	9.9546-01	2.4788+00	3.4748+00	2.0908+01	9.2470-01
4.0-01	9.9310-01	2.4707+00	3.4638+00	2.0442+01	1.4612+00
6.0-01	9.8918-01	2.4634+00	3.4526+00	1.9979+01	2.3067+00
8.0-01	9.8258-01	2.4514+00	3.4340+00	1.9512+01	3.6315+00
1.0+00	9.7287-01	2.4311+00	3.4040+00	1.9039+01	5.6986+00
1.2+00	9.5716-01	2.3972+00	3.3544+00	1.8559+01	8.8858+00
1.4+00	9.3294-01	2.3443+00	3.2772+00	1.8069+01	1.3726+01
1.6+00	8.9759-01	2.2637+00	3.1613+00	1.7567+01	2.0930+01
1.8+00	8.4500-01	2.1343+00	2.9793+00	1.7037+01	3.1228+01
2.0+00	7.7093-01	1.9213+00	2.6922+00	1.6449+01	4.5157+01
2.2+00	6.6791-01	1.6022+00	2.2701+00	1.5804+01	6.1964+01
2.4+00	5.7218-01	1.1634+00	1.7356+00	1.5076+01	8.4180+01
2.6+00	7.4073-01	4.3607-01	1.1768+00	1.4051+01	1.7763+02
2.8+00	3.0731+00	-7.9940-01	2.2737+00	1.2152+01	1.1228+03

Contrails

AEDC-TDR-62-170

T = 170 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4945+00	3.4945+00	3.7654+01	6.2237-08
-6.8+00	1.0000+00	2.4945+00	3.4945+00	3.7194+01	9.8639-08
-6.6+00	1.0000+00	2.4945+00	3.4945+00	3.6733+01	1.5633-07
-6.4+00	1.0000+00	2.4945+00	3.4945+00	3.6273+01	2.4777-07
-6.2+00	1.0000+00	2.4945+00	3.4945+00	3.5812+01	3.9269-07
-6.0+00	1.0000+00	2.4945+00	3.4945+00	3.5352+01	6.2237-07
-5.8+00	1.0000+00	2.4945+00	3.4945+00	3.4891+01	9.8639-07
-5.6+00	1.0000+00	2.4945+00	3.4945+00	3.4431+01	1.5633-06
-5.4+00	1.0000+00	2.4945+00	3.4945+00	3.3970+01	2.4777-06
-5.2+00	1.0000+00	2.4945+00	3.4945+00	3.3509+01	3.9269-06
-5.0+00	1.0000+00	2.4945+00	3.4945+00	3.3049+01	6.2237-06
-4.8+00	1.0000+00	2.4945+00	3.4945+00	3.2588+01	9.8639-06
-4.6+00	1.0000+00	2.4945+00	3.4945+00	3.2128+01	1.5633-05
-4.4+00	1.0000+00	2.4945+00	3.4945+00	3.1667+01	2.4777-05
-4.2+00	1.0000+00	2.4945+00	3.4945+00	3.1207+01	3.9269-05
-4.0+00	1.0000+00	2.4945+00	3.4945+00	3.0746+01	6.2237-05
-3.8+00	1.0000+00	2.4945+00	3.4945+00	3.0286+01	9.8639-05
-3.6+00	1.0000+00	2.4945+00	3.4945+00	2.9825+01	1.5633-04
-3.4+00	1.0000+00	2.4945+00	3.4945+00	2.9365+01	2.4777-04
-3.2+00	1.0000+00	2.4945+00	3.4945+00	2.8904+01	3.9269-04
-3.0+00	1.0000+00	2.4945+00	3.4945+00	2.8444+01	6.2237-04
-2.8+00	1.0000+00	2.4945+00	3.4945+00	2.7983+01	9.8639-04
-2.6+00	1.0000+00	2.4945+00	3.4945+00	2.7523+01	1.5633-03
-2.4+00	1.0000+00	2.4945+00	3.4945+00	2.7062+01	2.4777-03
-2.2+00	1.0000+00	2.4945+00	3.4945+00	2.6602+01	3.9269-03
-2.0+00	1.0000+00	2.4945+00	3.4945+00	2.6141+01	6.2237-03
-1.8+00	1.0000+00	2.4945+00	3.4945+00	2.5681+01	9.8639-03
-1.6+00	9.9989-01	2.4944+00	3.4943+00	2.5220+01	1.5639-02
-1.4+00	9.9982-01	2.4943+00	3.4941+00	2.4759+01	2.4784-02
-1.2+00	9.9975-01	2.4941+00	3.4938+00	2.4298+01	3.9277-02
-1.0+00	9.9969-01	2.4939+00	3.4936+00	2.3838+01	6.2245-02
-8.0-01	9.9962-01	2.4938+00	3.4934+00	2.3377+01	9.8643-02
-6.0-01	9.9926-01	2.4932+00	3.4925+00	2.2918+01	1.5628-01
-4.0-01	9.9889-01	2.4926+00	3.4915+00	2.2460+01	2.4760-01
-2.0-01	9.9852-01	2.4920+00	3.4905+00	2.2001+01	3.9226-01
0.0	9.9763-01	2.4894+00	3.4870+00	2.1534+01	6.2115-01
2.0-01	9.9665-01	2.4804+00	3.4770+00	2.1056+01	9.8310-01
4.0-01	9.9415-01	2.4750+00	3.4691+00	2.0593+01	1.5542+00
6.0-01	9.9067-01	2.4680+00	3.4587+00	2.0129+01	2.4546+00
8.0-01	9.8491-01	2.4557+00	3.4406+00	1.9662+01	3.8676+00
1.0+00	9.7638-01	2.4374+00	3.4138+00	1.9191+01	6.0766+00
1.2+00	9.6335-01	2.4074+00	3.3707+00	1.8712+01	9.5024+00
1.4+00	9.4243-01	2.3606+00	3.3030+00	1.8224+01	1.4733+01
1.6+00	9.1136-01	2.2841+00	3.1955+00	1.7722+01	2.2579+01
1.8+00	8.6640-01	2.1653+00	3.0317+00	1.7195+01	3.4021+01
2.0+00	8.0242-01	1.9724+00	2.7748+00	1.6617+01	4.9940+01
2.2+00	7.1918-01	1.6780+00	2.3972+00	1.5978+01	7.0931+01
2.4+00	6.6785-01	1.2670+00	1.9348+00	1.5252+01	1.0440+02
2.6+00	8.8553-01	5.6307-01	1.4486+00	1.4203+01	2.1895+02
2.8+00	3.2099+00	-5.2870-01	2.6812+00	1.2371+01	1.2443+03

T = 180 °K

log (p/p ₀)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4949+00	3.4949+00	3.7797+01	6.5898-08
-6.8+00	1.0000+00	2.4949+00	3.4949+00	3.7336+01	1.0444-07
-6.6+00	1.0000+00	2.4949+00	3.4949+00	3.6876+01	1.6553-07
-6.4+00	1.0000+00	2.4949+00	3.4949+00	3.6415+01	2.6234-07
-6.2+00	1.0000+00	2.4949+00	3.4949+00	3.5955+01	4.1579-07
-6.0+00	1.0000+00	2.4949+00	3.4949+00	3.5494+01	6.5898-07
-5.8+00	1.0000+00	2.4949+00	3.4949+00	3.5034+01	1.0444-06
-5.6+00	1.0000+00	2.4949+00	3.4949+00	3.4573+01	1.6553-06
-5.4+00	1.0000+00	2.4949+00	3.4949+00	3.4113+01	2.6234-06
-5.2+00	1.0000+00	2.4949+00	3.4949+00	3.3652+01	4.1579-06
-5.0+00	1.0000+00	2.4949+00	3.4949+00	3.3192+01	6.5898-06
-4.8+00	1.0000+00	2.4949+00	3.4949+00	3.2731+01	1.0444-05
-4.6+00	1.0000+00	2.4949+00	3.4949+00	3.2271+01	1.6553-05
-4.4+00	1.0000+00	2.4949+00	3.4949+00	3.1810+01	2.6234-05
-4.2+00	1.0000+00	2.4949+00	3.4949+00	3.1350+01	4.1579-05
-4.0+00	1.0000+00	2.4949+00	3.4949+00	3.0889+01	6.5898-05
-3.8+00	1.0000+00	2.4949+00	3.4949+00	3.0429+01	1.0444-04
-3.6+00	1.0000+00	2.4949+00	3.4949+00	2.9968+01	1.6553-04
-3.4+00	1.0000+00	2.4949+00	3.4949+00	2.9508+01	2.6234-04
-3.2+00	1.0000+00	2.4949+00	3.4949+00	2.9047+01	4.1579-04
-3.0+00	1.0000+00	2.4949+00	3.4949+00	2.8587+01	6.5898-04
-2.8+00	1.0000+00	2.4949+00	3.4949+00	2.8126+01	1.0444-03
-2.6+00	1.0000+00	2.4949+00	3.4949+00	2.7666+01	1.6553-03
-2.4+00	1.0000+00	2.4949+00	3.4949+00	2.7205+01	2.6234-03
-2.2+00	1.0000+00	2.4949+00	3.4949+00	2.6745+01	4.1579-03
-2.0+00	1.0000+00	2.4949+00	3.4949+00	2.6284+01	6.5898-03
-1.8+00	9.9996-01	2.4949+00	3.4949+00	2.5823+01	1.0448-02
-1.6+00	9.9991-01	2.4948+00	3.4947+00	2.5363+01	1.6558-02
-1.4+00	9.9985-01	2.4947+00	3.4945+00	2.4902+01	2.6241-02
-1.2+00	9.9980-01	2.4946+00	3.4944+00	2.4441+01	4.1587-02
-1.0+00	9.9974-01	2.4945+00	3.4942+00	2.3981+01	6.5909-02
-8.0-01	9.9966-01	2.4942+00	3.4939+00	2.3520+01	1.0445-01
-6.0-01	9.9935-01	2.4937+00	3.4930+00	2.3059+01	1.6549-01
-4.0-01	9.9904-01	2.4931+00	3.4921+00	2.2598+01	2.6220-01
-2.0-01	9.9870-01	2.4923+00	3.4910+00	2.2137+01	4.1542-01
0.0	9.9791-01	2.4901+00	3.4880+00	2.1676+01	6.5785-01
2.0-01	9.9714-01	2.4816+00	3.4787+00	2.1196+01	1.0414+00
4.0-01	9.9499-01	2.4770+00	3.4720+00	2.0734+01	1.6470+00
6.0-01	9.9196-01	2.4706+00	3.4626+00	2.0270+01	2.6024+00
8.0-01	9.8696-01	2.4596+00	3.4466+00	1.9803+01	4.1037+00
1.0+00	9.7969-01	2.4431+00	3.4228+00	1.9334+01	6.4559+00
1.2+00	9.6817-01	2.4163+00	3.3845+00	1.8855+01	1.0112+01
1.4+00	9.4984-01	2.3722+00	3.3220+00	1.8369+01	1.5722+01
1.6+00	9.2324-01	2.3025+00	3.2257+00	1.7869+01	2.4220+01
1.8+00	8.8430-01	2.1913+00	3.0756+00	1.7344+01	3.6767+01
2.0+00	8.3087-01	2.0103+00	2.8412+00	1.6768+01	5.4746+01
2.2+00	7.6444-01	1.7444+00	2.5088+00	1.6137+01	7.9838+01
2.4+00	7.5137-01	1.3385+00	2.0899+00	1.5389+01	1.2437+C2
2.6+00	9.8841-01	6.7719-01	1.6656+00	1.4356+01	2.5906+C2
2.8+00	3.3158+00	-2.9600-01	3.0198+00	1.2573+01	1.3672+03

Contrails

AEDC-TDR-62-170

T = 190 °K

log (p/p ₀)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4952+00	3.4952+00	3.7932+01	6.9559-08
-6.8+00	1.0000+00	2.4952+00	3.4952+00	3.7472+01	1.1024-07
-6.6+00	1.0000+00	2.4952+00	3.4952+00	3.7011+01	1.7472-07
-6.4+00	1.0000+00	2.4952+00	3.4952+00	3.6551+01	2.7692-07
-6.2+00	1.0000+00	2.4952+00	3.4952+00	3.6090+01	4.3889-07
-6.0+00	1.0000+00	2.4952+00	3.4952+00	3.5630+01	6.9559-07
-5.8+00	1.0000+00	2.4952+00	3.4952+00	3.5169+01	1.1024-06
-5.6+00	1.0000+00	2.4952+00	3.4952+00	3.4709+01	1.7472-06
-5.4+00	1.0000+00	2.4952+00	3.4952+00	3.4248+01	2.7692-06
-5.2+00	1.0000+00	2.4952+00	3.4952+00	3.3788+01	4.3889-06
-5.0+00	1.0000+00	2.4952+00	3.4952+00	3.3327+01	6.9559-06
-4.8+00	1.0000+00	2.4952+00	3.4952+00	3.2867+01	1.1024-05
-4.6+00	1.0000+00	2.4952+00	3.4952+00	3.2406+01	1.7472-05
-4.4+00	1.0000+00	2.4952+00	3.4952+00	3.1945+01	2.7692-05
-4.2+00	1.0000+00	2.4952+00	3.4952+00	3.1485+01	4.3889-05
-4.0+00	1.0000+00	2.4952+00	3.4952+00	3.1024+01	6.9559-05
-3.8+00	1.0000+00	2.4952+00	3.4952+00	3.0564+01	1.1024-04
-3.6+00	1.0000+00	2.4952+00	3.4952+00	3.0103+01	1.7472-04
-3.4+00	1.0000+00	2.4952+00	3.4952+00	2.9643+01	2.7692-04
-3.2+00	1.0000+00	2.4952+00	3.4952+00	2.9182+01	4.3889-04
-3.0+00	1.0000+00	2.4952+00	3.4952+00	2.8722+01	6.9559-04
-2.8+00	1.0000+00	2.4952+00	3.4952+00	2.8261+01	1.1024-03
-2.6+00	1.0000+00	2.4952+00	3.4952+00	2.7801+01	1.7472-03
-2.4+00	1.0000+00	2.4952+00	3.4952+00	2.7340+01	2.7692-03
-2.2+00	1.0000+00	2.4952+00	3.4952+00	2.6880+01	4.3889-03
-2.0+00	1.0000+00	2.4952+00	3.4952+00	2.6419+01	6.9559-03
-1.8+00	9.9996-01	2.4951+00	3.4951+00	2.5958+01	1.1029-02
-1.6+00	9.9991-01	2.4951+00	3.4950+00	2.5498+01	1.7479-02
-1.4+00	9.9987-01	2.4949+00	3.4948+00	2.5037+01	2.7701-02
-1.2+00	9.9982-01	2.4949+00	3.4947+00	2.4577+01	4.3900-02
-1.0+00	9.9978-01	2.4948+00	3.4946+00	2.4116+01	6.9573-02
-8.0-01	9.9969-01	2.4946+00	3.4943+00	2.3655+01	1.1026-01
-6.0-01	9.9943-01	2.4943+00	3.4937+00	2.3194+01	1.7470-01
-4.0-01	9.9917-01	2.4938+00	3.4930+00	2.2734+01	2.7680-01
-2.0-01	9.9884-01	2.4931+00	3.4919+00	2.2273+01	4.3856-01
0.0	9.9821-01	2.4907+00	3.4889+00	2.1811+01	6.9466-01
2.0-01	9.9747-01	2.4833+00	3.4808+00	2.1331+01	1.0996+00
4.0-01	9.9568-01	2.4796+00	3.4753+00	2.0868+01	1.7397+00
6.0-01	9.9313-01	2.4735+00	3.4666+00	2.0404+01	2.7502+00
8.0-01	9.8873-01	2.4635+00	3.4522+00	1.9937+01	4.3394+00
1.0+00	9.8231-01	2.4484+00	3.4307+00	1.9469+01	6.8328+00
1.2+00	9.7187-01	2.4221+00	3.3940+00	1.8990+01	1.0714+01
1.4+00	9.5620-01	2.3818+00	3.3380+00	1.8505+01	1.6707+01
1.6+00	9.3331-01	2.3180+00	3.2513+00	1.8007+01	2.5845+01
1.8+00	9.0003-01	2.2151+00	3.1151+00	1.7484+01	3.9501+01
2.0+00	8.5534-01	2.0510+00	2.9063+00	1.6915+01	5.9496+01
2.2+00	8.0878-01	1.7900+00	2.5988+00	1.6276+01	8.9163+01
2.4+00	8.1052-01	1.4123+00	2.2228+00	1.5533+01	1.4161+02
2.6+00	1.0763+00	7.7850-01	1.8548+00	1.4499+01	2.9801+02
2.8+00	3.3772+00	-8.9000-02	3.2882+00	1.2769+01	1.4801+03

T = 200 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4955+00	3.4955+00	3.8061+01	7.3220-08
-6.8+00	1.0000+00	2.4955+00	3.4955+00	3.7600+01	1.1605-07
-6.6+00	1.0000+00	2.4955+00	3.4955+00	3.7139+01	1.8392-07
-6.4+00	1.0000+00	2.4955+00	3.4955+00	3.6679+01	2.9149-07
-6.2+00	1.0000+00	2.4955+00	3.4955+00	3.6218+01	4.6199-07
-6.0+00	1.0000+00	2.4955+00	3.4955+00	3.5758+01	7.3220-07
-5.8+00	1.0000+00	2.4955+00	3.4955+00	3.5297+01	1.1605-06
-5.6+00	1.0000+00	2.4955+00	3.4955+00	3.4837+01	1.8392-06
-5.4+00	1.0000+00	2.4955+00	3.4955+00	3.4376+01	2.9149-06
-5.2+00	1.0000+00	2.4955+00	3.4955+00	3.3916+01	4.6199-06
-5.0+00	1.0000+00	2.4955+00	3.4955+00	3.3455+01	7.3220-06
-4.8+00	1.0000+00	2.4955+00	3.4955+00	3.2995+01	1.1605-05
-4.6+00	1.0000+00	2.4955+00	3.4955+00	3.2534+01	1.8392-05
-4.4+00	1.0000+00	2.4955+00	3.4955+00	3.2074+01	2.9149-05
-4.2+00	1.0000+00	2.4955+00	3.4955+00	3.1613+01	4.6199-05
-4.0+00	1.0000+00	2.4955+00	3.4955+00	3.1153+01	7.3220-05
-3.8+00	1.0000+00	2.4955+00	3.4955+00	3.0692+01	1.1605-04
-3.6+00	1.0000+00	2.4955+00	3.4955+00	3.0232+01	1.8392-04
-3.4+00	1.0000+00	2.4955+00	3.4955+00	2.9771+01	2.9149-04
-3.2+00	1.0000+00	2.4955+00	3.4955+00	2.9311+01	4.6199-04
-3.0+00	1.0000+00	2.4955+00	3.4955+00	2.8850+01	7.3220-04
-2.8+00	1.0000+00	2.4955+00	3.4955+00	2.8390+01	1.1605-03
-2.6+00	1.0000+00	2.4955+00	3.4955+00	2.7929+01	1.8392-03
-2.4+00	1.0000+00	2.4955+00	3.4955+00	2.7469+01	2.9149-03
-2.2+00	1.0000+00	2.4955+00	3.4955+00	2.7008+01	4.6199-03
-2.0+00	1.0000+00	2.4955+00	3.4955+00	2.6548+01	7.3220-03
-1.8+00	9.9997-01	2.4954+00	3.4954+00	2.6087+01	1.1611-02
-1.6+00	9.9993-01	2.4954+00	3.4953+00	2.5626+01	1.8400-02
-1.4+00	9.9989-01	2.4953+00	3.4952+00	2.5165+01	2.9160-02
-1.2+00	9.9985-01	2.4952+00	3.4950+00	2.4705+01	4.6213-02
-1.0+00	9.9982-01	2.4951+00	3.4949+00	2.4244+01	7.3237-02
-8.0-01	9.9972-01	2.4949+00	3.4946+00	2.3784+01	1.1606-01
-6.0-01	9.9951-01	2.4944+00	3.4939+00	2.3323+01	1.8390-01
-4.0-01	9.9930-01	2.4940+00	3.4933+00	2.2862+01	2.9141-01
-2.0-01	9.9899-01	2.4931+00	3.4921+00	2.2401+01	4.6171-01
0.0	9.9843-01	2.4909+00	3.4893+00	2.1937+01	7.3135-01
2.0-01	9.9750-01	2.4853+00	3.4828+00	2.1457+01	1.1579+00
4.0-01	9.9631-01	2.4817+00	3.4780+00	2.0995+01	1.8325+00
6.0-01	9.9407-01	2.4757+00	3.4698+00	2.0532+01	2.8977+00
8.0-01	9.9023-01	2.4664+00	3.4566+00	2.0064+01	4.5747+00
1.0+00	9.8461-01	2.4522+00	3.4368+00	1.9596+01	7.2093+00
1.2+00	9.7537-01	2.4275+00	3.4029+00	1.9118+01	1.1319+01
1.4+00	9.6202-01	2.3904+00	3.3524+00	1.8634+01	1.7693+01
1.6+00	9.4216-01	2.3306+00	3.2728+00	1.8137+01	2.7463+01
1.8+00	9.1385-01	2.2339+00	3.1477+00	1.7613+01	4.2218+01
2.0+00	8.7676-01	2.0803+00	2.9571+00	1.7048+01	6.4195+01
2.2+00	8.4457-01	1.8288+00	2.6734+00	1.6408+01	9.8008+01
2.4+00	8.6549-01	1.4700+00	2.3355+00	1.5663+01	1.5918+02
2.6+00	1.1625+00	8.7250-01	2.0350+00	1.4633+01	3.3866+02
2.8+00	3.4768+00	9.3300-02	3.5701+00	1.2942+01	1.5991+03

Contrails

AEDC-TDR-62-170

T = 210 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4958+00	3.4958+00	3.8183+01	7.6881-08
-6.8+00	1.0000+00	2.4958+00	3.4958+00	3.7722+01	1.2185-07
-6.6+00	1.0000+00	2.4958+00	3.4958+00	3.7262+01	1.9312-07
-6.4+00	1.0000+00	2.4958+00	3.4958+00	3.6801+01	3.0607-07
-6.2+00	1.0000+00	2.4958+00	3.4958+00	3.6340+01	4.8509-07
-6.0+00	1.0000+00	2.4958+00	3.4958+00	3.5880+01	7.6881-07
-5.8+00	1.0000+00	2.4958+00	3.4958+00	3.5419+01	1.2185-06
-5.6+00	1.0000+00	2.4958+00	3.4958+00	3.4959+01	1.9312-06
-5.4+00	1.0000+00	2.4958+00	3.4958+00	3.4498+01	3.0607-06
-5.2+00	1.0000+00	2.4958+00	3.4958+00	3.4038+01	4.8509-06
-5.0+00	1.0000+00	2.4958+00	3.4958+00	3.3577+01	7.6881-06
-4.8+00	1.0000+00	2.4958+00	3.4958+00	3.3117+01	1.2185-05
-4.6+00	1.0000+00	2.4958+00	3.4958+00	3.2656+01	1.9312-05
-4.4+00	1.0000+00	2.4958+00	3.4958+00	3.2196+01	3.0607-05
-4.2+00	1.0000+00	2.4958+00	3.4958+00	3.1735+01	4.8509-05
-4.0+00	1.0000+00	2.4958+00	3.4958+00	3.1275+01	7.6881-05
-3.8+00	1.0000+00	2.4958+00	3.4958+00	3.0814+01	1.2185-04
-3.6+00	1.0000+00	2.4958+00	3.4958+00	3.0354+01	1.9312-04
-3.4+00	1.0000+00	2.4958+00	3.4958+00	2.9893+01	3.0607-04
-3.2+00	1.0000+00	2.4958+00	3.4958+00	2.9433+01	4.8509-04
-3.0+00	1.0000+00	2.4958+00	3.4958+00	2.8972+01	7.6881-04
-2.8+00	1.0000+00	2.4958+00	3.4958+00	2.8512+01	1.2185-03
-2.6+00	1.0000+00	2.4958+00	3.4958+00	2.8051+01	1.9312-03
-2.4+00	1.0000+00	2.4958+00	3.4958+00	2.7591+01	3.0607-03
-2.2+00	1.0000+00	2.4958+00	3.4958+00	2.7130+01	4.8509-03
-2.0+00	1.0000+00	2.4958+00	3.4958+00	2.6670+01	7.6881-03
-1.8+00	9.9997-01	2.4958+00	3.4958+00	2.6209+01	1.2191-02
-1.6+00	9.9993-01	2.4958+00	3.4957+00	2.5748+01	1.9321-02
-1.4+00	9.9990-01	2.4956+00	3.4955+00	2.5287+01	3.0619-02
-1.2+00	9.9987-01	2.4955+00	3.4954+00	2.4827+01	4.8525-02
-1.0+00	9.9984-01	2.4955+00	3.4953+00	2.4366+01	7.6902-02
-8.0-01	9.9975-01	2.4953+00	3.4950+00	2.3906+01	1.2187-01
-6.0-01	9.9957-01	2.4947+00	3.4943+00	2.3445+01	1.9312-01
-4.0-01	9.9940-01	2.4942+00	3.4936+00	2.2984+01	3.0601-01
-2.0-01	9.9912-01	2.4933+00	3.4924+00	2.2523+01	4.8486-01
0.0	9.9863-01	2.4911+00	3.4897+00	2.2056+01	7.6808-01
2.0-01	9.9784-01	2.4864+00	3.4842+00	2.1577+01	1.2162+00
4.0-01	9.9692-01	2.4831+00	3.4800+00	2.1116+01	1.9253+00
6.0-01	9.9490-01	2.4779+00	3.4728+00	2.0652+01	3.0451+00
8.0-01	9.9163-01	2.4693+00	3.4609+00	2.0185+01	4.8102+00
1.0+00	9.8661-01	2.4554+00	3.4420+00	1.9716+01	7.5852+00
1.2+00	9.7871-01	2.4325+00	3.4112+00	1.9239+01	1.1925+01
1.4+00	9.6739-01	2.3976+00	3.3650+00	1.8757+01	1.8682+01
1.6+00	9.5027-01	2.3417+00	3.2920+00	1.8260+01	2.9085+01
1.8+00	9.2627-01	2.2512+00	3.1775+00	1.7736+01	4.4932+01
2.0+00	8.9607-01	2.1048+00	3.0009+00	1.7174+01	6.8890+01
2.2+00	8.7573-01	1.8649+00	2.7406+00	1.6532+01	1.0671+02
2.4+00	9.0869-01	1.5325+00	2.4412+00	1.5799+01	1.7548+02
2.6+00	1.2344+00	9.6460-01	2.1990+00	1.4768+01	3.7755+02
2.8+00	3.5547+00	2.5640-01	3.8111+00	1.3106+01	1.7139+03

T = 220 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4960+00	3.4960+00	3.8299+01	8.0542-08
-6.8+00	1.0000+00	2.4960+00	3.4960+00	3.7838+01	1.2765-07
-6.6+00	1.0000+00	2.4960+00	3.4960+00	3.7378+01	2.0231-07
-6.4+00	1.0000+00	2.4960+00	3.4960+00	3.6917+01	3.2064-07
-6.2+00	1.0000+00	2.4960+00	3.4960+00	3.6457+01	5.0819-07
-6.0+00	1.0000+00	2.4960+00	3.4960+00	3.5996+01	8.0542-07
-5.8+00	1.0000+00	2.4960+00	3.4960+00	3.5536+01	1.2765-06
-5.6+00	1.0000+00	2.4960+00	3.4960+00	3.5075+01	2.0231-06
-5.4+00	1.0000+00	2.4960+00	3.4960+00	3.4615+01	3.2064-06
-5.2+00	1.0000+00	2.4960+00	3.4960+00	3.4154+01	5.0819-06
-5.0+00	1.0000+00	2.4960+00	3.4960+00	3.3694+01	8.0542-06
-4.8+00	1.0000+00	2.4960+00	3.4960+00	3.3233+01	1.2765-05
-4.6+00	1.0000+00	2.4960+00	3.4960+00	3.2773+01	2.0231-05
-4.4+00	1.0000+00	2.4960+00	3.4960+00	3.2312+01	3.2064-05
-4.2+00	1.0000+00	2.4960+00	3.4960+00	3.1852+01	5.0819-05
-4.0+00	1.0000+00	2.4960+00	3.4960+00	3.1391+01	8.0542-05
-3.8+00	1.0000+00	2.4960+00	3.4960+00	3.0931+01	1.2765-04
-3.6+00	1.0000+00	2.4960+00	3.4960+00	3.0470+01	2.0231-04
-3.4+00	1.0000+00	2.4960+00	3.4960+00	3.0010+01	3.2064-04
-3.2+00	1.0000+00	2.4960+00	3.4960+00	2.9549+01	5.0819-04
-3.0+00	1.0000+00	2.4960+00	3.4960+00	2.9089+01	8.0542-04
-2.8+00	1.0000+00	2.4960+00	3.4960+00	2.8628+01	1.2765-03
-2.6+00	1.0000+00	2.4960+00	3.4960+00	2.8168+01	2.0231-03
-2.4+00	1.0000+00	2.4960+00	3.4960+00	2.7707+01	3.2064-03
-2.2+00	1.0000+00	2.4960+00	3.4960+00	2.7247+01	5.0819-03
-2.0+00	1.0000+00	2.4960+00	3.4960+00	2.6786+01	8.0542-03
-1.8+00	9.9998-01	2.4959+00	3.4959+00	2.6325+01	1.2771-02
-1.6+00	9.9995-01	2.4959+00	3.4958+00	2.5865+01	2.0239-02
-1.4+00	9.9992-01	2.4958+00	3.4957+00	2.5404+01	3.2076-02
-1.2+00	9.9989-01	2.4957+00	3.4956+00	2.4943+01	5.0834-02
-1.0+00	9.9986-01	2.4956+00	3.4955+00	2.4483+01	8.0563-02
-8.0-01	9.9977-01	2.4953+00	3.4951+00	2.4022+01	1.2767-01
-6.0-01	9.9963-01	2.4950+00	3.4946+00	2.3561+01	2.0232-01
-4.0-01	9.9949-01	2.4945+00	3.4940+00	2.3100+01	3.2061-01
-2.0-01	9.9923-01	2.4937+00	3.4929+00	2.2639+01	5.0800-01
0.0	9.9881-01	2.4915+00	3.4903+00	2.2169+01	8.0480-01
2.0-01	9.9817-01	2.4879+00	3.4861+00	2.1693+01	1.2745+00
4.0-01	9.9744-01	2.4849+00	3.4823+00	2.1231+01	2.0179+00
6.0-01	9.9660-01	2.4794+00	3.4750+00	2.0766+01	3.1923+00
8.0-01	9.9287-01	2.4715+00	3.4644+00	2.0300+01	5.0456+00
1.0+00	9.8848-01	2.4582+00	3.4467+00	1.9831+01	7.9614+00
1.2+00	9.8179-01	2.4367+00	3.4185+00	1.9354+01	1.2532+01
1.4+00	9.7223-01	2.4041+00	3.3763+00	1.8873+01	1.9669+01
1.6+00	9.5682-01	2.3518+00	3.3086+00	1.8377+01	3.0680+01
1.8+00	9.3746-01	2.2651+00	3.2026+00	1.7853+01	4.7640+01
2.0+00	9.1385-01	2.1235+00	3.0373+00	1.7288+01	7.3603+01
2.2+00	9.0240-01	1.8991+00	2.8015+00	1.6650+01	1.1519+02
2.4+00	9.4747-01	1.5888+00	2.5363+00	1.5923+01	1.9167+02
2.6+00	1.2961+00	1.0526+00	2.3487+00	1.4901+01	4.1537+02
2.8+00	3.6116+00	4.0140-01	4.0130+00	1.3262+01	1.8262+03

Contrails

AEDC-TDR-62-170

T = 230 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4963+00	3.4963+00	3.8410+01	8.4203-08
-6.8+00	1.0000+00	2.4963+00	3.4963+00	3.7950+01	1.3345-07
-6.6+00	1.0000+00	2.4963+00	3.4963+00	3.7489+01	2.1151-07
-6.4+00	1.0000+00	2.4963+00	3.4963+00	3.7029+01	3.3522-07
-6.2+00	1.0000+00	2.4963+00	3.4963+00	3.6568+01	5.3128-07
-6.0+00	1.0000+00	2.4963+00	3.4963+00	3.6108+01	8.4203-07
-5.8+00	1.0000+00	2.4963+00	3.4963+00	3.5647+01	1.3345-06
-5.6+00	1.0000+00	2.4963+00	3.4963+00	3.5187+01	2.1151-06
-5.4+00	1.0000+00	2.4963+00	3.4963+00	3.4726+01	3.3522-06
-5.2+00	1.0000+00	2.4963+00	3.4963+00	3.4266+01	5.3128-06
-5.0+00	1.0000+00	2.4963+00	3.4963+00	3.3805+01	8.4203-06
-4.8+00	1.0000+00	2.4963+00	3.4963+00	3.3344+01	1.3345-05
-4.6+00	1.0000+00	2.4963+00	3.4963+00	3.2884+01	2.1151-05
-4.4+00	1.0000+00	2.4963+00	3.4963+00	3.2423+01	3.3522-05
-4.2+00	1.0000+00	2.4963+00	3.4963+00	3.1963+01	5.3128-05
-4.0+00	1.0000+00	2.4963+00	3.4963+00	3.1502+01	8.4203-05
-3.8+00	1.0000+00	2.4963+00	3.4963+00	3.1042+01	1.3345-04
-3.6+00	1.0000+00	2.4963+00	3.4963+00	3.0581+01	2.1151-04
-3.4+00	1.0000+00	2.4963+00	3.4963+00	3.0121+01	3.3522-04
-3.2+00	1.0000+00	2.4963+00	3.4963+00	2.9660+01	5.3128-04
-3.0+00	1.0000+00	2.4963+00	3.4963+00	2.9200+01	8.4203-04
-2.8+00	1.0000+00	2.4963+00	3.4963+00	2.8739+01	1.3345-03
-2.6+00	1.0000+00	2.4963+00	3.4963+00	2.8279+01	2.1151-03
-2.4+00	1.0000+00	2.4963+00	3.4963+00	2.7818+01	3.3522-03
-2.2+00	1.0000+00	2.4963+00	3.4963+00	2.7358+01	5.3128-03
-2.0+00	1.0000+00	2.4963+00	3.4963+00	2.6897+01	8.4203-03
-1.8+00	9.9998-01	2.4963+00	3.4963+00	2.6436+01	1.3352-02
-1.6+00	9.9995-01	2.4962+00	3.4961+00	2.5976+01	2.1160-02
-1.4+00	9.9993-01	2.4961+00	3.4960+00	2.5515+01	3.3534-02
-1.2+00	9.9991-01	2.4960+00	3.4959+00	2.5055+01	5.3146-02
-1.0+00	9.9989-01	2.4959+00	3.4958+00	2.4594+01	8.4226-02
-8.0-01	9.9981-01	2.4957+00	3.4955+00	2.4133+01	1.3348-01
-6.0-01	9.9969-01	2.4953+00	3.4950+00	2.3672+01	2.1153-01
-4.0-01	9.9957-01	2.4950+00	3.4946+00	2.3212+01	3.3521-01
-2.0-01	9.9934-01	2.4942+00	3.4935+00	2.2750+01	5.3115-01
0.0	9.9898-01	2.4919+00	3.4909+00	2.2276+01	8.4152-01
2.0-01	9.9847-01	2.4888+00	3.4873+00	2.1803+01	1.3328+00
4.0-01	9.9784-01	2.4860+00	3.4838+00	2.1341+01	2.1105+00
6.0-01	9.9626-01	2.4808+00	3.4771+00	2.0876+01	3.3396+00
8.0-01	9.9392-01	2.4736+00	3.4675+00	2.0410+01	5.2806+00
1.0+00	9.9021-01	2.4606+00	3.4508+00	1.9941+01	8.3379+00
1.2+00	9.8458-01	2.4403+00	3.4249+00	1.9465+01	1.3139+01
1.4+00	9.7641-01	2.4096+00	3.3860+00	1.8983+01	2.0652+01
1.6+00	9.6435-01	2.3587+00	3.3230+00	1.8485+01	3.2327+01
1.8+00	9.4780-01	2.2774+00	3.2252+00	1.7963+01	5.0355+01
2.0+00	9.2599-01	2.1414+00	3.0714+00	1.7398+01	7.8308+01
2.2+00	9.2684-01	1.9303+00	2.8571+00	1.6764+01	1.2369+02
2.4+00	9.8702-01	1.6332+00	2.6202+00	1.6034+01	2.0870+02
2.6+00	1.3511+00	1.1339+00	2.4850+00	1.5029+01	4.5285+02
2.8+00	3.6493+00	5.3140-01	4.1807+00	1.3411+01	1.9345+03

T = 240 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4966+00	3.4966+00	3.8517+01	8.7864-08
-6.8+00	1.0000+00	2.4966+00	3.4966+00	3.8056+01	1.3926-07
-6.6+00	1.0000+00	2.4966+00	3.4966+00	3.7596+01	2.2070-07
-6.4+00	1.0000+00	2.4966+00	3.4966+00	3.7135+01	3.4979-07
-6.2+00	1.0000+00	2.4966+00	3.4966+00	3.6675+01	5.5438-07
-6.0+00	1.0000+00	2.4966+00	3.4966+00	3.6214+01	8.7864-07
-5.8+00	1.0000+00	2.4966+00	3.4966+00	3.5754+01	1.3926-06
-5.6+00	1.0000+00	2.4966+00	3.4966+00	3.5293+01	2.2070-06
-5.4+00	1.0000+00	2.4966+00	3.4966+00	3.4832+01	3.4979-06
-5.2+00	1.0000+00	2.4966+00	3.4966+00	3.4372+01	5.5438-06
-5.0+00	1.0000+00	2.4966+00	3.4966+00	3.3911+01	8.7864-06
-4.8+00	1.0000+00	2.4966+00	3.4966+00	3.3451+01	1.3926-05
-4.6+00	1.0000+00	2.4966+00	3.4966+00	3.2990+01	2.2070-05
-4.4+00	1.0000+00	2.4966+00	3.4966+00	3.2530+01	3.4979-05
-4.2+00	1.0000+00	2.4966+00	3.4966+00	3.2069+01	5.5438-05
-4.0+00	1.0000+00	2.4966+00	3.4966+00	3.1609+01	8.7864-05
-3.8+00	1.0000+00	2.4966+00	3.4966+00	3.1148+01	1.3926-04
-3.6+00	1.0000+00	2.4966+00	3.4966+00	3.0688+01	2.2070-04
-3.4+00	1.0000+00	2.4966+00	3.4966+00	3.0227+01	3.4979-04
-3.2+00	1.0000+00	2.4966+00	3.4966+00	2.9767+01	5.5438-04
-3.0+00	1.0000+00	2.4966+00	3.4966+00	2.9306+01	8.7864-04
-2.8+00	1.0000+00	2.4966+00	3.4966+00	2.8846+01	1.3926-03
-2.6+00	1.0000+00	2.4966+00	3.4966+00	2.8385+01	2.2070-03
-2.4+00	1.0000+00	2.4966+00	3.4966+00	2.7925+01	3.4979-03
-2.2+00	1.0000+00	2.4966+00	3.4966+00	2.7464+01	5.5438-03
-2.0+00	1.0000+00	2.4966+00	3.4966+00	2.7004+01	8.7864-03
-1.8+00	9.9998-01	2.4965+00	3.4965+00	2.6543+01	1.3927-02
-1.6+00	9.9996-01	2.4964+00	3.4964+00	2.6082+01	2.2074-02
-1.4+00	9.9994-01	2.4964+00	3.4963+00	2.5622+01	3.4986-02
-1.2+00	9.9992-01	2.4963+00	3.4962+00	2.5161+01	5.5452-02
-1.0+00	9.9991-01	2.4962+00	3.4961+00	2.4700+01	8.7888-02
-8.0-01	9.9993-01	2.4960+00	3.4958+00	2.4240+01	1.3929-01
-6.0-01	9.9973-01	2.4958+00	3.4955+00	2.3779+01	2.2073-01
-4.0-01	9.9964-01	2.4955+00	3.4951+00	2.3318+01	3.4981-01
-2.0-01	9.9944-01	2.4945+00	3.4939+00	2.2857+01	5.5430-01
0.0	9.9913-01	2.4927+00	3.4918+00	2.2379+01	8.7825-01
2.0-01	9.9875-01	2.4901+00	3.4888+00	2.1908+01	1.3911+00
4.0-01	9.9823-01	2.4871+00	3.4853+00	2.1445+01	2.2031+00
6.0-01	9.9689-01	2.4823+00	3.4792+00	2.0981+01	3.4870+00
8.0-01	9.9492-01	2.4752+00	3.4701+00	2.0515+01	5.5157+00
1.0+00	9.9182-01	2.4634+00	3.4552+00	2.0046+01	8.7145+00
1.2+00	9.8711-01	2.4441+00	3.4312+00	1.9570+01	1.3746+01
1.4+00	9.8022-01	2.4142+00	3.3944+00	1.9089+01	2.1634+01
1.6+00	9.7050-01	2.3654+00	3.3359+00	1.8590+01	3.3947+01
1.8+00	9.5746-01	2.2864+00	3.2439+00	1.8068+01	5.3080+01
2.0+00	9.4507-01	2.1578+00	3.1029+00	1.7504+01	8.3038+01
2.2+00	9.4910-01	1.9586+00	2.9077+00	1.6873+01	1.3217+02
2.4+00	1.0239+00	1.6711+00	2.6950+00	1.6140+01	2.2589+02
2.6+00	1.4035+00	1.2072+00	2.6107+00	1.5149+01	4.9083+02
2.8+00	3.6837+00	6.4970-01	4.3334+00	1.3553+01	2.0398+03

Contrails

AEDC-TDR-62-170

T = 250 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4967+00	3.4967+00	3.8619+01	9.1525-08
-6.8+00	1.0000+00	2.4967+00	3.4967+00	3.8158+01	1.4506-07
-6.6+00	1.0000+00	2.4967+00	3.4967+00	3.7698+01	2.2990-07
-6.4+00	1.0000+00	2.4967+00	3.4967+00	3.7237+01	3.6437-07
-6.2+00	1.0000+00	2.4967+00	3.4967+00	3.6777+01	5.7748-07
-6.0+00	1.0000+00	2.4967+00	3.4967+00	3.6316+01	9.1525-07
-5.8+00	1.0000+00	2.4967+00	3.4967+00	3.5856+01	1.4506-06
-5.6+00	1.0000+00	2.4967+00	3.4967+00	3.5395+01	2.2990-06
-5.4+00	1.0000+00	2.4967+00	3.4967+00	3.4935+01	3.6437-06
-5.2+00	1.0000+00	2.4967+00	3.4967+00	3.4474+01	5.7748-06
-5.0+00	1.0000+00	2.4967+00	3.4967+00	3.4014+01	9.1525-06
-4.8+00	1.0000+00	2.4967+00	3.4967+00	3.3553+01	1.4506-05
-4.6+00	1.0000+00	2.4967+00	3.4967+00	3.3092+01	2.2990-05
-4.4+00	1.0000+00	2.4967+00	3.4967+00	3.2632+01	3.6437-05
-4.2+00	1.0000+00	2.4967+00	3.4967+00	3.2171+01	5.7748-05
-4.0+00	1.0000+00	2.4967+00	3.4967+00	3.1711+01	9.1525-05
-3.8+00	1.0000+00	2.4967+00	3.4967+00	3.1250+01	1.4506-04
-3.6+00	1.0000+00	2.4967+00	3.4967+00	3.0790+01	2.2990-04
-3.4+00	1.0000+00	2.4967+00	3.4967+00	3.0329+01	3.6437-04
-3.2+00	1.0000+00	2.4967+00	3.4967+00	2.9869+01	5.7748-04
-3.0+00	1.0000+00	2.4967+00	3.4967+00	2.9408+01	9.1525-04
-2.8+00	1.0000+00	2.4967+00	3.4967+00	2.8948+01	1.4506-03
-2.6+00	1.0000+00	2.4967+00	3.4967+00	2.8487+01	2.2990-03
-2.4+00	1.0000+00	2.4967+00	3.4967+00	2.8027+01	3.6437-03
-2.2+00	1.0000+00	2.4967+00	3.4967+00	2.7566+01	5.7748-03
-2.0+00	1.0000+00	2.4967+00	3.4967+00	2.7106+01	9.1525-03
-1.8+00	9.9998-01	2.4966+00	3.4966+00	2.6645+01	1.4513-02
-1.6+00	9.9996-01	2.4965+00	3.4965+00	2.6184+01	2.3001-02
-1.4+00	9.9995-01	2.4965+00	3.4964+00	2.5724+01	3.6453-02
-1.2+00	9.9994-01	2.4964+00	3.4963+00	2.5263+01	5.7772-02
-1.0+00	9.9992-01	2.4963+00	3.4962+00	2.4802+01	9.1559-02
-8.0-01	9.9986-01	2.4961+00	3.4960+00	2.4342+01	1.4510-01
-6.0-01	9.9978-01	2.4960+00	3.4958+00	2.3881+01	2.2995-01
-4.0-01	9.9970-01	2.4958+00	3.4955+00	2.3420+01	3.6441-01
-2.0-01	9.9953-01	2.4948+00	3.4943+00	2.2959+01	5.7745-01
0.0	9.9927-01	2.4932+00	3.4925+00	2.2477+01	9.1499-01
2.0-01	9.9904-01	2.4910+00	3.4900+00	2.2008+01	1.4495+00
4.0-01	9.9861-01	2.4883+00	3.4889+00	2.1546+01	2.2958+00
6.0-01	9.9748-01	2.4837+00	3.4812+00	2.1082+01	3.6345+00
8.0-01	9.9583-01	2.4768+00	3.4726+00	2.0616+01	5.7508+00
1.0+00	9.9329-01	2.4655+00	3.4588+00	2.0147+01	9.0911+00
1.2+00	9.8943-01	2.4475+00	3.4369+00	1.9672+01	1.4352+01
1.4+00	9.8377-01	2.4183+00	3.4021+00	1.9190+01	2.2617+01
1.6+00	9.7601-01	2.3719+00	3.3479+00	1.8692+01	3.5563+01
1.8+00	9.6644-01	2.2959+00	3.2623+00	1.8170+01	5.5810+01
2.0+00	9.5886-01	2.1740+00	3.1329+00	1.7607+01	8.7759+01
2.2+00	9.6843-01	1.9872+00	2.9556+00	1.6980+01	1.4048+02
2.4+00	1.0531+00	1.7111+00	2.7642+00	1.6248+01	2.4208+02
2.6+00	1.4545+00	1.2738+00	2.7263+00	1.5263+01	5.2937+02
2.8+00	3.7327+00	7.5610-01	4.4888+00	1.3682+01	2.1489+03

T = 260 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4969+00	3.4969+00	3.8717+01	9.5186-08
-6.8+00	1.0000+00	2.4969+00	3.4969+00	3.8256+01	1.5086-07
-6.6+00	1.0000+00	2.4969+00	3.4969+00	3.7796+01	2.3910-07
-6.4+00	1.0000+00	2.4969+00	3.4969+00	3.7335+01	3.7894-07
-6.2+00	1.0000+00	2.4969+00	3.4969+00	3.6875+01	6.0058-07
-6.0+00	1.0000+00	2.4969+00	3.4969+00	3.6414+01	9.5186-07
-5.8+00	1.0000+00	2.4969+00	3.4969+00	3.5954+01	1.5086-06
-5.6+00	1.0000+00	2.4969+00	3.4969+00	3.5493+01	2.3910-06
-5.4+00	1.0000+00	2.4969+00	3.4969+00	3.5033+01	3.7894-06
-5.2+00	1.0000+00	2.4969+00	3.4969+00	3.4572+01	6.0058-06
-5.0+00	1.0000+00	2.4969+00	3.4969+00	3.4112+01	9.5186-06
-4.8+00	1.0000+00	2.4969+00	3.4969+00	3.3651+01	1.5086-05
-4.6+00	1.0000+00	2.4969+00	3.4969+00	3.3191+01	2.3910-05
-4.4+00	1.0000+00	2.4969+00	3.4969+00	3.2730+01	3.7894-05
-4.2+00	1.0000+00	2.4969+00	3.4969+00	3.2270+01	6.0058-05
-4.0+00	1.0000+00	2.4969+00	3.4969+00	3.1809+01	9.5186-05
-3.8+00	1.0000+00	2.4969+00	3.4969+00	3.1348+01	1.5086-04
-3.6+00	1.0000+00	2.4969+00	3.4969+00	3.0888+01	2.3910-04
-3.4+00	1.0000+00	2.4969+00	3.4969+00	3.0427+01	3.7894-04
-3.2+00	1.0000+00	2.4969+00	3.4969+00	2.9967+01	6.0058-04
-3.0+00	1.0000+00	2.4969+00	3.4969+00	2.9506+01	9.5186-04
-2.8+00	1.0000+00	2.4969+00	3.4969+00	2.9046+01	1.5086-03
-2.6+00	1.0000+00	2.4969+00	3.4969+00	2.8585+01	2.3910-03
-2.4+00	1.0000+00	2.4969+00	3.4969+00	2.8125+01	3.7894-03
-2.2+00	1.0000+00	2.4969+00	3.4969+00	2.7664+01	6.0058-03
-2.0+00	1.0000+00	2.4969+00	3.4969+00	2.7204+01	9.5186-03
-1.8+00	9.9998-01	2.4968+00	3.4968+00	2.6743+01	1.5094-02
-1.6+00	9.9997-01	2.4967+00	3.4967+00	2.6282+01	2.3921-02
-1.4+00	9.9996-01	2.4966+00	3.4966+00	2.5822+01	3.7911-02
-1.2+00	9.9995-01	2.4966+00	3.4965+00	2.5361+01	6.0082-02
-1.0+00	9.9994-01	2.4966+00	3.4965+00	2.4901+01	9.5220-02
-8.0-01	9.9988-01	2.4962+00	3.4961+00	2.4440+01	1.5091-01
-6.0-01	9.9982-01	2.4959+00	3.4957+00	2.3979+01	2.3915-01
-4.0-01	9.9976-01	2.4954+00	3.4952+00	2.3518+01	3.7901-01
-2.0-01	9.9961-01	2.4948+00	3.4944+00	2.3057+01	6.0060-01
0.0	9.9940-01	2.4942+00	3.4936+00	2.2572+01	9.5174-01
2.0-01	9.9927-01	2.4923+00	3.4916+00	2.2106+01	1.5078+00
4.0-01	9.9893-01	2.4897+00	3.4886+00	2.1644+01	2.3884+00
6.0-01	9.9802-01	2.4851+00	3.4831+00	2.1179+01	3.7819+00
8.0-01	9.9668-01	2.4783+00	3.4750+00	2.0713+01	5.9859+00
1.0+00	9.9460-01	2.4678+00	3.4624+00	2.0244+01	9.4672+00
1.2+00	9.9153-01	2.4507+00	3.4422+00	1.9769+01	1.4958+01
1.4+00	9.8702-01	2.4224+00	3.4094+00	1.9290+01	2.3599+01
1.6+00	9.8103-01	2.3777+00	3.3587+00	1.8789+01	3.7175+01
1.8+00	9.7438-01	2.3060+00	3.2804+00	1.8268+01	5.8519+01
2.0+00	9.7125-01	2.1897+00	3.1609+00	1.7707+01	9.2449+01
2.2+00	9.8736-01	2.0125+00	2.9999+00	1.7082+01	1.4895+02
2.4+00	1.0809+00	1.7492+00	2.8301+00	1.6352+01	2.5839+02
2.6+00	1.4980+00	1.3345+00	2.8325+00	1.5372+01	5.6707+02
2.8+00	3.7652+00	8.5370-01	4.6189+00	1.3807+01	2.2537+03

Contrails

AEDC-TDR-62-170

T = 270 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4971+00	3.4971+00	3.8811+01	9.8847-08
-6.8+00	1.0000+00	2.4971+00	3.4971+00	3.8351+01	1.5666-07
-6.6+00	1.0000+00	2.4971+00	3.4971+00	3.7890+01	2.4829-07
-6.4+00	1.0000+00	2.4971+00	3.4971+00	3.7430+01	3.9352-07
-6.2+00	1.0000+00	2.4971+00	3.4971+00	3.6969+01	6.2368-07
-6.0+00	1.0000+00	2.4971+00	3.4971+00	3.6509+01	9.8847-07
-5.8+00	1.0000+00	2.4971+00	3.4971+00	3.6048+01	1.5666-06
-5.6+00	1.0000+00	2.4971+00	3.4971+00	3.5588+01	2.4829-06
-5.4+00	1.0000+00	2.4971+00	3.4971+00	3.5127+01	3.9352-06
-5.2+00	1.0000+00	2.4971+00	3.4971+00	3.4667+01	6.2368-06
-5.0+00	1.0000+00	2.4971+00	3.4971+00	3.4206+01	9.8847-06
-4.8+00	1.0000+00	2.4971+00	3.4971+00	3.3746+01	1.5666-05
-4.6+00	1.0000+00	2.4971+00	3.4971+00	3.3285+01	2.4829-05
-4.4+00	1.0000+00	2.4971+00	3.4971+00	3.2825+01	3.9352-05
-4.2+00	1.0000+00	2.4971+00	3.4971+00	3.2364+01	6.2368-05
-4.0+00	1.0000+00	2.4971+00	3.4971+00	3.1903+01	9.8847-05
-3.8+00	1.0000+00	2.4971+00	3.4971+00	3.1443+01	1.5666-04
-3.6+00	1.0000+00	2.4971+00	3.4971+00	3.0982+01	2.4829-04
-3.4+00	1.0000+00	2.4971+00	3.4971+00	3.0522+01	3.9352-04
-3.2+00	1.0000+00	2.4971+00	3.4971+00	3.0061+01	6.2368-04
-3.0+00	1.0000+00	2.4971+00	3.4971+00	2.9601+01	9.8847-04
-2.8+00	1.0000+00	2.4971+00	3.4971+00	2.9140+01	1.5666-03
-2.6+00	1.0000+00	2.4971+00	3.4971+00	2.8680+01	2.4829-03
-2.4+00	1.0000+00	2.4971+00	3.4971+00	2.8219+01	3.9352-03
-2.2+00	1.0000+00	2.4971+00	3.4971+00	2.7759+01	6.2368-03
-2.0+00	1.0000+00	2.4971+00	3.4971+00	2.7298+01	9.8847-03
-1.8+00	9.9999-01	2.4970+00	3.4970+00	2.6837+01	1.5676-02
-1.6+00	9.9998-01	2.4969+00	3.4969+00	2.6377+01	2.4843-02
-1.4+00	9.9997-01	2.4969+00	3.4969+00	2.5916+01	3.9371-02
-1.2+00	9.9996-01	2.4968+00	3.4968+00	2.5456+01	6.2395-02
-1.0+00	9.9995-01	2.4969+00	3.4968+00	2.4995+01	9.8883-02
-8.0-01	9.9990-01	2.4967+00	3.4966+00	2.4534+01	1.5671-01
-6.0-01	9.9985-01	2.4966+00	3.4964+00	2.4074+01	2.4836-01
-4.0-01	9.9980-01	2.4964+00	3.4962+00	2.3613+01	3.9360-01
-2.0-01	9.9969-01	2.4962+00	3.4959+00	2.3152+01	6.2375-01
0.0	9.9951-01	2.4950+00	3.4945+00	2.2663+01	9.8846-01
2.0-01	9.9950-01	2.4929+00	3.4924+00	2.2200+01	1.5661+00
4.0-01	9.9924-01	2.4904+00	3.4896+00	2.1738+01	2.4810+00
6.0-01	9.9851-01	2.4861+00	3.4846+00	2.1272+01	3.9293+00
8.0-01	9.9745-01	2.4799+00	3.4773+00	2.0807+01	6.2209+00
1.0+00	9.9581-01	2.4698+00	3.4656+00	2.0337+01	9.8433+00
1.2+00	9.9341-01	2.4529+00	3.4463+00	1.9863+01	1.5563+01
1.4+00	9.8997-01	2.4264+00	3.4164+00	1.9380+01	2.4580+01
1.6+00	9.8563-01	2.3836+00	3.3692+00	1.8884+01	3.8786+01
1.8+00	9.8151-01	2.3154+00	3.2969+00	1.8363+01	6.1215+01
2.0+00	9.8229-01	2.2654+00	3.1877+00	1.7805+01	9.7096+01
2.2+00	1.0037+00	2.0377+00	3.0414+00	1.7183+01	1.5724+02
2.4+00	1.1078+00	1.7837+00	2.8915+00	1.6452+01	2.7498+02
2.6+00	1.5339+00	1.3910+00	2.9249+00	1.5479+01	6.0354+02
2.8+00	3.7909+00	9.4140-01	4.7323+00	1.3927+01	2.3584+03

T = 280 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4978+00	3.4978+00	3.8902+01	1.0251-07
-6.8+00	1.0000+00	2.4978+00	3.4978+00	3.8442+01	1.6246-07
-6.6+00	1.0000+00	2.4978+00	3.4978+00	3.7981+01	2.5749-07
-6.4+00	1.0000+00	2.4978+00	3.4978+00	3.7521+01	4.0809-07
-6.2+00	1.0000+00	2.4978+00	3.4978+00	3.7060+01	6.4678-07
-6.0+00	1.0000+00	2.4978+00	3.4978+00	3.6600+01	1.0251-06
-5.8+00	1.0000+00	2.4978+00	3.4978+00	3.6139+01	1.6246-06
-5.6+00	1.0000+00	2.4978+00	3.4978+00	3.5679+01	2.5749-06
-5.4+00	1.0000+00	2.4978+00	3.4978+00	3.5218+01	4.0809-06
-5.2+00	1.0000+00	2.4978+00	3.4978+00	3.4758+01	6.4678-06
-5.0+00	1.0000+00	2.4978+00	3.4978+00	3.4297+01	1.0251-05
-4.8+00	1.0000+00	2.4978+00	3.4978+00	3.3836+01	1.6246-05
-4.6+00	1.0000+00	2.4978+00	3.4978+00	3.3376+01	2.5749-05
-4.4+00	1.0000+00	2.4978+00	3.4978+00	3.2915+01	4.0809-05
-4.2+00	1.0000+00	2.4978+00	3.4978+00	3.2455+01	6.4678-05
-4.0+00	1.0000+00	2.4978+00	3.4978+00	3.1994+01	1.0251-04
-3.8+00	1.0000+00	2.4978+00	3.4978+00	3.1534+01	1.6246-04
-3.6+00	1.0000+00	2.4978+00	3.4978+00	3.1073+01	2.5749-04
-3.4+00	1.0000+00	2.4978+00	3.4978+00	3.0613+01	4.0809-04
-3.2+00	1.0000+00	2.4978+00	3.4978+00	3.0152+01	6.4678-04
-3.0+00	1.0000+00	2.4978+00	3.4978+00	2.9692+01	1.0251-03
-2.8+00	1.0000+00	2.4978+00	3.4978+00	2.9231+01	1.6246-03
-2.6+00	1.0000+00	2.4978+00	3.4978+00	2.8771+01	2.5749-03
-2.4+00	1.0000+00	2.4978+00	3.4978+00	2.8310+01	4.0809-03
-2.2+00	1.0000+00	2.4978+00	3.4978+00	2.7850+01	6.4678-03
-2.0+00	1.0000+00	2.4978+00	3.4978+00	2.7389+01	1.0256-02
-1.8+00	9.9999-01	2.4977+00	3.4977+00	2.6928+01	1.6255-02
-1.6+00	9.9998-01	2.4977+00	3.4977+00	2.6468+01	2.5761-02
-1.4+00	9.9998-01	2.4976+00	3.4976+00	2.6007+01	4.0826-02
-1.2+00	9.9997-01	2.4976+00	3.4976+00	2.5547+01	6.4703-02
-1.0+00	9.9996-01	2.4975+00	3.4975+00	2.5086+01	1.0254-01
-8.0-01	9.9992-01	2.4974+00	3.4973+00	2.4625+01	1.6252-01
-6.0-01	9.9988-01	2.4971+00	3.4970+00	2.4164+01	2.5756-01
-4.0-01	9.9985-01	2.4970+00	3.4968+00	2.3704+01	4.0820-01
-2.0-01	9.9976-01	2.4965+00	3.4963+00	2.3243+01	6.4689-01
0.0	9.9963-01	2.4960+00	3.4956+00	2.2782+01	1.0252+00
2.0-01	9.9957-01	2.4943+00	3.4939+00	2.2290+01	1.6244+00
4.0-01	9.9946-01	2.4917+00	3.4912+00	2.1827+01	2.5737+00
6.0-01	9.9897-01	2.4874+00	3.4864+00	2.1362+01	4.0767+00
8.0-01	9.9814-01	2.4812+00	3.4793+00	2.0897+01	6.4558+00
1.0+00	9.9690-01	2.4715+00	3.4684+00	2.0427+01	1.0219+01
1.2+00	9.9510-01	2.4550+00	3.4501+00	1.9953+01	1.6167+01
1.4+00	9.9266-01	2.4299+00	3.4226+00	1.9471+01	2.5560+01
1.6+00	9.8980-01	2.3895+00	3.3793+00	1.8975+01	4.0393+01
1.8+00	9.8613-01	2.3241+00	3.3122+00	1.8455+01	6.3911+01
2.0+00	9.9200-01	2.2207+00	3.2127+00	1.7899+01	1.0169+02
2.2+00	1.0197+00	2.0602+00	3.0799+00	1.7279+01	1.6567+02
2.4+00	1.1301+00	1.8172+00	2.9473+00	1.6550+01	2.9093+02
2.6+00	1.5740+00	1.4420+00	3.0160+00	1.5578+01	6.4176+02
2.8+00	3.8099+00	1.0211+00	4.8310+00	1.4040+01	2.4622+03

Contrails

AEDC-TDR-62-170

T = 290 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4982+00	3.4982+00	3.8990+01	1.0617-07
-6.8+00	1.0000+00	2.4982+00	3.4982+00	3.8529+01	1.6827-07
-6.6+00	1.0000+00	2.4982+00	3.4982+00	3.8069+01	2.6068-07
-6.4+00	1.0000+00	2.4982+00	3.4982+00	3.7608+01	4.2267-07
-6.2+00	1.0000+00	2.4982+00	3.4982+00	3.7148+01	6.6988-07
-6.0+00	1.0000+00	2.4982+00	3.4982+00	3.6687+01	1.0617-06
-5.8+00	1.0000+00	2.4982+00	3.4982+00	3.6227+01	1.6827-06
-5.6+00	1.0000+00	2.4982+00	3.4982+00	3.5766+01	2.6068-06
-5.4+00	1.0000+00	2.4982+00	3.4982+00	3.5306+01	4.2267-06
-5.2+00	1.0000+00	2.4982+00	3.4982+00	3.4845+01	6.6988-06
-5.0+00	1.0000+00	2.4982+00	3.4982+00	3.4385+01	1.0617-05
-4.8+00	1.0000+00	2.4982+00	3.4982+00	3.3924+01	1.6827-05
-4.6+00	1.0000+00	2.4982+00	3.4982+00	3.3464+01	2.6068-05
-4.4+00	1.0000+00	2.4982+00	3.4982+00	3.3003+01	4.2267-05
-4.2+00	1.0000+00	2.4982+00	3.4982+00	3.2543+01	6.6988-05
-4.0+00	1.0000+00	2.4982+00	3.4982+00	3.2082+01	1.0617-04
-3.8+00	1.0000+00	2.4982+00	3.4982+00	3.1622+01	1.6827-04
-3.6+00	1.0000+00	2.4982+00	3.4982+00	3.1161+01	2.6068-04
-3.4+00	1.0000+00	2.4982+00	3.4982+00	3.0701+01	4.2267-04
-3.2+00	1.0000+00	2.4982+00	3.4982+00	3.0240+01	6.6988-04
-3.0+00	1.0000+00	2.4982+00	3.4982+00	2.9780+01	1.0617-03
-2.8+00	1.0000+00	2.4982+00	3.4982+00	2.9319+01	1.6827-03
-2.6+00	1.0000+00	2.4982+00	3.4982+00	2.8859+01	2.6068-03
-2.4+00	1.0000+00	2.4982+00	3.4982+00	2.8398+01	4.2267-03
-2.2+00	1.0000+00	2.4982+00	3.4982+00	2.7938+01	6.6988-03
-2.0+00	1.0000+00	2.4982+00	3.4982+00	2.7476+01	1.0627-02
-1.8+00	9.9999-01	2.4982+00	3.4982+00	2.7016+01	1.6841-02
-1.6+00	9.9999-01	2.4981+00	3.4981+00	2.6555+01	2.6088-02
-1.4+00	9.9998-01	2.4981+00	3.4981+00	2.6095+01	4.2293-02
-1.2+00	9.9998-01	2.4980+00	3.4980+00	2.5634+01	6.7022-02
-1.0+00	9.9997-01	2.4980+00	3.4980+00	2.5174+01	1.0621-01
-8.0-01	9.9994-01	2.4979+00	3.4978+00	2.4713+01	1.6833-01
-6.0-01	9.9991-01	2.4977+00	3.4976+00	2.4252+01	2.6678-01
-4.0-01	9.9988-01	2.4976+00	3.4975+00	2.3792+01	4.2279-01
-2.0-01	9.9982-01	2.4974+00	3.4972+00	2.3331+01	6.7003-01
0.0	9.9973-01	2.4968+00	3.4965+00	2.2838+01	1.0619+00
2.0-01	9.9972-01	2.4953+00	3.4950+00	2.2376+01	1.6827+00
4.0-01	9.9971-01	2.4926+00	3.4923+00	2.1914+01	2.6662+00
6.0-01	9.9937-01	2.4884+00	3.4878+00	2.1448+01	4.2240+00
8.0-01	9.9876-01	2.4825+00	3.4813+00	2.0984+01	6.6905+00
1.0+00	9.9789-01	2.4727+00	3.4706+00	2.0514+01	1.0594+01
1.2+00	9.9662-01	2.4573+00	3.4539+00	2.0040+01	1.6770+01
1.4+00	9.9505-01	2.4333+00	3.4283+00	1.9558+01	2.6536+01
1.6+00	9.9368-01	2.3947+00	3.3884+00	1.9062+01	4.1999+01
1.8+00	9.9417-01	2.3326+00	3.3268+00	1.8544+01	6.6597+01
2.0+00	1.0014+00	2.2337+00	3.2351+00	1.7988+01	1.0632+02
2.2+00	1.0346+00	2.0805+00	3.1151+00	1.7371+01	1.7408+02
2.4+00	1.1513+00	1.8483+00	2.9996+00	1.6644+01	3.0699+02
2.6+00	1.6064+00	1.4898+00	3.0902+00	1.5674+01	6.7862+02
2.8+00	3.8382+00	1.0948+00	4.9330+00	1.4148+01	2.5681+03

T = 300 °K

log (p/p ₀)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.4990+00	3.4990+00	3.9075+01	1.0983-07
-6.8+00	1.0000+00	2.4990+00	3.4990+00	3.8614+01	1.7407-07
-6.6+00	1.0000+00	2.4990+00	3.4990+00	3.8154+01	2.7588-07
-6.4+00	1.0000+00	2.4990+00	3.4990+00	3.7693+01	4.3724-07
-6.2+00	1.0000+00	2.4990+00	3.4990+00	3.7233+01	6.9298-07
-6.0+00	1.0000+00	2.4990+00	3.4990+00	3.6772+01	1.0983-06
-5.8+00	1.0000+00	2.4990+00	3.4990+00	3.6312+01	1.7407-06
-5.6+00	1.0000+00	2.4990+00	3.4990+00	3.5851+01	2.7588-06
-5.4+00	1.0000+00	2.4990+00	3.4990+00	3.5391+01	4.3724-06
-5.2+00	1.0000+00	2.4990+00	3.4990+00	3.4930+01	6.9298-06
-5.0+00	1.0000+00	2.4990+00	3.4990+00	3.4470+01	1.0983-05
-4.8+00	1.0000+00	2.4990+00	3.4990+00	3.4009+01	1.7407-05
-4.6+00	1.0000+00	2.4990+00	3.4990+00	3.3549+01	2.7588-05
-4.4+00	1.0000+00	2.4990+00	3.4990+00	3.3088+01	4.3724-05
-4.2+00	1.0000+00	2.4990+00	3.4990+00	3.2628+01	6.9298-05
-4.0+00	1.0000+00	2.4990+00	3.4990+00	3.2167+01	1.0983-04
-3.8+00	1.0000+00	2.4990+00	3.4990+00	3.1707+01	1.7407-04
-3.6+00	1.0000+00	2.4990+00	3.4990+00	3.1246+01	2.7588-04
-3.4+00	1.0000+00	2.4990+00	3.4990+00	3.0786+01	4.3724-04
-3.2+00	1.0000+00	2.4990+00	3.4990+00	3.0325+01	6.9298-04
-3.0+00	1.0000+00	2.4990+00	3.4990+00	2.9865+01	1.0983-03
-2.8+00	1.0000+00	2.4990+00	3.4990+00	2.9404+01	1.7407-03
-2.6+00	1.0000+00	2.4990+00	3.4990+00	2.8943+01	2.7588-03
-2.4+00	1.0000+00	2.4990+00	3.4990+00	2.8483+01	4.3724-03
-2.2+00	1.0000+00	2.4990+00	3.4990+00	2.8022+01	6.9298-03
-2.0+00	1.0000+00	2.4990+00	3.4990+00	2.7561+01	1.0989-02
-1.8+00	1.0000+00	2.4990+00	3.4990+00	2.7101+01	1.7416-02
-1.6+00	1.0000+00	2.4990+00	3.4990+00	2.6640+01	2.7602-02
-1.4+00	1.0000+00	2.4990+00	3.4990+00	2.6180+01	4.3745-02
-1.2+00	1.0000+00	2.4990+00	3.4990+00	2.5719+01	6.9330-02
-1.0+00	1.0000+00	2.4990+00	3.4990+00	2.5259+01	1.0988-01
-8.0-01	1.0000+00	2.4990+00	3.4990+00	2.4798+01	1.7414-01
-6.0-01	1.0000+00	2.4989+00	3.4989+00	2.4337+01	2.7598-01
-4.0-01	1.0000+00	2.4989+00	3.4989+00	2.3876+01	4.3739-01
-2.0-01	1.0000+00	2.4986+00	3.4986+00	2.3415+01	6.9318-01
0.0	9.9999-01	2.4973+00	3.4973+00	2.2922+01	1.0986+00
2.0-01	9.9993-01	2.4961+00	3.4960+00	2.2460+01	1.7410+00
4.0-01	9.9985-01	2.4939+00	3.4937+00	2.1999+01	2.7588+00
6.0-01	9.9969-01	2.4899+00	3.4896+00	2.1533+01	4.3712+00
8.0-01	9.9932-01	2.4843+00	3.4836+00	2.1068+01	6.9251+00
1.0+00	9.9877-01	2.4745+00	3.4733+00	2.0599+01	1.0970+01
1.2+00	9.9805-01	2.4597+00	3.4577+00	2.0124+01	1.7373+01
1.4+00	9.9731-01	2.4365+00	3.4338+00	1.9642+01	2.7514+01
1.6+00	9.9706-01	2.3997+00	3.3968+00	1.9146+01	4.3596+01
1.8+00	9.9659-01	2.3408+00	3.3404+00	1.8630+01	6.9270+01
2.0+00	1.0101+00	2.2463+00	3.2564+00	1.8074+01	1.1093+02
2.2+00	1.0478+00	2.1002+00	3.1480+00	1.7460+01	1.8239+02
2.4+00	1.1725+00	1.8761+00	3.0486+00	1.6732+01	3.2338+02
2.6+00	1.6362+00	1.5345+00	3.1707+00	1.5768+01	7.1517+02
2.8+00	3.8661+00	1.1636+00	5.0297+00	1.4250+01	2.6735+03

Contrails

AEDC-TDR-62-170

T = 320 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5013+00	3.5013+00	3.9236+01	1.1715-07
-6.8+00	1.0000+00	2.5013+00	3.5013+00	3.8776+01	1.8567-07
-6.6+00	1.0000+00	2.5013+00	3.5013+00	3.8315+01	2.9427-07
-6.4+00	1.0000+00	2.5013+00	3.5013+00	3.7855+01	4.6639-07
-6.2+00	1.0000+00	2.5013+00	3.5013+00	3.7394+01	7.3918-07
-6.0+00	1.0000+00	2.5013+00	3.5013+00	3.6934+01	1.1715-06
-5.8+00	1.0000+00	2.5013+00	3.5013+00	3.6473+01	1.8567-06
-5.6+00	1.0000+00	2.5013+00	3.5013+00	3.6013+01	2.9427-06
-5.4+00	1.0000+00	2.5013+00	3.5013+00	3.5552+01	4.6639-06
-5.2+00	1.0000+00	2.5013+00	3.5013+00	3.5092+01	7.3918-06
-5.0+00	1.0000+00	2.5013+00	3.5013+00	3.4631+01	1.1715-05
-4.8+00	1.0000+00	2.5013+00	3.5013+00	3.4171+01	1.8567-05
-4.6+00	1.0000+00	2.5013+00	3.5013+00	3.3710+01	2.9427-05
-4.4+00	1.0000+00	2.5013+00	3.5013+00	3.3250+01	4.6639-05
-4.2+00	1.0000+00	2.5013+00	3.5013+00	3.2789+01	7.3918-05
-4.0+00	1.0000+00	2.5013+00	3.5013+00	3.2329+01	1.1715-04
-3.8+00	1.0000+00	2.5013+00	3.5013+00	3.1868+01	1.8567-04
-3.6+00	1.0000+00	2.5013+00	3.5013+00	3.1408+01	2.9427-04
-3.4+00	1.0000+00	2.5013+00	3.5013+00	3.0947+01	4.6639-04
-3.2+00	1.0000+00	2.5013+00	3.5013+00	3.0487+01	7.3918-04
-3.0+00	1.0000+00	2.5013+00	3.5013+00	3.0026+01	1.1715-03
-2.8+00	1.0000+00	2.5013+00	3.5013+00	2.9566+01	1.8567-03
-2.6+00	1.0000+00	2.5013+00	3.5013+00	2.9105+01	2.9427-03
-2.4+00	1.0000+00	2.5013+00	3.5013+00	2.8645+01	4.6639-03
-2.2+00	1.0000+00	2.5013+00	3.5013+00	2.8184+01	7.3918-03
-2.0+00	1.0000+00	2.5013+00	3.5013+00	2.7723+01	1.1723-02
-1.8+00	1.0000+00	2.5013+00	3.5013+00	2.7262+01	1.8579-02
-1.6+00	1.0000+00	2.5013+00	3.5013+00	2.6802+01	2.9444-02
-1.4+00	1.0000+00	2.5013+00	3.5013+00	2.6341+01	4.6664-02
-1.2+00	1.0000+00	2.5013+00	3.5013+00	2.5881+01	7.3954-02
-1.0+00	1.0000+00	2.5012+00	3.5012+00	2.5420+01	1.1721-01
-8.0-01	1.0000+00	2.5012+00	3.5012+00	2.4959+01	1.8575-01
-6.0-01	1.0001+00	2.5011+00	3.5012+00	2.4499+01	2.9439-01
-4.0-01	1.0001+00	2.5011+00	3.5012+00	2.4038+01	4.6657-01
-2.0-01	1.0001+00	2.5007+00	3.5008+00	2.3572+01	7.3947-01
0.0	1.0001+00	2.4991+00	3.4992+00	2.3082+01	1.1720+00
2.0-01	1.0002+00	2.4977+00	3.4979+00	2.2621+01	1.8576+00
4.0-01	1.0002+00	2.4959+00	3.4961+00	2.2160+01	2.9439+00
6.0-01	1.0002+00	2.4920+00	3.4922+00	2.1693+01	4.6657+00
8.0-01	1.0003+00	2.4863+00	3.4866+00	2.1228+01	7.3943+00
1.0+00	1.0004+00	2.4775+00	3.4779+00	2.0758+01	1.1720+01
1.2+00	1.0005+00	2.4643+00	3.4648+00	2.0285+01	1.8577+01
1.4+00	1.0011+00	2.4432+00	3.4443+00	1.9803+01	2.9461+01
1.6+00	1.0031+00	2.4095+00	3.4126+00	1.9308+01	4.6784+01
1.8+00	1.0091+00	2.3577+00	3.3668+00	1.8793+01	7.4590+01
2.0+00	1.0256+00	2.2692+00	3.2948+00	1.8239+01	1.2015+02
2.2+00	1.0706+00	2.1360+00	3.2066+00	1.7628+01	1.9879+02
2.4+00	1.2077+00	1.9273+00	3.1350+00	1.6902+01	3.5537+02
2.6+00	1.6905+00	1.6145+00	3.3050+00	1.5946+01	7.8826+02
2.8+00	3.9045+00	1.2853+00	5.1898+00	1.4446+01	2.8819+03

Contrails

AEDC-TDR-62-170

T = 340 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5024+00	3.5024+00	3.9388+01	1.2447-07
-6.8+00	1.0000+00	2.5024+00	3.5024+00	3.8928+01	1.9728-07
-6.6+00	1.0000+00	2.5024+00	3.5024+00	3.8467+01	3.1266-07
-6.4+00	1.0000+00	2.5024+00	3.5024+00	3.8007+01	4.9554-07
-6.2+00	1.0000+00	2.5024+00	3.5024+00	3.7546+01	7.8538-07
-6.0+00	1.0000+00	2.5024+00	3.5024+00	3.7086+01	1.2447-06
-5.8+00	1.0000+00	2.5024+00	3.5024+00	3.6625+01	1.9728-06
-5.6+00	1.0000+00	2.5024+00	3.5024+00	3.6165+01	3.1266-06
-5.4+00	1.0000+00	2.5024+00	3.5024+00	3.5704+01	4.9554-06
-5.2+00	1.0000+00	2.5024+00	3.5024+00	3.5244+01	7.8538-06
-5.0+00	1.0000+00	2.5024+00	3.5024+00	3.4783+01	1.2447-05
-4.8+00	1.0000+00	2.5024+00	3.5024+00	3.4323+01	1.9728-05
-4.6+00	1.0000+00	2.5024+00	3.5024+00	3.3862+01	3.1266-05
-4.4+00	1.0000+00	2.5024+00	3.5024+00	3.3402+01	4.9554-05
-4.2+00	1.0000+00	2.5024+00	3.5024+00	3.2941+01	7.8538-05
-4.0+00	1.0000+00	2.5024+00	3.5024+00	3.2481+01	1.2447-04
-3.8+00	1.0000+00	2.5024+00	3.5024+00	3.2020+01	1.9728-04
-3.6+00	1.0000+00	2.5024+00	3.5024+00	3.1560+01	3.1266-04
-3.4+00	1.0000+00	2.5024+00	3.5024+00	3.1099+01	4.9554-04
-3.2+00	1.0000+00	2.5024+00	3.5024+00	3.0638+01	7.8538-04
-3.0+00	1.0000+00	2.5024+00	3.5024+00	3.0178+01	1.2447-03
-2.8+00	1.0000+00	2.5024+00	3.5024+00	2.9717+01	1.9728-03
-2.6+00	1.0000+00	2.5024+00	3.5024+00	2.9257+01	3.1266-03
-2.4+00	1.0000+00	2.5024+00	3.5024+00	2.8796+01	4.9554-03
-2.2+00	1.0000+00	2.5024+00	3.5024+00	2.8336+01	7.8538-03
-2.0+00	1.0000+00	2.5024+00	3.5024+00	2.7875+01	1.2453-02
-1.8+00	1.0000+00	2.5024+00	3.5024+00	2.7414+01	1.9737-02
-1.6+00	1.0000+00	2.5024+00	3.5024+00	2.6954+01	3.1281-02
-1.4+00	1.0000+00	2.5024+00	3.5024+00	2.6493+01	4.9578-02
-1.2+00	1.0000+00	2.5024+00	3.5024+00	2.6033+01	7.8575-02
-1.0+00	1.0001+00	2.5023+00	3.5024+00	2.5572+01	1.2453-01
-8.0-01	1.0002+00	2.5022+00	3.5024+00	2.5111+01	1.9737-01
-6.0-01	1.0002+00	2.5022+00	3.5024+00	2.4651+01	3.1280-01
-4.0-01	1.0003+00	2.5020+00	3.5023+00	2.4190+01	4.9576-01
-2.0-01	1.0005+00	2.5015+00	3.5020+00	2.3718+01	7.8576-01
0.0	1.0006+00	2.4999+00	3.5005+00	2.3233+01	1.2455+00
2.0-01	1.0006+00	2.4980+00	3.4986+00	2.2772+01	1.9740+00
4.0-01	1.0008+00	2.4972+00	3.4980+00	2.2310+01	3.1290+00
6.0-01	1.0009+00	2.4942+00	3.4951+00	2.1843+01	4.9600+00
8.0-01	1.0012+00	2.4889+00	3.4901+00	2.1378+01	7.8633+00
1.0+00	1.0018+00	2.4807+00	3.4825+00	2.0909+01	1.2459+01
1.2+00	1.0026+00	2.4687+00	3.4713+00	2.0436+01	1.9779+01
1.4+00	1.0045+00	2.4488+00	3.4533+00	1.9954+01	3.1408+01
1.6+00	1.0084+00	2.4175+00	3.4259+00	1.9461+01	4.9969+01
1.8+00	1.0172+00	2.3680+00	3.3852+00	1.8945+01	7.9891+01
2.0+00	1.0387+00	2.2884+00	3.3271+00	1.8394+01	1.2929+02
2.2+00	1.0923+00	2.1636+00	3.2559+00	1.7782+01	2.1545+02
2.4+00	1.2401+00	1.9706+00	3.2107+00	1.7060+01	3.8768+02
2.6+00	1.7384+00	1.6849+00	3.4233+00	1.6112+01	8.6106+02
2.8+00	3.9315+00	1.3949+00	5.3264+00	1.4631+01	3.0819+03

Contrails

AEDC-TDR-62-170

T = 360 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5042+00	3.5042+00	3.9532+01	1.3180-07
-6.8+00	1.0000+00	2.5042+00	3.5042+00	3.9071+01	2.0888-07
-6.6+00	1.0000+00	2.5042+00	3.5042+00	3.8611+01	3.3106-07
-6.4+00	1.0000+00	2.5042+00	3.5042+00	3.8150+01	5.2469-07
-6.2+00	1.0000+00	2.5042+00	3.5042+00	3.7690+01	8.3158-07
-6.0+00	1.0000+00	2.5042+00	3.5042+00	3.7229+01	1.3180-06
-5.8+00	1.0000+00	2.5042+00	3.5042+00	3.6769+01	2.0888-06
-5.6+00	1.0000+00	2.5042+00	3.5042+00	3.6308+01	3.3106-06
-5.4+00	1.0000+00	2.5042+00	3.5042+00	3.5848+01	5.2469-06
-5.2+00	1.0000+00	2.5042+00	3.5042+00	3.5387+01	8.3158-06
-5.0+00	1.0000+00	2.5042+00	3.5042+00	3.4926+01	1.3180-05
-4.8+00	1.0000+00	2.5042+00	3.5042+00	3.4466+01	2.0888-05
-4.6+00	1.0000+00	2.5042+00	3.5042+00	3.4005+01	3.3106-05
-4.4+00	1.0000+00	2.5042+00	3.5042+00	3.3545+01	5.2469-05
-4.2+00	1.0000+00	2.5042+00	3.5042+00	3.3084+01	8.3158-05
-4.0+00	1.0000+00	2.5042+00	3.5042+00	3.2624+01	1.3180-04
-3.8+00	1.0000+00	2.5042+00	3.5042+00	3.2163+01	2.0888-04
-3.6+00	1.0000+00	2.5042+00	3.5042+00	3.1703+01	3.3106-04
-3.4+00	1.0000+00	2.5042+00	3.5042+00	3.1242+01	5.2469-04
-3.2+00	1.0000+00	2.5042+00	3.5042+00	3.0782+01	8.3158-04
-3.0+00	1.0000+00	2.5042+00	3.5042+00	3.0321+01	1.3180-03
-2.8+00	1.0000+00	2.5042+00	3.5042+00	2.9861+01	2.0888-03
-2.6+00	1.0000+00	2.5042+00	3.5042+00	2.9400+01	3.3106-03
-2.4+00	1.0000+00	2.5042+00	3.5042+00	2.8940+01	5.2469-03
-2.2+00	1.0000+00	2.5042+00	3.5042+00	2.8479+01	8.3158-03
-2.0+00	1.0000+00	2.5042+00	3.5042+00	2.8018+01	1.3192-02
-1.8+00	1.0000+00	2.5042+00	3.5042+00	2.7557+01	2.0905-02
-1.6+00	1.0000+00	2.5042+00	3.5042+00	2.7097+01	3.3129-02
-1.4+00	1.0000+00	2.5042+00	3.5042+00	2.6636+01	5.2501-02
-1.2+00	1.0001+00	2.5041+00	3.5042+00	2.6176+01	8.3199-02
-1.0+00	1.0001+00	2.5041+00	3.5042+00	2.5715+01	1.3186-01
-8.0-01	1.0002+00	2.5040+00	3.5042+00	2.5255+01	2.0898-01
-6.0-01	1.0003+00	2.5039+00	3.5042+00	2.4794+01	3.3121-01
-4.0-01	1.0004+00	2.5037+00	3.5041+00	2.4333+01	5.2494-01
-2.0-01	1.0006+00	2.5031+00	3.5037+00	2.3855+01	8.3206-01
0.0	1.0007+00	2.5021+00	3.5028+00	2.3375+01	1.3189+00
2.0-01	1.0009+00	2.5010+00	3.5019+00	2.2914+01	2.0906+00
4.0-01	1.0011+00	2.4990+00	3.5001+00	2.2451+01	3.3141+00
6.0-01	1.0014+00	2.4962+00	3.4976+00	2.1985+01	5.2543+00
8.0-01	1.0020+00	2.4913+00	3.4933+00	2.1521+01	8.3322+00
1.0+00	1.0030+00	2.4838+00	3.4868+00	2.1051+01	1.3219+01
1.2+00	1.0045+00	2.4725+00	3.4770+00	2.0579+01	2.0983+01
1.4+00	1.0075+00	2.4538+00	3.4613+00	2.0097+01	3.3355+01
1.6+00	1.0132+00	2.4244+00	3.4376+00	1.9603+01	5.3163+01
1.8+00	1.0247+00	2.3782+00	3.4029+00	1.9088+01	8.5212+01
2.0+00	1.0499+00	2.3050+00	3.3549+00	1.8539+01	1.3838+02
2.2+00	1.1099+00	2.1889+00	3.2988+00	1.7929+01	2.3181+02
2.4+00	1.2684+00	2.0096+00	3.2780+00	1.7210+01	4.1983+02
2.6+00	1.7775+00	1.7486+00	3.5261+00	1.6270+01	9.3228+02
2.8+00	3.9626+00	1.4941+00	5.4567+00	1.4803+01	3.2803+03

T = 380 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5060+00	3.5060+00	3.9667+01	1.3912-07
-6.8+00	1.0000+00	2.5060+00	3.5060+00	3.9207+01	2.2049-07
-6.6+00	1.0000+00	2.5060+00	3.5060+00	3.8746+01	3.4945-07
-6.4+00	1.0000+00	2.5060+00	3.5060+00	3.8286+01	5.5384-07
-6.2+00	1.0000+00	2.5060+00	3.5060+00	3.7825+01	8.7778-07
-6.0+00	1.0000+00	2.5060+00	3.5060+00	3.7365+01	1.3912-06
-5.8+00	1.0000+00	2.5060+00	3.5060+00	3.6904+01	2.2049-06
-5.6+00	1.0000+00	2.5060+00	3.5060+00	3.6444+01	3.4945-06
-5.4+00	1.0000+00	2.5060+00	3.5060+00	3.5983+01	5.5384-06
-5.2+00	1.0000+00	2.5060+00	3.5060+00	3.5523+01	8.7778-06
-5.0+00	1.0000+00	2.5060+00	3.5060+00	3.5062+01	1.3912-05
-4.8+00	1.0000+00	2.5060+00	3.5060+00	3.4602+01	2.2049-05
-4.6+00	1.0000+00	2.5060+00	3.5060+00	3.4141+01	3.4945-05
-4.4+00	1.0000+00	2.5060+00	3.5060+00	3.3681+01	5.5384-05
-4.2+00	1.0000+00	2.5060+00	3.5060+00	3.3220+01	8.7778-05
-4.0+00	1.0000+00	2.5060+00	3.5060+00	3.2760+01	1.3912-04
-3.8+00	1.0000+00	2.5060+00	3.5060+00	3.2299+01	2.2049-04
-3.6+00	1.0000+00	2.5060+00	3.5060+00	3.1839+01	3.4945-04
-3.4+00	1.0000+00	2.5060+00	3.5060+00	3.1378+01	5.5384-04
-3.2+00	1.0000+00	2.5060+00	3.5060+00	3.0918+01	8.7778-04
-3.0+00	1.0000+00	2.5060+00	3.5060+00	3.0457+01	1.3912-03
-2.8+00	1.0000+00	2.5060+00	3.5060+00	2.9997+01	2.2049-03
-2.6+00	1.0000+00	2.5060+00	3.5060+00	2.9536+01	3.4945-03
-2.4+00	1.0000+00	2.5060+00	3.5060+00	2.9076+01	5.5384-03
-2.2+00	1.0000+00	2.5060+00	3.5060+00	2.8615+01	8.7778-03
-2.0+00	1.0000+00	2.5060+00	3.5060+00	2.8153+01	1.3926-02
-1.8+00	1.0000+00	2.5060+00	3.5060+00	2.7693+01	2.2068-02
-1.6+00	1.0000+00	2.5060+00	3.5060+00	2.7233+01	3.4971-02
-1.4+00	1.0001+00	2.5059+00	3.5060+00	2.6772+01	5.5418-02
-1.2+00	1.0001+00	2.5059+00	3.5060+00	2.6312+01	8.7819-02
-1.0+00	1.0002+00	2.5058+00	3.5060+00	2.5851+01	1.3918-01
-8.0-01	1.0003+00	2.5057+00	3.5060+00	2.5391+01	2.2059-01
-6.0-01	1.0004+00	2.5056+00	3.5060+00	2.4930+01	3.4962-01
-4.0-01	1.0005+00	2.5054+00	3.5059+00	2.4469+01	5.5414-01
-2.0-01	1.0007+00	2.5047+00	3.5054+00	2.3985+01	8.7837-01
0.0	1.0008+00	2.5038+00	3.5046+00	2.3510+01	1.3924+00
2.0-01	1.0010+00	2.5027+00	3.5037+00	2.3049+01	2.2072+00
4.0-01	1.0014+00	2.5009+00	3.5023+00	2.2585+01	3.4993+00
6.0-01	1.0018+00	2.4984+00	3.5002+00	2.2120+01	5.5486+00
8.0-01	1.0027+00	2.4937+00	3.4964+00	2.1655+01	8.8011+00
1.0+00	1.0040+00	2.4867+00	3.4907+00	2.1186+01	1.3967+01
1.2+00	1.0062+00	2.4757+00	3.4819+00	2.0713+01	2.2186+01
1.4+00	1.0101+00	2.4585+00	3.4686+00	2.0233+01	3.5298+01
1.6+00	1.0173+00	2.4309+00	3.4482+00	1.9738+01	5.6344+01
1.8+00	1.0308+00	2.3881+00	3.4189+00	1.9224+01	9.0483+01
2.0+00	1.0599+00	2.3195+00	3.3794+00	1.8676+01	1.4745+02
2.2+00	1.1244+00	2.2125+00	3.3369+00	1.8070+01	2.4792+02
2.4+00	1.2921+00	2.0456+00	3.3377+00	1.7354+01	4.5150+02
2.6+00	1.8099+00	1.8058+00	3.6157+00	1.6418+01	1.0022+03
2.8+00	3.9750+00	1.5825+00	5.5575+00	1.4968+01	3.4718+03

T = 400 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5072+00	3.5072+00	3.9796+01	1.4644-07
-6.8+00	1.0000+00	2.5072+00	3.5072+00	3.9336+01	2.3209-07
-6.6+00	1.0000+00	2.5072+00	3.5072+00	3.8875+01	3.6784-07
-6.4+00	1.0000+00	2.5072+00	3.5072+00	3.8415+01	5.8299-07
-6.2+00	1.0000+00	2.5072+00	3.5072+00	3.7954+01	9.2397-07
-6.0+00	1.0000+00	2.5072+00	3.5072+00	3.7494+01	1.4644-06
-5.8+00	1.0000+00	2.5072+00	3.5072+00	3.7033+01	2.3209-06
-5.6+00	1.0000+00	2.5072+00	3.5072+00	3.6573+01	3.6784-06
-5.4+00	1.0000+00	2.5072+00	3.5072+00	3.6112+01	5.8299-06
-5.2+00	1.0000+00	2.5072+00	3.5072+00	3.5652+01	9.2397-06
-5.0+00	1.0000+00	2.5072+00	3.5072+00	3.5191+01	1.4644-05
-4.8+00	1.0000+00	2.5072+00	3.5072+00	3.4731+01	2.3209-05
-4.6+00	1.0000+00	2.5072+00	3.5072+00	3.4270+01	3.6784-05
-4.4+00	1.0000+00	2.5072+00	3.5072+00	3.3810+01	5.8299-05
-4.2+00	1.0000+00	2.5072+00	3.5072+00	3.3349+01	9.2397-05
-4.0+00	1.0000+00	2.5072+00	3.5072+00	3.2889+01	1.4644-04
-3.8+00	1.0000+00	2.5072+00	3.5072+00	3.2428+01	2.3209-04
-3.6+00	1.0000+00	2.5072+00	3.5072+00	3.1968+01	3.6784-04
-3.4+00	1.0000+00	2.5072+00	3.5072+00	3.1507+01	5.8299-04
-3.2+00	1.0000+00	2.5072+00	3.5072+00	3.1047+01	9.2397-04
-3.0+00	1.0000+00	2.5072+00	3.5072+00	3.0586+01	1.4644-03
-2.8+00	1.0000+00	2.5072+00	3.5072+00	3.0126+01	2.3209-03
-2.6+00	1.0000+00	2.5072+00	3.5072+00	2.9665+01	3.6784-03
-2.4+00	1.0000+00	2.5072+00	3.5072+00	2.9205+01	5.8299-03
-2.2+00	1.0000+00	2.5072+00	3.5072+00	2.8744+01	9.2397-03
-2.0+00	1.0000+00	2.5072+00	3.5072+00	2.8284+01	1.4643-02
-1.8+00	1.0001+00	2.5071+00	3.5072+00	2.7823+01	2.3210-02
-1.6+00	1.0001+00	2.5071+00	3.5072+00	2.7362+01	3.6789-02
-1.4+00	1.0002+00	2.5070+00	3.5072+00	2.6902+01	5.8314-02
-1.2+00	1.0002+00	2.5070+00	3.5072+00	2.6441+01	9.2433-02
-1.0+00	1.0003+00	2.5069+00	3.5072+00	2.5980+01	1.4650-01
-8.0-01	1.0004+00	2.5068+00	3.5072+00	2.5520+01	2.3221-01
-6.0-01	1.0004+00	2.5068+00	3.5072+00	2.5059+01	3.6804-01
-4.0-01	1.0006+00	2.5066+00	3.5072+00	2.4598+01	5.8333-01
-2.0-01	1.0007+00	2.5063+00	3.5070+00	2.4107+01	9.2465-01
0.0	1.0009+00	2.5056+00	3.5065+00	2.3638+01	1.4658+00
2.0-01	1.0012+00	2.5045+00	3.5057+00	2.3176+01	2.3236+00
4.0-01	1.0016+00	2.5028+00	3.5044+00	2.2713+01	3.6843+00
6.0-01	1.0022+00	2.5003+00	3.5025+00	2.2249+01	5.8428+00
8.0-01	1.0033+00	2.4960+00	3.4993+00	2.1783+01	9.2703+00
1.0+00	1.0049+00	2.4895+00	3.4944+00	2.1315+01	1.4716+01
1.2+00	1.0077+00	2.4789+00	3.4866+00	2.0842+01	2.3389+01
1.4+00	1.0125+00	2.4625+00	3.4750+00	2.0361+01	3.7243+01
1.6+00	1.0209+00	2.4368+00	3.4577+00	1.9865+01	5.9515+01
1.8+00	1.0366+00	2.3965+00	3.4331+00	1.9354+01	9.5781+01
2.0+00	1.0686+00	2.3328+00	3.4014+00	1.8807+01	1.5648+02
2.2+00	1.1397+00	2.2319+00	3.3716+00	1.8201+01	2.6448+02
2.4+00	1.3146+00	2.0778+00	3.3924+00	1.7488+01	4.8351+02
2.6+00	1.8560+00	1.8565+00	3.7125+00	1.6555+01	1.0778+03
2.8+00	3.9732+00	1.6617+00	5.6349+00	1.5128+01	3.6561+03

Contrails

AEDC-TDR-62-170

T = 450 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5113+00	3.5113+00	4.0094+01	1.6475-07
-6.8+00	1.0000+00	2.5113+00	3.5113+00	3.9633+01	2.6110-07
-6.6+00	1.0000+00	2.5113+00	3.5113+00	3.9173+01	4.1382-07
-6.4+00	1.0000+00	2.5113+00	3.5113+00	3.8712+01	6.5586-07
-6.2+00	1.0000+00	2.5113+00	3.5113+00	3.8252+01	1.0395-06
-6.0+00	1.0000+00	2.5113+00	3.5113+00	3.7791+01	1.6475-06
-5.8+00	1.0000+00	2.5113+00	3.5113+00	3.7331+01	2.6110-06
-5.6+00	1.0000+00	2.5113+00	3.5113+00	3.6870+01	4.1382-06
-5.4+00	1.0000+00	2.5113+00	3.5113+00	3.6410+01	6.5586-06
-5.2+00	1.0000+00	2.5113+00	3.5113+00	3.5949+01	1.0395-05
-5.0+00	1.0000+00	2.5113+00	3.5113+00	3.5489+01	1.6475-05
-4.8+00	1.0000+00	2.5113+00	3.5113+00	3.5028+01	2.6110-05
-4.6+00	1.0000+00	2.5113+00	3.5113+00	3.4568+01	4.1382-05
-4.4+00	1.0000+00	2.5113+00	3.5113+00	3.4107+01	6.5586-05
-4.2+00	1.0000+00	2.5113+00	3.5113+00	3.3647+01	1.0395-04
-4.0+00	1.0000+00	2.5113+00	3.5113+00	3.3186+01	1.6475-04
-3.8+00	1.0000+00	2.5113+00	3.5113+00	3.2726+01	2.6110-04
-3.6+00	1.0000+00	2.5113+00	3.5113+00	3.2265+01	4.1382-04
-3.4+00	1.0000+00	2.5113+00	3.5113+00	3.1805+01	6.5586-04
-3.2+00	1.0000+00	2.5113+00	3.5113+00	3.1344+01	1.0395-03
-3.0+00	1.0000+00	2.5113+00	3.5113+00	3.0884+01	1.6475-03
-2.8+00	1.0000+00	2.5113+00	3.5113+00	3.0423+01	2.6110-03
-2.6+00	1.0000+00	2.5113+00	3.5113+00	2.9963+01	4.1382-03
-2.4+00	1.0000+00	2.5113+00	3.5113+00	2.9502+01	6.5586-03
-2.2+00	1.0000+00	2.5113+00	3.5113+00	2.9041+01	1.0395-02
-2.0+00	1.0000+00	2.5113+00	3.5113+00	2.8581+01	1.6476-02
-1.8+00	1.0001+00	2.5112+00	3.5113+00	2.8120+01	2.6116-02
-1.6+00	1.0001+00	2.5112+00	3.5113+00	2.7660+01	4.1395-02
-1.4+00	1.0002+00	2.5111+00	3.5113+00	2.7199+01	6.5613-02
-1.2+00	1.0002+00	2.5111+00	3.5113+00	2.6738+01	1.0400-01
-1.0+00	1.0003+00	2.5110+00	3.5113+00	2.6278+01	1.6483-01
-8.0-01	1.0004+00	2.5109+00	3.5113+00	2.5817+01	2.6125-01
-6.0-01	1.0005+00	2.5107+00	3.5112+00	2.5356+01	4.1406-01
-4.0-01	1.0006+00	2.5106+00	3.5112+00	2.4896+01	6.5629-01
-2.0-01	1.0009+00	2.5102+00	3.5111+00	2.4393+01	1.0404+00
0.0	1.0011+00	2.5097+00	3.5108+00	2.3932+01	1.6493+00
2.0-01	1.0015+00	2.5088+00	3.5103+00	2.3470+01	2.6149+00
4.0-01	1.0021+00	2.5073+00	3.5094+00	2.3006+01	4.1469+00
6.0-01	1.0030+00	2.5051+00	3.5081+00	2.2543+01	6.5780+00
8.0-01	1.0045+00	2.5015+00	3.5060+00	2.2078+01	1.0441+01
1.0+00	1.0069+00	2.4955+00	3.5024+00	2.1609+01	1.6587+01
1.2+00	1.0107+00	2.4864+00	3.4971+00	2.1137+01	2.6390+01
1.4+00	1.0171+00	2.4716+00	3.4887+00	2.0655+01	4.2091+01
1.6+00	1.0283+00	2.4498+00	3.4781+00	2.0162+01	6.7445+01
1.8+00	1.0487+00	2.4154+00	3.4641+00	1.9650+01	1.0901+02
2.0+00	1.0870+00	2.3618+00	3.4488+00	1.9107+01	1.7909+02
2.2+00	1.1687+00	2.2762+00	3.4449+00	1.8504+01	3.0515+02
2.4+00	1.3586+00	2.1486+00	3.5072+00	1.7800+01	5.6201+02

Contrails

AEDC-TDR-62-170

T = 500 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5156+00	3.5156+00	4.0362+01	1.8305-07
-6.8+00	1.0000+00	2.5156+00	3.5156+00	3.9902+01	2.9011-07
-6.6+00	1.0000+00	2.5156+00	3.5156+00	3.9441+01	4.5980-07
-6.4+00	1.0000+00	2.5156+00	3.5156+00	3.8981+01	7.2974-07
-6.2+00	1.0000+00	2.5156+00	3.5156+00	3.8520+01	1.1550-06
-6.0+00	1.0000+00	2.5156+00	3.5156+00	3.8060+01	1.8305-06
-5.8+00	1.0000+00	2.5156+00	3.5156+00	3.7599+01	2.9011-06
-5.6+00	1.0000+00	2.5156+00	3.5156+00	3.7139+01	4.5980-06
-5.4+00	1.0000+00	2.5156+00	3.5156+00	3.6678+01	7.2874-06
-5.2+00	1.0000+00	2.5156+00	3.5156+00	3.6217+01	1.1550-05
-5.0+00	1.0000+00	2.5156+00	3.5156+00	3.5757+01	1.8305-05
-4.8+00	1.0000+00	2.5156+00	3.5156+00	3.5296+01	2.9011-05
-4.6+00	1.0000+00	2.5156+00	3.5156+00	3.4836+01	4.5980-05
-4.4+00	1.0000+00	2.5156+00	3.5156+00	3.4375+01	7.2874-05
-4.2+00	1.0000+00	2.5156+00	3.5156+00	3.3915+01	1.1550-04
-4.0+00	1.0000+00	2.5156+00	3.5156+00	3.3454+01	1.8305-04
-3.8+00	1.0000+00	2.5156+00	3.5156+00	3.2994+01	2.9011-04
-3.6+00	1.0000+00	2.5156+00	3.5156+00	3.2533+01	4.5980-04
-3.4+00	1.0000+00	2.5156+00	3.5156+00	3.2073+01	7.2874-04
-3.2+00	1.0000+00	2.5156+00	3.5156+00	3.1612+01	1.1550-03
-3.0+00	1.0000+00	2.5156+00	3.5156+00	3.1152+01	1.8305-03
-2.8+00	1.0000+00	2.5156+00	3.5156+00	3.0691+01	2.9011-03
-2.6+00	1.0000+00	2.5156+00	3.5156+00	3.0231+01	4.5980-03
-2.4+00	1.0000+00	2.5156+00	3.5156+00	2.9770+01	7.2874-03
-2.2+00	1.0000+00	2.5156+00	3.5156+00	2.9309+01	1.1556-02
-2.0+00	1.0001+00	2.5155+00	3.5156+00	2.8849+01	1.8314-02
-1.8+00	1.0001+00	2.5155+00	3.5156+00	2.8388+01	2.9025-02
-1.6+00	1.0001+00	2.5155+00	3.5156+00	2.7928+01	4.6000-02
-1.4+00	1.0002+00	2.5154+00	3.5156+00	2.7467+01	7.2902-02
-1.2+00	1.0003+00	2.5153+00	3.5156+00	2.7007+01	1.1554-01
-1.0+00	1.0004+00	2.5152+00	3.5156+00	2.6546+01	1.8313-01
-8.0-01	1.0005+00	2.5150+00	3.5155+00	2.6085+01	2.9027-01
-6.0-01	1.0006+00	2.5149+00	3.5155+00	2.5625+01	4.6009-01
-4.0-01	1.0007+00	2.5147+00	3.5154+00	2.5159+01	7.2926-01
-2.0-01	1.0010+00	2.5142+00	3.5152+00	2.4657+01	1.1561+00
0.0	1.0013+00	2.5136+00	3.5149+00	2.4196+01	1.8328+00
2.0-01	1.0017+00	2.5129+00	3.5146+00	2.3735+01	2.9062+00
4.0-01	1.0024+00	2.5117+00	3.5141+00	2.3270+01	4.6092+00
6.0-01	1.0035+00	2.5097+00	3.5132+00	2.2807+01	7.3132+00
8.0-01	1.0054+00	2.5063+00	3.5117+00	2.2341+01	1.1612+01
1.0+00	1.0083+00	2.5011+00	3.5094+00	2.1873+01	1.8457+01
1.2+00	1.0129+00	2.4933+00	3.5062+00	2.1401+01	2.9337+01
1.4+00	1.0208+00	2.4802+00	3.5010+00	2.0919+01	4.6935+01
1.6+00	1.0341+00	2.4611+00	3.4952+00	2.0428+01	7.5360+01
1.8+00	1.0575+00	2.4320+00	3.4895+00	1.9915+01	1.2214+02
2.0+00	1.1024+00	2.3843+00	3.4867+00	1.9375+01	2.0179+02
2.2+00	1.1904+00	2.3134+00	3.5038+00	1.8777+01	3.4534+02
2.4+00	1.3902+00	2.2045+00	3.5947+00	1.8080+01	6.3903+02

Contrails

AEDC-TDR-62-170

$$T = 550 \text{ }^{\circ}\text{K}$$

$\log (\rho/\rho_0)$	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5193+00	3.5193+00	4.0607+01	2.0136-07
-6.8+00	1.0000+00	2.5193+00	3.5193+00	4.0147+01	3.1913-07
-6.6+00	1.0000+00	2.5193+00	3.5193+00	3.9686+01	5.0578-07
-6.4+00	1.0000+00	2.5193+00	3.5193+00	3.9226+01	8.0161-07
-6.2+00	1.0000+00	2.5193+00	3.5193+00	3.8765+01	1.2705-06
-6.0+00	1.0000+00	2.5193+00	3.5193+00	3.8305+01	2.0136-06
-5.8+00	1.0000+00	2.5193+00	3.5193+00	3.7844+01	3.1913-06
-5.6+00	1.0000+00	2.5193+00	3.5193+00	3.7384+01	5.0578-06
-5.4+00	1.0000+00	2.5193+00	3.5193+00	3.6923+01	8.0161-06
-5.2+00	1.0000+00	2.5193+00	3.5193+00	3.6463+01	1.2705-05
-5.0+00	1.0000+00	2.5193+00	3.5193+00	3.6002+01	2.0136-05
-4.8+00	1.0000+00	2.5193+00	3.5193+00	3.5542+01	3.1913-05
-4.6+00	1.0000+00	2.5193+00	3.5193+00	3.5081+01	5.0578-05
-4.4+00	1.0000+00	2.5193+00	3.5193+00	3.4621+01	8.0161-05
-4.2+00	1.0000+00	2.5193+00	3.5193+00	3.4160+01	1.2705-04
-4.0+00	1.0000+00	2.5193+00	3.5193+00	3.3699+01	2.0136-04
-3.8+00	1.0000+00	2.5193+00	3.5193+00	3.3239+01	3.1913-04
-3.6+00	1.0000+00	2.5193+00	3.5193+00	3.2778+01	5.0578-04
-3.4+00	1.0000+00	2.5193+00	3.5193+00	3.2318+01	8.0161-04
-3.2+00	1.0000+00	2.5193+00	3.5193+00	3.1857+01	1.2705-03
-3.0+00	1.0000+00	2.5193+00	3.5193+00	3.1397+01	2.0136-03
-2.8+00	1.0000+00	2.5193+00	3.5193+00	3.0936+01	3.1913-03
-2.6+00	1.0000+00	2.5193+00	3.5193+00	3.0476+01	5.0578-03
-2.4+00	1.0000+00	2.5193+00	3.5193+00	3.0015+01	8.0161-03
-2.2+00	1.0000+00	2.5193+00	3.5193+00	2.9554+01	1.2720-02
-2.0+00	1.0001+00	2.5192+00	3.5193+00	2.9093+01	2.0156-02
-1.8+00	1.0001+00	2.5192+00	3.5193+00	2.8633+01	3.1941-02
-1.6+00	1.0002+00	2.5191+00	3.5193+00	2.8172+01	5.0614-02
-1.4+00	1.0002+00	2.5191+00	3.5193+00	2.7712+01	8.0205-02
-1.2+00	1.0003+00	2.5190+00	3.5193+00	2.7252+01	1.2711-01
-1.0+00	1.0004+00	2.5189+00	3.5193+00	2.6791+01	2.0146-01
-8.0-01	1.0005+00	2.5188+00	3.5193+00	2.6330+01	3.1930-01
-6.0-01	1.0006+00	2.5187+00	3.5193+00	2.5870+01	5.0610-01
-4.0-01	1.0008+00	2.5185+00	3.5193+00	2.5390+01	8.0224-01
-2.0-01	1.0011+00	2.5181+00	3.5192+00	2.4897+01	1.2718+00
0.0	1.0014+00	2.5176+00	3.5190+00	2.4436+01	2.0163+00
2.0-01	1.0019+00	2.5169+00	3.5188+00	2.3974+01	3.1974+00
4.0-01	1.0027+00	2.5159+00	3.5186+00	2.3510+01	5.0713+00
6.0-01	1.0040+00	2.5140+00	3.5180+00	2.3046+01	8.0483+00
8.0-01	1.0061+00	2.5111+00	3.5172+00	2.2581+01	1.2782+01
1.0+00	1.0093+00	2.5066+00	3.5159+00	2.2114+01	2.0323+01
1.2+00	1.0148+00	2.4991+00	3.5139+00	2.1640+01	3.2384+01
1.4+00	1.0237+00	2.4875+00	3.5112+00	2.1158+01	5.1776+01
1.6+00	1.0385+00	2.4710+00	3.5095+00	2.0668+01	8.3248+01
1.8+00	1.0647+00	2.4453+00	3.5100+00	2.0156+01	1.3526+02
2.0+00	1.1145+00	2.4036+00	3.5181+00	1.9618+01	2.2440+02
2.2+00	1.2075+00	2.3432+00	3.5507+00	1.9025+01	3.8532+02
2.4+00	1.4148+00	2.2481+00	3.6629+00	1.8330+01	7.1548+02

Contrails

AEDC-TDR-62-170

T = 600 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5232+00	3.5232+00	4.0834+01	2.1966-07
-6.8+00	1.0000+00	2.5232+00	3.5232+00	4.0373+01	3.4814-07
-6.6+00	1.0000+00	2.5232+00	3.5232+00	3.9913+01	5.5176-07
-6.4+00	1.0000+00	2.5232+00	3.5232+00	3.9452+01	8.7448-07
-6.2+00	1.0000+00	2.5232+00	3.5232+00	3.8992+01	1.3860-06
-6.0+00	1.0000+00	2.5232+00	3.5232+00	3.8531+01	2.1966-06
-5.8+00	1.0000+00	2.5232+00	3.5232+00	3.8071+01	3.4814-06
-5.6+00	1.0000+00	2.5232+00	3.5232+00	3.7610+01	5.5176-06
-5.4+00	1.0000+00	2.5232+00	3.5232+00	3.7150+01	8.7448-06
-5.2+00	1.0000+00	2.5232+00	3.5232+00	3.6689+01	1.3860-05
-5.0+00	1.0000+00	2.5232+00	3.5232+00	3.6229+01	2.1966-05
-4.8+00	1.0000+00	2.5232+00	3.5232+00	3.5768+01	3.4814-05
-4.6+00	1.0000+00	2.5232+00	3.5232+00	3.5308+01	5.5176-05
-4.4+00	1.0000+00	2.5232+00	3.5232+00	3.4847+01	8.7448-05
-4.2+00	1.0000+00	2.5232+00	3.5232+00	3.4386+01	1.3860-04
-4.0+00	1.0000+00	2.5232+00	3.5232+00	3.3926+01	2.1966-04
-3.8+00	1.0000+00	2.5232+00	3.5232+00	3.3465+01	3.4814-04
-3.6+00	1.0000+00	2.5232+00	3.5232+00	3.3005+01	5.5176-04
-3.4+00	1.0000+00	2.5232+00	3.5232+00	3.2544+01	8.7448-04
-3.2+00	1.0000+00	2.5232+00	3.5232+00	3.2084+01	1.3860-03
-3.0+00	1.0000+00	2.5232+00	3.5232+00	3.1623+01	2.1966-03
-2.8+00	1.0000+00	2.5232+00	3.5232+00	3.1163+01	3.4814-03
-2.6+00	1.0000+00	2.5232+00	3.5232+00	3.0702+01	5.5176-03
-2.4+00	1.0000+00	2.5232+00	3.5232+00	3.0242+01	8.7448-03
-2.2+00	1.0000+00	2.5232+00	3.5232+00	2.9781+01	1.3867-02
-2.0+00	1.0001+00	2.5231+00	3.5232+00	2.9320+01	2.1978-02
-1.8+00	1.0001+00	2.5231+00	3.5232+00	2.8860+01	3.4833-02
-1.6+00	1.0002+00	2.5230+00	3.5232+00	2.8399+01	5.5206-02
-1.4+00	1.0002+00	2.5230+00	3.5232+00	2.7939+01	8.7496-02
-1.2+00	1.0003+00	2.5229+00	3.5232+00	2.7478+01	1.3867-01
-1.0+00	1.0004+00	2.5228+00	3.5232+00	2.7017+01	2.1979-01
-8.0-01	1.0005+00	2.5227+00	3.5232+00	2.6557+01	3.4835-01
-6.0-01	1.0006+00	2.5226+00	3.5232+00	2.6096+01	5.5213-01
-4.0-01	1.0008+00	2.5224+00	3.5232+00	2.5599+01	8.7522-01
-2.0-01	1.0011+00	2.5221+00	3.5232+00	2.5117+01	1.3875+00
0.0	1.0015+00	2.5217+00	3.5232+00	2.4655+01	2.1998+00
2.0-01	1.0020+00	2.5210+00	3.5230+00	2.4193+01	3.4885+00
4.0-01	1.0029+00	2.5201+00	3.5230+00	2.3729+01	5.5337+00
6.0-01	1.0043+00	2.5184+00	3.5227+00	2.3265+01	8.7829+00
8.0-01	1.0066+00	2.5157+00	3.5223+00	2.2800+01	1.3951+01
1.0+00	1.0102+00	2.5112+00	3.5214+00	2.2334+01	2.2191+01
1.2+00	1.0161+00	2.5045+00	3.5206+00	2.1861+01	3.5374+01
1.4+00	1.0259+00	2.4942+00	3.5201+00	2.1377+01	5.6602+01
1.6+00	1.0419+00	2.4794+00	3.5213+00	2.0887+01	9.1112+01
1.8+00	1.0700+00	2.4567+00	3.5267+00	2.0377+01	1.4830+02
2.0+00	1.1226+00	2.4203+00	3.5429+00	1.9840+01	2.4660+02
2.2+00	1.2212+00	2.3666+00	3.5878+00	1.9248+01	4.2512+02
2.4+00	1.4353+00	2.2819+00	3.7172+00	1.8557+01	7.9188+02

T = 650 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5271+00	3.5271+00	4.1045+01	2.3797-07
-6.8+00	1.0000+00	2.5271+00	3.5271+00	4.0585+01	3.7715-07
-6.6+00	1.0000+00	2.5271+00	3.5271+00	4.0124+01	5.9774-07
-6.4+00	1.0000+00	2.5271+00	3.5271+00	3.9664+01	9.4736-07
-6.2+00	1.0000+00	2.5271+00	3.5271+00	3.9203+01	1.5015-06
-6.0+00	1.0000+00	2.5271+00	3.5271+00	3.8742+01	2.3797-06
-5.8+00	1.0000+00	2.5271+00	3.5271+00	3.8282+01	3.7715-06
-5.6+00	1.0000+00	2.5271+00	3.5271+00	3.7821+01	5.9774-06
-5.4+00	1.0000+00	2.5271+00	3.5271+00	3.7361+01	9.4736-06
-5.2+00	1.0000+00	2.5271+00	3.5271+00	3.6900+01	1.5015-05
-5.0+00	1.0000+00	2.5271+00	3.5271+00	3.6440+01	2.3797-05
-4.8+00	1.0000+00	2.5271+00	3.5271+00	3.5979+01	3.7715-05
-4.6+00	1.0000+00	2.5271+00	3.5271+00	3.5519+01	5.9774-05
-4.4+00	1.0000+00	2.5271+00	3.5271+00	3.5058+01	9.4736-05
-4.2+00	1.0000+00	2.5271+00	3.5271+00	3.4598+01	1.5015-04
-4.0+00	1.0000+00	2.5271+00	3.5271+00	3.4137+01	2.3797-04
-3.8+00	1.0000+00	2.5271+00	3.5271+00	3.3677+01	3.7715-04
-3.6+00	1.0000+00	2.5271+00	3.5271+00	3.3216+01	5.9774-04
-3.4+00	1.0000+00	2.5271+00	3.5271+00	3.2756+01	9.4736-04
-3.2+00	1.0000+00	2.5271+00	3.5271+00	3.2295+01	1.5015-03
-3.0+00	1.0000+00	2.5271+00	3.5271+00	3.1835+01	2.3797-03
-2.8+00	1.0000+00	2.5271+00	3.5271+00	3.1374+01	3.7715-03
-2.6+00	1.0000+00	2.5271+00	3.5271+00	3.0914+01	5.9774-03
-2.4+00	1.0000+00	2.5271+00	3.5271+00	3.0453+01	9.4736-03
-2.2+00	1.0000+00	2.5271+00	3.5271+00	2.9992+01	1.5023-02
-2.0+00	1.0001+00	2.5270+00	3.5271+00	2.9532+01	2.3810-02
-1.8+00	1.0001+00	2.5270+00	3.5271+00	2.9071+01	3.7736-02
-1.6+00	1.0002+00	2.5269+00	3.5271+00	2.8611+01	5.9807-02
-1.4+00	1.0002+00	2.5269+00	3.5271+00	2.8150+01	9.4787-02
-1.2+00	1.0003+00	2.5268+00	3.5271+00	2.7689+01	1.5023-01
-1.0+00	1.0004+00	2.5267+00	3.5271+00	2.7229+01	2.3810-01
-8.0-01	1.0005+00	2.5266+00	3.5271+00	2.6768+01	3.7738-01
-6.0-01	1.0007+00	2.5264+00	3.5271+00	2.6308+01	5.9815-01
-4.0-01	1.0009+00	2.5262+00	3.5271+00	2.5790+01	9.4819-01
-2.0-01	1.0012+00	2.5259+00	3.5271+00	2.5319+01	1.5032+00
0.0	1.0015+00	2.5256+00	3.5271+00	2.4858+01	2.3833+00
2.0-01	1.0021+00	2.5250+00	3.5271+00	2.4395+01	3.7795+00
4.0-01	1.0031+00	2.5240+00	3.5271+00	2.3931+01	5.9957+00
6.0-01	1.0046+00	2.5225+00	3.5271+00	2.3467+01	9.5169+00
8.0-01	1.0070+00	2.5199+00	3.5269+00	2.3003+01	1.5120+01
1.0+00	1.0108+00	2.5160+00	3.5268+00	2.2537+01	2.4054+01
1.2+00	1.0171+00	2.5097+00	3.5268+00	2.2064+01	3.8362+01
1.4+00	1.0275+00	2.5003+00	3.5278+00	2.1580+01	6.1420+01
1.6+00	1.0447+00	2.4870+00	3.5317+00	2.1090+01	9.8971+01

Contrails

AEDC-TDR-62-170

T = 700 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5310+00	3.5310+00	4.1244+01	2.5627-07
-6.8+00	1.0000+00	2.5310+00	3.5310+00	4.0783+01	4.0616-07
-6.6+00	1.0000+00	2.5310+00	3.5310+00	4.0323+01	6.4372-07
-6.4+00	1.0000+00	2.5310+00	3.5310+00	3.9862+01	1.0202-06
-6.2+00	1.0000+00	2.5310+00	3.5310+00	3.9401+01	1.6170-06
-6.0+00	1.0000+00	2.5310+00	3.5310+00	3.8941+01	2.5627-06
-5.8+00	1.0000+00	2.5310+00	3.5310+00	3.8480+01	4.0616-06
-5.6+00	1.0000+00	2.5310+00	3.5310+00	3.8020+01	6.4372-06
-5.4+00	1.0000+00	2.5310+00	3.5310+00	3.7559+01	1.0202-05
-5.2+00	1.0000+00	2.5310+00	3.5310+00	3.7099+01	1.6170-05
-5.0+00	1.0000+00	2.5310+00	3.5310+00	3.6638+01	2.5627-05
-4.8+00	1.0000+00	2.5310+00	3.5310+00	3.6178+01	4.0616-05
-4.6+00	1.0000+00	2.5310+00	3.5310+00	3.5717+01	6.4372-05
-4.4+00	1.0000+00	2.5310+00	3.5310+00	3.5257+01	1.0202-04
-4.2+00	1.0000+00	2.5310+00	3.5310+00	3.4796+01	1.6170-04
-4.0+00	1.0000+00	2.5310+00	3.5310+00	3.4336+01	2.5627-04
-3.8+00	1.0000+00	2.5310+00	3.5310+00	3.3875+01	4.0616-04
-3.6+00	1.0000+00	2.5310+00	3.5310+00	3.3415+01	6.4372-04
-3.4+00	1.0000+00	2.5310+00	3.5310+00	3.2954+01	1.0202-03
-3.2+00	1.0000+00	2.5310+00	3.5310+00	3.2494+01	1.6170-03
-3.0+00	1.0000+00	2.5310+00	3.5310+00	3.2033+01	2.5627-03
-2.8+00	1.0000+00	2.5310+00	3.5310+00	3.1573+01	4.0616-03
-2.6+00	1.0000+00	2.5310+00	3.5310+00	3.1112+01	6.4372-03
-2.4+00	1.0000+00	2.5310+00	3.5310+00	3.0651+01	1.0208-02
-2.2+00	1.0000+00	2.5310+00	3.5310+00	3.0191+01	1.6178-02
-2.0+00	1.0001+00	2.5309+00	3.5310+00	2.9730+01	2.5641-02
-1.8+00	1.0001+00	2.5309+00	3.5310+00	2.9270+01	4.0638-02
-1.6+00	1.0002+00	2.5308+00	3.5310+00	2.8809+01	6.4407-02
-1.4+00	1.0002+00	2.5308+00	3.5310+00	2.8349+01	1.0208-01
-1.2+00	1.0003+00	2.5307+00	3.5310+00	2.7888+01	1.6179-01
-1.0+00	1.0004+00	2.5306+00	3.5310+00	2.7427+01	2.5642-01
-8.0-01	1.0005+00	2.5305+00	3.5310+00	2.6967+01	4.0641-01
-6.0-01	1.0007+00	2.5303+00	3.5310+00	2.6506+01	6.4416-01
-4.0-01	1.0009+00	2.5301+00	3.5310+00	2.5967+01	1.0212+00
-2.0-01	1.0012+00	2.5298+00	3.5310+00	2.5506+01	1.6189+00
0.0	1.0016+00	2.5295+00	3.5311+00	2.5046+01	2.5667+00
2.0-01	1.0022+00	2.5290+00	3.5312+00	2.4583+01	4.0706+00
4.0-01	1.0032+00	2.5281+00	3.5313+00	2.4119+01	6.4577+00
6.0-01	1.0048+00	2.5267+00	3.5315+00	2.3654+01	1.0251+01
8.0-01	1.0073+00	2.5243+00	3.5316+00	2.3191+01	1.6288+01
1.0+00	1.0114+00	2.5205+00	3.5319+00	2.2724+01	2.5918+01
1.2+00	1.0180+00	2.5144+00	3.5324+00	2.2250+01	4.1347+01
1.4+00	1.0290+00	2.5056+00	3.5346+00	2.1768+01	6.6239+01

T = 750 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5525+00	3.5525+00	4.1431+01	2.7458-07
-6.8+00	1.0000+00	2.5525+00	3.5525+00	4.0971+01	4.3517-07
-6.6+00	1.0000+00	2.5525+00	3.5525+00	4.0510+01	6.8970-07
-6.4+00	1.0000+00	2.5525+00	3.5525+00	4.0050+01	1.0931-06
-6.2+00	1.0000+00	2.5525+00	3.5525+00	3.9589+01	1.7325-06
-6.0+00	1.0000+00	2.5525+00	3.5525+00	3.9129+01	2.7458-06
-5.8+00	1.0000+00	2.5525+00	3.5525+00	3.8668+01	4.3517-06
-5.6+00	1.0000+00	2.5525+00	3.5525+00	3.8208+01	6.8970-06
-5.4+00	1.0000+00	2.5525+00	3.5525+00	3.7747+01	1.0931-05
-5.2+00	1.0000+00	2.5525+00	3.5525+00	3.7287+01	1.7325-05
-5.0+00	1.0000+00	2.5525+00	3.5525+00	3.6826+01	2.7458-05
-4.8+00	1.0000+00	2.5525+00	3.5525+00	3.6365+01	4.3517-05
-4.6+00	1.0000+00	2.5525+00	3.5525+00	3.5905+01	6.8970-05
-4.4+00	1.0000+00	2.5525+00	3.5525+00	3.5444+01	1.0931-04
-4.2+00	1.0000+00	2.5525+00	3.5525+00	3.4984+01	1.7325-04
-4.0+00	1.0000+00	2.5525+00	3.5525+00	3.4523+01	2.7458-04
-3.8+00	1.0000+00	2.5525+00	3.5525+00	3.4063+01	4.3517-04
-3.6+00	1.0000+00	2.5525+00	3.5525+00	3.3602+01	6.8970-04
-3.4+00	1.0000+00	2.5525+00	3.5525+00	3.3142+01	1.0931-03
-3.2+00	1.0000+00	2.5525+00	3.5525+00	3.2681+01	1.7325-03
-3.0+00	1.0000+00	2.5525+00	3.5525+00	3.2221+01	2.7458-03
-2.8+00	1.0000+00	2.5525+00	3.5525+00	3.1760+01	4.3517-03
-2.6+00	1.0000+00	2.5525+00	3.5525+00	3.1300+01	6.8970-03
-2.4+00	1.0000+00	2.5525+00	3.5525+00	3.0839+01	1.0937-02
-2.2+00	1.0001+00	2.5524+00	3.5525+00	3.0378+01	1.7334-02
-2.0+00	1.0001+00	2.5524+00	3.5525+00	2.9918+01	2.7473-02
-1.8+00	1.0001+00	2.5524+00	3.5525+00	2.9457+01	4.3541-02
-1.6+00	1.0002+00	2.5523+00	3.5525+00	2.8997+01	6.9008-02
-1.4+00	1.0002+00	2.5523+00	3.5525+00	2.8536+01	1.0937-01
-1.2+00	1.0003+00	2.5523+00	3.5526+00	2.8076+01	1.7334-01
-1.0+00	1.0004+00	2.5522+00	3.5526+00	2.7615+01	2.7474-01
-8.0-01	1.0005+00	2.5521+00	3.5526+00	2.7154+01	4.3545-01
-6.0-01	1.0007+00	2.5519+00	3.5526+00	2.6694+01	6.9019-01
-4.0-01	1.0009+00	2.5518+00	3.5527+00	2.6233+01	1.0941+00
-2.0-01	1.0012+00	2.5516+00	3.5528+00	2.5771+01	1.7350+00
0.0	1.0016+00	2.5514+00	3.5530+00	2.5310+01	2.7509+00
2.0-01	1.0023+00	2.5509+00	3.5532+00	2.4849+01	4.3625+00
4.0-01	1.0033+00	2.5503+00	3.5536+00	2.4387+01	6.9200+00
6.0-01	1.0051+00	2.5492+00	3.5543+00	2.3922+01	1.0996+01
8.0-01	1.0078+00	2.5476+00	3.5554+00	2.3453+01	1.7530+01
1.0+00	1.0122+00	2.5449+00	3.5571+00	2.2987+01	2.7885+01
1.2+00	1.0204+00	2.5395+00	3.5599+00	2.2518+01	4.4407+01
1.4+00	1.0328+00	2.5320+00	3.5648+00	2.2041+01	7.1122+01

T = 800 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5655+00	3.5655+00	4.1609+01	2.9288-07
-6.8+00	1.0000+00	2.5655+00	3.5655+00	4.1149+01	4.6418-07
-6.6+00	1.0000+00	2.5655+00	3.5655+00	4.0688+01	7.3568-07
-6.4+00	1.0000+00	2.5655+00	3.5655+00	4.0228+01	1.1660-06
-6.2+00	1.0000+00	2.5655+00	3.5655+00	3.9767+01	1.8479-06
-6.0+00	1.0000+00	2.5655+00	3.5655+00	3.9307+01	2.9288-06
-5.8+00	1.0000+00	2.5655+00	3.5655+00	3.8846+01	4.6418-06
-5.6+00	1.0000+00	2.5655+00	3.5655+00	3.8386+01	7.3568-06
-5.4+00	1.0000+00	2.5655+00	3.5655+00	3.7925+01	1.1660-05
-5.2+00	1.0000+00	2.5655+00	3.5655+00	3.7465+01	1.8479-05
-5.0+00	1.0000+00	2.5655+00	3.5655+00	3.7004+01	2.9288-05
-4.8+00	1.0000+00	2.5655+00	3.5655+00	3.6544+01	4.6418-05
-4.6+00	1.0000+00	2.5655+00	3.5655+00	3.6083+01	7.3568-05
-4.4+00	1.0000+00	2.5655+00	3.5655+00	3.5623+01	1.1660-04
-4.2+00	1.0000+00	2.5655+00	3.5655+00	3.5162+01	1.8479-04
-4.0+00	1.0000+00	2.5655+00	3.5655+00	3.4702+01	2.9288-04
-3.8+00	1.0000+00	2.5655+00	3.5655+00	3.4241+01	4.6418-04
-3.6+00	1.0000+00	2.5655+00	3.5655+00	3.3781+01	7.3568-04
-3.4+00	1.0000+00	2.5655+00	3.5655+00	3.3320+01	1.1660-03
-3.2+00	1.0000+00	2.5655+00	3.5655+00	3.2860+01	1.8479-03
-3.0+00	1.0000+00	2.5655+00	3.5655+00	3.2399+01	2.9288-03
-2.8+00	1.0000+00	2.5655+00	3.5655+00	3.1938+01	4.6418-03
-2.6+00	1.0000+00	2.5655+00	3.5655+00	3.1478+01	7.3568-03
-2.4+00	1.0000+00	2.5655+00	3.5655+00	3.1016+01	1.1674-02
-2.2+00	1.0001+00	2.5654+00	3.5655+00	3.0556+01	1.8499-02
-2.0+00	1.0001+00	2.5654+00	3.5655+00	3.0096+01	2.9313-02
-1.8+00	1.0001+00	2.5654+00	3.5655+00	2.9635+01	4.6451-02
-1.6+00	1.0002+00	2.5653+00	3.5655+00	2.9175+01	7.3606-02
-1.4+00	1.0003+00	2.5652+00	3.5655+00	2.8714+01	1.1665-01
-1.2+00	1.0003+00	2.5653+00	3.5656+00	2.8254+01	1.8488-01
-1.0+00	1.0004+00	2.5652+00	3.5656+00	2.7793+01	2.9303-01
-8.0-01	1.0006+00	2.5650+00	3.5656+00	2.7333+01	4.6446-01
-6.0-01	1.0007+00	2.5650+00	3.5657+00	2.6872+01	7.3620-01
-4.0-01	1.0009+00	2.5648+00	3.5657+00	2.6411+01	1.1671+00
-2.0-01	1.0012+00	2.5647+00	3.5659+00	2.5950+01	1.8508+00
0.0	1.0017+00	2.5644+00	3.5661+00	2.5489+01	2.9343+00
2.0-01	1.0024+00	2.5640+00	3.5664+00	2.5027+01	4.6535+00
4.0-01	1.0035+00	2.5634+00	3.5669+00	2.4565+01	7.3823+00
6.0-01	1.0053+00	2.5625+00	3.5678+00	2.4100+01	1.1738+01
8.0-01	1.0082+00	2.5609+00	3.5691+00	2.3632+01	1.8704+01
1.0+00	1.0128+00	2.5584+00	3.5712+00	2.3166+01	2.9744+01
1.2+00	1.0216+00	2.5531+00	3.5747+00	2.2696+01	4.7419+01
1.4+00	1.0334+00	2.5473+00	3.5807+00	2.2219+01	7.5989+01

T = 850 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5805+00	3.5805+00	4.1774+01	3.1119-07
-6.8+00	1.0000+00	2.5805+00	3.5805+00	4.1313+01	4.9319-07
-6.6+00	1.0000+00	2.5805+00	3.5805+00	4.0853+01	7.8166-07
-6.4+00	1.0000+00	2.5805+00	3.5805+00	4.0392+01	1.2388-06
-6.2+00	1.0000+00	2.5805+00	3.5805+00	3.9932+01	1.9634-06
-6.0+00	1.0000+00	2.5805+00	3.5805+00	3.9471+01	3.1119-06
-5.8+00	1.0000+00	2.5805+00	3.5805+00	3.9011+01	4.9319-06
-5.6+00	1.0000+00	2.5805+00	3.5805+00	3.8550+01	7.8166-06
-5.4+00	1.0000+00	2.5805+00	3.5805+00	3.8089+01	1.2388-05
-5.2+00	1.0000+00	2.5805+00	3.5805+00	3.7629+01	1.9634-05
-5.0+00	1.0000+00	2.5805+00	3.5805+00	3.7168+01	3.1119-05
-4.8+00	1.0000+00	2.5805+00	3.5805+00	3.6708+01	4.9319-05
-4.6+00	1.0000+00	2.5805+00	3.5805+00	3.6247+01	7.8166-05
-4.4+00	1.0000+00	2.5805+00	3.5805+00	3.5787+01	1.2388-04
-4.2+00	1.0000+00	2.5805+00	3.5805+00	3.5326+01	1.9634-04
-4.0+00	1.0000+00	2.5805+00	3.5805+00	3.4866+01	3.1119-04
-3.8+00	1.0000+00	2.5805+00	3.5805+00	3.4405+01	4.9319-04
-3.6+00	1.0000+00	2.5805+00	3.5805+00	3.3945+01	7.8166-04
-3.4+00	1.0000+00	2.5805+00	3.5805+00	3.3484+01	1.2388-03
-3.2+00	1.0000+00	2.5805+00	3.5805+00	3.3024+01	1.9634-03
-3.0+00	1.0000+00	2.5805+00	3.5805+00	3.2563+01	3.1119-03
-2.8+00	1.0000+00	2.5805+00	3.5805+00	3.2103+01	4.9319-03
-2.6+00	1.0000+00	2.5805+00	3.5805+00	3.1642+01	7.8166-03
-2.4+00	1.0000+00	2.5805+00	3.5805+00	3.1181+01	1.2401-02
-2.2+00	1.0001+00	2.5804+00	3.5805+00	3.0720+01	1.9652-02
-2.0+00	1.0001+00	2.5804+00	3.5805+00	3.0260+01	3.1143-02
-1.8+00	1.0002+00	2.5803+00	3.5805+00	2.9799+01	4.9352-02
-1.6+00	1.0002+00	2.5803+00	3.5805+00	2.9339+01	7.8208-02
-1.4+00	1.0003+00	2.5802+00	3.5805+00	2.8879+01	1.2395-01
-1.2+00	1.0004+00	2.5801+00	3.5805+00	2.8418+01	1.9645-01
-1.0+00	1.0004+00	2.5802+00	3.5806+00	2.7957+01	3.1135-01
-8.0-01	1.0006+00	2.5800+00	3.5806+00	2.7497+01	4.9349-01
-6.0-01	1.0007+00	2.5800+00	3.5807+00	2.7036+01	7.8224-01
-4.0-01	1.0009+00	2.5799+00	3.5808+00	2.6575+01	1.2402+00
-2.0-01	1.0013+00	2.5796+00	3.5809+00	2.6114+01	1.9666+00
0.0	1.0018+00	2.5793+00	3.5811+00	2.5653+01	3.1178+00
2.0-01	1.0025+00	2.5790+00	3.5815+00	2.5191+01	4.9444+00
4.0-01	1.0036+00	2.5785+00	3.5821+00	2.4729+01	7.8446+00
6.0-01	1.0054+00	2.5777+00	3.5831+00	2.4265+01	1.2479+01
8.0-01	1.0081+00	2.5766+00	3.5847+00	2.3801+01	1.9877+01
1.0+00	1.0128+00	2.5743+00	3.5871+00	2.3339+01	3.1597+01
1.2+00	1.0218+00	2.5694+00	3.5912+00	2.2866+01	5.0421+01
1.4+00	1.0342+00	2.5638+00	3.5980+00	2.2383+01	8.0835+01

T = 900 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.5938+00	3.5938+00	4.1941+01	3.2949-07
-6.8+00	1.0000+00	2.5938+00	3.5938+00	4.1481+01	5.2221-07
-6.6+00	1.0000+00	2.5938+00	3.5938+00	4.1020+01	8.2764-07
-6.4+00	1.0000+00	2.5938+00	3.5938+00	4.0560+01	1.3117-06
-6.2+00	1.0000+00	2.5938+00	3.5938+00	4.0099+01	2.0789-06
-6.0+00	1.0000+00	2.5938+00	3.5938+00	3.9639+01	3.2949-06
-5.8+00	1.0000+00	2.5938+00	3.5938+00	3.9178+01	5.2221-06
-5.6+00	1.0000+00	2.5938+00	3.5938+00	3.8718+01	8.2764-06
-5.4+00	1.0000+00	2.5938+00	3.5938+00	3.8257+01	1.3117-05
-5.2+00	1.0000+00	2.5938+00	3.5938+00	3.7797+01	2.0789-05
-5.0+00	1.0000+00	2.5938+00	3.5938+00	3.7336+01	3.2949-05
-4.8+00	1.0000+00	2.5938+00	3.5938+00	3.6876+01	5.2221-05
-4.6+00	1.0000+00	2.5938+00	3.5938+00	3.6415+01	8.2764-05
-4.4+00	1.0000+00	2.5938+00	3.5938+00	3.5955+01	1.3117-04
-4.2+00	1.0000+00	2.5938+00	3.5938+00	3.5494+01	2.0789-04
-4.0+00	1.0000+00	2.5938+00	3.5938+00	3.5034+01	3.2949-04
-3.8+00	1.0000+00	2.5938+00	3.5938+00	3.4573+01	5.2221-04
-3.6+00	1.0000+00	2.5938+00	3.5938+00	3.4113+01	8.2764-04
-3.4+00	1.0000+00	2.5938+00	3.5938+00	3.3652+01	1.3117-03
-3.2+00	1.0000+00	2.5938+00	3.5938+00	3.3192+01	2.0789-03
-3.0+00	1.0000+00	2.5938+00	3.5938+00	3.2731+01	3.2949-03
-2.8+00	1.0000+00	2.5938+00	3.5938+00	3.2270+01	5.2221-03
-2.6+00	1.0000+00	2.5938+00	3.5938+00	3.1810+01	8.2764-03
-2.4+00	1.0000+00	2.5938+00	3.5938+00	3.1348+01	1.3137-02
-2.2+00	1.0001+00	2.5937+00	3.5938+00	3.0888+01	2.0815-02
-2.0+00	1.0001+00	2.5937+00	3.5938+00	3.0427+01	3.2981-02
-1.8+00	1.0002+00	2.5936+00	3.5938+00	2.9967+01	5.2257-02
-1.6+00	1.0002+00	2.5936+00	3.5938+00	2.9507+01	8.2800-02
-1.4+00	1.0003+00	2.5936+00	3.5939+00	2.9046+01	1.3122-01
-1.2+00	1.0004+00	2.5935+00	3.5939+00	2.8586+01	2.0799-01
-1.0+00	1.0005+00	2.5934+00	3.5939+00	2.8125+01	3.2967-01
-8.0-01	1.0006+00	2.5934+00	3.5940+00	2.7665+01	5.2254-01
-6.0-01	1.0007+00	2.5933+00	3.5940+00	2.7204+01	8.2826-01
-4.0-01	1.0010+00	2.5931+00	3.5941+00	2.6743+01	1.3132+00
-2.0-01	1.0013+00	2.5930+00	3.5943+00	2.6282+01	2.0822+00
0.0	1.0018+00	2.5928+00	3.5946+00	2.5821+01	3.3013+00
2.0-01	1.0026+00	2.5924+00	3.5950+00	2.5359+01	5.2355+00
4.0-01	1.0036+00	2.5921+00	3.5957+00	2.4897+01	8.3065+00
6.0-01	1.0053+00	2.5915+00	3.5968+00	2.4431+01	1.3219+01
8.0-01	1.0080+00	2.5906+00	3.5986+00	2.3965+01	2.1047+01
1.0+00	1.0130+00	2.5884+00	3.6014+00	2.3500+01	3.3450+01
1.2+00	1.0226+00	2.5834+00	3.6060+00	2.3029+01	5.3407+01
1.4+00	1.0348+00	2.5789+00	3.6137+00	2.2552+01	8.5646+01

T = 950 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.6098+00	3.6098+00	4.2092+01	3.4780-07
-6.8+00	1.0000+00	2.6098+00	3.6098+00	4.1632+01	5.5122-07
-6.6+00	1.0000+00	2.6098+00	3.6098+00	4.1171+01	8.7362-07
-6.4+00	1.0000+00	2.6098+00	3.6098+00	4.0711+01	1.3846-06
-6.2+00	1.0000+00	2.6098+00	3.6098+00	4.0250+01	2.1944-06
-6.0+00	1.0000+00	2.6098+00	3.6098+00	3.9790+01	3.4780-06
-5.8+00	1.0000+00	2.6098+00	3.6098+00	3.9329+01	5.5122-06
-5.6+00	1.0000+00	2.6098+00	3.6098+00	3.8869+01	8.7362-06
-5.4+00	1.0000+00	2.6098+00	3.6098+00	3.8408+01	1.3846-05
-5.2+00	1.0000+00	2.6098+00	3.6098+00	3.7948+01	2.1944-05
-5.0+00	1.0000+00	2.6098+00	3.6098+00	3.7487+01	3.4780-05
-4.8+00	1.0000+00	2.6098+00	3.6098+00	3.7027+01	5.5122-05
-4.6+00	1.0000+00	2.6098+00	3.6098+00	3.6566+01	8.7362-05
-4.4+00	1.0000+00	2.6098+00	3.6098+00	3.6106+01	1.3846-04
-4.2+00	1.0000+00	2.6098+00	3.6098+00	3.5645+01	2.1944-04
-4.0+00	1.0000+00	2.6098+00	3.6098+00	3.5185+01	3.4780-04
-3.8+00	1.0000+00	2.6098+00	3.6098+00	3.4724+01	5.5122-04
-3.6+00	1.0000+00	2.6098+00	3.6098+00	3.4264+01	8.7362-04
-3.4+00	1.0000+00	2.6098+00	3.6098+00	3.3803+01	1.3846-03
-3.2+00	1.0000+00	2.6098+00	3.6098+00	3.3343+01	2.1944-03
-3.0+00	1.0000+00	2.6098+00	3.6098+00	3.2882+01	3.4780-03
-2.8+00	1.0000+00	2.6098+00	3.6098+00	3.2422+01	5.5122-03
-2.6+00	1.0000+00	2.6098+00	3.6098+00	3.1961+01	8.7362-03
-2.4+00	1.0000+00	2.6098+00	3.6098+00	3.1499+01	1.3869-02
-2.2+00	1.0001+00	2.6097+00	3.6098+00	3.1039+01	2.1974-02
-2.0+00	1.0001+00	2.6097+00	3.6098+00	3.0578+01	3.4817-02
-1.8+00	1.0002+00	2.6096+00	3.6098+00	3.0118+01	5.5166-02
-1.6+00	1.0002+00	2.6096+00	3.6098+00	2.9658+01	8.7408-02
-1.4+00	1.0003+00	2.6095+00	3.6098+00	2.9198+01	1.3852-01
-1.2+00	1.0004+00	2.6094+00	3.6098+00	2.8737+01	2.1955-01
-1.0+00	1.0005+00	2.6093+00	3.6098+00	2.8276+01	3.4797-01
-8.0-01	1.0006+00	2.6093+00	3.6099+00	2.7816+01	5.5156-01
-6.0-01	1.0007+00	2.6093+00	3.6100+00	2.7355+01	8.7428-01
-4.0-01	1.0010+00	2.6091+00	3.6101+00	2.6894+01	1.3862+00
-2.0-01	1.0014+00	2.6089+00	3.6103+00	2.6433+01	2.1979+00
0.0	1.0019+00	2.6087+00	3.6106+00	2.5972+01	3.4848+00
2.0-01	1.0026+00	2.6084+00	3.6110+00	2.5510+01	5.5265+00
4.0-01	1.0037+00	2.6081+00	3.6118+00	2.5048+01	8.7686+00
6.0-01	1.0054+00	2.6076+00	3.6130+00	2.4582+01	1.3960+01
8.0-01	1.0082+00	2.6068+00	3.6150+00	2.4116+01	2.2216+01
1.0+00	1.0134+00	2.6046+00	3.6180+00	2.3652+01	3.5299+01
1.2+00	1.0230+00	2.6001+00	3.6231+00	2.3181+01	5.6389+01
1.4+00	1.0353+00	2.5961+00	3.6314+00	2.2704+01	9.0454+01

T = 1000 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.6241+00	3.6241+00	4.2246+01	3.6610-07
-6.8+00	1.0000+00	2.6241+00	3.6241+00	4.1786+01	5.8023-07
-6.6+00	1.0000+00	2.6241+00	3.6241+00	4.1325+01	9.1960-07
-6.4+00	1.0000+00	2.6241+00	3.6241+00	4.0865+01	1.4575-06
-6.2+00	1.0000+00	2.6241+00	3.6241+00	4.0404+01	2.3099-06
-6.0+00	1.0000+00	2.6241+00	3.6241+00	3.9944+01	3.6610-06
-5.8+00	1.0000+00	2.6241+00	3.6241+00	3.9483+01	5.8023-06
-5.6+00	1.0000+00	2.6241+00	3.6241+00	3.9023+01	9.1960-06
-5.4+00	1.0000+00	2.6241+00	3.6241+00	3.8562+01	1.4575-05
-5.2+00	1.0000+00	2.6241+00	3.6241+00	3.8102+01	2.3099-05
-5.0+00	1.0000+00	2.6241+00	3.6241+00	3.7641+01	3.6610-05
-4.8+00	1.0000+00	2.6241+00	3.6241+00	3.7181+01	5.8023-05
-4.6+00	1.0000+00	2.6241+00	3.6241+00	3.6720+01	9.1960-05
-4.4+00	1.0000+00	2.6241+00	3.6241+00	3.6260+01	1.4575-04
-4.2+00	1.0000+00	2.6241+00	3.6241+00	3.5799+01	2.3099-04
-4.0+00	1.0000+00	2.6241+00	3.6241+00	3.5339+01	3.6610-04
-3.8+00	1.0000+00	2.6241+00	3.6241+00	3.4878+01	5.8023-04
-3.6+00	1.0000+00	2.6241+00	3.6241+00	3.4418+01	9.1960-04
-3.4+00	1.0000+00	2.6241+00	3.6241+00	3.3957+01	1.4575-03
-3.2+00	1.0000+00	2.6241+00	3.6241+00	3.3497+01	2.3099-03
-3.0+00	1.0000+00	2.6241+00	3.6241+00	3.3036+01	3.6610-03
-2.8+00	1.0000+00	2.6241+00	3.6241+00	3.2576+01	5.8023-03
-2.6+00	1.0000+00	2.6241+00	3.6241+00	3.2115+01	9.1960-03
-2.4+00	1.0000+00	2.6241+00	3.6241+00	3.1654+01	1.4583-02
-2.2+00	1.0001+00	2.6240+00	3.6241+00	3.1194+01	2.3112-02
-2.0+00	1.0001+00	2.6240+00	3.6241+00	3.0733+01	3.6630-02
-1.8+00	1.0002+00	2.6239+00	3.6241+00	3.0272+01	5.8055-02
-1.6+00	1.0002+00	2.6239+00	3.6241+00	2.9812+01	9.2011-02
-1.4+00	1.0003+00	2.6238+00	3.6241+00	2.9351+01	1.4583-01
-1.2+00	1.0004+00	2.6238+00	3.6242+00	2.8891+01	2.3112-01
-1.0+00	1.0005+00	2.6237+00	3.6242+00	2.8430+01	3.6630-01
-8.0-01	1.0006+00	2.6237+00	3.6243+00	2.7970+01	5.8059-01
-6.0-01	1.0007+00	2.6237+00	3.6244+00	2.7509+01	9.2028-01
-4.0-01	1.0010+00	2.6235+00	3.6245+00	2.7048+01	1.4592+00
-2.0-01	1.0014+00	2.6233+00	3.6247+00	2.6587+01	2.3136+00
0.0	1.0019+00	2.6231+00	3.6250+00	2.6126+01	3.6682+00
2.0-01	1.0026+00	2.6229+00	3.6255+00	2.5664+01	5.8175+00
4.0-01	1.0038+00	2.6225+00	3.6263+00	2.5202+01	9.2306+00
6.0-01	1.0054+00	2.6222+00	3.6276+00	2.4736+01	1.4700+01
8.0-01	1.0085+00	2.6212+00	3.6297+00	2.4271+01	2.3384+01
1.0+00	1.0138+00	2.6192+00	3.6330+00	2.3807+01	3.7147+01
1.2+00	1.0235+00	2.6150+00	3.6385+00	2.3335+01	5.9389+01
1.4+00	1.0356+00	2.6119+00	3.6475+00	2.2859+01	9.5238+01

Contrails

AEDC-TDR-62-170

 $T = 1100 \text{ }^{\circ}\text{K}$

$\log (\rho/\rho_0)$	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.6552+00	3.6552+00	4.2529+01	4.0271-07
-6.8+00	1.0000+00	2.6552+00	3.6552+00	4.2069+01	6.3825-07
-6.6+00	1.0000+00	2.6552+00	3.6552+00	4.1608+01	1.0116-06
-6.4+00	1.0000+00	2.6552+00	3.6552+00	4.1148+01	1.6032-06
-6.2+00	1.0000+00	2.6552+00	3.6552+00	4.0687+01	2.5409-06
-6.0+00	1.0000+00	2.6552+00	3.6552+00	4.0226+01	4.0271-06
-5.8+00	1.0000+00	2.6552+00	3.6552+00	3.9766+01	6.3825-06
-5.6+00	1.0000+00	2.6552+00	3.6552+00	3.9305+01	1.0116-05
-5.4+00	1.0000+00	2.6552+00	3.6552+00	3.8845+01	1.6032-05
-5.2+00	1.0000+00	2.6552+00	3.6552+00	3.8384+01	2.5409-05
-5.0+00	1.0000+00	2.6552+00	3.6552+00	3.7924+01	4.0271-05
-4.8+00	1.0000+00	2.6552+00	3.6552+00	3.7463+01	6.3825-05
-4.6+00	1.0000+00	2.6552+00	3.6552+00	3.7003+01	1.0116-04
-4.4+00	1.0000+00	2.6552+00	3.6552+00	3.6542+01	1.6032-04
-4.2+00	1.0000+00	2.6552+00	3.6552+00	3.6082+01	2.5409-04
-4.0+00	1.0000+00	2.6552+00	3.6552+00	3.5621+01	4.0271-04
-3.8+00	1.0000+00	2.6552+00	3.6552+00	3.5161+01	6.3825-04
-3.6+00	1.0000+00	2.6552+00	3.6552+00	3.4700+01	1.0116-03
-3.4+00	1.0000+00	2.6552+00	3.6552+00	3.4240+01	1.6032-03
-3.2+00	1.0000+00	2.6552+00	3.6552+00	3.3779+01	2.5409-03
-3.0+00	1.0000+00	2.6552+00	3.6552+00	3.3319+01	4.0271-03
-2.8+00	1.0000+00	2.6552+00	3.6552+00	3.2858+01	6.3825-03
-2.6+00	1.0000+00	2.6552+00	3.6552+00	3.2396+01	1.0129-02
-2.4+00	1.0000+00	2.6552+00	3.6552+00	3.1936+01	1.6050-02
-2.2+00	1.0001+00	2.6551+00	3.6552+00	3.1476+01	2.5434-02
-2.0+00	1.0001+00	2.6551+00	3.6552+00	3.1015+01	4.0303-02
-1.8+00	1.0002+00	2.6550+00	3.6552+00	3.0555+01	6.3866-02
-1.6+00	1.0002+00	2.6550+00	3.6552+00	3.0095+01	1.0120-01
-1.4+00	1.0003+00	2.6549+00	3.6552+00	2.9634+01	1.6040-01
-1.2+00	1.0004+00	2.6549+00	3.6553+00	2.9174+01	2.5423-01
-1.0+00	1.0005+00	2.6548+00	3.6553+00	2.8713+01	4.0294-01
-8.0-01	1.0007+00	2.6547+00	3.6554+00	2.8252+01	6.3866-01
-6.0-01	1.0008+00	2.6547+00	3.6555+00	2.7792+01	1.0123+00
-4.0-01	1.0011+00	2.6545+00	3.6556+00	2.7331+01	1.6052+00
-2.0-01	1.0014+00	2.6544+00	3.6558+00	2.6870+01	2.5449+00
0.0	1.0019+00	2.6543+00	3.6562+00	2.6409+01	4.0351+00
2.0-01	1.0026+00	2.6542+00	3.6568+00	2.5947+01	6.3993+00
4.0-01	1.0039+00	2.6538+00	3.6577+00	2.5485+01	1.0156+01
6.0-01	1.0057+00	2.6535+00	3.6592+00	2.5019+01	1.6175+01
8.0-01	1.0088+00	2.6527+00	3.6615+00	2.4554+01	2.5716+01
1.0+00	1.0145+00	2.6507+00	3.6652+00	2.4090+01	4.0852+01
1.2+00	1.0239+00	2.6475+00	3.6714+00	2.3619+01	6.5306+01

T = 1200 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.6863+00	3.6863+00	4.2792+01	4.3932-07
-6.8+00	1.0000+00	2.6863+00	3.6863+00	4.2332+01	6.9628-07
-6.6+00	1.0000+00	2.6863+00	3.6863+00	4.1871+01	1.1035-06
-6.4+00	1.0000+00	2.6863+00	3.6863+00	4.1411+01	1.7490-06
-6.2+00	1.0000+00	2.6863+00	3.6863+00	4.0950+01	2.7719-06
-6.0+00	1.0000+00	2.6863+00	3.6863+00	4.0490+01	4.3932-06
-5.8+00	1.0000+00	2.6863+00	3.6863+00	4.0029+01	6.9628-06
-5.6+00	1.0000+00	2.6863+00	3.6863+00	3.9569+01	1.1035-05
-5.4+00	1.0000+00	2.6863+00	3.6863+00	3.9108+01	1.7490-05
-5.2+00	1.0000+00	2.6863+00	3.6863+00	3.8648+01	2.7719-05
-5.0+00	1.0000+00	2.6863+00	3.6863+00	3.8187+01	4.3932-05
-4.8+00	1.0000+00	2.6863+00	3.6863+00	3.7727+01	6.9628-05
-4.6+00	1.0000+00	2.6863+00	3.6863+00	3.7266+01	1.1035-04
-4.4+00	1.0000+00	2.6863+00	3.6863+00	3.6806+01	1.7490-04
-4.2+00	1.0000+00	2.6863+00	3.6863+00	3.6345+01	2.7719-04
-4.0+00	1.0000+00	2.6863+00	3.6863+00	3.5885+01	4.3932-04
-3.8+00	1.0000+00	2.6863+00	3.6863+00	3.5424+01	6.9628-04
-3.6+00	1.0000+00	2.6863+00	3.6863+00	3.4964+01	1.1035-03
-3.4+00	1.0000+00	2.6863+00	3.6863+00	3.4503+01	1.7490-03
-3.2+00	1.0000+00	2.6863+00	3.6863+00	3.4043+01	2.7719-03
-3.0+00	1.0000+00	2.6863+00	3.6863+00	3.3582+01	4.3932-03
-2.8+00	1.0000+00	2.6863+00	3.6863+00	3.3122+01	6.9628-03
-2.6+00	1.0000+00	2.6863+00	3.6863+00	3.2663+01	1.1018-02
-2.4+00	1.0001+00	2.6862+00	3.6863+00	3.2202+01	1.7470-02
-2.2+00	1.0001+00	2.6862+00	3.6863+00	3.1741+01	2.7700-02
-2.0+00	1.0001+00	2.6862+00	3.6863+00	3.1280+01	4.3922-02
-1.8+00	1.0002+00	2.6861+00	3.6863+00	3.0819+01	6.9642-02
-1.6+00	1.0002+00	2.6861+00	3.6863+00	3.0358+01	1.1041-01
-1.4+00	1.0003+00	2.6860+00	3.6863+00	2.9897+01	1.7499-01
-1.2+00	1.0004+00	2.6859+00	3.6863+00	2.9437+01	2.7734-01
-1.0+00	1.0005+00	2.6859+00	3.6864+00	2.8976+01	4.3957-01
-8.0-01	1.0006+00	2.6858+00	3.6864+00	2.8516+01	6.9670-01
-6.0-01	1.0008+00	2.6858+00	3.6866+00	2.8055+01	1.1044+00
-4.0-01	1.0010+00	2.6857+00	3.6867+00	2.7594+01	1.7511+00
-2.0-01	1.0014+00	2.6856+00	3.6870+00	2.7133+01	2.7761+00
0.0	1.0020+00	2.6854+00	3.6874+00	2.6672+01	4.4019+00
2.0-01	1.0026+00	2.6854+00	3.6880+00	2.6211+01	6.9810+00
4.0-01	1.0039+00	2.6851+00	3.6890+00	2.5748+01	1.1087+01
6.0-01	1.0058+00	2.6848+00	3.6906+00	2.5282+01	1.7647+01
8.0-01	1.0091+00	2.6841+00	3.6932+00	2.4818+01	2.8045+01
1.0+00	1.0154+00	2.6818+00	3.6972+00	2.4353+01	4.4610+01
1.2+00	1.0242+00	2.6797+00	3.7039+00	2.3883+01	7.1249+01

T = 1300 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.7167+00	3.7167+00	4.3039+01	4.7593-07
-6.8+00	1.0000+00	2.7167+00	3.7167+00	4.2579+01	7.5430-07
-6.6+00	1.0000+00	2.7167+00	3.7167+00	4.2118+01	1.1955-06
-6.4+00	1.0000+00	2.7167+00	3.7167+00	4.1658+01	1.8947-06
-6.2+00	1.0000+00	2.7167+00	3.7167+00	4.1197+01	3.0029-06
-6.0+00	1.0000+00	2.7167+00	3.7167+00	4.0737+01	4.7593-06
-5.8+00	1.0000+00	2.7167+00	3.7167+00	4.0276+01	7.5430-06
-5.6+00	1.0000+00	2.7167+00	3.7167+00	3.9816+01	1.1955-05
-5.4+00	1.0000+00	2.7167+00	3.7167+00	3.9355+01	1.8947-05
-5.2+00	1.0000+00	2.7167+00	3.7167+00	3.8895+01	3.0029-05
-5.0+00	1.0000+00	2.7167+00	3.7167+00	3.8434+01	4.7593-05
-4.8+00	1.0000+00	2.7167+00	3.7167+00	3.7974+01	7.5430-05
-4.6+00	1.0000+00	2.7167+00	3.7167+00	3.7513+01	1.1955-04
-4.4+00	1.0000+00	2.7167+00	3.7167+00	3.7053+01	1.8947-04
-4.2+00	1.0000+00	2.7167+00	3.7167+00	3.6592+01	3.0029-04
-4.0+00	1.0000+00	2.7167+00	3.7167+00	3.6131+01	4.7593-04
-3.8+00	1.0000+00	2.7167+00	3.7167+00	3.5671+01	7.5430-04
-3.6+00	1.0000+00	2.7167+00	3.7167+00	3.5210+01	1.1955-03
-3.4+00	1.0000+00	2.7167+00	3.7167+00	3.4750+01	1.8947-03
-3.2+00	1.0000+00	2.7167+00	3.7167+00	3.4289+01	3.0029-03
-3.0+00	1.0000+00	2.7167+00	3.7167+00	3.3829+01	4.7593-03
-2.8+00	1.0000+00	2.7167+00	3.7167+00	3.3368+01	7.5430-03
-2.6+00	1.0000+00	2.7167+00	3.7167+00	3.2907+01	1.1961-02
-2.4+00	1.0001+00	2.7166+00	3.7167+00	3.2447+01	1.8957-02
-2.2+00	1.0001+00	2.7166+00	3.7167+00	3.1986+01	3.0046-02
-2.0+00	1.0001+00	2.7166+00	3.7167+00	3.1526+01	4.7619-02
-1.8+00	1.0002+00	2.7165+00	3.7167+00	3.1065+01	7.5471-02
-1.6+00	1.0002+00	2.7165+00	3.7167+00	3.0605+01	1.1961-01
-1.4+00	1.0003+00	2.7165+00	3.7168+00	3.0144+01	1.8957-01
-1.2+00	1.0004+00	2.7164+00	3.7168+00	2.9684+01	3.0046-01
-1.0+00	1.0005+00	2.7163+00	3.7168+00	2.9223+01	4.7620-01
-8.0-01	1.0006+00	2.7163+00	3.7169+00	2.8763+01	7.5477-01
-6.0-01	1.0008+00	2.7162+00	3.7170+00	2.8302+01	1.1965+00
-4.0-01	1.0010+00	2.7162+00	3.7172+00	2.7841+01	1.8971+00
-2.0-01	1.0014+00	2.7160+00	3.7174+00	2.7380+01	3.0074+00
0.0	1.0020+00	2.7159+00	3.7179+00	2.6919+01	4.7687+00
2.0-01	1.0027+00	2.7159+00	3.7186+00	2.6457+01	7.5633+00
4.0-01	1.0040+00	2.7157+00	3.7197+00	2.5994+01	1.2017+01
6.0-01	1.0059+00	2.7154+00	3.7213+00	2.5529+01	1.9119+01
8.0-01	1.0093+00	2.7148+00	3.7241+00	2.5066+01	3.0372+01
1.0+00	1.0159+00	2.7125+00	3.7284+00	2.4600+01	4.8351+01
1.2+00	1.0244+00	2.7111+00	3.7355+00	2.4130+01	7.7246+01

Contrails

AEDC-TDR-62-170

T = 1400 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.7462+00	3.7462+00	4.3271+01	5.1254-07
-6.8+00	1.0000+00	2.7462+00	3.7462+00	4.2811+01	8.1232-07
-6.6+00	1.0000+00	2.7462+00	3.7462+00	4.2350+01	1.2874-06
-6.4+00	1.0000+00	2.7462+00	3.7462+00	4.1890+01	2.0405-06
-6.2+00	1.0000+00	2.7462+00	3.7462+00	4.1429+01	3.2339-06
-6.0+00	1.0000+00	2.7462+00	3.7462+00	4.0969+01	5.1254-06
-5.8+00	1.0000+00	2.7462+00	3.7462+00	4.0508+01	8.1232-06
-5.6+00	1.0000+00	2.7462+00	3.7462+00	4.0047+01	1.2874-05
-5.4+00	1.0000+00	2.7462+00	3.7462+00	3.9587+01	2.0405-05
-5.2+00	1.0000+00	2.7462+00	3.7462+00	3.9126+01	3.2339-05
-5.0+00	1.0000+00	2.7462+00	3.7462+00	3.8666+01	5.1254-05
-4.8+00	1.0000+00	2.7462+00	3.7462+00	3.8205+01	8.1232-05
-4.6+00	1.0000+00	2.7462+00	3.7462+00	3.7745+01	1.2874-04
-4.4+00	1.0000+00	2.7462+00	3.7462+00	3.7284+01	2.0405-04
-4.2+00	1.0000+00	2.7462+00	3.7462+00	3.6824+01	3.2339-04
-4.0+00	1.0000+00	2.7462+00	3.7462+00	3.6363+01	5.1254-04
-3.8+00	1.0000+00	2.7462+00	3.7462+00	3.5903+01	8.1232-04
-3.6+00	1.0000+00	2.7462+00	3.7462+00	3.5442+01	1.2874-03
-3.4+00	1.0000+00	2.7462+00	3.7462+00	3.4982+01	2.0405-03
-3.2+00	1.0000+00	2.7462+00	3.7462+00	3.4521+01	3.2339-03
-3.0+00	1.0000+00	2.7462+00	3.7462+00	3.4061+01	5.1254-03
-2.8+00	1.0000+00	2.7462+00	3.7462+00	3.3600+01	8.1232-03
-2.6+00	1.0000+00	2.7462+00	3.7462+00	3.3139+01	1.2881-02
-2.4+00	1.0001+00	2.7461+00	3.7462+00	3.2679+01	2.0416-02
-2.2+00	1.0001+00	2.7461+00	3.7462+00	3.2218+01	3.2357-02
-2.0+00	1.0001+00	2.7461+00	3.7462+00	3.1758+01	5.1282-02
-1.8+00	1.0002+00	2.7460+00	3.7462+00	3.1297+01	8.1277-02
-1.6+00	1.0003+00	2.7459+00	3.7462+00	3.0837+01	1.2881-01
-1.4+00	1.0003+00	2.7460+00	3.7463+00	3.0376+01	2.0416-01
-1.2+00	1.0004+00	2.7459+00	3.7463+00	2.9916+01	3.2357-01
-1.0+00	1.0005+00	2.7459+00	3.7464+00	2.9455+01	5.1284-01
-8.0-01	1.0006+00	2.7458+00	3.7464+00	2.8994+01	8.1285-01
-6.0-01	1.0008+00	2.7458+00	3.7466+00	2.8534+01	1.2886+00
-4.0-01	1.0010+00	2.7457+00	3.7467+00	2.8073+01	2.0430+00
-2.0-01	1.0014+00	2.7456+00	3.7470+00	2.7612+01	3.2388+00
0.0	1.0020+00	2.7454+00	3.7474+00	2.7151+01	5.1354+00
2.0-01	1.0027+00	2.7455+00	3.7482+00	2.6689+01	8.1454+00
4.0-01	1.0040+00	2.7453+00	3.7493+00	2.6226+01	1.2947+01
6.0-01	1.0060+00	2.7451+00	3.7511+00	2.5761+01	2.0588+01
8.0-01	1.0095+00	2.7445+00	3.7540+00	2.5298+01	3.2697+01
1.0+00	1.0162+00	2.7424+00	3.7586+00	2.4832+01	5.2082+01
1.2+00	1.0245+00	2.7415+00	3.7660+00	2.4362+01	8.3218+01

T = 1500 °K

log (ρ/ρ_0)	Z	E/RT	H/RT	S/R	p, atm
-7.0+00	1.0000+00	2.7746+00	3.7746+00	4.3490+01	5.4915-07
-6.8+00	1.0000+00	2.7746+00	3.7746+00	4.3030+01	8.7034-07
-6.6+00	1.0000+00	2.7746+00	3.7746+00	4.2569+01	1.3794-06
-6.4+00	1.0000+00	2.7746+00	3.7746+00	4.2108+01	2.1862-06
-6.2+00	1.0000+00	2.7746+00	3.7746+00	4.1648+01	3.4649-06
-6.0+00	1.0000+00	2.7746+00	3.7746+00	4.1187+01	5.4915-06
-5.8+00	1.0000+00	2.7746+00	3.7746+00	4.0727+01	8.7034-06
-5.6+00	1.0000+00	2.7746+00	3.7746+00	4.0266+01	1.3794-05
-5.4+00	1.0000+00	2.7746+00	3.7746+00	3.9806+01	2.1862-05
-5.2+00	1.0000+00	2.7746+00	3.7746+00	3.9345+01	3.4649-05
-5.0+00	1.0000+00	2.7746+00	3.7746+00	3.8885+01	5.4915-05
-4.8+00	1.0000+00	2.7746+00	3.7746+00	3.8424+01	8.7034-05
-4.6+00	1.0000+00	2.7746+00	3.7746+00	3.7964+01	1.3794-04
-4.4+00	1.0000+00	2.7746+00	3.7746+00	3.7503+01	2.1862-04
-4.2+00	1.0000+00	2.7746+00	3.7746+00	3.7043+01	3.4649-04
-4.0+00	1.0000+00	2.7746+00	3.7746+00	3.6582+01	5.4915-04
-3.8+00	1.0000+00	2.7746+00	3.7746+00	3.6122+01	8.7034-04
-3.6+00	1.0000+00	2.7746+00	3.7746+00	3.5661+01	1.3794-03
-3.4+00	1.0000+00	2.7746+00	3.7746+00	3.5201+01	2.1862-03
-3.2+00	1.0000+00	2.7746+00	3.7746+00	3.4740+01	3.4649-03
-3.0+00	1.0000+00	2.7746+00	3.7746+00	3.4280+01	5.4915-03
-2.8+00	1.0000+00	2.7746+00	3.7746+00	3.3819+01	8.7034-03
-2.6+00	1.0000+00	2.7746+00	3.7746+00	3.3358+01	1.3802-02
-2.4+00	1.0001+00	2.7745+00	3.7746+00	3.2898+01	2.1874-02
-2.2+00	1.0001+00	2.7745+00	3.7746+00	3.2437+01	3.4668-02
-2.0+00	1.0002+00	2.7744+00	3.7746+00	3.1977+01	5.4945-02
-1.8+00	1.0002+00	2.7744+00	3.7746+00	3.1516+01	8.7082-02
-1.6+00	1.0003+00	2.7743+00	3.7746+00	3.1056+01	1.3802-01
-1.4+00	1.0004+00	2.7743+00	3.7747+00	3.0595+01	2.1874-01
-1.2+00	1.0004+00	2.7743+00	3.7747+00	3.0134+01	3.4668-01
-1.0+00	1.0005+00	2.7742+00	3.7747+00	2.9674+01	5.4948-01
-8.0-01	1.0006+00	2.7742+00	3.7748+00	2.9213+01	8.7091-01
-6.0-01	1.0008+00	2.7742+00	3.7750+00	2.8753+01	1.3807+00
-4.0-01	1.0010+00	2.7741+00	3.7751+00	2.8292+01	2.1889+00
-2.0-01	1.0014+00	2.7740+00	3.7754+00	2.7831+01	3.4701+00
0.0	1.0020+00	2.7739+00	3.7759+00	2.7370+01	5.5022+00
2.0-01	1.0027+00	2.7739+00	3.7766+00	2.6908+01	8.7272+00
4.0-01	1.0039+00	2.7739+00	3.7778+00	2.6444+01	1.3875+01
6.0-01	1.0061+00	2.7736+00	3.7797+00	2.5981+01	2.2054+01
8.0-01	1.0096+00	2.7730+00	3.7826+00	2.5518+01	3.5016+01
1.0+00	1.0162+00	2.7713+00	3.7875+00	2.5051+01	5.5803+01
1.2+00	1.0247+00	2.7705+00	3.7952+00	2.4581+01	8.9174+01