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        NASA-GLENN CHEMICAL EQUILIBRIUM PROGRAM CEA2, FEBRUARY 5, 2004
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     REFS: NASA RP-1311, PART I, 1994 AND NASA RP-1311, PART II, 1996

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### CEA analysis performed on Tue 14-Dec-2021 15:02:54

# Problem Type: "Rocket" (Infinite Area Combustor)

prob case=Converse_______2705 ro equilibrium

# Pressure (1 value):
p,psia= 750
# Chamber/Exit Pressure Ratio (1 value):
pi/p= 51.02

# Oxidizer/Fuel Wt. ratio (1 value):
o/f= 4.4

# You selected the following fuels and oxidizers:
reac
fuel C3H8(L)           wt%=100.0000
oxid N2O               wt%=100.0000

# You selected these options for output:
# short version of output
output short
# Proportions of any products will be expressed as Mass Fractions.
output massf
# Heat will be expressed as siunits
output siunits

# Input prepared by this script:/var/www/sites/cearun.grc.nasa.gov/cgi-bin/CEARU
N/prepareInputFile.cgi

### IMPORTANT:  The following line is the end of your CEA input file!
end

             THEORETICAL ROCKET PERFORMANCE ASSUMING EQUILIBRIUM

          COMPOSITION DURING EXPANSION FROM INFINITE AREA COMBUSTOR

Pin =   750.0 PSIA
CASE = Converse_______

            REACTANT                    WT FRACTION      ENERGY      TEMP
                                         (SEE NOTE)     KJ/KG-MOL      K
FUEL        C3H8(L)                      1.0000000   -128228.000    231.076
OXIDANT     N2O                          1.0000000         0.000      0.000

O/F=    4.40000  %FUEL= 18.518519  R,EQ.RATIO= 2.268459  PHI,EQ.RATIO= 2.268459

                CHAMBER   THROAT     EXIT
Pinf/P            1.0000   1.8248   51.020
P, BAR            51.710   28.338   1.0135
T, K             1751.69  1532.82   906.28
RHO, KG/CU M    7.4122 0 4.6426 0 2.9816-1
H, KJ/KG         -538.51  -931.32 -2414.33
U, KJ/KG        -1236.15 -1541.71 -2754.26
G, KJ/KG        -18495.7 -16644.7 -11704.9
S, KJ/(KG)(K)    10.2513  10.2513  10.2513

M, (1/n)          20.877   20.880   22.167
MW, MOL WT        20.877   20.880   21.655
(dLV/dLP)t      -1.00030 -1.00056 -1.05903
(dLV/dLT)p        1.0018   1.0045   2.0623
Cp, KJ/(KG)(K)    1.8066   1.7967   9.2320
GAMMAs            1.2836   1.2871   1.1284
SON VEL,M/SEC      946.3    886.4    619.3
MACH NUMBER        0.000    1.000    3.127

PERFORMANCE PARAMETERS

Ae/At                        1.0000   7.1255
CSTAR, M/SEC                 1256.6   1256.6
CF                           0.7054   1.5414
Ivac, M/SEC                  1575.0   2112.4
Isp, M/SEC                    886.4   1936.9

MASS FRACTIONS

CH4              0.00003  0.00008  0.01386
*CO              0.31866  0.31151  0.17791
*CO2             0.05367  0.06478  0.18999
HCN              0.00003  0.00002  0.00000
*H2              0.02437  0.02486  0.02326
H2O              0.08463  0.08013  0.06355
NH3              0.00011  0.00011  0.00007
*N2              0.51851  0.51852  0.51855
C(gr)            0.00000  0.00000  0.01280

 * THERMODYNAMIC PROPERTIES FITTED TO 20000.K

NOTE. WEIGHT FRACTION OF FUEL IN TOTAL FUELS AND OF OXIDANT IN TOTAL OXIDANTS
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