```
C. (0...0,20)C-0,015N-0,57Mn-0,15Cr-0,37Si-0,38Mo-6,6Ni-bal.Fe
*****************************************************************
0 Carbon

 MULTIPHASE OPTION ? set (w
 INVALID KEYWORD
 SET WHAT ? w(6)=6.6 !
 MULTIPHASE OPTION ? li sys co !

 NUMBER    COMPONENT              STATUS      AMOUNT     DELTA    REF.P
    1      C                      NORMAL      1.99817
    2      Si                     NORMAL      12.4619
    3      Mn                     NORMAL      11.6495
    4      Cr                     NORMAL      4.03877
    5      Mo                     NORMAL      4.16927
    6      Ni                     NORMAL      112.455
    7      V                      ABSENT     undefined
    8      W                      ABSENT     undefined
    9      B                      ABSENT     undefined
   10      Nb                     ABSENT     undefined
   11      N                      NORMAL      1.42789
   12      Fe                     # TO BAL    1642.99

 MULTIPHASE OPTION ? set w(1)=0 w(2)=0.37 w(3)=0.64 w(4)=0.15 !
 MULTIPHASE OPTION ? set w(3)=0.38 w^?
 W  KEYWORD NOT RECOGNISED
 SET WHAT ? set w(
 SET  KEYWORD NOT RECOGNISED
 SET WHAT ? w(3)=0.57 w(5)=0.38 w(6)=6.6 w(11)=0.015 !
 MULTIPHASE OPTION ? ls sys co !
 LS  KEYWORD NOT RECOGNISED
 MULTIPHASE OPTION ? li sys co !

 NUMBER    COMPONENT              STATUS      AMOUNT     DELTA    REF.P
    1      C                      NORMAL      0.00000
    2      Si                     NORMAL      13.1741
    3      Mn                     NORMAL      10.3753
    4      Cr                     NORMAL      2.88484
    5      Mo                     NORMAL      3.96081
    6      Ni                     NORMAL      112.455
    7      V                      ABSENT     undefined
    8      W                      ABSENT     undefined
    9      B                      ABSENT     undefined
   10      Nb                     ABSENT     undefined
   11      N                      NORMAL      1.07092
```

```
   12      Fe                      # TO BAL    1645.84

 MULTIPHASE OPTION ? step tem 573 1873 50 !
 MULTIPHASE OPTION ? co pr br pr mol !
 NUMBER OF STEPS =  27

     573.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef         3.000000E
-12 3.603300E-14
Si                          -1.503849E+05 1.955530E
-14 1.317406E+01 3.700000E-01
Mn                          -5.370045E+04 1.272899E
-05 1.037533E+01 5.700000E-01
Cr                          -3.306924E+04 9.671340E
-04 2.884837E+00 1.500000E-01
Mo                          -1.990557E+04 1.532693E
-02 3.960809E+00 3.800000E-01
Ni                          -2.952599E+04 2.034609E
-03 1.124553E+02 6.600000E+00
N                           -5.962781E+04 3.668343E
-06 1.070916E+00 1.500000E-02
Fe                          -1.848234E+04 2.066301E
-02 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 2.8091E+00 LIQUID              0.0000000       0.0000000       0.0040413
 1.6354E+03 BCC_A2              0.0000000       0.0080554       0.0001280
 1.5152E+02 FCC_A1              0.0000000       0.0000000       0.0670173

                                 Cr              Mo              Ni
 2.8091E+00 LIQUID              0.3732167       0.0582018       0.0000008
 1.6354E+03 BCC_A2              0.0009740       0.0018889       0.0226610
 1.5152E+02 FCC_A1              0.0016076       0.0046733       0.4975786

                                 N               Fe
```

```
 2.8091E+00 LIQUID             0.3759313       0.1886080
 1.6354E+03 BCC_A2             0.0000024       0.9662903
 1.5152E+02 FCC_A1             0.0000723       0.4290508

Gibbs Energy = -3.6515652249E+07 J   System Enthalpy =  1.2350471915E+07 J
     623.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   623.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef        2.000000E
-12 2.402200E-14
Si                          -1.481435E+05 3.796740E
-13 1.317406E+01 3.700000E-01
Mn                          -4.271483E+04 2.622528E
-04 1.037533E+01 5.700000E-01
Cr                          -3.912758E+04 5.241802E
-04 2.884837E+00 1.500000E-01
Mo                          -2.491861E+04 8.142981E
-03 3.960809E+00 3.800000E-01
Ni                          -2.898813E+04 3.711831E
-03 1.124553E+02 6.600000E+00
N                           -1.116390E+05 4.365216E
-10 1.070916E+00 1.500000E-02
Fe                          -2.109410E+04 1.703872E
-02 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                               C              Si             Mn
 1.7876E+03 BCC_A2             0.0000000      0.0073696      0.0058040
 2.1427E+00 FCC_A1             0.0000000      0.0000000      0.0000025

                               Cr             Mo             Ni
 1.7876E+03 BCC_A2             0.0010836      0.0021463      0.0629080
 2.1427E+00 FCC_A1             0.4423126      0.0578663      0.0000000

                               N              Fe
 1.7876E+03 BCC_A2             0.0000000      0.9206884
 2.1427E+00 FCC_A1             0.4998087      0.0000100
```

```
Gibbs Energy = -4.0700693579E+07 J   System Enthalpy =  1.6236443947E+07 J
     673.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   673.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef        2.000000E
-12 2.402200E-14
Si                          -1.509693E+05 1.918085E
-12 1.317406E+01 3.700000E-01
Mn                          -4.796760E+04 1.892808E
-04 1.037533E+01 5.700000E-01
Cr                          -4.451023E+04 3.511092E
-04 2.884837E+00 1.500000E-01
Mo                          -3.046445E+04 4.320887E
-03 3.960809E+00 3.800000E-01
Ni                          -3.297457E+04 2.759028E
-03 1.124553E+02 6.600000E+00
N                           -1.100257E+05 2.888105E
-09 1.070916E+00 1.500000E-02
Fe                          -2.359040E+04 1.476001E
-02 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7876E+03 BCC_A2             0.0000000       0.0073696       0.0058040
 2.1427E+00 FCC_A1             0.0000000       0.0000000       0.0000066

                                Cr              Mo              Ni
 1.7876E+03 BCC_A2             0.0010883       0.0021417       0.0629080
 2.1427E+00 FCC_A1             0.4384334       0.0617580       0.0000000

                                N               Fe
 1.7876E+03 BCC_A2             0.0000000       0.9206884
 2.1427E+00 FCC_A1             0.4997854       0.0000167

Gibbs Energy = -4.5387394256E+07 J   System Enthalpy =  1.9257685805E+07 J
     723.000
*** MULTIPHASE - Stage 1* Results ***
```

Temperature =   723.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   undef   undef   2.000000E
-12 2.402200E-14
Si   -1.539338E+05 7.568575E
-12 1.317406E+01 3.700000E-01
Mn   -5.344826E+04 1.375993E
-04 1.037533E+01 5.700000E-01
Cr   -5.000751E+04 2.438903E
-04 2.884837E+00 1.500000E-01
Mo   -3.613668E+04 2.450734E
-03 3.960809E+00 3.800000E-01
Ni   -3.710915E+04 2.084684E
-03 1.124553E+02 6.600000E+00
N   -1.084964E+05 1.450938E
-08 1.070916E+00 1.500000E-02
Fe   -2.621401E+04 1.276916E
-02 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7876E+03 BCC_A2   0.0000000   0.0073696   0.0058040
 2.1427E+00 FCC_A1   0.0000000   0.0000000   0.0000148

                                Cr   Mo   Ni
 1.7876E+03 BCC_A2   0.0010927   0.0021372   0.0629080
 2.1427E+00 FCC_A1   0.4347326   0.0654614   0.0000000

                                N   Fe
 1.7876E+03 BCC_A2   0.0000000   0.9206884
 2.1427E+00 FCC_A1   0.4997644   0.0000268

Gibbs Energy = -5.0304497417E+07 J   System Enthalpy = 2.2440789052E+07 J
     773.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   773.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

```
Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef        2.000000E
-12 2.402200E-14
Si                          -1.597067E+05 1.615349E
-11 1.317406E+01 3.700000E-01
Mn                          -6.813194E+04 2.489852E
-05 1.037533E+01 5.700000E-01
Cr                          -5.300053E+04 2.622026E
-04 2.884837E+00 1.500000E-01
Mo                          -4.279228E+04 1.283604E
-03 3.960809E+00 3.800000E-01
Ni                          -4.508655E+04 8.982603E
-04 1.124553E+02 6.600000E+00
N                           -6.802624E+04 2.531139E
-05 1.070916E+00 1.500000E-02
Fe                          -2.873467E+04 1.143760E
-02 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                               C              Si             Mn
 1.5748E+03 BCC_A2            0.0000000      0.0083625      0.0011197
 2.1493E+02 FCC_A1            0.0000000      0.0000215      0.0400689

                               Cr             Mo             Ni
 1.5748E+03 BCC_A2            0.0014627      0.0018312      0.0333589
 2.1493E+02 FCC_A1            0.0027046      0.0050112      0.2787935

                               N              Fe
 1.5748E+03 BCC_A2            0.0001221      0.9537430
 2.1493E+02 FCC_A1            0.0040881      0.6693122

Gibbs Energy = -5.5568753942E+07 J   System Enthalpy =  2.5602065920E+07 J
     823.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef        2.000000E
-12 2.402200E-14
Si                          -1.624875E+05 4.868655E
```

```
-11 1.317406E+01 3.700000E-01
Mn                          -7.273423E+04 2.419793E
-05 1.037533E+01 5.700000E-01
Cr                          -5.870547E+04 1.879929E
-04 2.884837E+00 1.500000E-01
Mo                          -4.869526E+04 8.118181E
-04 3.960809E+00 3.800000E-01
Ni                          -4.975178E+04 6.956724E
-04 1.124553E+02 6.600000E+00
N                           -7.578685E+04 1.548951E
-05 1.070916E+00 1.500000E-02
Fe                          -3.160389E+04 9.867265E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 1.5114E+03 BCC_A2              0.0000000       0.0086875       0.0015156
 2.7837E+02 FCC_A1              0.0000000       0.0001575       0.0290427

                                 Cr              Mo              Ni
 1.5114E+03 BCC_A2              0.0014564       0.0018467       0.0335133
 2.7837E+02 FCC_A1              0.0024560       0.0042019       0.2220203

                                 N               Fe
 1.5114E+03 BCC_A2              0.0001092       0.9528713
 2.7837E+02 FCC_A1              0.0032544       0.7388672

Gibbs Energy = -6.0940006456E+07 J   System Enthalpy =  2.9476390026E+07 J
     873.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   873.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef        2.000000E
-12 2.402200E-14
Si                          -1.653022E+05 1.287187E
-10 1.317406E+01 3.700000E-01
Mn                          -7.821659E+04 2.090001E
-05 1.037533E+01 5.700000E-01
Cr                          -6.455484E+04 1.372637E
```

```
-04 2.884837E+00 1.500000E-01
Mo                          -5.457721E+04 5.426718E
-04 3.960809E+00 3.800000E-01
Ni                          -5.483230E+04 5.239314E
-04 1.124553E+02 6.600000E+00
N                           -8.415789E+04 9.218634E
-06 1.070916E+00 1.500000E-02
Fe                          -3.457690E+04 8.534845E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.3893E+03 BCC_A2             0.0000000       0.0092740       0.0018110
 4.0049E+02 FCC_A1             0.0000000       0.0007242       0.0196245

                                Cr              Mo              Ni
 1.3893E+03 BCC_A2             0.0014371       0.0018896       0.0323127
 4.0049E+02 FCC_A1             0.0022180       0.0033351       0.1687052

                                N               Fe
 1.3893E+03 BCC_A2             0.0000922       0.9531834
 4.0049E+02 FCC_A1             0.0023541       0.8030390

Gibbs Energy = -6.6558014912E+07 J   System Enthalpy =  3.3752073497E+07 J
     923.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   923.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef        2.000000E
-12 2.402200E-14
Si                          -1.680367E+05 3.095022E
-10 1.317406E+01 3.700000E-01
Mn                          -8.469995E+04 1.609758E
-05 1.037533E+01 5.700000E-01
Cr                          -7.058212E+04 1.013211E
-04 2.884837E+00 1.500000E-01
Mo                          -6.036171E+04 3.837795E
-04 3.960809E+00 3.800000E-01
Ni                          -6.047642E+04 3.780854E
```

-04 1.124553E+02 6.600000E+00
N   -9.326090E+04 5.275814E
-06 1.070916E+00 1.500000E-02
Fe   -3.767076E+04 7.382119E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.1442E+03	BCC_A2	0.0000000	0.0102886	0.0019325
6.4553E+02	FCC_A1	0.0000000	0.0021712	0.0126470
		Cr	Mo	Ni
1.1442E+03	BCC_A2	0.0014046	0.0019771	0.0295460
6.4553E+02	FCC_A1	0.0019793	0.0026313	0.1218340
		N	Fe	
1.1442E+03	BCC_A2	0.0000731	0.9547780	
6.4553E+02	FCC_A1	0.0015294	0.8572079	

Gibbs Energy = -7.2436415041E+07 J   System Enthalpy = 3.8611775592E+07 J
     973.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   973.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		undef	undef	2.000000E	
-12 2.402200E-14					
Si		-1.704021E+05	7.117831E		
-10 1.317406E+01 3.700000E-01					
Mn		-9.221807E+04	1.120675E		
-05 1.037533E+01 5.700000E-01					
Cr		-7.678668E+04	7.548821E		
-05 2.884837E+00 1.500000E-01					
Mo		-6.578610E+04	2.940498E		
-04 3.960809E+00 3.800000E-01					
Ni		-6.681020E+04	2.590862E		
-04 1.124553E+02 6.600000E+00					
N		-1.030682E+05	2.930985E		
-06 1.070916E+00 1.500000E-02					
Fe		-4.088536E+04	6.385007E		

-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
6.4380E+02	BCC_A2	0.0000000	0.0121011	0.0018901
1.1460E+03	FCC_A1	0.0000000	0.0046977	0.0079920
		Cr	Mo	Ni
6.4380E+02	BCC_A2	0.0013646	0.0021696	0.0253724
1.1460E+03	FCC_A1	0.0017508	0.0022374	0.0838779
		N	Fe	
6.4380E+02	BCC_A2	0.0000552	0.9570471	
1.1460E+03	FCC_A1	0.0009035	0.8985406	

Gibbs Energy = -7.8598224374E+07 J System Enthalpy = 4.4238735285E+07 J
     1023.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1023.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		undef	undef	1.000000E	
-12 1.201100E-14					
Si		-1.724365E+05	1.568813E		
-09 1.317406E+01 3.700000E-01					
Mn		-9.978391E+04	8.037792E		
-06 1.037533E+01 5.700000E-01					
Cr		-8.292353E+04	5.834591E		
-05 2.884837E+00 1.500000E-01					
Mo		-7.075590E+04	2.439365E		
-04 3.960809E+00 3.800000E-01					
Ni		-7.304110E+04	1.864648E		
-04 1.124553E+02 6.600000E+00					
N		-1.117916E+05	1.959018E		
-06 1.070916E+00 1.500000E-02					
Fe		-4.429296E+04	5.475799E		
-03 1.645836E+03 9.191500E+01					
Total					
1.789757E+03 1.000000E+02					

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 FCC_A1              0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 FCC_A1              0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 FCC_A1              0.0005984       0.9195862

Gibbs Energy = -8.5057866426E+07 J   System Enthalpy =  4.9451594701E+07 J
     1073.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1073.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -1.761262E+05 2.668277E
-09 1.317406E+01 3.700000E-01
Mn                           -1.055214E+05 7.298744E
-06 1.037533E+01 5.700000E-01
Cr                           -8.887335E+04 4.717063E
-05 2.884837E+00 1.500000E-01
Mo                           -7.674171E+04 1.837538E
-04 3.960809E+00 3.800000E-01
Ni                           -7.759384E+04 1.670148E
-04 1.124553E+02 6.600000E+00
N                            -1.168606E+05 2.047684E
-06 1.070916E+00 1.500000E-02
Fe                           -4.792570E+04 4.645059E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 FCC_A1              0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 FCC_A1              0.0016119       0.0022130       0.0628327
```

```
                                  N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862

Gibbs Energy = -9.1702420239E+07 J   System Enthalpy =  5.2380808324E+07 J
     1123.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1123.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -1.798735E+05 4.302000E
-09 1.317406E+01 3.700000E-01
Mn                           -1.113442E+05 6.624094E
-06 1.037533E+01 5.700000E-01
Cr                           -9.489798E+04 3.855455E
-05 2.884837E+00 1.500000E-01
Mo                           -8.279315E+04 1.409611E
-04 3.960809E+00 3.800000E-01
Ni                           -8.222175E+04 1.498568E
-04 1.124553E+02 6.600000E+00
N                            -1.220512E+05 2.104356E
-06 1.070916E+00 1.500000E-02
Fe                           -5.163386E+04 3.966341E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                  C               Si               Mn
 1.7898E+03 FCC_A1             0.0000000       0.0073608       0.0057971

                                  Cr              Mo               Ni
 1.7898E+03 FCC_A1             0.0016119       0.0022130       0.0628327

                                  N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862

Gibbs Energy = -9.8484401827E+07 J   System Enthalpy =  5.5348457135E+07 J
     1173.00
*** MULTIPHASE - Stage 1* Results ***
```

```
Temperature =  1173.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -1.836768E+05 6.621081E
-09 1.317406E+01 3.700000E-01
Mn                           -1.172503E+05 6.010096E
-06 1.037533E+01 5.700000E-01
Cr                           -1.009965E+05 3.181675E
-05 2.884837E+00 1.500000E-01
Mo                           -8.890855E+04 1.098829E
-04 3.960809E+00 3.800000E-01
Ni                           -8.692354E+04 1.346858E
-04 1.124553E+02 6.600000E+00
N                            -1.273576E+05 2.132081E
-06 1.070916E+00 1.500000E-02
Fe                           -5.541613E+04 3.406727E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                               C              Si             Mn
 1.7898E+03 FCC_A1            0.0000000      0.0073608      0.0057971

                               Cr             Mo             Ni
 1.7898E+03 FCC_A1            0.0016119      0.0022130      0.0628327

                               N              Fe
 1.7898E+03 FCC_A1            0.0005984      0.9195862

Gibbs Energy = -1.0539940098E+08 J   System Enthalpy =  5.8354558222E+07 J
     1223.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1223.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
```

-12 1.201100E-14
Si   -1.875524E+05 9.767645E
-09 1.317406E+01 3.700000E-01
Mn   -1.232421E+05 5.450432E
-06 1.037533E+01 5.700000E-01
Cr   -1.071722E+05 2.647059E
-05 2.884837E+00 1.500000E-01
Mo   -9.509030E+04 8.685035E
-05 3.960809E+00 3.800000E-01
Ni   -9.169418E+04 1.212878E
-04 1.124553E+02 6.600000E+00
N   -1.327709E+05 2.135330E
-06 1.070916E+00 1.500000E-02
Fe   -5.927318E+04 2.940975E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.7898E+03	FCC_A1	0.0000000	0.0073608	0.0057971
		Cr	Mo	Ni
1.7898E+03	FCC_A1	0.0016119	0.0022130	0.0628327
		N	Fe	
1.7898E+03	FCC_A1	0.0005984	0.9195862	

Gibbs Energy = -1.1244338506E+08 J   System Enthalpy = 6.1399151260E+07 J
     1273.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1273.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		undef	undef	1.000000E	
-12 1.201100E-14					
Si		-1.914561E+05	1.393918E		
-08 1.317406E+01	3.700000E-01				
Mn		-1.293062E+05	4.947096E		
-06 1.037533E+01	5.700000E-01				
Cr		-1.134125E+05	2.220736E		
-05 2.884837E+00	1.500000E-01				

```
Mo                          -1.013251E+05 6.957639E
-05 3.960809E+00 3.800000E-01
Ni                          -9.653047E+04 1.094443E
-04 1.124553E+02 6.600000E+00
N                           -1.382979E+05 2.115458E
-06 1.070916E+00 1.500000E-02
Fe                          -6.320126E+04 2.551212E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 1.7898E+03 FCC_A1              0.0000000       0.0073608       0.0057971

                                 Cr              Mo              Ni
 1.7898E+03 FCC_A1              0.0016119       0.0022130       0.0628327

                                 N               Fe
 1.7898E+03 FCC_A1              0.0005984       0.9195862

Gibbs Energy = -1.1961265341E+08 J   System Enthalpy =  6.4482294067E+07 J
     1323.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1323.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef         1.000000E
-12 1.201100E-14
Si                          -1.954509E+05 1.920474E
-08 1.317406E+01 3.700000E-01
Mn                          -1.354575E+05 4.487542E
-06 1.037533E+01 5.700000E-01
Cr                          -1.197332E+05 1.874210E
-05 2.884837E+00 1.500000E-01
Mo                          -1.076280E+05 5.633042E
-05 3.960809E+00 3.800000E-01
Ni                          -1.014409E+05 9.885837E
-05 1.124553E+02 6.600000E+00
N                           -1.439180E+05 2.079591E
-06 1.070916E+00 1.500000E-02
Fe                          -6.719063E+04 2.224584E
```

-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount Phase Mole fraction of component within phase
compnt moles
C Si Mn
1.7898E+03 FCC_A1 0.0000000 0.0073608 0.0057971

Cr Mo Ni
1.7898E+03 FCC_A1 0.0016119 0.0022130 0.0628327

N Fe
1.7898E+03 FCC_A1 0.0005984 0.9195862

Gibbs Energy = -1.2690379894E+08 J System Enthalpy = 6.7604059295E+07 J
1373.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1373.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component Ref.Phase Chem.Pot. Activity Amount/mol Mass/kg
C undef undef 1.000000E
-12 1.201100E-14
Si -1.994791E+05 2.577368E
-08 1.317406E+01 3.700000E-01
Mn -1.416827E+05 4.073196E
-06 1.037533E+01 5.700000E-01
Cr -1.261221E+05 1.591879E
-05 2.884837E+00 1.500000E-01
Mo -1.139860E+05 4.609021E
-05 3.960809E+00 3.800000E-01
Ni -1.064201E+05 8.942093E
-05 1.124553E+02 6.600000E+00
N -1.496388E+05 2.028893E
-06 1.070916E+00 1.500000E-02
Fe -7.125416E+04 1.946539E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount Phase Mole fraction of component within phase
compnt moles
C Si Mn

```
 1.7898E+03 FCC_A1             0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 FCC_A1             0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862

Gibbs Energy = -1.3431367521E+08 J   System Enthalpy =  7.0764531705E+07 J
     1423.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1423.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef         1.000000E
-12 1.201100E-14
Si                          -2.035634E+05 3.372131E
-08 1.317406E+01 3.700000E-01
Mn                          -1.479816E+05 3.699284E
-06 1.037533E+01 5.700000E-01
Cr                          -1.325798E+05 1.359755E
-05 2.884837E+00 1.500000E-01
Mo                          -1.203988E+05 3.807018E
-05 3.960809E+00 3.800000E-01
Ni                          -1.114584E+05 8.105052E
-05 1.124553E+02 6.600000E+00
N                           -1.554558E+05 1.966823E
-06 1.070916E+00 1.500000E-02
Fe                          -7.537888E+04 1.710435E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 FCC_A1             0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 FCC_A1             0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862
```

```
Gibbs Energy = -1.4183936840E+08 J   System Enthalpy =  7.3963806100E+07 J
     1473.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1473.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -2.076951E+05 4.315445E
-08 1.317406E+01 3.700000E-01
Mn                           -1.543532E+05 3.361679E
-06 1.037533E+01 5.700000E-01
Cr                           -1.391066E+05 1.167377E
-05 2.884837E+00 1.500000E-01
Mo                           -1.268659E+05 3.171560E
-05 3.960809E+00 3.800000E-01
Ni                           -1.165609E+05 7.356843E
-05 1.124553E+02 6.600000E+00
N                            -1.613649E+05 1.896355E
-06 1.070916E+00 1.500000E-02
Fe                           -7.956724E+04 1.508362E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                               C              Si             Mn
 1.7898E+03 FCC_A1            0.0000000      0.0073608      0.0057971

                               Cr             Mo             Ni
 1.7898E+03 FCC_A1            0.0016119      0.0022130      0.0628327

                               N              Fe
 1.7898E+03 FCC_A1            0.0005984      0.9195862

Gibbs Energy = -1.4947817308E+08 J   System Enthalpy =  7.7201985677E+07 J
     1523.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1523.0000 K
```

```
Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -2.117921E+05 5.448884E
-08 1.317406E+01 3.700000E-01
Mn                           -1.607628E+05 3.064961E
-06 1.037533E+01 5.700000E-01
Cr                           -1.456683E+05 1.009513E
-05 2.884837E+00 1.500000E-01
Mo                           -1.333524E+05 2.669932E
-05 3.960809E+00 3.800000E-01
Ni                           -1.216803E+05 6.711362E
-05 1.124553E+02 6.600000E+00
N                            -1.673967E+05 1.815117E
-06 1.070916E+00 1.500000E-02
Fe                           -8.381071E+04 1.335363E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 FCC_A1             0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 FCC_A1             0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862

Gibbs Energy = -1.5722757133E+08 J   System Enthalpy =  8.0479182519E+07 J
     1573.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -2.161043E+05 6.668077E
-08 1.317406E+01 3.700000E-01
```

```
Mn                          -1.673100E+05 2.781476E
-06 1.037533E+01 5.700000E-01
Cr                          -1.523654E+05 8.720227E
-06 2.884837E+00 1.500000E-01
Mo                          -1.399581E+05 2.251773E
-05 3.960809E+00 3.800000E-01
Ni                          -1.269469E+05 6.089459E
-05 1.124553E+02 6.600000E+00
N                           -1.734478E+05 1.739650E
-06 1.070916E+00 1.500000E-02
Fe                          -8.812825E+04 1.184670E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 FCC_A1             0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 FCC_A1             0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862

Gibbs Energy = -1.6508521749E+08 J   System Enthalpy =  8.3795791407E+07 J
     1623.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1623.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef         1.000000E
-12 1.201100E-14
Si                          -2.203711E+05 8.086408E
-08 1.317406E+01 3.700000E-01
Mn                          -1.738939E+05 2.532446E
-06 1.037533E+01 5.700000E-01
Cr                          -1.590969E+05 7.581450E
-06 2.884837E+00 1.500000E-01
Mo                          -1.465813E+05 1.916664E
-05 3.960809E+00 3.800000E-01
Ni                          -1.322361E+05 5.549067E
```

-05 1.124553E+02 6.600000E+00
N   -1.796161E+05 1.657225E
-06 1.070916E+00 1.500000E-02
Fe   -9.249894E+04 1.054602E
-03 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7898E+03 FCC_A1   0.0000000   0.0073608   0.0057971

                                Cr   Mo   Ni
 1.7898E+03 FCC_A1   0.0016119   0.0022130   0.0628327

                                N   Fe
 1.7898E+03 FCC_A1   0.0005984   0.9195862

Gibbs Energy = -1.7304892694E+08 J   System Enthalpy = 8.7151964782E+07 J
     1673.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1673.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   undef   undef   1.000000E
-12 1.201100E-14
Si   -2.246755E+05 9.667819E
-08 1.317406E+01 3.700000E-01
Mn   -1.805442E+05 2.307635E
-06 1.037533E+01 5.700000E-01
Cr   -1.658928E+05 6.616117E
-06 2.884837E+00 1.500000E-01
Mo   -1.532509E+05 1.641719E
-05 3.960809E+00 3.800000E-01
Ni   -1.375758E+05 5.066361E
-05 1.124553E+02 6.600000E+00
N   -1.858692E+05 1.573668E
-06 1.070916E+00 1.500000E-02
Fe   -9.692812E+04 9.413972E
-04 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 FCC_A1             0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 FCC_A1             0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862

Gibbs Energy = -1.8111664936E+08 J   System Enthalpy =  9.0547646258E+07 J
     1723.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1723.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -2.290336E+05 1.139643E
-07 1.317406E+01 3.700000E-01
Mn                           -1.872656E+05 2.103690E
-06 1.037533E+01 5.700000E-01
Cr                           -1.727591E+05 5.790967E
-06 2.884837E+00 1.500000E-01
Mo                           -1.599725E+05 1.413775E
-05 3.960809E+00 3.800000E-01
Ni                           -1.429749E+05 4.630943E
-05 1.124553E+02 6.600000E+00
N                            -1.921985E+05 1.490867E
-06 1.070916E+00 1.500000E-02
Fe                           -1.014136E+05 8.425826E
-04 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 FCC_A1             0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
```

```
 1.7898E+03 FCC_A1             0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 FCC_A1             0.0005984       0.9195862

Gibbs Energy = -1.8928645531E+08 J   System Enthalpy =  9.3982710119E+07 J
     1773.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1773.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        2.000000E
-12 2.402200E-14
Si                           -2.375221E+05 1.005769E
-07 1.317406E+01 3.700000E-01
Mn                           -1.961712E+05 1.662324E
-06 1.037533E+01 5.700000E-01
Cr                           -1.807412E+05 4.734660E
-06 2.884837E+00 1.500000E-01
Mo                           -1.707273E+05 9.339052E
-06 3.960809E+00 3.800000E-01
Ni                           -1.491642E+05 4.032379E
-05 1.124553E+02 6.600000E+00
N                            -2.031291E+05 1.036888E
-06 1.070916E+00 1.500000E-02
Fe                           -1.058516E+05 7.613185E
-04 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si               Mn
 7.5172E+02 LIQUID             0.0000000       0.0096208       0.0070199
 1.0380E+03 FCC_A1             0.0000000       0.0057242       0.0049115

                                Cr              Mo               Ni
 7.5172E+02 LIQUID             0.0017493       0.0028927       0.0661624
 1.0380E+03 FCC_A1             0.0015124       0.0017209       0.0604214

                                N               Fe
 7.5172E+02 LIQUID             0.0008106       0.9117444
 1.0380E+03 FCC_A1             0.0004446       0.9252650
```

```
Gibbs Energy = -1.9756915707E+08 J   System Enthalpy =  1.0820302408E+08 J
     1823.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            undef        undef        1.000000E
-12 1.201100E-14
Si                           -2.467926E+05 8.487919E
-08 1.317406E+01 3.700000E-01
Mn                           -2.060207E+05 1.250300E
-06 1.037533E+01 5.700000E-01
Cr                           -1.888019E+05 3.893804E
-06 2.884837E+00 1.500000E-01
Mo                           -1.819912E+05 6.102625E
-06 3.960809E+00 3.800000E-01
Ni                           -1.559943E+05 3.391471E
-05 1.124553E+02 6.600000E+00
N                            -2.148044E+05 7.003859E
-07 1.070916E+00 1.500000E-02
Fe                           -1.107178E+05 6.724645E
-04 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                               C               Si              Mn
 1.7898E+03 LIQUID            0.0000000       0.0073608       0.0057971

                               Cr              Mo              Ni
 1.7898E+03 LIQUID            0.0016119       0.0022130       0.0628327

                               N               Fe
 1.7898E+03 LIQUID            0.0005984       0.9195862

Gibbs Energy = -2.0664992676E+08 J   System Enthalpy =  1.2715616229E+08 J
     1873.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1873.0000 K
```

```
Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           undef        undef        1.000000E
-12 1.201100E-14
Si                          -2.516818E+05 9.576742E
-08 1.317406E+01 3.700000E-01
Mn                          -2.136155E+05 1.103558E
-06 1.037533E+01 5.700000E-01
Cr                          -1.957360E+05 3.478631E
-06 2.884837E+00 1.500000E-01
Mo                          -1.890050E+05 5.359428E
-06 3.960809E+00 3.800000E-01
Ni                          -1.619482E+05 3.045563E
-05 1.124553E+02 6.600000E+00
N                           -2.217215E+05 6.557472E
-07 1.070916E+00 1.500000E-02
Fe                          -1.157868E+05 5.901940E
-04 1.645836E+03 9.191500E+01
Total
1.789757E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7898E+03 LIQUID             0.0000000       0.0073608       0.0057971

                                Cr              Mo              Ni
 1.7898E+03 LIQUID             0.0016119       0.0022130       0.0628327

                                N               Fe
 1.7898E+03 LIQUID             0.0005984       0.9195862

Gibbs Energy = -2.1586084548E+08 J   System Enthalpy =  1.3124105224E+08 J

                     ************************************
                     * WARNING/ERRORS HAVE BEEN DETECTED *
                     ************************************

   3240 Warnings: Multiphase, temperature range violation -  Unary data

 MULTIPHASE OPTION ?
**************************************************************************
0.05 Carbon

 MULTIPHASE OPTION ? set w(1)=0.05 !
```

```
 MULTIPHASE OPTION ? com pr br pr mol !
 NUMBER OF STEPS =  27

     573.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
6.408400E+03 3.838615E+00 4.162851E+00 5.000000E-02
Si                           -1.504583E+05 1.925663E
-14 1.317406E+01 3.700000E-01
Mn                           -5.355223E+04 1.313124E
-05 1.037533E+01 5.700000E-01
Cr                           -4.187358E+04 1.523713E
-04 2.884837E+00 1.500000E-01
Mo                           -2.167473E+04 1.057262E
-02 3.960809E+00 3.800000E-01
Ni                           -2.952940E+04 2.033151E
-03 1.124553E+02 6.600000E+00
N                            -5.439991E+04 1.099089E
-05 1.070916E+00 1.500000E-02
Fe                           -1.847472E+04 2.069611E
-02 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 2.3278E+00 LIQUID             0.0005144       0.0000000       0.0180020
 1.6230E+03 BCC_A2             0.0000004       0.0081169       0.0001311
 1.5116E+02 FCC_A1             0.0002288       0.0000000       0.0638032
 1.6506E+01 CEMENTITE          0.2500000       0.0000000       0.0288526

                                 Cr              Mo              Ni
 2.3278E+00 LIQUID             0.1017992       0.4345104       0.0000080
 1.6230E+03 BCC_A2             0.0001525       0.0012995       0.0224910
 1.5116E+02 FCC_A1             0.0002244       0.0031637       0.5012848
 1.6506E+01 CEMENTITE          0.1433683       0.0219295       0.0107847

                                 N               Fe
 2.3278E+00 LIQUID             0.4437853       0.0013807
```

```
 1.6230E+03 BCC_A2             0.0000070       0.9678016
 1.5116E+02 FCC_A1             0.0001758       0.4311191
 1.6506E+01 CEMENTITE          0.0000000       0.5450648

Gibbs Energy = -3.6486620594E+07 J   System Enthalpy =  1.2364136990E+07 J
     623.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   623.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.561728E+03 6.098465E
-01 4.162851E+00 5.000000E-02
Si                          -1.483417E+05 3.654214E
-13 1.317406E+01 3.700000E-01
Mn                          -4.323789E+04 2.370641E
-04 1.037533E+01 5.700000E-01
Cr                          -4.373532E+04 2.153577E
-04 2.884837E+00 1.500000E-01
Mo                          -3.813387E+04 6.350309E
-04 3.960809E+00 3.800000E-01
Ni                          -2.891989E+04 3.761058E
-03 1.124553E+02 6.600000E+00
N                           -9.284148E+04 1.644452E
-08 1.070916E+00 1.500000E-02
Fe                          -2.107777E+04 1.709252E
-02 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7796E+03 BCC_A2             0.0000003       0.0074029       0.0052072
 9.3801E+00 FCC_A1             0.3351416       0.0000000       0.0026614
 4.0743E+00 CEMENTITE          0.2500000       0.0000000       0.2660008

                                Cr              Mo              Ni
 1.7796E+03 BCC_A2             0.0004436       0.0001665       0.0631222
 9.3801E+00 FCC_A1             0.1572972       0.3901531       0.0000039
 4.0743E+00 CEMENTITE          0.1521461       0.0012059       0.0306562

                                N               Fe
 1.7796E+03 BCC_A2             0.0000000       0.9236572
```

```
 9.3801E+00 FCC_A1             0.1141657       0.0005771
 4.0743E+00 CEMENTITE          0.0000000       0.2999909

Gibbs Energy = -4.0714156714E+07 J   System Enthalpy =  1.6078040141E+07 J
     673.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   673.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
1.857484E+03 1.393684E+00 4.162851E+00 5.000000E-02
Si                           -1.545472E+05 1.011997E
-12 1.317406E+01 3.700000E-01
Mn                           -6.118709E+04 1.782817E
-05 1.037533E+01 5.700000E-01
Cr                           -4.795546E+04 1.896919E
-04 2.884837E+00 1.500000E-01
Mo                           -3.161205E+04 3.519694E
-03 3.960809E+00 3.800000E-01
Ni                           -3.664883E+04 1.430826E
-03 1.124553E+02 6.600000E+00
N                            -5.318392E+04 7.451687E
-05 1.070916E+00 1.500000E-02
Fe                           -2.335577E+04 1.539206E
-02 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 1.6128E+03 BCC_A2             0.0000046       0.0081683       0.0003979
 1.6429E+02 FCC_A1             0.0010869       0.0000001       0.0567090
 1.5907E+01 CEMENTITE          0.2499995       0.0000000       0.0262047

                                 Cr              Mo              Ni
 1.6128E+03 BCC_A2             0.0004949       0.0016979       0.0300965
 1.6429E+02 FCC_A1             0.0011390       0.0056409       0.3878420
 1.5907E+01 CEMENTITE          0.1194085       0.0185818       0.0123312

                                 N               Fe
 1.6128E+03 BCC_A2             0.0001439       0.9589959
 1.6429E+02 FCC_A1             0.0051057       0.5424763
```

```
 1.5907E+01 CEMENTITE          0.0000005       0.5734738

Gibbs Energy = -4.5526204351E+07 J   System Enthalpy =  1.8742219814E+07 J
     723.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   723.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.944474E+02 9.521987E
-01 4.162851E+00 5.000000E-02
Si                          -1.570092E+05 4.537631E
-12 1.317406E+01 3.700000E-01
Mn                          -6.462281E+04 2.144414E
-05 1.037533E+01 5.700000E-01
Cr                          -5.183521E+04 1.799498E
-04 2.884837E+00 1.500000E-01
Mo                          -3.739394E+04 1.988224E
-03 3.960809E+00 3.800000E-01
Ni                          -4.071338E+04 1.144593E
-03 1.124553E+02 6.600000E+00
N                           -6.042395E+04 4.311773E
-05 1.070916E+00 1.500000E-02
Fe                          -2.598350E+04 1.326831E
-02 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.5940E+03 BCC_A2             0.0000129       0.0082644       0.0006844
 1.8400E+02 FCC_A1             0.0021336       0.0000022       0.0481780
 1.4999E+01 CEMENTITE          0.2499995       0.0000000       0.0279707

                                Cr              Mo              Ni
 1.5940E+03 BCC_A2             0.0006990       0.0016965       0.0321796
 1.8400E+02 FCC_A1             0.0014861       0.0055063       0.3313953
 1.4999E+01 CEMENTITE          0.0998181       0.0162315       0.0122012

                                N               Fe
 1.5940E+03 BCC_A2             0.0001334       0.9563298
 1.8400E+02 FCC_A1             0.0046644       0.6066341
 1.4999E+01 CEMENTITE          0.0000005       0.5937784
```

Gibbs Energy = -5.0422438485E+07 J System Enthalpy = 2.2128698263E+07 J
     773.000
*** MULTIPHASE - Stage 1* Results ***

Temperature = 773.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		-2.459080E+03	6.820788E-01	4.162851E+00	5.000000E-02
Si		-1.596542E+05	1.628597E-11	1.317406E+01	3.700000E-01
Mn		-6.855511E+04	2.331197E-05	1.037533E+01	5.700000E-01
Cr		-5.603002E+04	1.636542E-04	2.884837E+00	1.500000E-01
Mo		-4.328859E+04	1.188213E-03	3.960809E+00	3.800000E-01
Ni		-4.509888E+04	8.965385E-04	1.124553E+02	6.600000E+00
N		-6.816826E+04	2.475824E-05	1.070916E+00	1.500000E-02
Fe		-2.872936E+04	1.144705E-02	1.644941E+03	9.186500E+01
Total				1.793025E+03	1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.5546E+03	BCC_A2	0.0000318	0.0084703	0.0010455
2.2564E+02	FCC_A1	0.0040695	0.0000272	0.0371869
1.2781E+01	CEMENTITE	0.2499995	0.0000000	0.0281106
		Cr	Mo	Ni
1.5546E+03	BCC_A2	0.0009107	0.0016940	0.0331375
2.2564E+02	FCC_A1	0.0018000	0.0050733	0.2694124
1.2781E+01	CEMENTITE	0.0831614	0.0142882	0.0117783
		N	Fe	
1.5546E+03	BCC_A2	0.0001174	0.9545929	
2.2564E+02	FCC_A1	0.0039374	0.6784933	
1.2781E+01	CEMENTITE	0.0000005	0.6126615	

```
Gibbs Energy = -5.5561221499E+07 J   System Enthalpy =  2.5772173947E+07 J
     823.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.676862E+03 5.048632E
-01 4.162851E+00 5.000000E-02
Si                          -1.623938E+05 4.935781E
-11 1.317406E+01 3.700000E-01
Mn                          -7.327721E+04 2.235204E
-05 1.037533E+01 5.700000E-01
Cr                          -6.025898E+04 1.498113E
-04 2.884837E+00 1.500000E-01
Mo                          -4.922562E+04 7.512740E
-04 3.960809E+00 3.800000E-01
Ni                          -4.990038E+04 6.807283E
-04 1.124553E+02 6.600000E+00
N                           -7.671386E+04 1.352704E
-05 1.070916E+00 1.500000E-02
Fe                          -3.159036E+04 9.886789E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 1.4708E+03 BCC_A2              0.0000705       0.0089101       0.0013905
 3.1534E+02 FCC_A1              0.0073852       0.0002202       0.0258524
 6.9213E+00 CEMENTITE           0.2499995       0.0000000       0.0257236

                                 Cr              Mo              Ni
 1.4708E+03 BCC_A2              0.0011564       0.0017061       0.0325791
 3.1534E+02 FCC_A1              0.0021749       0.0043256       0.2044251
 6.9213E+00 CEMENTITE           0.0719884       0.0126444       0.0110062

                                 N               Fe
 1.4708E+03 BCC_A2              0.0000950       0.9540924
 3.1534E+02 FCC_A1              0.0029531       0.7526636
 6.9213E+00 CEMENTITE           0.0000005       0.6286374

Gibbs Energy = -6.0947229545E+07 J   System Enthalpy =  2.9809018439E+07 J
```

```
     873.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   873.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -9.645663E+03 2.647774E
-01 4.162851E+00 5.000000E-02
Si                          -1.651027E+05 1.323060E
-10 1.317406E+01 3.700000E-01
Mn                          -7.890488E+04 1.900923E
-05 1.037533E+01 5.700000E-01
Cr                          -6.500931E+04 1.289330E
-04 2.884837E+00 1.500000E-01
Mo                          -5.501075E+04 5.112077E
-04 3.960809E+00 3.800000E-01
Ni                          -5.515426E+04 5.012002E
-04 1.124553E+02 6.600000E+00
N                           -8.560750E+04 7.549765E
-06 1.070916E+00 1.500000E-02
Fe                          -3.456946E+04 8.543598E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.3111E+03 BCC_A2             0.0000985       0.0096905       0.0016326
 4.8194E+02 FCC_A1             0.0083696       0.0009731       0.0170869

                                Cr              Mo              Ni
 1.3111E+03 BCC_A2             0.0013451       0.0017748       0.0306523
 4.8194E+02 FCC_A1             0.0023267       0.0033903       0.1499510

                                N               Fe
 1.3111E+03 BCC_A2             0.0000760       0.9547302
 4.8194E+02 FCC_A1             0.0020154       0.8158871

Gibbs Energy = -6.6594682775E+07 J   System Enthalpy =  3.4315028741E+07 J
     923.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   923.0000 K
```

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -1.844881E+04 9.035803E
-02 4.162851E+00 5.000000E-02
Si   -1.677321E+05 3.220368E
-10 1.317406E+01 3.700000E-01
Mn   -8.534265E+04 1.480437E
-05 1.037533E+01 5.700000E-01
Cr   -7.099467E+04 9.601827E
-05 2.884837E+00 1.500000E-01
Mo   -6.060879E+04 3.716202E
-04 3.960809E+00 3.800000E-01
Ni   -6.081149E+04 3.619329E
-04 1.124553E+02 6.600000E+00
N   -9.438043E+04 4.559682E
-06 1.070916E+00 1.500000E-02
Fe   -3.766227E+04 7.390286E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.0419E+03 BCC_A2   0.0000807   0.0108094   0.0017651
 7.5114E+02 FCC_A1   0.0054300   0.0025453   0.0113644

                                Cr   Mo   Ni
 1.0419E+03 BCC_A2   0.0013264   0.0019048   0.0280159
 7.5114E+02 FCC_A1   0.0020008   0.0026309   0.1108522

                                N   Fe
 1.0419E+03 BCC_A2   0.0000636   0.9560340
 7.5114E+02 FCC_A1   0.0013375   0.8638388

Gibbs Energy = -7.2509222250E+07 J   System Enthalpy = 3.9238357833E+07 J
     973.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   973.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg

```
C                          -2.803586E+04 3.125776E
-02 4.162851E+00 5.000000E-02
Si                         -1.699540E+05 7.523212E
-10 1.317406E+01 3.700000E-01
Mn                         -9.278649E+04 1.044637E
-05 1.037533E+01 5.700000E-01
Cr                         -7.714673E+04 7.220228E
-05 2.884837E+00 1.500000E-01
Mo                         -6.587638E+04 2.907865E
-04 3.960809E+00 3.800000E-01
Ni                         -6.713011E+04 2.490409E
-04 1.124553E+02 6.600000E+00
N                          -1.038710E+05 2.654099E
-06 1.070916E+00 1.500000E-02
Fe                         -4.088264E+04 6.387151E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 5.1005E+02 BCC_A2             0.0000615       0.0127997       0.0017571
 1.2830E+03 FCC_A1             0.0032202       0.0051798       0.0073884

                                Cr              Mo              Ni
 5.1005E+02 BCC_A2             0.0013016       0.0021297       0.0241226
 1.2830E+03 FCC_A1             0.0017311       0.0022406       0.0780619

                                N               Fe
 5.1005E+02 BCC_A2             0.0000502       0.9577776
 1.2830E+03 FCC_A1             0.0008147       0.9013633

Gibbs Energy = -7.8710349718E+07 J   System Enthalpy =  4.4912938163E+07 J
     1023.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1023.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                          -3.568656E+04 1.506194E
-02 4.162851E+00 5.000000E-02
Si                         -1.722626E+05 1.601216E
-09 1.317406E+01 3.700000E-01
```

```
Mn                          -9.989071E+04 7.937497E
-06 1.037533E+01 5.700000E-01
Cr                          -8.319087E+04 5.654058E
-05 2.884837E+00 1.500000E-01
Mo                          -7.101471E+04 2.366259E
-04 3.960809E+00 3.800000E-01
Ni                          -7.295998E+04 1.882516E
-04 1.124553E+02 6.600000E+00
N                           -1.116632E+05 1.988808E
-06 1.070916E+00 1.500000E-02
Fe                          -4.431949E+04 5.458744E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -8.5202536891E+07 J   System Enthalpy =  4.9659425922E+07 J
     1073.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1073.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.020726E+04 1.103373E
-02 4.162851E+00 5.000000E-02
Si                          -1.759563E+05 2.719569E
-09 1.317406E+01 3.700000E-01
Mn                          -1.056314E+05 7.209330E
-06 1.037533E+01 5.700000E-01
Cr                          -8.914128E+04 4.577505E
-05 2.884837E+00 1.500000E-01
Mo                          -7.700276E+04 1.784548E
-04 3.960809E+00 3.800000E-01
Ni                          -7.751434E+04 1.685098E
```

-04 1.124553E+02 6.600000E+00
N   -1.167277E+05 2.078404E
-06 1.070916E+00 1.500000E-02
Fe   -4.795669E+04 4.628949E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7930E+03 FCC_A1   0.0023217   0.0073474   0.0057865

                                Cr   Mo   Ni
 1.7930E+03 FCC_A1   0.0016089   0.0022090   0.0627182

                                N   Fe
 1.7930E+03 FCC_A1   0.0005973   0.9174110

Gibbs Energy = -9.1864393626E+07 J   System Enthalpy = 5.2591728756E+07 J
     1123.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1123.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -4.478158E+04 8.262385E
-03 4.162851E+00 5.000000E-02
Si   -1.796881E+05 4.388236E
-09 1.317406E+01 3.700000E-01
Mn   -1.114505E+05 6.549091E
-06 1.037533E+01 5.700000E-01
Cr   -9.515969E+04 3.748895E
-05 2.884837E+00 1.500000E-01
Mo   -8.304964E+04 1.371417E
-04 3.960809E+00 3.800000E-01
Ni   -8.213726E+04 1.512190E
-04 1.124553E+02 6.600000E+00
N   -1.219206E+05 2.133976E
-06 1.070916E+00 1.500000E-02
Fe   -5.166192E+04 3.954438E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -9.8663823178E+07 J   System Enthalpy =  5.5562510926E+07 J
     1173.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1173.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.940308E+04 6.310972E
-03 4.162851E+00 5.000000E-02
Si                          -1.834918E+05 6.747904E
-09 1.317406E+01 3.700000E-01
Mn                          -1.173592E+05 5.943345E
-06 1.037533E+01 5.700000E-01
Cr                          -1.012582E+05 3.097433E
-05 2.884837E+00 1.500000E-01
Mo                          -8.916672E+04 1.070124E
-04 3.960809E+00 3.800000E-01
Ni                          -8.683916E+04 1.358562E
-04 1.124553E+02 6.600000E+00
N                           -1.272232E+05 2.161668E
-06 1.070916E+00 1.500000E-02
Fe                          -5.544817E+04 3.395550E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
```

```
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -1.0559641072E+08 J   System Enthalpy =  5.8571783842E+07 J
     1223.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1223.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -5.407799E+04 4.902003E
-03 4.162851E+00 5.000000E-02
Si                          -1.873323E+05 9.981423E
-09 1.317406E+01 3.700000E-01
Mn                          -1.233446E+05 5.395796E
-06 1.037533E+01 5.700000E-01
Cr                          -1.074248E+05 2.582108E
-05 2.884837E+00 1.500000E-01
Mo                          -9.534105E+04 8.473486E
-05 3.960809E+00 3.800000E-01
Ni                          -9.161244E+04 1.222667E
-04 1.124553E+02 6.600000E+00
N                           -1.326417E+05 2.162639E
-06 1.070916E+00 1.500000E-02
Fe                          -5.930550E+04 2.931641E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -1.1265811913E+08 J   System Enthalpy =  6.1619582249E+07 J
     1273.00
```

*** MULTIPHASE - Stage 1* Results ***

Temperature = 1273.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		-5.879253E+04	3.869403E-03	4.162851E+00	5.000000E-02
Si		-1.912601E+05	1.419971E-08	1.317406E+01	3.700000E-01
Mn		-1.294169E+05	4.895628E-06	1.037533E+01	5.700000E-01
Cr		-1.136707E+05	2.167207E-05	2.884837E+00	1.500000E-01
Mo		-1.015832E+05	6.790052E-05	3.960809E+00	3.800000E-01
Ni		-9.645262E+04	1.102522E-04	1.124553E+02	6.600000E+00
N		-1.381592E+05	2.143373E-06	1.070916E+00	1.500000E-02
Fe		-6.323223E+04	2.543757E-03	1.644941E+03	9.186500E+01
Total				1.793025E+03	1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
5.7086E-06	BCC_A2	0.0000002	0.0069320	0.0000002
1.7930E+03	FCC_A1	0.0023217	0.0073474	0.0057865
		Cr	Mo	Ni
5.7086E-06	BCC_A2	0.0000002	0.0000002	0.0389705
1.7930E+03	FCC_A1	0.0016089	0.0022090	0.0627182
		N	Fe	
5.7086E-06	BCC_A2	0.0000002	0.9540966	
1.7930E+03	FCC_A1	0.0005973	0.9174110	

Gibbs Energy = -1.1984524352E+08 J   System Enthalpy = 6.4705959660E+07 J
     1323.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1323.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -6.355399E+04 3.096184E
-03 4.162851E+00 5.000000E-02
Si   -1.952374E+05 1.958117E
-08 1.317406E+01 3.700000E-01
Mn   -1.355657E+05 4.443588E
-06 1.037533E+01 5.700000E-01
Cr   -1.199864E+05 1.831561E
-05 2.884837E+00 1.500000E-01
Mo   -1.078827E+05 5.504111E
-05 3.960809E+00 3.800000E-01
Ni   -1.013602E+05 9.958634E
-05 1.124553E+02 6.600000E+00
N   -1.437804E+05 2.105770E
-06 1.070916E+00 1.500000E-02
Fe   -6.722611E+04 2.217420E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7930E+03 FCC_A1   0.0023217   0.0073474   0.0057865

                                Cr   Mo   Ni
 1.7930E+03 FCC_A1   0.0016089   0.0022090   0.0627182

                                N   Fe
 1.7930E+03 FCC_A1   0.0005973   0.9174110

Gibbs Energy = -1.2715437266E+08 J   System Enthalpy = 6.7830984974E+07 J
     1373.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1373.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -6.836199E+04 2.507787E
-03 4.162851E+00 5.000000E-02
Si   -1.992531E+05 2.628904E
-08 1.317406E+01 3.700000E-01

```
Mn                          -1.417883E+05 4.035680E
-06 1.037533E+01 5.700000E-01
Cr                          -1.263700E+05 1.557680E
-05 2.884837E+00 1.500000E-01
Mo                          -1.142371E+05 4.508746E
-05 3.960809E+00 3.800000E-01
Ni                          -1.063358E+05 9.008350E
-05 1.124553E+02 6.600000E+00
N                           -1.495026E+05 2.053251E
-06 1.070916E+00 1.500000E-02
Fe                          -7.128910E+04 1.940591E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -1.3458235621E+08 J   System Enthalpy =  7.0994739639E+07 J
     1423.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1423.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -7.321106E+04 2.054374E
-03 4.162851E+00 5.000000E-02
Si                          -2.033289E+05 3.439639E
-08 1.317406E+01 3.700000E-01
Mn                          -1.480870E+05 3.666449E
-06 1.037533E+01 5.700000E-01
Cr                          -1.328250E+05 1.331872E
-05 2.884837E+00 1.500000E-01
Mo                          -1.206488E+05 3.727418E
-05 3.960809E+00 3.800000E-01
Ni                          -1.113742E+05 8.162879E
```

-05 1.124553E+02 6.600000E+00
N   -1.553184E+05 1.989790E
-06 1.070916E+00 1.500000E-02
Fe   -7.541543E+04 1.705160E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7930E+03 FCC_A1   0.0023217   0.0073474   0.0057865

                                Cr   Mo   Ni
 1.7930E+03 FCC_A1   0.0016089   0.0022090   0.0627182

                                N   Fe
 1.7930E+03 FCC_A1   0.0005973   0.9174110

Gibbs Energy = -1.4212627658E+08 J   System Enthalpy = 7.4197315519E+07 J
     1473.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1473.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -7.810051E+04 1.700265E
-03 4.162851E+00 5.000000E-02
Si   -2.074508E+05 4.402406E
-08 1.317406E+01 3.700000E-01
Mn   -1.544587E+05 3.332845E
-06 1.037533E+01 5.700000E-01
Cr   -1.393490E+05 1.144492E
-05 2.884837E+00 1.500000E-01
Mo   -1.271149E+05 3.107716E
-05 3.960809E+00 3.800000E-01
Ni   -1.164792E+05 7.406085E
-05 1.124553E+02 6.600000E+00
N   -1.612263E+05 1.917941E
-06 1.070916E+00 1.500000E-02
Fe   -7.960394E+04 1.503848E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -1.4978342477E+08 J   System Enthalpy =  7.7438813253E+07 J
     1523.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1523.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -8.303056E+04 1.420221E
-03 4.162851E+00 5.000000E-02
Si                          -2.116217E+05 5.522680E
-08 1.317406E+01 3.700000E-01
Mn                          -1.609037E+05 3.031034E
-06 1.037533E+01 5.700000E-01
Cr                          -1.459435E+05 9.878058E
-06 2.884837E+00 1.500000E-01
Mo                          -1.336360E+05 2.610815E
-05 3.960809E+00 3.800000E-01
Ni                          -1.216486E+05 6.728215E
-05 1.124553E+02 6.600000E+00
N                           -1.672214E+05 1.840422E
-06 1.070916E+00 1.500000E-02
Fe                          -8.385994E+04 1.330182E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
```

```
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -1.5755127943E+08 J   System Enthalpy =  8.0719342579E+07 J
     1573.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -8.800347E+04 1.196027E
-03 4.162851E+00 5.000000E-02
Si                          -2.158357E+05 6.806441E
-08 1.317406E+01 3.700000E-01
Mn                          -1.674144E+05 2.759355E
-06 1.037533E+01 5.700000E-01
Cr                          -1.526014E+05 8.564249E
-06 2.884837E+00 1.500000E-01
Mo                          -1.402042E+05 2.209811E
-05 3.960809E+00 3.800000E-01
Ni                          -1.268685E+05 6.126069E
-05 1.124553E+02 6.600000E+00
N                           -1.733077E+05 1.758375E
-06 1.070916E+00 1.500000E-02
Fe                          -8.816959E+04 1.180931E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -1.6542749162E+08 J   System Enthalpy =  8.4039295532E+07 J
     1623.00
```

*** MULTIPHASE - Stage 1* Results ***

Temperature = 1623.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -9.301299E+04 1.015184E
-03 4.162851E+00 5.000000E-02
Si   -2.201005E+05 8.250181E
-08 1.317406E+01 3.700000E-01
Mn   -1.740049E+05 2.511698E
-06 1.037533E+01 5.700000E-01
Cr   -1.593323E+05 7.450378E
-06 2.884837E+00 1.500000E-01
Mo   -1.468283E+05 1.881900E
-05 3.960809E+00 3.800000E-01
Ni   -1.321542E+05 5.582865E
-05 1.124553E+02 6.600000E+00
N   -1.794728E+05 1.674909E
-06 1.070916E+00 1.500000E-02
Fe   -9.254564E+04 1.050959E
-03 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7930E+03 FCC_A1   0.0023217   0.0073474   0.0057865

                                Cr   Mo   Ni
 1.7930E+03 FCC_A1   0.0016089   0.0022090   0.0627182

                                N   Fe
 1.7930E+03 FCC_A1   0.0005973   0.9174110

Gibbs Energy = -1.7340987358E+08 J   System Enthalpy = 8.7398822440E+07 J
     1673.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1673.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg

```
C                          -9.805994E+04 8.678329E
-04 4.162851E+00 5.000000E-02
Si                         -2.244092E+05 9.854629E
-08 1.317406E+01 3.700000E-01
Mn                         -1.806504E+05 2.290079E
-06 1.037533E+01 5.700000E-01
Cr                         -1.661255E+05 6.506366E
-06 2.884837E+00 1.500000E-01
Mo                         -1.534970E+05 1.612935E
-05 3.960809E+00 3.800000E-01
Ni                         -1.374906E+05 5.097512E
-05 1.124553E+02 6.600000E+00
N                          -1.857247E+05 1.590101E
-06 1.070916E+00 1.500000E-02
Fe                         -9.696995E+04 9.385707E
-04 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 FCC_A1             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 FCC_A1             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 FCC_A1             0.0005973       0.9174110

Gibbs Energy = -1.8149637194E+08 J   System Enthalpy =  9.0797865482E+07 J
     1723.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1723.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                          -1.031690E+05 7.454137E
-04 4.162851E+00 5.000000E-02
Si                         -2.287643E+05 1.161273E
-07 1.317406E+01 3.700000E-01
Mn                         -1.873998E+05 2.084064E
-06 1.037533E+01 5.700000E-01
Cr                         -1.729961E+05 5.695953E
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-06 2.884837E+00 1.500000E-01
Mo   -1.602346E+05 1.388140E
-05 3.960809E+00 3.800000E-01
Ni   -1.429004E+05 4.655078E
-05 1.124553E+02 6.600000E+00
N   -1.920457E+05 1.506848E
-06 1.070916E+00 1.500000E-02
Fe   -1.014714E+05 8.391928E
-04 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.7930E+03	FCC_A1	0.0023217	0.0073474	0.0057865
		Cr	Mo	Ni
1.7930E+03	FCC_A1	0.0016089	0.0022090	0.0627182
		N	Fe	
1.7930E+03	FCC_A1	0.0005973	0.9174110	

Gibbs Energy = -1.8968505443E+08 J   System Enthalpy = 9.4236297615E+07 J
     1773.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1773.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		-1.283409E+05	1.655857E		
-04	4.162851E+00	5.000000E-02			
Si		-2.412543E+05	7.808115E		
-08	1.317406E+01	3.700000E-01			
Mn		-1.982590E+05	1.442806E		
-06	1.037533E+01	5.700000E-01			
Cr		-1.818240E+05	4.399354E		
-06	2.884837E+00	1.500000E-01			
Mo		-1.746698E+05	7.147502E		
-06	3.960809E+00	3.800000E-01			
Ni		-1.499274E+05	3.828921E		
-05	1.124553E+02	6.600000E+00			
N		-2.069376E+05	8.008160E		
-07	1.070916E+00	1.500000E-02			

```
Fe                          -1.057748E+05 7.652960E
-04 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.6221E+03 LIQUID             0.0025006       0.0076449       0.0059546
 1.7088E+02 FCC_A1             0.0006235       0.0045234       0.0041911

                                Cr              Mo              Ni
 1.6221E+03 LIQUID             0.0016291       0.0022999       0.0632472
 1.7088E+02 FCC_A1             0.0014175       0.0013460       0.0576963

                                N               Fe
 1.6221E+03 LIQUID             0.0006238       0.9161000
 1.7088E+02 FCC_A1             0.0003457       0.9298566

Gibbs Energy = -1.9805766229E+08 J   System Enthalpy =  1.2080813657E+08 J
     1823.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.346243E+05 1.388968E
-04 4.162851E+00 5.000000E-02
Si                          -2.467748E+05 8.497842E
-08 1.317406E+01 3.700000E-01
Mn                          -2.061264E+05 1.241611E
-06 1.037533E+01 5.700000E-01
Cr                          -1.888753E+05 3.874981E
-06 2.884837E+00 1.500000E-01
Mo                          -1.822601E+05 5.995313E
-06 3.960809E+00 3.800000E-01
Ni                          -1.559714E+05 3.396596E
-05 1.124553E+02 6.600000E+00
N                           -2.145474E+05 7.123670E
-07 1.070916E+00 1.500000E-02
Fe                          -1.107566E+05 6.707457E
-04 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02
```

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 LIQUID             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
 1.7930E+03 LIQUID             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 LIQUID             0.0005973       0.9174110

Gibbs Energy = -2.0717491524E+08 J   System Enthalpy =  1.2731627221E+08 J
     1873.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1873.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.398183E+05 1.261290E
-04 4.162851E+00 5.000000E-02
Si                          -2.516742E+05 9.581448E
-08 1.317406E+01 3.700000E-01
Mn                          -2.137154E+05 1.096496E
-06 1.037533E+01 5.700000E-01
Cr                          -1.958115E+05 3.461807E
-06 2.884837E+00 1.500000E-01
Mo                          -1.892688E+05 5.269427E
-06 3.960809E+00 3.800000E-01
Ni                          -1.619273E+05 3.049639E
-05 1.124553E+02 6.600000E+00
N                           -2.214731E+05 6.662902E
-07 1.070916E+00 1.500000E-02
Fe                          -1.158285E+05 5.886152E
-04 1.644941E+03 9.186500E+01
Total
1.793025E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7930E+03 LIQUID             0.0023217       0.0073474       0.0057865

                                Cr              Mo              Ni
```

```
 1.7930E+03 LIQUID             0.0016089       0.0022090       0.0627182

                                N               Fe
 1.7930E+03 LIQUID             0.0005973       0.9174110

Gibbs Energy = -2.1640466643E+08 J   System Enthalpy =  1.3140426151E+08 J

                     ************************************
                     * WARNING/ERRORS HAVE BEEN DETECTED *
                     ************************************

   3240 Warnings: Multiphase, temperature range violation -  Unary data
      1 Warnings: Multiphase, Stage 1 - Less accuracy than normal

 MULTIPHASE OPTION ?
*************************************************************************

0.1 Carbon

 MULTIPHASE OPTION ? set w(1)=0.1 !
com pr br pr  MULTIPHASE OPTION ? mol !
 NUMBER OF STEPS =  27

     573.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
7.551589E+03 4.879609E+00 8.325701E+00 1.000000E-01
Si                           -1.504489E+05 1.929449E
-14 1.317406E+01 3.700000E-01
Mn                           -5.346165E+04 1.338328E
-05 1.037533E+01 5.700000E-01
Cr                           -4.438395E+04 8.996305E
-05 2.884837E+00 1.500000E-01
Mo                           -2.266113E+04 8.595373E
-03 3.960809E+00 3.800000E-01
Ni                           -2.953697E+04 2.029926E
-03 1.124553E+02 6.600000E+00
N                            -5.290797E+04 1.503261E
-05 1.070916E+00 1.500000E-02
Fe                           -1.847327E+04 2.070240E
```

-02 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
2.2815E+00	LIQUID	0.0006857	0.0000000	0.0207398
1.6097E+03	BCC_A2	0.0000005	0.0081840	0.0001334
1.5114E+02	FCC_A1	0.0002673	0.0000000	0.0604831
3.3132E+01	CEMENTITE	0.2499999	0.0000000	0.0293282
		Cr	Mo	Ni
2.2815E+00	LIQUID	0.0856910	0.4434610	0.0000087
1.6097E+03	BCC_A2	0.0000900	0.0010541	0.0224027
1.5114E+02	FCC_A1	0.0001187	0.0025333	0.5034359
3.3132E+01	CEMENTITE	0.0762586	0.0262376	0.0091329
		N	Fe	
2.2815E+00	LIQUID	0.4484337	0.0009800	
1.6097E+03	BCC_A2	0.0000095	0.9681258	
1.5114E+02	FCC_A1	0.0002149	0.4329469	
3.3132E+01	CEMENTITE	0.0000001	0.6090427	

Gibbs Energy = -3.6440614884E+07 J System Enthalpy = 1.2478496345E+07 J
     623.000
*** MULTIPHASE - Stage 1* Results ***

Temperature = 623.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C					
1.680167E+03	1.383146E+00	8.325701E+00	1.000000E-01		
Si		-1.482162E+05	3.743799E		
-13	1.317406E+01	3.700000E-01			
Mn		-4.546785E+04	1.541355E		
-04	1.037533E+01	5.700000E-01			
Cr		-4.878073E+04	8.131027E		
-05	2.884837E+00	1.500000E-01			
Mo		-4.166261E+04	3.213215E		
-04	3.960809E+00	3.800000E-01			
Ni		-2.879896E+04	3.849893E		
-03	1.124553E+02	6.600000E+00			
N		-8.672014E+04	5.360973E		

-08 1.070916E+00 1.500000E-02
Fe -2.107375E+04 1.710578E
-02 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.7668E+03	BCC_A2	0.0000007	0.0074566	0.0033793
9.5688E+00	FCC_A1	0.3486404	0.0000000	0.0027996
1.9953E+01	CEMENTITE	0.2500000	0.0000000	0.2194129
		Cr	Mo	Ni
1.7668E+03	BCC_A2	0.0001664	0.0000838	0.0633270
9.5688E+00	FCC_A1	0.1402566	0.3958558	0.0000057
1.9953E+01	CEMENTITE	0.0625828	0.0012503	0.0286170
		N	Fe	
1.7668E+03	BCC_A2	0.0000000	0.9255861	
9.5688E+00	FCC_A1	0.1119086	0.0005333	
1.9953E+01	CEMENTITE	0.0000000	0.4381370	

Gibbs Energy = -4.0695698739E+07 J System Enthalpy = 1.6077969630E+07 J
673.000
*** MULTIPHASE - Stage 1* Results ***

Temperature = 673.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C					
5.483290E+02	1.102954E+00	8.325701E+00	1.000000E-01		
Si		-1.510240E+05	1.899437E		
-12 1.317406E+01	3.700000E-01				
Mn		-5.016995E+04	1.276957E		
-04 1.037533E+01	5.700000E-01				
Cr		-5.244929E+04	8.497098E		
-05 2.884837E+00	1.500000E-01				
Mo		-4.431388E+04	3.636486E		
-04 3.960809E+00	3.800000E-01				
Ni		-3.281039E+04	2.841178E		
-03 1.124553E+02	6.600000E+00				
N		-8.818702E+04	1.430771E		
-07 1.070916E+00	1.500000E-02				

```
Fe                          -2.357284E+04 1.480638E
-02 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 1.7663E+03 BCC_A2             0.0000031       0.0074585       0.0038889
 9.0623E+00 FCC_A1             0.3408554       0.0000000       0.0029500
 2.0925E+01 CEMENTITE          0.2500000       0.0000000       0.1662873

                                 Cr              Mo              Ni
 1.7663E+03 BCC_A2             0.0002617       0.0001788       0.0633638
 9.0623E+00 FCC_A1             0.1400833       0.3969025       0.0000108
 2.0925E+01 CEMENTITE          0.0551041       0.0022998       0.0255884

                                 N               Fe
 1.7663E+03 BCC_A2             0.0000002       0.9248450
 9.0623E+00 FCC_A1             0.1181281       0.0010699
 2.0925E+01 CEMENTITE          0.0000000       0.5007205

Gibbs Energy = -4.5371412251E+07 J   System Enthalpy =  1.9153988955E+07 J
     723.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   723.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
6.143606E+02 1.107604E+00 8.325701E+00 1.000000E-01
Si                          -1.569433E+05 4.587687E
-12 1.317406E+01 3.700000E-01
Mn                          -6.493257E+04 2.036712E
-05 1.037533E+01 5.700000E-01
Cr                          -5.445968E+04 1.162910E
-04 2.884837E+00 1.500000E-01
Mo                          -3.791716E+04 1.822489E
-03 3.960809E+00 3.800000E-01
Ni                          -4.066219E+04 1.154382E
-03 1.124553E+02 6.600000E+00
N                           -6.014119E+04 4.519432E
-05 1.070916E+00 1.500000E-02
Fe                          -2.598341E+04 1.326850E
```

-02 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.5811E+03	BCC_A2	0.0000147	0.0083319	0.0006508
1.8373E+02	FCC_A1	0.0023992	0.0000023	0.0462138
3.1446E+01	CEMENTITE	0.2499987	0.0000000	0.0271956
		Cr	Mo	Ni
1.5811E+03	BCC_A2	0.0004516	0.0015530	0.0323690
1.8373E+02	FCC_A1	0.0009646	0.0051281	0.3315109
3.1446E+01	CEMENTITE	0.0633949	0.0179076	0.0116509
		N	Fe	
1.5811E+03	BCC_A2	0.0001385	0.9564905	
1.8373E+02	FCC_A1	0.0046369	0.6091441	
3.1446E+01	CEMENTITE	0.0000013	0.6298509	

Gibbs Energy = -5.0398254379E+07 J System Enthalpy = 2.2254731894E+07 J
     773.000
*** MULTIPHASE - Stage 1* Results ***

Temperature = 773.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		-1.726582E+03	7.644182E		
-01	8.325701E+00	1.000000E-01			
Si		-1.595810E+05	1.647234E		
-11	1.317406E+01	3.700000E-01			
Mn		-6.888027E+04	2.216193E		
-05	1.037533E+01	5.700000E-01			
Cr		-5.847130E+04	1.119347E		
-04	2.884837E+00	1.500000E-01			
Mo		-4.373230E+04	1.108949E		
-03	3.960809E+00	3.800000E-01			
Ni		-4.505005E+04	9.033758E		
-04	1.124553E+02	6.600000E+00			
N		-6.792184E+04	2.572591E		
-05	1.070916E+00	1.500000E-02			
Fe		-2.872892E+04	1.144784E		
-02	1.644045E+03	9.181500E+01			

```
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.5412E+03 BCC_A2             0.0000350       0.0085435       0.0009949
 2.2598E+02 FCC_A1             0.0044478       0.0000284       0.0356153
 2.9067E+01 CEMENTITE          0.2499989       0.0000000       0.0273076

                                Cr              Mo              Ni
 1.5412E+03 BCC_A2             0.0006225       0.0015791       0.0332970
 2.2598E+02 FCC_A1             0.0012405       0.0048029       0.2690652
 2.9067E+01 CEMENTITE          0.0565944       0.0151973       0.0114723

                                N               Fe
 1.5412E+03 BCC_A2             0.0001207       0.9548073
 2.2598E+02 FCC_A1             0.0039158       0.6808841
 2.9067E+01 CEMENTITE          0.0000011       0.6394284

Gibbs Energy = -5.5544038420E+07 J   System Enthalpy =  2.5897048947E+07 J
     823.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -4.074319E+03 5.513346E
-01 8.325701E+00 1.000000E-01
Si                           -1.623134E+05 4.994140E
-11 1.317406E+01 3.700000E-01
Mn                           -7.358761E+04 2.136075E
-05 1.037533E+01 5.700000E-01
Cr                           -6.253301E+04 1.074530E
-04 2.884837E+00 1.500000E-01
Mo                           -4.960470E+04 7.107871E
-04 3.960809E+00 3.800000E-01
Ni                           -4.986292E+04 6.844647E
-04 1.124553E+02 6.600000E+00
N                            -7.651340E+04 1.392919E
-05 1.070916E+00 1.500000E-02
Fe                           -3.158685E+04 9.891866E
-03 1.644045E+03 9.181500E+01
Total
```

1.796292E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.4561E+03	BCC_A2	0.0000758	0.0089974	0.0013289
3.1735E+02	FCC_A1	0.0079118	0.0002288	0.0247947
2.2818E+01	CEMENTITE	0.2499992	0.0000000	0.0250562
		Cr	Mo	Ni
1.4561E+03	BCC_A2	0.0008285	0.0016119	0.0326544
3.1735E+02	FCC_A1	0.0015740	0.0041375	0.2037503
2.2818E+01	CEMENTITE	0.0516683	0.0131750	0.0108247
		N	Fe	
1.4561E+03	BCC_A2	0.0000968	0.9544062	
3.1735E+02	FCC_A1	0.0029306	0.7546723	
2.2818E+01	CEMENTITE	0.0000008	0.6492758	

Gibbs Energy = -6.0937036410E+07 J System Enthalpy = 2.9935753650E+07 J
     873.000
*** MULTIPHASE - Stage 1* Results ***

Temperature = 873.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		-6.517323E+03	4.074325E		
-01	8.325701E+00	1.000000E-01			
Si		-1.649316E+05	1.354618E		
-10	1.317406E+01	3.700000E-01			
Mn		-7.938932E+04	1.778195E		
-05	1.037533E+01	5.700000E-01			
Cr		-6.600822E+04	1.123562E		
-04	2.884837E+00	1.500000E-01			
Mo		-5.537706E+04	4.860499E		
-04	3.960809E+00	3.800000E-01			
Ni		-5.532752E+04	4.893784E		
-04	1.124553E+02	6.600000E+00			
N		-8.631439E+04	6.849184E		
-06	1.070916E+00	1.500000E-02			
Fe		-3.456482E+04	8.549063E		
-03	1.644045E+03	9.181500E+01			
Total					
1.796292E+03	1.000000E+02				

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.2568E+03	BCC_A2	0.0001503	0.0099971	0.0015199
5.3446E+02	FCC_A1	0.0128679	0.0011409	0.0156472
5.0378E+00	CEMENTITE	0.2499995	0.0000000	0.0203153
		Cr	Mo	Ni
1.2568E+03	BCC_A2	0.0011686	0.0016823	0.0297347
5.3446E+02	FCC_A1	0.0021550	0.0033447	0.1403968
5.0378E+00	CEMENTITE	0.0524738	0.0116826	0.0095913
		N	Fe	
1.2568E+03	BCC_A2	0.0000689	0.9556781	
5.3446E+02	FCC_A1	0.0018417	0.8226058	
5.0378E+00	CEMENTITE	0.0000005	0.6559371	

Gibbs Energy = -6.6595119348E+07 J System Enthalpy = 3.4725578699E+07 J
     923.000
*** MULTIPHASE - Stage 1* Results ***

Temperature = 923.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		-1.400833E+04	1.611601E		
-01	8.325701E+00	1.000000E-01			
Si		-1.674246E+05	3.351993E		
-10	1.317406E+01	3.700000E-01			
Mn		-8.589778E+04	1.377128E		
-05	1.037533E+01	5.700000E-01			
Cr		-7.139690E+04	9.111527E		
-05	2.884837E+00	1.500000E-01			
Mo		-6.083463E+04	3.608431E		
-04	3.960809E+00	3.800000E-01			
Ni		-6.109399E+04	3.488521E		
-04	1.124553E+02	6.600000E+00			
N		-9.526424E+04	4.063673E		
-06	1.070916E+00	1.500000E-02			
Fe		-3.765633E+04	7.396010E		
-03	1.644045E+03	9.181500E+01			
Total					
1.796292E+03	1.000000E+02				

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 9.4729E+02 BCC_A2             0.0001432       0.0113195       0.0016341
 8.4900E+02 FCC_A1             0.0096467       0.0028871       0.0103974

                                Cr              Mo              Ni
 9.4729E+02 BCC_A2             0.0012547       0.0018397       0.0267611
 8.4900E+02 FCC_A1             0.0019979       0.0026126       0.1025967

                                N               Fe
 9.4729E+02 BCC_A2             0.0000569       0.9569907
 8.4900E+02 FCC_A1             0.0011979       0.8686637

Gibbs Energy = -7.2541856606E+07 J   System Enthalpy =  3.9842732591E+07 J
     973.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   973.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.311219E+04 5.744789E
-02 8.325701E+00 1.000000E-01
Si                          -1.695030E+05 7.954444E
-10 1.317406E+01 3.700000E-01
Mn                          -9.329166E+04 9.814007E
-06 1.037533E+01 5.700000E-01
Cr                          -7.748841E+04 6.921628E
-05 2.884837E+00 1.500000E-01
Mo                          -6.596450E+04 2.876363E
-04 3.960809E+00 3.800000E-01
Ni                          -6.740535E+04 2.407105E
-04 1.124553E+02 6.600000E+00
N                           -1.045329E+05 2.445604E
-06 1.070916E+00 1.500000E-02
Fe                          -4.088068E+04 6.388697E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 3.8499E+02 BCC_A2             0.0001123       0.0135071       0.0016488
```

```
 1.4113E+03 FCC_A1             0.0058687       0.0056501       0.0069018

                                Cr              Mo              Ni
 3.8499E+02 BCC_A2             0.0012445       0.0020901       0.0230622
 1.4113E+03 FCC_A1             0.0017046       0.0022363       0.0733907

                                N               Fe
 3.8499E+02 BCC_A2             0.0000465       0.9582885
 1.4113E+03 FCC_A1             0.0007461       0.9035016

Gibbs Energy = -7.8778913465E+07 J   System Enthalpy =  4.5564778517E+07 J
     1023.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1023.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.961258E+04 3.076184E
-02 8.325701E+00 1.000000E-01
Si                          -1.720913E+05 1.633790E
-09 1.317406E+01 3.700000E-01
Mn                          -9.999836E+04 7.837675E
-06 1.037533E+01 5.700000E-01
Cr                          -8.345963E+04 5.478198E
-05 2.884837E+00 1.500000E-01
Mo                          -7.127455E+04 2.295067E
-04 3.960809E+00 3.800000E-01
Ni                          -7.287899E+04 1.900528E
-04 1.124553E+02 6.600000E+00
N                           -1.115342E+05 2.019198E
-06 1.070916E+00 1.500000E-02
Fe                          -4.434737E+04 5.440882E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041
```

```
                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -8.5297355969E+07 J   System Enthalpy =  4.9867907927E+07 J
     1073.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1073.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -3.384416E+04 2.251523E
-02 8.325701E+00 1.000000E-01
Si                          -1.757691E+05 2.777220E
-09 1.317406E+01 3.700000E-01
Mn                          -1.057352E+05 7.125929E
-06 1.037533E+01 5.700000E-01
Cr                          -8.940363E+04 4.444858E
-05 2.884837E+00 1.500000E-01
Mo                          -7.725784E+04 1.734248E
-04 3.960809E+00 3.800000E-01
Ni                          -7.742799E+04 1.701487E
-04 1.124553E+02 6.600000E+00
N                           -1.166012E+05 2.108076E
-06 1.070916E+00 1.500000E-02
Fe                          -4.798099E+04 4.616357E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -9.1974110905E+07 J   System Enthalpy =  5.2803299977E+07 J
     1123.00
*** MULTIPHASE - Stage 1* Results ***
```

```
Temperature =  1123.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -3.812914E+04 1.684713E
-02 8.325701E+00 1.000000E-01
Si                          -1.794949E+05 4.479982E
-09 1.317406E+01 3.700000E-01
Mn                          -1.115567E+05 6.475003E
-06 1.037533E+01 5.700000E-01
Cr                          -9.542187E+04 3.645092E
-05 2.884837E+00 1.500000E-01
Mo                          -8.330622E+04 1.334245E
-04 3.960809E+00 3.800000E-01
Ni                          -8.205644E+04 1.525336E
-04 1.124553E+02 6.600000E+00
N                           -1.217904E+05 2.163940E
-06 1.070916E+00 1.500000E-02
Fe                          -5.169301E+04 3.941293E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -9.8788583698E+07 J   System Enthalpy =  5.5777215510E+07 J
     1173.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1173.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.246276E+04 1.285720E
-02 8.325701E+00 1.000000E-01
```

```
Si                          -1.832879E+05 6.890460E
-09 1.317406E+01 3.700000E-01
Mn                          -1.174637E+05 5.880010E
-06 1.037533E+01 5.700000E-01
Cr                          -1.015161E+05 3.016616E
-05 2.884837E+00 1.500000E-01
Mo                          -8.942063E+04 1.042623E
-04 3.960809E+00 3.800000E-01
Ni                          -8.675622E+04 1.370165E
-04 1.124553E+02 6.600000E+00
N                           -1.270935E+05 2.190619E
-06 1.070916E+00 1.500000E-02
Fe                          -5.547893E+04 3.384859E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.0573635489E+08 J   System Enthalpy =  5.8789660253E+07 J
     1223.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1223.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.684370E+04 9.984906E
-03 8.325701E+00 1.000000E-01
Si                          -1.871430E+05 1.016899E
-08 1.317406E+01 3.700000E-01
Mn                          -1.234540E+05 5.338013E
-06 1.037533E+01 5.700000E-01
Cr                          -1.076851E+05 2.516865E
-05 2.884837E+00 1.500000E-01
Mo                          -9.559903E+04 8.261224E
```

-05 3.960809E+00 3.800000E-01
Ni   -9.152838E+04 1.232816E
-04 1.124553E+02 6.600000E+00
N   -1.325056E+05 2.191766E
-06 1.070916E+00 1.500000E-02
Fe   -5.933717E+04 2.922526E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7963E+03 FCC_A1   0.0046349   0.0073340   0.0057760

                                Cr   Mo   Ni
 1.7963E+03 FCC_A1   0.0016060   0.0022050   0.0626041

                                N   Fe
 1.7963E+03 FCC_A1   0.0005962   0.9152438

Gibbs Energy = -1.1281338294E+08 J   System Enthalpy = 6.1840664027E+07 J
     1273.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1273.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -5.127249E+04 7.874155E
-03 8.325701E+00 1.000000E-01
Si   -1.910501E+05 1.448419E
-08 1.317406E+01 3.700000E-01
Mn   -1.295232E+05 4.846717E
-06 1.037533E+01 5.700000E-01
Cr   -1.139251E+05 2.115735E
-05 2.884837E+00 1.500000E-01
Mo   -1.018370E+05 6.629154E
-05 3.960809E+00 3.800000E-01
Ni   -9.636932E+04 1.111234E
-04 1.124553E+02 6.600000E+00
N   -1.380251E+05 2.170706E
-06 1.070916E+00 1.500000E-02
Fe   -6.326532E+04 2.535817E
-03 1.644045E+03 9.181500E+01

```
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.2001595863E+08 J   System Enthalpy =  6.4930276050E+07 J
     1323.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1323.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -5.574608E+04 6.296376E
-03 8.325701E+00 1.000000E-01
Si                          -1.950086E+05 1.999277E
-08 1.317406E+01 3.700000E-01
Mn                          -1.356700E+05 4.401672E
-06 1.037533E+01 5.700000E-01
Cr                          -1.202361E+05 1.790443E
-05 2.884837E+00 1.500000E-01
Mo                          -1.081335E+05 5.380007E
-05 3.960809E+00 3.800000E-01
Ni                          -1.012785E+05 1.003287E
-04 1.124553E+02 6.600000E+00
N                           -1.436470E+05 2.131458E
-06 1.070916E+00 1.500000E-02
Fe                          -6.726178E+04 2.210242E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 5.4489E-06 BCC_A2             0.0000002       0.0053099       0.0000002
```

```
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 5.4489E-06 BCC_A2             0.0000002       0.0000002       0.0420504
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 5.4489E-06 BCC_A2             0.0000002       0.9526387
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.2734066666E+08 J   System Enthalpy =  6.8058561456E+07 J
     1373.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1373.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -6.026335E+04 5.097873E
-03 8.325701E+00 1.000000E-01
Si                          -1.990248E+05 2.682002E
-08 1.317406E+01 3.700000E-01
Mn                          -1.418939E+05 3.998542E
-06 1.037533E+01 5.700000E-01
Cr                          -1.266185E+05 1.524150E
-05 2.884837E+00 1.500000E-01
Mo                          -1.144883E+05 4.410617E
-05 3.960809E+00 3.800000E-01
Ni                          -1.062527E+05 9.074174E
-05 1.124553E+02 6.600000E+00
N                           -1.493667E+05 2.077846E
-06 1.070916E+00 1.500000E-02
Fe                          -7.132454E+04 1.934576E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041
```

```
                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.3478435277E+08 J   System Enthalpy =  7.1225598367E+07 J
     1423.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1423.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -6.482384E+04 4.173929E
-03 8.325701E+00 1.000000E-01
Si                          -2.030910E+05 3.509492E
-08 1.317406E+01 3.700000E-01
Mn                          -1.481919E+05 3.634090E
-06 1.037533E+01 5.700000E-01
Cr                          -1.330701E+05 1.304564E
-05 2.884837E+00 1.500000E-01
Mo                          -1.208984E+05 3.649612E
-05 3.960809E+00 3.800000E-01
Ni                          -1.112913E+05 8.220316E
-05 1.124553E+02 6.600000E+00
N                           -1.551819E+05 2.012886E
-06 1.070916E+00 1.500000E-02
Fe                          -7.545162E+04 1.699951E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.4234409561E+08 J   System Enthalpy =  7.4431475745E+07 J
     1473.00
*** MULTIPHASE - Stage 1* Results ***
```

```
Temperature =  1473.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -6.942583E+04 3.452433E
-03 8.325701E+00 1.000000E-01
Si                          -2.072017E+05 4.492855E
-08 1.317406E+01 3.700000E-01
Mn                          -1.545625E+05 3.304739E
-06 1.037533E+01 5.700000E-01
Cr                          -1.395903E+05 1.122165E
-05 2.884837E+00 1.500000E-01
Mo                          -1.273624E+05 3.045556E
-05 3.960809E+00 3.800000E-01
Ni                          -1.163941E+05 7.457727E
-05 1.124553E+02 6.600000E+00
N                           -1.610896E+05 1.939457E
-06 1.070916E+00 1.500000E-02
Fe                          -7.964331E+04 1.499023E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.5001718258E+08 J   System Enthalpy =  7.7676291628E+07 J
     1523.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1523.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -7.406812E+04 2.882271E
-03 8.325701E+00 1.000000E-01
```

```
Si                          -2.113644E+05 5.636059E
-08 1.317406E+01 3.700000E-01
Mn                          -1.610049E+05 3.006921E
-06 1.037533E+01 5.700000E-01
Cr                          -1.461796E+05 9.695640E
-06 2.884837E+00 1.500000E-01
Mo                          -1.338799E+05 2.561011E
-05 3.960809E+00 3.800000E-01
Ni                          -1.215575E+05 6.776777E
-05 1.124553E+02 6.600000E+00
N                           -1.670861E+05 1.860191E
-06 1.070916E+00 1.500000E-02
Fe                          -8.389593E+04 1.326408E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.5780108894E+08 J   System Enthalpy =  8.0960153458E+07 J
     1573.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -7.874980E+04 2.426721E
-03 8.325701E+00 1.000000E-01
Si                          -2.155734E+05 6.944322E
-08 1.317406E+01 3.700000E-01
Mn                          -1.675176E+05 2.737670E
-06 1.037533E+01 5.700000E-01
Cr                          -1.528368E+05 8.411483E
-06 2.884837E+00 1.500000E-01
Mo                          -1.404491E+05 2.168807E
```

-05 3.960809E+00 3.800000E-01
Ni   -1.267810E+05 6.167209E
-05 1.124553E+02 6.600000E+00
N   -1.731692E+05 1.777106E
-06 1.070916E+00 1.500000E-02
Fe   -8.820901E+04 1.177377E
-03 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.7963E+03	FCC_A1	0.0046349	0.0073340	0.0057760
		Cr	Mo	Ni
1.7963E+03	FCC_A1	0.0016060	0.0022050	0.0626041
		N	Fe	
1.7963E+03	FCC_A1	0.0005962	0.9152438	

Gibbs Energy = -1.6569346244E+08 J   System Enthalpy = 8.4283450494E+07 J
     1623.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1623.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -8.348084E+04 2.057406E
-03 8.325701E+00 1.000000E-01
Si   -2.198163E+05 8.425740E
-08 1.317406E+01 3.700000E-01
Mn   -1.740887E+05 2.496146E
-06 1.037533E+01 5.700000E-01
Cr   -1.595502E+05 7.331012E
-06 2.884837E+00 1.500000E-01
Mo   -1.470575E+05 1.850205E
-05 3.960809E+00 3.800000E-01
Ni   -1.320367E+05 5.631692E
-05 1.124553E+02 6.600000E+00
N   -1.793478E+05 1.690502E
-06 1.070916E+00 1.500000E-02
Fe   -9.257217E+04 1.048895E
-03 1.644045E+03 9.181500E+01

```
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.7369211217E+08 J   System Enthalpy =  8.7646330921E+07 J
     1673.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1673.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -8.823914E+04 1.758145E
-03 8.325701E+00 1.000000E-01
Si                          -2.241180E+05 1.006316E
-07 1.317406E+01 3.700000E-01
Mn                          -1.807503E+05 2.273696E
-06 1.037533E+01 5.700000E-01
Cr                          -1.663498E+05 6.402284E
-06 2.884837E+00 1.500000E-01
Mo                          -1.537343E+05 1.585654E
-05 3.960809E+00 3.800000E-01
Ni                          -1.373997E+05 5.130930E
-05 1.124553E+02 6.600000E+00
N                           -1.855893E+05 1.605648E
-06 1.070916E+00 1.500000E-02
Fe                          -9.700964E+04 9.358969E
-04 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760
```

```
                                  Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                  N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438

Gibbs Energy = -1.8179498177E+08 J   System Enthalpy =  9.1048735539E+07 J
     1723.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1723.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -9.302085E+04 1.513706E
-03 8.325701E+00 1.000000E-01
Si                           -2.284688E+05 1.185477E
-07 1.317406E+01 3.700000E-01
Mn                           -1.874752E+05 2.073132E
-06 1.037533E+01 5.700000E-01
Cr                           -1.732160E+05 5.609167E
-06 2.884837E+00 1.500000E-01
Mo                           -1.604592E+05 1.366551E
-05 3.960809E+00 3.800000E-01
Ni                           -1.428050E+05 4.686183E
-05 1.124553E+02 6.600000E+00
N                            -1.919108E+05 1.521105E
-06 1.070916E+00 1.500000E-02
Fe                           -1.015000E+05 8.375193E
-04 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                  C               Si              Mn
 1.7963E+03 FCC_A1             0.0046349       0.0073340       0.0057760

                                  Cr              Mo              Ni
 1.7963E+03 FCC_A1             0.0016060       0.0022050       0.0626041

                                  N               Fe
 1.7963E+03 FCC_A1             0.0005962       0.9152438
```

Gibbs Energy = -1.9000013608E+08 J   System Enthalpy = 9.4490535938E+07 J
     1773.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1773.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -1.189648E+05 3.127862E
-04 8.325701E+00 1.000000E-01
Si   -2.418749E+05 7.486223E
-08 1.317406E+01 3.700000E-01
Mn   -1.987281E+05 1.397616E
-06 1.037533E+01 5.700000E-01
Cr   -1.820896E+05 4.320803E
-06 2.884837E+00 1.500000E-01
Mo   -1.755700E+05 6.724089E
-06 3.960809E+00 3.800000E-01
Ni   -1.500488E+05 3.797522E
-05 1.124553E+02 6.600000E+00
N   -2.073786E+05 7.772102E
-07 1.070916E+00 1.500000E-02
Fe   -1.057804E+05 7.650050E
-04 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7963E+03 LIQUID   0.0046349   0.0073340   0.0057760

                                Cr   Mo   Ni
 1.7963E+03 LIQUID   0.0016060   0.0022050   0.0626041

                                N   Fe
 1.7963E+03 LIQUID   0.0005962   0.9152438

Gibbs Energy = -1.9847704928E+08 J   System Enthalpy = 1.2341760182E+08 J
     1823.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1823.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

```
Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.238253E+05 2.832099E
-04 8.325701E+00 1.000000E-01
Si                          -2.467513E+05 8.511057E
-08 1.317406E+01 3.700000E-01
Mn                          -2.062322E+05 1.232974E
-06 1.037533E+01 5.700000E-01
Cr                          -1.889537E+05 3.854992E
-06 2.884837E+00 1.500000E-01
Mo                          -1.825275E+05 5.890444E
-06 3.960809E+00 3.800000E-01
Ni                          -1.559503E+05 3.401347E
-05 1.124553E+02 6.600000E+00
N                           -2.142887E+05 7.246251E
-07 1.070916E+00 1.500000E-02
Fe                          -1.107977E+05 6.689306E
-04 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 LIQUID             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 LIQUID             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 LIQUID             0.0005962       0.9152438

Gibbs Energy = -2.0761117329E+08 J   System Enthalpy =  1.2747576003E+08 J
     1873.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1873.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.287169E+05 2.572790E
-04 8.325701E+00 1.000000E-01
Si                          -2.516607E+05 9.589765E
-08 1.317406E+01 3.700000E-01
Mn                          -2.138156E+05 1.089465E
```

```
-06 1.037533E+01 5.700000E-01
Cr                          -1.958921E+05 3.443947E
-06 2.884837E+00 1.500000E-01
Mo                          -1.895312E+05 5.181371E
-06 3.960809E+00 3.800000E-01
Ni                          -1.619040E+05 3.054204E
-05 1.124553E+02 6.600000E+00
N                           -2.212233E+05 6.770671E
-07 1.070916E+00 1.500000E-02
Fe                          -1.158679E+05 5.871250E
-04 1.644045E+03 9.181500E+01
Total
1.796292E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7963E+03 LIQUID             0.0046349       0.0073340       0.0057760

                                Cr              Mo              Ni
 1.7963E+03 LIQUID             0.0016060       0.0022050       0.0626041

                                N               Fe
 1.7963E+03 LIQUID             0.0005962       0.9152438

Gibbs Energy = -2.1685730626E+08 J   System Enthalpy =  1.3156684866E+08 J

                      ************************************
                      * WARNING/ERRORS HAVE BEEN DETECTED *
                      ************************************

   3240 Warnings: Multiphase, temperature range violation -  Unary data

 MULTIPHASE OPTION ?
*********************************

****************************************

0.15 Carbon
 MULTIPHASE OPTION ? set w(10
 SET WHAT ? w(1)=0.15 !
 MULTIPHASE OPTION ? com pr br pr mol !
 NUMBER OF STEPS =  27

     573.000
*** MULTIPHASE - Stage 1* Results ***
```

Temperature =   573.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C					
5.815576E+03	3.389488E+00	1.248855E+01	1.500000E-01		
Si		-1.508260E+05	1.782616E		
-14	1.317406E+01	3.700000E-01			
Mn		-4.566545E+04	6.874575E		
-05	1.037533E+01	5.700000E-01			
Cr		-4.601702E+04	6.385537E		
-05	2.884837E+00	1.500000E-01			
Mo		-2.284963E+04	8.261934E		
-03	3.960809E+00	3.800000E-01			
Ni		-3.019880E+04	1.766642E		
-03	1.124553E+02	6.600000E+00			
N		-5.317117E+04	1.422468E		
-05	1.070916E+00	1.500000E-02			
Fe		-1.845810E+04	2.076840E		
-02	1.643150E+03	9.176500E+01			
Total					
1.799560E+03	1.000000E+02				

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
2.3693E+00	LIQUID	0.0004480	0.0000000	0.0713217
1.5982E+03	BCC_A2	0.0000003	0.0082431	0.0006649
1.4909E+02	FCC_A1	0.0000520	0.0000000	0.0172750
4.9917E+01	CEMENTITE	0.2500000	0.0000000	0.1315847
		Cr	Mo	Ni
2.3693E+00	LIQUID	0.0737980	0.4099145	0.0000129
1.5982E+03	BCC_A2	0.0000629	0.0010117	0.0195349
1.4909E+02	FCC_A1	0.0000024	0.0009064	0.5420618
4.9917E+01	CEMENTITE	0.0522698	0.0247942	0.0084178
		N	Fe	
2.3693E+00	LIQUID	0.4437011	0.0008038	
1.5982E+03	BCC_A2	0.0000093	0.9704730	
1.4909E+02	FCC_A1	0.0000321	0.4396704	
4.9917E+01	CEMENTITE	0.0000000	0.5329334	

Gibbs Energy = -3.6393698568E+07 J   System Enthalpy = 1.2155446368E+07 J

623.000
*** MULTIPHASE - Stage 1* Results ***

Temperature = 623.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C					
5.767094E+03	3.044545E+00	1.248855E+01	1.500000E-01		
Si		-1.522442E+05	1.720284E		
-13	1.317406E+01	3.700000E-01			
Mn		-5.822910E+04	1.312135E		
-05	1.037533E+01	5.700000E-01			
Cr		-4.898004E+04	7.824108E		
-05	2.884837E+00	1.500000E-01			
Mo		-2.745834E+04	4.987102E		
-03	3.960809E+00	3.800000E-01			
Ni		-3.283759E+04	1.765404E		
-03	1.124553E+02	6.600000E+00			
N		-4.560169E+04	1.502037E		
-04	1.070916E+00	1.500000E-02			
Fe		-2.085329E+04	1.784951E		
-02	1.643150E+03	9.176500E+01			
Total					
1.799560E+03	1.000000E+02				

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.5945E+03	BCC_A2	0.0000020	0.0082621	0.0002002
1.5551E+02	FCC_A1	0.0006682	0.0000000	0.0572391
4.9527E+01	CEMENTITE	0.2499963	0.0000000	0.0233159
		Cr	Mo	Ni
1.5945E+03	BCC_A2	0.0001309	0.0012638	0.0271237
1.5551E+02	FCC_A1	0.0002959	0.0041961	0.4417771
4.9527E+01	CEMENTITE	0.0531062	0.0261099	0.0101749
		N	Fe	
1.5945E+03	BCC_A2	0.0001704	0.9628471	
1.5551E+02	FCC_A1	0.0051385	0.4906851	
4.9527E+01	CEMENTITE	0.0000037	0.6372930	

Gibbs Energy = -4.0794459719E+07 J System Enthalpy = 1.5795203734E+07 J
673.000

*** MULTIPHASE - Stage 1* Results ***

Temperature =   673.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C
1.868615E+03 1.396459E+00 1.248855E+01 1.500000E-01
Si   -1.509043E+05 1.940493E
-12 1.317406E+01 3.700000E-01
Mn   -5.165995E+04 9.784390E
-05 1.037533E+01 5.700000E-01
Cr   -5.473629E+04 5.646386E
-05 2.884837E+00 1.500000E-01
Mo   -4.547465E+04 2.955229E
-04 3.960809E+00 3.800000E-01
Ni   -3.273430E+04 2.880074E
-03 1.124553E+02 6.600000E+00
N   -8.542764E+04 2.342788E
-07 1.070916E+00 1.500000E-02
Fe   -2.357294E+04 1.480613E
-02 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7530E+03 BCC_A2   0.0000038   0.0075152   0.0029826
 8.9937E+00 FCC_A1   0.3429760   0.0000000   0.0029009
 3.7589E+01 CEMENTITE   0.2500000   0.0000000   0.1362292

                                Cr   Mo   Ni
 1.7530E+03 BCC_A2   0.0001736   0.0001449   0.0636186
 8.9937E+00 FCC_A1   0.1310516   0.4030404   0.0000124
 3.7589E+01 CEMENTITE   0.0372957   0.0021822   0.0248282

                                N   Fe
 1.7530E+03 BCC_A2   0.0000004   0.9255609
 8.9937E+00 FCC_A1   0.1190027   0.0010160
 3.7589E+01 CEMENTITE   0.0000000   0.5494646

Gibbs Energy = -4.5345039716E+07 J   System Enthalpy = 1.9237065270E+07 J
     723.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   723.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		1.082369E+03	1.197281E+00	1.248855E+01	1.500000E-01
Si		-1.568721E+05	4.642323E		
-12	1.317406E+01	3.700000E-01			
Mn		-6.522716E+04	1.939308E		
-05	1.037533E+01	5.700000E-01			
Cr		-5.629419E+04	8.570605E		
-05	2.884837E+00	1.500000E-01			
Mo		-3.844063E+04	1.670500E		
-03	3.960809E+00	3.800000E-01			
Ni		-4.061514E+04	1.163453E		
-03	1.124553E+02	6.600000E+00			
N		-5.991868E+04	4.689855E		
-05	1.070916E+00	1.500000E-02			
Fe		-2.598376E+04	1.326772E		
-02	1.643150E+03	9.176500E+01			
Total					
1.799560E+03	1.000000E+02				

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.5681E+03	BCC_A2	0.0000157	0.0084008	0.0006207
1.8341E+02	FCC_A1	0.0025224	0.0000024	0.0444014
4.8005E+01	CEMENTITE	0.2499980	0.0000000	0.0262072
		Cr	Mo	Ni
1.5681E+03	BCC_A2	0.0003329	0.0014214	0.0325528
1.8341E+02	FCC_A1	0.0007120	0.0047552	0.3318125
4.8005E+01	CEMENTITE	0.0464994	0.0179078	0.0114272
		N	Fe	
1.5681E+03	BCC_A2	0.0001430	0.9565127	
1.8341E+02	FCC_A1	0.0046160	0.6111780	
4.8005E+01	CEMENTITE	0.0000020	0.6479585	

Gibbs Energy = -5.0371375351E+07 J   System Enthalpy = 2.2389593775E+07 J
     773.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   773.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -1.313965E+03 8.151030E
-01 1.248855E+01 1.500000E-01
Si   -1.595036E+05 1.667213E
-11 1.317406E+01 3.700000E-01
Mn   -6.919185E+04 2.111318E
-05 1.037533E+01 5.700000E-01
Cr   -6.025682E+04 8.478383E
-05 2.884837E+00 1.500000E-01
Mo   -4.418157E+04 1.034078E
-03 3.960809E+00 3.800000E-01
Ni   -4.500418E+04 9.098458E
-04 1.124553E+02 6.600000E+00
N   -6.772775E+04 2.651464E
-05 1.070916E+00 1.500000E-02
Fe   -2.873043E+04 1.144515E
-02 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.5280E+03 BCC_A2   0.0000369   0.0086175   0.0009491
 2.2604E+02 FCC_A1   0.0046469   0.0000293   0.0341800
 4.5527E+01 CEMENTITE   0.2499985   0.0000000   0.0263376

                                Cr   Mo   Ni
 1.5280E+03 BCC_A2   0.0004715   0.0014705   0.0334609
 2.2604E+02 FCC_A1   0.0009438   0.0045247   0.2690290
 4.5527E+01 CEMENTITE   0.0428537   0.0151792   0.0113426

                                N   Fe
 1.5280E+03 BCC_A2   0.0001236   0.9548699
 2.2604E+02 FCC_A1   0.0039018   0.6827446
 4.5527E+01 CEMENTITE   0.0000015   0.6542869

Gibbs Energy = -5.5524579652E+07 J   System Enthalpy = 2.6030305676E+07 J
     823.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   823.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component	Ref.Phase	Chem.Pot.	Activity	Amount/mol	Mass/kg
C		-3.708012E+03	5.816526E-01	1.248855E+01	1.500000E-01
Si		-1.622308E+05	5.054798E-11	1.317406E+01	3.700000E-01
Mn		-7.388711E+04	2.044600E-05	1.037533E+01	5.700000E-01
Cr		-6.427148E+04	8.334574E-05	2.884837E+00	1.500000E-01
Mo		-4.999511E+04	6.713695E-04	3.960809E+00	3.800000E-01
Ni		-4.982642E+04	6.881260E-04	1.124553E+02	6.600000E+00
N		-7.635443E+04	1.425657E-05	1.070916E+00	1.500000E-02
Fe		-3.158876E+04	9.889096E-03	1.643150E+03	9.176500E+01
Total				1.799560E+03	1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.4420E+03	BCC_A2	0.0000791	0.0090837	0.0012732
3.1848E+02	FCC_A1	0.0082179	0.0002351	0.0238383
3.9029E+01	CEMENTITE	0.2499989	0.0000000	0.0242692
		Cr	Mo	Ni
1.4420E+03	BCC_A2	0.0006424	0.0015207	0.0327513
3.1848E+02	FCC_A1	0.0012279	0.0039389	0.2034871
3.9029E+01	CEMENTITE	0.0401611	0.0131564	0.0107434
		N	Fe	
1.4420E+03	BCC_A2	0.0000984	0.9545512	
3.1848E+02	FCC_A1	0.0029170	0.7561379	
3.9029E+01	CEMENTITE	0.0000011	0.6616699	

Gibbs Energy = -6.0924894935E+07 J   System Enthalpy = 3.0068249438E+07 J
     873.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   873.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -6.152954E+03 4.284070E
-01 1.248855E+01 1.500000E-01
Si   -1.648333E+05 1.373088E
-10 1.317406E+01 3.700000E-01
Mn   -7.965106E+04 1.715218E
-05 1.037533E+01 5.700000E-01
Cr   -6.779340E+04 8.785897E
-05 2.884837E+00 1.500000E-01
Mo   -5.571086E+04 4.642041E
-04 3.960809E+00 3.800000E-01
Ni   -5.530948E+04 4.905958E
-04 1.124553E+02 6.600000E+00
N   -8.619571E+04 6.962086E
-06 1.070916E+00 1.500000E-02
Fe   -3.456048E+04 8.554168E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.2395E+03 BCC_A2   0.0001563   0.0101167   0.0014659
 5.3966E+02 FCC_A1   0.0133548   0.0011747   0.0151108
 2.0351E+01 CEMENTITE   0.2499993   0.0000000   0.0198314

                                Cr   Mo   Ni
 1.2395E+03 BCC_A2   0.0009127   0.0016039   0.0297134
 5.3966E+02 FCC_A1   0.0016972   0.0032123   0.1397743
 2.0351E+01 CEMENTITE   0.0411557   0.0117539   0.0095121

                                N   Fe
 1.2395E+03 BCC_A2   0.0000696   0.9559616
 5.3966E+02 FCC_A1   0.0018246   0.8238514
 2.0351E+01 CEMENTITE   0.0000007   0.6677468

Gibbs Energy = -6.6590500640E+07 J   System Enthalpy = 3.4869553146E+07 J
     923.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   923.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

```
Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.162482E+04 2.198578E
-01 1.248855E+01 1.500000E-01
Si                          -1.671126E+05 3.491092E
-10 1.317406E+01 3.700000E-01
Mn                          -8.639198E+04 1.291241E
-05 1.037533E+01 5.700000E-01
Cr                          -7.178695E+04 8.660007E
-05 2.884837E+00 1.500000E-01
Mo                          -6.104465E+04 3.511023E
-04 3.960809E+00 3.800000E-01
Ni                          -6.134107E+04 3.377994E
-04 1.124553E+02 6.600000E+00
N                           -9.599477E+04 3.694687E
-06 1.070916E+00 1.500000E-02
Fe                          -3.765236E+04 7.399841E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 8.5800E+02 BCC_A2             0.0001942       0.0118302       0.0015270
 9.4156E+02 FCC_A1             0.0130867       0.0032114       0.0096278

                                Cr              Mo              Ni
 8.5800E+02 BCC_A2             0.0011892       0.0017799       0.0256865
 9.4156E+02 FCC_A1             0.0019802       0.0025847       0.0960283

                                N               Fe
 8.5800E+02 BCC_A2             0.0000520       0.9577410
 9.4156E+02 FCC_A1             0.0010900       0.8723909

Gibbs Energy = -7.2561104568E+07 J   System Enthalpy =  4.0431846322E+07 J
     973.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   973.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.041716E+04 8.015870E
-02 1.248855E+01 1.500000E-01
```

```
Si                          -1.690469E+05 8.415813E
-10 1.317406E+01 3.700000E-01
Mn                          -9.374966E+04 9.273839E
-06 1.037533E+01 5.700000E-01
Cr                          -7.781218E+04 6.650094E
-05 2.884837E+00 1.500000E-01
Mo                          -6.605066E+04 2.845894E
-04 3.960809E+00 3.800000E-01
Ni                          -6.764685E+04 2.336311E
-04 1.124553E+02 6.600000E+00
N                           -1.050936E+05 2.281848E
-06 1.070916E+00 1.500000E-02
Fe                          -4.088009E+04 6.389163E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 2.6647E+02 BCC_A2             0.0001555       0.0142313       0.0015581
 1.5331E+03 FCC_A1             0.0081190       0.0061196       0.0064968

                                Cr              Mo              Ni
 2.6647E+02 BCC_A2             0.0011927       0.0020508       0.0221372
 1.5331E+03 FCC_A1             0.0016744       0.0022271       0.0695043

                                N               Fe
 2.6647E+02 BCC_A2             0.0000436       0.9586307
 1.5331E+03 FCC_A1             0.0006910       0.9051680

Gibbs Energy = -7.8832487006E+07 J   System Enthalpy =  4.6199360860E+07 J
     1023.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1023.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.598407E+04 4.712813E
-02 1.248855E+01 1.500000E-01
Si                          -1.719172E+05 1.667579E
-09 1.317406E+01 3.700000E-01
Mn                          -1.001060E+05 7.739120E
-06 1.037533E+01 5.700000E-01
```

```
Cr                          -8.372894E+04 5.307459E
-05 2.884837E+00 1.500000E-01
Mo                          -7.153454E+04 2.225974E
-04 3.960809E+00 3.800000E-01
Ni                          -7.279791E+04 1.918729E
-04 1.124553E+02 6.600000E+00
N                           -1.114055E+05 2.049994E
-06 1.070916E+00 1.500000E-02
Fe                          -4.437641E+04 5.422334E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -8.5372881260E+07 J   System Enthalpy =  5.0077041649E+07 J
     1073.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1073.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -3.004865E+04 3.445410E
-02 1.248855E+01 1.500000E-01
Si                          -1.755801E+05 2.836686E
-09 1.317406E+01 3.700000E-01
Mn                          -1.058407E+05 7.042132E
-06 1.037533E+01 5.700000E-01
Cr                          -8.966827E+04 4.314943E
-05 2.884837E+00 1.500000E-01
Mo                          -7.751482E+04 1.685006E
-04 3.960809E+00 3.800000E-01
Ni                          -7.734784E+04 1.716841E
-04 1.124553E+02 6.600000E+00
N                           -1.164733E+05 2.138530E
```

-06 1.070916E+00 1.500000E-02
Fe   -4.801045E+04 4.601141E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.7996E+03 FCC_A1   0.0069398   0.0073207   0.0057655

                                Cr   Mo   Ni
 1.7996E+03 FCC_A1   0.0016031   0.0022010   0.0624904

                                N   Fe
 1.7996E+03 FCC_A1   0.0005951   0.9130844

Gibbs Energy = -9.2063623249E+07 J   System Enthalpy = 5.3015522915E+07 J
     1123.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1123.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -3.416669E+04 2.575303E
-02 1.248855E+01 1.500000E-01
Si   -1.792806E+05 4.584023E
-09 1.317406E+01 3.700000E-01
Mn   -1.116587E+05 6.404674E
-06 1.037533E+01 5.700000E-01
Cr   -9.568037E+04 3.545562E
-05 2.884837E+00 1.500000E-01
Mo   -8.355872E+04 1.298647E
-04 3.960809E+00 3.800000E-01
Ni   -8.197874E+04 1.538082E
-04 1.124553E+02 6.600000E+00
N   -1.216647E+05 2.193271E
-06 1.070916E+00 1.500000E-02
Fe   -5.172451E+04 3.928019E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase

```
compnt moles
                                 C               Si              Mn
 1.7996E+03 FCC_A1            0.0069398       0.0073207       0.0057655

                                 Cr              Mo              Ni
 1.7996E+03 FCC_A1            0.0016031       0.0022010       0.0624904

                                 N               Fe
 1.7996E+03 FCC_A1            0.0005951       0.9130844

Gibbs Energy = -9.8892228137E+07 J   System Enthalpy =  5.5992571814E+07 J
     1173.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1173.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -3.832615E+04 1.964937E
-02 1.248855E+01 1.500000E-01
Si                           -1.830932E+05 7.029399E
-09 1.317406E+01 3.700000E-01
Mn                           -1.175712E+05 5.815574E
-06 1.037533E+01 5.700000E-01
Cr                           -1.017775E+05 2.936837E
-05 2.884837E+00 1.500000E-01
Mo                           -8.967770E+04 1.015501E
-04 3.960809E+00 3.800000E-01
Ni                           -8.667602E+04 1.381478E
-04 1.124553E+02 6.600000E+00
N                            -1.269610E+05 2.220586E
-06 1.070916E+00 1.500000E-02
Fe                           -5.551041E+04 3.373950E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 1.7996E+03 FCC_A1            0.0069398       0.0073207       0.0057655

                                 Cr              Mo              Ni
 1.7996E+03 FCC_A1            0.0016031       0.0022010       0.0624904
```

```
                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.0585427185E+08 J   System Enthalpy =  5.9008188393E+07 J
     1223.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1223.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.253835E+04 1.524832E
-02 1.248855E+01 1.500000E-01
Si                          -1.869371E+05 1.037698E
-08 1.317406E+01 3.700000E-01
Mn                          -1.235601E+05 5.282640E
-06 1.037533E+01 5.700000E-01
Cr                          -1.079424E+05 2.453964E
-05 2.884837E+00 1.500000E-01
Mo                          -9.585373E+04 8.056868E
-05 3.960809E+00 3.800000E-01
Ni                          -9.144631E+04 1.242806E
-04 1.124553E+02 6.600000E+00
N                           -1.323732E+05 2.220484E
-06 1.070916E+00 1.500000E-02
Fe                          -5.936959E+04 2.913222E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.1294570836E+08 J   System Enthalpy =  6.2062397532E+07 J
     1273.00
*** MULTIPHASE - Stage 1* Results ***
```

```
Temperature =  1273.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.679596E+04 1.201941E
-02 1.248855E+01 1.500000E-01
Si                          -1.908418E+05 1.477202E
-08 1.317406E+01 3.700000E-01
Mn                          -1.296303E+05 4.797884E
-06 1.037533E+01 5.700000E-01
Cr                          -1.141810E+05 2.065196E
-05 2.884837E+00 1.500000E-01
Mo                          -1.020919E+05 6.471403E
-05 3.960809E+00 3.800000E-01
Ni                          -9.628709E+04 1.119900E
-04 1.124553E+02 6.600000E+00
N                           -1.378902E+05 2.198530E
-06 1.070916E+00 1.500000E-02
Fe                          -6.329860E+04 2.527857E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.2016282422E+08 J   System Enthalpy =  6.5155244169E+07 J
     1323.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1323.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -5.110100E+04 9.604685E
-03 1.248855E+01 1.500000E-01
```

```
Si                          -1.947896E+05 2.039477E
-08 1.317406E+01 3.700000E-01
Mn                          -1.357763E+05 4.359348E
-06 1.037533E+01 5.700000E-01
Cr                          -1.204885E+05 1.749832E
-05 2.884837E+00 1.500000E-01
Mo                          -1.083866E+05 5.257645E
-05 3.960809E+00 3.800000E-01
Ni                          -1.011960E+05 1.010840E
-04 1.124553E+02 6.600000E+00
N                           -1.435118E+05 2.157815E
-06 1.070916E+00 1.500000E-02
Fe                          -6.729666E+04 2.203244E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.2750220000E+08 J   System Enthalpy =  6.8286789670E+07 J
     1373.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1373.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -5.544789E+04 7.772925E
-03 1.248855E+01 1.500000E-01
Si                          -1.987988E+05 2.735624E
-08 1.317406E+01 3.700000E-01
Mn                          -1.420007E+05 3.961310E
-06 1.037533E+01 5.700000E-01
Cr                          -1.268687E+05 1.491102E
-05 2.884837E+00 1.500000E-01
Mo                          -1.147409E+05 4.314081E
```

-05 3.960809E+00 3.800000E-01
Ni   -1.061709E+05 9.139406E
-05 1.124553E+02 6.600000E+00
N   -1.492297E+05 2.102928E
-06 1.070916E+00 1.500000E-02
Fe   -7.136150E+04 1.928322E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.7996E+03	FCC_A1	0.0069398	0.0073207	0.0057655
		Cr	Mo	Ni
1.7996E+03	FCC_A1	0.0016031	0.0022010	0.0624904
		N	Fe	
1.7996E+03	FCC_A1	0.0005951	0.9130844	

Gibbs Energy = -1.3496067751E+08 J   System Enthalpy = 7.1457108833E+07 J
     1423.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1423.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -5.983733E+04 6.361832E
-03 1.248855E+01 1.500000E-01
Si   -2.028620E+05 3.578088E
-08 1.317406E+01 3.700000E-01
Mn   -1.483000E+05 3.601047E
-06 1.037533E+01 5.700000E-01
Cr   -1.333190E+05 1.277409E
-05 2.884837E+00 1.500000E-01
Mo   -1.211513E+05 3.572414E
-05 3.960809E+00 3.800000E-01
Ni   -1.112102E+05 8.276836E
-05 1.124553E+02 6.600000E+00
N   -1.550424E+05 2.036761E
-06 1.070916E+00 1.500000E-02
Fe   -7.548981E+04 1.694474E
-03 1.643150E+03 9.176500E+01

```
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.4253533167E+08 J   System Enthalpy =  7.4666287714E+07 J
     1473.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1473.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -6.426336E+04 5.262460E
-03 1.248855E+01 1.500000E-01
Si                          -2.069724E+05 4.577757E
-08 1.317406E+01 3.700000E-01
Mn                          -1.546760E+05 3.274245E
-06 1.037533E+01 5.700000E-01
Cr                          -1.398420E+05 1.099340E
-05 2.884837E+00 1.500000E-01
Mo                          -1.276198E+05 2.982205E
-05 3.960809E+00 3.800000E-01
Ni                          -1.163258E+05 7.499434E
-05 1.124553E+02 6.600000E+00
N                           -1.609434E+05 1.962752E
-06 1.070916E+00 1.500000E-02
Fe                          -7.968385E+04 1.494069E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655
```

```
                                  Cr              Mo              Ni
 1.7996E+03 FCC_A1              0.0016031       0.0022010       0.0624904

                                  N               Fe
 1.7996E+03 FCC_A1              0.0005951       0.9130844

Gibbs Energy = -1.5022344629E+08 J   System Enthalpy =  7.7914421742E+07 J
     1523.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1523.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -6.873750E+04 4.390919E
-03 1.248855E+01 1.500000E-01
Si                           -2.111216E+05 5.745161E
-08 1.317406E+01 3.700000E-01
Mn                           -1.611166E+05 2.980519E
-06 1.037533E+01 5.700000E-01
Cr                           -1.464267E+05 9.508235E
-06 2.884837E+00 1.500000E-01
Mo                           -1.341345E+05 2.510030E
-05 3.960809E+00 3.800000E-01
Ni                           -1.214862E+05 6.815054E
-05 1.124553E+02 6.600000E+00
N                            -1.669405E+05 1.881706E
-06 1.070916E+00 1.500000E-02
Fe                           -8.393901E+04 1.321902E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                  C               Si              Mn
 1.7996E+03 FCC_A1              0.0069398       0.0073207       0.0057655

                                  Cr              Mo              Ni
 1.7996E+03 FCC_A1              0.0016031       0.0022010       0.0624904

                                  N               Fe
 1.7996E+03 FCC_A1              0.0005951       0.9130844
```

```
Gibbs Energy = -1.5802249319E+08 J   System Enthalpy =  8.1201616088E+07 J
     1573.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -7.326563E+04 3.690867E
-03 1.248855E+01 1.500000E-01
Si                          -2.153141E+05 7.083405E
-08 1.317406E+01 3.700000E-01
Mn                          -1.676209E+05 2.716121E
-06 1.037533E+01 5.700000E-01
Cr                          -1.530730E+05 8.260966E
-06 2.884837E+00 1.500000E-01
Mo                          -1.406944E+05 2.128507E
-05 3.960809E+00 3.800000E-01
Ni                          -1.266950E+05 6.207877E
-05 1.124553E+02 6.600000E+00
N                           -1.730306E+05 1.796030E
-06 1.070916E+00 1.500000E-02
Fe                          -8.825153E+04 1.173556E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.6593011686E+08 J   System Enthalpy =  8.4528257209E+07 J
     1623.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1623.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm
```

```
Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -7.780821E+04 3.132445E
-03 1.248855E+01 1.500000E-01
Si                          -2.195629E+05 8.585478E
-08 1.317406E+01 3.700000E-01
Mn                          -1.742040E+05 2.474911E
-06 1.037533E+01 5.700000E-01
Cr                          -1.597956E+05 7.198904E
-06 2.884837E+00 1.500000E-01
Mo                          -1.473138E+05 1.815402E
-05 3.960809E+00 3.800000E-01
Ni                          -1.319730E+05 5.658300E
-05 1.124553E+02 6.600000E+00
N                           -1.791961E+05 1.709614E
-06 1.070916E+00 1.500000E-02
Fe                          -9.262097E+04 1.045109E
-03 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.7394412322E+08 J   System Enthalpy =  8.7894491165E+07 J
     1673.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1673.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -8.239396E+04 2.676388E
-03 1.248855E+01 1.500000E-01
Si                          -2.238518E+05 1.025754E
-07 1.317406E+01 3.700000E-01
Mn                          -1.808586E+05 2.256049E
```

-06 1.037533E+01 5.700000E-01
Cr   -1.665880E+05 6.293576E
-06 2.884837E+00 1.500000E-01
Mo   -1.539850E+05 1.557324E
-05 3.960809E+00 3.800000E-01
Ni   -1.373230E+05 5.159296E
-05 1.124553E+02 6.600000E+00
N   -1.854409E+05 1.622875E
-06 1.070916E+00 1.500000E-02
Fe   -9.705499E+04 9.328505E
-04 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.7996E+03	FCC_A1	0.0069398	0.0073207	0.0057655
		Cr	Mo	Ni
1.7996E+03	FCC_A1	0.0016031	0.0022010	0.0624904
		N	Fe	
1.7996E+03	FCC_A1	0.0005951	0.9130844	

Gibbs Energy = -1.8206245291E+08 J   System Enthalpy = 9.1300257336E+07 J
     1723.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1723.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -8.701914E+04 2.301366E
-03 1.248855E+01 1.500000E-01
Si   -2.281889E+05 1.208861E
-07 1.317406E+01 3.700000E-01
Mn   -1.875815E+05 2.057800E
-06 1.037533E+01 5.700000E-01
Cr   -1.734464E+05 5.519682E
-06 2.884837E+00 1.500000E-01
Mo   -1.607028E+05 1.343514E
-05 3.960809E+00 3.800000E-01
Ni   -1.427220E+05 4.713417E
-05 1.124553E+02 6.600000E+00

```
N                          -1.917663E+05 1.536530E
-06 1.070916E+00 1.500000E-02
Fe                         -1.015445E+05 8.349203E
-04 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 FCC_A1             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 FCC_A1             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 FCC_A1             0.0005951       0.9130844

Gibbs Energy = -1.9028316789E+08 J   System Enthalpy =  9.4745426008E+07 J
     1773.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1773.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                          -1.127075E+05 4.781788E
-04 1.248855E+01 1.500000E-01
Si                         -2.418399E+05 7.504044E
-08 1.317406E+01 3.700000E-01
Mn                         -1.988284E+05 1.388132E
-06 1.037533E+01 5.700000E-01
Cr                         -1.821590E+05 4.300508E
-06 2.884837E+00 1.500000E-01
Mo                         -1.758410E+05 6.601620E
-06 3.960809E+00 3.800000E-01
Ni                         -1.500317E+05 3.801922E
-05 1.124553E+02 6.600000E+00
N                          -2.071098E+05 7.915130E
-07 1.070916E+00 1.500000E-02
Fe                         -1.058280E+05 7.625391E
-04 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02
```

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 LIQUID             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 LIQUID             0.0016031       0.0022010       0.0624904

                                N               Fe
 1.7996E+03 LIQUID             0.0005951       0.9130844

Gibbs Energy = -1.9886369207E+08 J   System Enthalpy =  1.2357341640E+08 J
     1823.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.173859E+05 4.331248E
-04 1.248855E+01 1.500000E-01
Si                          -2.467220E+05 8.527513E
-08 1.317406E+01 3.700000E-01
Mn                          -2.063381E+05 1.224389E
-06 1.037533E+01 5.700000E-01
Cr                          -1.890369E+05 3.833876E
-06 2.884837E+00 1.500000E-01
Mo                          -1.827936E+05 5.787948E
-06 3.960809E+00 3.800000E-01
Ni                          -1.559279E+05 3.406369E
-05 1.124553E+02 6.600000E+00
N                           -2.140287E+05 7.371650E
-07 1.070916E+00 1.500000E-02
Fe                          -1.108383E+05 6.671393E
-04 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.7996E+03 LIQUID             0.0069398       0.0073207       0.0057655

                                Cr              Mo              Ni
 1.7996E+03 LIQUID             0.0016031       0.0022010       0.0624904
```

```
                                  N               Fe
 1.7996E+03 LIQUID             0.0005951       0.9130844

Gibbs Energy = -2.0801315711E+08 J   System Enthalpy =  1.2763466847E+08 J
     1873.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1873.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -1.220834E+05 3.939097E
-04 1.248855E+01 1.500000E-01
Si                           -2.516414E+05 9.601632E
-08 1.317406E+01 3.700000E-01
Mn                           -2.139160E+05 1.082465E
-06 1.037533E+01 5.700000E-01
Cr                           -1.959776E+05 3.425086E
-06 2.884837E+00 1.500000E-01
Mo                           -1.897924E+05 5.095205E
-06 3.960809E+00 3.800000E-01
Ni                           -1.618694E+05 3.061013E
-05 1.124553E+02 6.600000E+00
N                            -2.209720E+05 6.880814E
-07 1.070916E+00 1.500000E-02
Fe                           -1.158939E+05 5.861488E
-04 1.643150E+03 9.176500E+01
Total
1.799560E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                  C               Si              Mn
 1.7996E+03 LIQUID             0.0069398       0.0073207       0.0057655

                                  Cr              Mo              Ni
 1.7996E+03 LIQUID             0.0016031       0.0022010       0.0624904

                                  N               Fe
 1.7996E+03 LIQUID             0.0005951       0.9130844

Gibbs Energy = -2.1727471592E+08 J   System Enthalpy =  1.3172885642E+08 J

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                    * WARNING/ERRORS HAVE BEEN DETECTED *
                    ************************************

   3240 Warnings: Multiphase, temperature range violation -  Unary data

 MULTIPHASE OPTION ?
****************************************************************
0.2 Carbon

 MULTIPHASE OPTION ? set w(1)=0.2 !
com pr br  MULTIPHASE OPTION ? pr mol !
 NUMBER OF STEPS =  27

     573.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
6.496798E+03 3.910504E+00 1.665140E+01 2.000000E-01
Si                           -1.507845E+05 1.798225E
-14 1.317406E+01 3.700000E-01
Mn                           -4.641121E+04 5.878465E
-05 1.037533E+01 5.700000E-01
Cr                           -4.731926E+04 4.858342E
-05 2.884837E+00 1.500000E-01
Mo                           -2.364762E+04 6.987773E
-03 3.960809E+00 3.800000E-01
Ni                           -3.018050E+04 1.773441E
-03 1.124553E+02 6.600000E+00
N                            -5.210976E+04 1.777451E
-05 1.070916E+00 1.500000E-02
Fe                           -1.845761E+04 2.077057E
-02 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 2.3355E+00 LIQUID             0.0004401       0.0000000       0.0703742
 1.5850E+03 BCC_A2             0.0000004       0.0083119       0.0005686
 1.4896E+02 FCC_A1             0.0000507       0.0000000       0.0108464
```

```
 6.6569E+01 CEMENTITE          0.2500000       0.0000000       0.1155792

                                Cr              Mo              Ni
 2.3355E+00 LIQUID             0.0708748       0.4089940       0.0000122
 1.5850E+03 BCC_A2             0.0000478       0.0008536       0.0195511
 1.4896E+02 FCC_A1             0.0000013       0.0007007       0.5433014
 6.6569E+01 CEMENTITE          0.0397085       0.0232584       0.0080359

                                N               Fe
 2.3355E+00 LIQUID             0.4485412       0.0007635
 1.5850E+03 BCC_A2             0.0000116       0.9706549
 1.4896E+02 FCC_A1             0.0000331       0.4450665
 6.6569E+01 CEMENTITE          0.0000000       0.5634181

Gibbs Energy = -3.6351544496E+07 J   System Enthalpy =  1.2244166413E+07 J
     623.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   623.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
6.214871E+03 3.319440E+00 1.665140E+01 2.000000E-01
Si                           -1.522209E+05 1.728051E
-13 1.317406E+01 3.700000E-01
Mn                           -5.810977E+04 1.342713E
-05 1.037533E+01 5.700000E-01
Cr                           -5.077433E+04 5.533484E
-05 2.884837E+00 1.500000E-01
Mo                           -2.893396E+04 3.750858E
-03 3.960809E+00 3.800000E-01
Ni                           -3.280560E+04 1.776340E
-03 1.124553E+02 6.600000E+00
N                            -5.177225E+04 4.563852E
-05 1.070916E+00 1.500000E-02
Fe                           -2.085187E+04 1.785442E
-02 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.6940E+00 LIQUID             0.0002293       0.0000000       0.0358271
```

```
 1.5843E+03 BCC_A2             0.0000021       0.0083153       0.0002046
 1.5062E+02 FCC_A1             0.0006547       0.0000000       0.0557606
 6.6197E+01 CEMENTITE          0.2499984       0.0000000       0.0240466

                                Cr              Mo              Ni
 1.6940E+00 LIQUID             0.1189011       0.3709466       0.0000129
 1.5843E+03 BCC_A2             0.0000921       0.0009499       0.0272763
 1.5062E+02 FCC_A1             0.0001673       0.0027057       0.4553764
 6.6197E+01 CEMENTITE          0.0379520       0.0214515       0.0098503

                                N               Fe
 1.6940E+00 LIQUID             0.4695940       0.0044890
 1.5843E+03 BCC_A2             0.0000518       0.9631079
 1.5062E+02 FCC_A1             0.0012835       0.4840519
 6.6197E+01 CEMENTITE          0.0000016       0.6566996

Gibbs Energy = -4.0754511593E+07 J   System Enthalpy =  1.5861545046E+07 J
     673.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   673.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
2.696852E+03 1.619235E+00 1.665140E+01 2.000000E-01
Si                           -1.507898E+05 1.980615E
-12 1.317406E+01 3.700000E-01
Mn                           -5.289784E+04 7.842557E
-05 1.037533E+01 5.700000E-01
Cr                           -5.632357E+04 4.251850E
-05 2.884837E+00 1.500000E-01
Mo                           -4.620640E+04 2.592973E
-04 3.960809E+00 3.800000E-01
Ni                           -3.267284E+04 2.911884E
-03 1.124553E+02 6.600000E+00
N                            -8.359588E+04 3.250131E
-07 1.070916E+00 1.500000E-02
Fe                           -2.357296E+04 1.480607E
-02 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
```

```
                                C              Si             Mn
 1.7396E+03 BCC_A2             0.0000044      0.0075731      0.0023940
 8.9073E+00 FCC_A1             0.3436901      0.0000000      0.0027502
 5.4330E+01 CEMENTITE          0.2500000      0.0000000      0.1138638

                                Cr             Mo             Ni
 1.7396E+03 BCC_A2             0.0001306      0.0001268      0.0638839
 8.9073E+00 FCC_A1             0.1252583      0.4071715      0.0000135
 5.4330E+01 CEMENTITE          0.0283815      0.0020881      0.0243571

                                N              Fe
 1.7396E+03 BCC_A2             0.0000005      0.9258867
 8.9073E+00 FCC_A1             0.1201304      0.0009860
 5.4330E+01 CEMENTITE          0.0000000      0.5813096

Gibbs Energy = -4.5314310674E+07 J   System Enthalpy =  1.9345620865E+07 J
     723.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   723.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C
1.381852E+03 1.258439E+00 1.665140E+01 2.000000E-01
Si                           -1.567985E+05 4.699529E
-12 1.317406E+01 3.700000E-01
Mn                           -6.550830E+04 1.850700E
-05 1.037533E+01 5.700000E-01
Cr                           -5.771283E+04 6.768956E
-05 2.884837E+00 1.500000E-01
Mo                           -3.894106E+04 1.537069E
-03 3.960809E+00 3.800000E-01
Ni                           -4.057209E+04 1.171813E
-03 1.124553E+02 6.600000E+00
N                            -5.972947E+04 4.839818E
-05 1.070916E+00 1.500000E-02
Fe                           -2.598466E+04 1.326575E
-02 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C              Si             Mn
```

```
 1.5551E+03 BCC_A2             0.0000164       0.0084715       0.0005934
 1.8316E+02 FCC_A1             0.0025879       0.0000025       0.0427139
 6.4608E+01 CEMENTITE          0.2499973       0.0000000       0.0252145

                                Cr              Mo              Ni
 1.5551E+03 BCC_A2             0.0002630       0.0013059       0.0327223
 1.8316E+02 FCC_A1             0.0005624       0.0044173       0.3321600
 6.4608E+01 CEMENTITE          0.0367265       0.0173502       0.0113199

                                N               Fe
 1.5551E+03 BCC_A2             0.0001470       0.9564805
 1.8316E+02 FCC_A1             0.0045976       0.6129585
 6.4608E+01 CEMENTITE          0.0000027       0.6593888

Gibbs Energy = -5.0342943455E+07 J   System Enthalpy =  2.2528167591E+07 J
     773.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   773.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.040854E+03 8.504860E
-01 1.665140E+01 2.000000E-01
Si                          -1.594219E+05 1.688531E
-11 1.317406E+01 3.700000E-01
Mn                          -6.948912E+04 2.015887E
-05 1.037533E+01 5.700000E-01
Cr                          -6.166573E+04 6.809422E
-05 2.884837E+00 1.500000E-01
Mo                          -4.461651E+04 9.664145E
-04 3.960809E+00 3.800000E-01
Ni                          -4.495990E+04 9.161356E
-04 1.124553E+02 6.600000E+00
N                           -6.756505E+04 2.719442E
-05 1.070916E+00 1.500000E-02
Fe                          -2.872880E+04 1.144804E
-02 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.5147E+03 BCC_A2             0.0000382       0.0086929       0.0009074
```

```
 2.2605E+02 FCC_A1             0.0047649       0.0000300       0.0328554
 6.2066E+01 CEMENTITE          0.2499980       0.0000000       0.0253577

                                Cr              Mo              Ni
 1.5147E+03 BCC_A2             0.0003787       0.0013722       0.0336170
 2.2605E+02 FCC_A1             0.0007600       0.0042622       0.2691214
 6.2066E+01 CEMENTITE          0.0344704       0.0148051       0.0112850

                                N               Fe
 1.5147E+03 BCC_A2             0.0001263       0.9548673
 2.2605E+02 FCC_A1             0.0038907       0.6843154
 6.2066E+01 CEMENTITE          0.0000020       0.6640818

Gibbs Energy = -5.5503725806E+07 J   System Enthalpy =  2.6167419607E+07 J
     823.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -3.457171E+03 6.033701E
-01 1.665140E+01 2.000000E-01
Si                          -1.621447E+05 5.118802E
-11 1.317406E+01 3.700000E-01
Mn                          -7.417432E+04 1.960560E
-05 1.037533E+01 5.700000E-01
Cr                          -6.567442E+04 6.789587E
-05 2.884837E+00 1.500000E-01
Mo                          -5.037908E+04 6.347343E
-04 3.960809E+00 3.800000E-01
Ni                          -4.978982E+04 6.918165E
-04 1.124553E+02 6.600000E+00
N                           -7.622056E+04 1.453824E
-05 1.070916E+00 1.500000E-02
Fe                          -3.158953E+04 9.887995E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.4282E+03 BCC_A2             0.0000814       0.0091707       0.0012222
 3.1924E+02 FCC_A1             0.0084134       0.0002401       0.0229601
```

```
 5.5397E+01 CEMENTITE          0.2499986       0.0000000       0.0234654

                                Cr              Mo              Ni
 1.4282E+03 BCC_A2             0.0005232       0.0014356       0.0328528
 3.1924E+02 FCC_A1             0.0010040       0.0037463       0.2034248
 5.5397E+01 CEMENTITE          0.0328016       0.0128976       0.0107088

                                N               Fe
 1.4282E+03 BCC_A2             0.0000999       0.9546143
 3.1924E+02 FCC_A1             0.0029075       0.7573038
 5.5397E+01 CEMENTITE          0.0000014       0.6701265

Gibbs Energy = -6.0911497036E+07 J   System Enthalpy =  3.0203656641E+07 J
     873.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   873.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -5.899657E+03 4.436207E
-01 1.665140E+01 2.000000E-01
Si                          -1.647346E+05 1.391881E
-10 1.317406E+01 3.700000E-01
Mn                          -7.990227E+04 1.656872E
-05 1.037533E+01 5.700000E-01
Cr                          -6.926352E+04 7.175067E
-05 2.884837E+00 1.500000E-01
Mo                          -5.605129E+04 4.429349E
-04 3.960809E+00 3.800000E-01
Ni                          -5.528839E+04 4.920234E
-04 1.124553E+02 6.600000E+00
N                           -8.609531E+04 7.059060E
-06 1.070916E+00 1.500000E-02
Fe                          -3.456060E+04 8.554025E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.2235E+03 BCC_A2             0.0001604       0.0102339       0.0014168
 5.4323E+02 FCC_A1             0.0136804       0.0012017       0.0146246
 3.6094E+01 CEMENTITE          0.2499991       0.0000000       0.0193209
```

```
                                 Cr              Mo              Ni
 1.2235E+03 BCC_A2             0.0007449       0.0015279       0.0297200
 5.4323E+02 FCC_A1             0.0013928       0.0030784       0.1394451
 3.6094E+01 CEMENTITE          0.0337129       0.0116132       0.0094721

                                 N               Fe
 1.2235E+03 BCC_A2             0.0000702       0.9561260
 5.4323E+02 FCC_A1             0.0018133       0.8247637
 3.6094E+01 CEMENTITE          0.0000009       0.6758809

Gibbs Energy = -6.6584618111E+07 J   System Enthalpy =  3.5011524263E+07 J
     923.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   923.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -1.003941E+04 2.703096E
-01 1.665140E+01 2.000000E-01
Si                           -1.667961E+05 3.638061E
-10 1.317406E+01 3.700000E-01
Mn                           -8.684178E+04 1.217736E
-05 1.037533E+01 5.700000E-01
Cr                           -7.216763E+04 8.240908E
-05 2.884837E+00 1.500000E-01
Mo                           -6.124326E+04 3.421320E
-04 3.960809E+00 3.800000E-01
Ni                           -6.156327E+04 3.281589E
-04 1.124553E+02 6.600000E+00
N                            -9.661575E+04 3.407501E
-06 1.070916E+00 1.500000E-02
Fe                           -3.765007E+04 7.402049E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                 C               Si              Mn
 7.7264E+02 BCC_A2             0.0002373       0.0123481       0.0014370
 1.0302E+03 FCC_A1             0.0159855       0.0035269       0.0089936

                                 Cr              Mo              Ni
```

```
 7.7264E+02 BCC_A2             0.0011292       0.0017244       0.0247407
 1.0302E+03 FCC_A1             0.0019534       0.0025514       0.0906048

                                N               Fe
 7.7264E+02 BCC_A2             0.0000481       0.9583350
 1.0302E+03 FCC_A1             0.0010034       0.8753809

Gibbs Energy = -7.2572300342E+07 J   System Enthalpy =  4.1009562090E+07 J
     973.000
*** MULTIPHASE - Stage 1* Results ***

Temperature =   973.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.859972E+04 1.003496E
-01 1.665140E+01 2.000000E-01
Si                          -1.685842E+05 8.911190E
-10 1.317406E+01 3.700000E-01
Mn                          -9.417062E+04 8.803622E
-06 1.037533E+01 5.700000E-01
Cr                          -7.811839E+04 6.403091E
-05 2.884837E+00 1.500000E-01
Mo                          -6.613489E+04 2.816414E
-04 3.960809E+00 3.800000E-01
Ni                          -6.786122E+04 2.275216E
-04 1.124553E+02 6.600000E+00
N                           -1.055771E+05 2.149470E
-06 1.070916E+00 1.500000E-02
Fe                          -4.087991E+04 6.389309E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.5317E+02 BCC_A2             0.0001933       0.0149778       0.0014805
 1.6497E+03 FCC_A1             0.0100759       0.0065953       0.0061519

                                Cr              Mo              Ni
 1.5317E+02 BCC_A2             0.0011456       0.0020117       0.0213149
 1.6497E+03 FCC_A1             0.0016424       0.0022142       0.0661897

                                N               Fe
```

```
 1.5317E+02 BCC_A2             0.0000412       0.9588350
 1.6497E+03 FCC_A1             0.0006453       0.9064853

Gibbs Energy = -7.8876885968E+07 J   System Enthalpy =  4.6819763694E+07 J
     1023.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1023.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.336041E+04 6.415665E
-02 1.665140E+01 2.000000E-01
Si                          -1.717438E+05 1.701914E
-09 1.317406E+01 3.700000E-01
Mn                          -1.002126E+05 7.642755E
-06 1.037533E+01 5.700000E-01
Cr                          -8.399778E+04 5.142334E
-05 2.884837E+00 1.500000E-01
Mo                          -7.179367E+04 2.159184E
-04 3.960809E+00 3.800000E-01
Ni                          -7.271602E+04 1.937292E
-04 1.124553E+02 6.600000E+00
N                           -1.112780E+05 2.080946E
-06 1.070916E+00 1.500000E-02
Fe                          -4.440306E+04 5.405370E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -8.5435607124E+07 J   System Enthalpy =  5.0286828026E+07 J
     1073.00
*** MULTIPHASE - Stage 1* Results ***
```

```
Temperature =  1073.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -2.730198E+04 4.687569E
-02 1.665140E+01 2.000000E-01
Si                          -1.754008E+05 2.894284E
-09 1.317406E+01 3.700000E-01
Mn                          -1.059489E+05 6.957277E
-06 1.037533E+01 5.700000E-01
Cr                          -8.993611E+04 4.187326E
-05 2.884837E+00 1.500000E-01
Mo                          -7.777460E+04 1.636649E
-04 3.960809E+00 3.800000E-01
Ni                          -7.726814E+04 1.732247E
-04 1.124553E+02 6.600000E+00
N                           -1.163429E+05 2.170007E
-06 1.070916E+00 1.500000E-02
Fe                          -4.804074E+04 4.585543E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -9.2139742482E+07 J   System Enthalpy =  5.3228398514E+07 J
     1123.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1123.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -3.129568E+04 3.502401E
-02 1.665140E+01 2.000000E-01
```

```
Si                          -1.791195E+05 4.663773E
-09 1.317406E+01 3.700000E-01
Mn                          -1.117711E+05 6.328038E
-06 1.037533E+01 5.700000E-01
Cr                          -9.594988E+04 3.444687E
-05 2.884837E+00 1.500000E-01
Mo                          -8.382182E+04 1.262564E
-04 3.960809E+00 3.800000E-01
Ni                          -8.189354E+04 1.552181E
-04 1.124553E+02 6.600000E+00
N                           -1.215288E+05 2.225430E
-06 1.070916E+00 1.500000E-02
Fe                          -5.175383E+04 3.915705E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -9.8981885782E+07 J   System Enthalpy =  5.6208580778E+07 J
     1173.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1173.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -3.533870E+04 2.669187E
-02 1.665140E+01 2.000000E-01
Si                          -1.828981E+05 7.171417E
-09 1.317406E+01 3.700000E-01
Mn                          -1.176781E+05 5.752154E
-06 1.037533E+01 5.700000E-01
Cr                          -1.020390E+05 2.859153E
-05 2.884837E+00 1.500000E-01
Mo                          -8.993442E+04 9.891191E
```

-05 3.960809E+00 3.800000E-01
Ni   -8.659363E+04 1.393198E
-04 1.124553E+02 6.600000E+00
N   -1.268292E+05 2.250789E
-06 1.070916E+00 1.500000E-02
Fe   -5.554209E+04 3.363010E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.8028E+03	FCC_A1	0.0092363	0.0073074	0.0057550
		Cr	Mo	Ni
1.8028E+03	FCC_A1	0.0016002	0.0021970	0.0623772
		N	Fe	
1.8028E+03	FCC_A1	0.0005940	0.9109329	

Gibbs Energy = -1.0595760832E+08 J   System Enthalpy = 5.9227369190E+07 J
     1223.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1223.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -3.943046E+04 2.069939E
-02 1.665140E+01 2.000000E-01
Si   -1.867302E+05 1.059028E
-08 1.317406E+01 3.700000E-01
Mn   -1.236664E+05 5.227694E
-06 1.037533E+01 5.700000E-01
Cr   -1.082007E+05 2.392430E
-05 2.884837E+00 1.500000E-01
Mo   -9.610890E+04 7.857206E
-05 3.960809E+00 3.800000E-01
Ni   -9.136544E+04 1.252730E
-04 1.124553E+02 6.600000E+00
N   -1.322408E+05 2.249593E
-06 1.070916E+00 1.500000E-02
Fe   -5.940284E+04 2.903713E
-03 1.642255E+03 9.171500E+01

```
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -1.1306285963E+08 J   System Enthalpy =  6.2284783709E+07 J
     1273.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1273.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -4.356801E+04 1.630541E
-02 1.665140E+01 2.000000E-01
Si                          -1.906263E+05 1.507597E
-08 1.317406E+01 3.700000E-01
Mn                          -1.297359E+05 4.750261E
-06 1.037533E+01 5.700000E-01
Cr                          -1.144359E+05 2.016058E
-05 2.884837E+00 1.500000E-01
Mo                          -1.023454E+05 6.318253E
-05 3.960809E+00 3.800000E-01
Ni                          -9.620463E+04 1.128660E
-04 1.124553E+02 6.600000E+00
N                           -1.377573E+05 2.226328E
-06 1.070916E+00 1.500000E-02
Fe                          -6.333313E+04 2.519622E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550
```

```
                                  Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                  N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -1.2029392197E+08 J   System Enthalpy =  6.5380864966E+07 J
     1323.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1323.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -4.775133E+04 1.302360E
-02 1.665140E+01 2.000000E-01
Si                           -1.945705E+05 2.080494E
-08 1.317406E+01 3.700000E-01
Mn                           -1.358828E+05 4.317320E
-06 1.037533E+01 5.700000E-01
Cr                           -1.207418E+05 1.710009E
-05 2.884837E+00 1.500000E-01
Mo                           -1.086402E+05 5.137850E
-05 3.960809E+00 3.800000E-01
Ni                           -1.011142E+05 1.018386E
-04 1.124553E+02 6.600000E+00
N                            -1.433766E+05 2.184511E
-06 1.070916E+00 1.500000E-02
Fe                           -6.733190E+04 2.196197E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                  C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                  Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                  N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329
```

Gibbs Energy = -1.2764737182E+08 J   System Enthalpy = 6.8515670557E+07 J
     1373.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1373.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -5.197826E+04 1.053368E
-02 1.665140E+01 2.000000E-01
Si   -1.985706E+05 2.790859E
-08 1.317406E+01 3.700000E-01
Mn   -1.421064E+05 3.924805E
-06 1.037533E+01 5.700000E-01
Cr   -1.271184E+05 1.458837E
-05 2.884837E+00 1.500000E-01
Mo   -1.149926E+05 4.220000E
-05 3.960809E+00 3.800000E-01
Ni   -1.060884E+05 9.205703E
-05 1.124553E+02 6.600000E+00
N   -1.490940E+05 2.128065E
-06 1.070916E+00 1.500000E-02
Fe   -7.139694E+04 1.922346E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 1.8028E+03 FCC_A1   0.0092363   0.0073074   0.0057550

                                Cr   Mo   Ni
 1.8028E+03 FCC_A1   0.0016002   0.0021970   0.0623772

                                N   Fe
 1.8028E+03 FCC_A1   0.0005940   0.9109329

Gibbs Energy = -1.3512004705E+08 J   System Enthalpy = 7.1689271986E+07 J
     1423.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1423.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

```
Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -5.624793E+04 8.616609E
-03 1.665140E+01 2.000000E-01
Si                          -2.026216E+05 3.651512E
-08 1.317406E+01 3.700000E-01
Mn                          -1.484044E+05 3.569421E
-06 1.037533E+01 5.700000E-01
Cr                          -1.335647E+05 1.251149E
-05 2.884837E+00 1.500000E-01
Mo                          -1.214007E+05 3.497888E
-05 3.960809E+00 3.800000E-01
Ni                          -1.111267E+05 8.335471E
-05 1.124553E+02 6.600000E+00
N                           -1.549068E+05 2.060238E
-06 1.070916E+00 1.500000E-02
Fe                          -7.552661E+04 1.689211E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -1.4270901885E+08 J   System Enthalpy =  7.4901752367E+07 J
     1473.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1473.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -6.055997E+04 7.120542E
-03 1.665140E+01 2.000000E-01
Si                          -2.067162E+05 4.674531E
-08 1.317406E+01 3.700000E-01
Mn                          -1.547744E+05 3.248052E
```

-06 1.037533E+01 5.700000E-01
Cr   -1.400791E+05 1.078261E
-05 2.884837E+00 1.500000E-01
Mo   -1.278623E+05 2.923745E
-05 3.960809E+00 3.800000E-01
Ni   -1.162291E+05 7.558885E
-05 1.124553E+02 6.600000E+00
N   -1.608126E+05 1.983835E
-06 1.070916E+00 1.500000E-02
Fe   -7.972026E+04 1.489633E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.8028E+03	FCC_A1	0.0092363	0.0073074	0.0057550
		Cr	Mo	Ni
1.8028E+03	FCC_A1	0.0016002	0.0021970	0.0623772
		N	Fe	
1.8028E+03	FCC_A1	0.0005940	0.9109329	

Gibbs Energy = -1.5041156742E+08 J   System Enthalpy = 7.8153204566E+07 J
     1523.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1523.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -6.491420E+04 5.938552E
-03 1.665140E+01 2.000000E-01
Si   -2.108619E+05 5.864204E
-08 1.317406E+01 3.700000E-01
Mn   -1.612159E+05 2.957237E
-06 1.037533E+01 5.700000E-01
Cr   -1.466621E+05 9.333133E
-06 2.884837E+00 1.500000E-01
Mo   -1.343769E+05 2.462434E
-05 3.960809E+00 3.800000E-01
Ni   -1.213926E+05 6.865601E
-05 1.124553E+02 6.600000E+00

```
N                          -1.668075E+05 1.901580E
-06 1.070916E+00 1.500000E-02
Fe                         -8.397505E+04 1.318145E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -1.5822516118E+08 J   System Enthalpy =  8.1443731397E+07 J
     1573.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1573.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                          -6.930128E+04 4.997687E
-03 1.665140E+01 2.000000E-01
Si                         -2.150563E+05 7.224400E
-08 1.317406E+01 3.700000E-01
Mn                         -1.677297E+05 2.693630E
-06 1.037533E+01 5.700000E-01
Cr                         -1.533151E+05 8.109431E
-06 2.884837E+00 1.500000E-01
Mo                         -1.409453E+05 2.088065E
-05 3.960809E+00 3.800000E-01
Ni                         -1.266162E+05 6.245411E
-05 1.124553E+02 6.600000E+00
N                          -1.728869E+05 1.815875E
-06 1.070916E+00 1.500000E-02
Fe                         -8.829151E+04 1.169974E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02
```

```
Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -1.6614744133E+08 J   System Enthalpy =  8.4773716606E+07 J
     1623.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1623.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -7.373389E+04 4.236507E
-03 1.665140E+01 2.000000E-01
Si                          -2.192988E+05 8.755191E
-08 1.317406E+01 3.700000E-01
Mn                          -1.743127E+05 2.455048E
-06 1.037533E+01 5.700000E-01
Cr                          -1.600351E+05 7.072296E
-06 2.884837E+00 1.500000E-01
Mo                          -1.475636E+05 1.782094E
-05 3.960809E+00 3.800000E-01
Ni                          -1.319001E+05 5.688949E
-05 1.124553E+02 6.600000E+00
N                           -1.790511E+05 1.728076E
-06 1.070916E+00 1.500000E-02
Fe                          -9.266575E+04 1.041646E
-03 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772
```

```
                                  N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -1.7417621065E+08 J   System Enthalpy =  8.8143304095E+07 J
     1673.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1673.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                            -7.821293E+04 3.614819E
-03 1.665140E+01 2.000000E-01
Si                           -2.235500E+05 1.048258E
-07 1.317406E+01 3.700000E-01
Mn                           -1.809585E+05 2.239915E
-06 1.037533E+01 5.700000E-01
Cr                           -1.668158E+05 6.191331E
-06 2.884837E+00 1.500000E-01
Mo                           -1.542250E+05 1.530686E
-05 3.960809E+00 3.800000E-01
Ni                           -1.372509E+05 5.186087E
-05 1.124553E+02 6.600000E+00
N                            -1.853036E+05 1.638970E
-06 1.070916E+00 1.500000E-02
Fe                           -9.709976E+04 9.298527E
-04 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase              Mole fraction of component within phase
compnt moles
                                  C               Si              Mn
 1.8028E+03 FCC_A1             0.0092363       0.0073074       0.0057550

                                  Cr              Mo              Ni
 1.8028E+03 FCC_A1             0.0016002       0.0021970       0.0623772

                                  N               Fe
 1.8028E+03 FCC_A1             0.0005940       0.9109329

Gibbs Energy = -1.8230940675E+08 J   System Enthalpy =  9.1552431838E+07 J
     1723.00
*** MULTIPHASE - Stage 1* Results ***
```

Temperature = 1723.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

Component   Ref.Phase   Chem.Pot.   Activity   Amount/mol   Mass/kg
C   -8.434669E+04 2.773332E
-03 1.665140E+01 2.000000E-01
Si   -2.284659E+05 1.185716E
-07 1.317406E+01 3.700000E-01
Mn   -1.879083E+05 2.011398E
-06 1.037533E+01 5.700000E-01
Cr   -1.737330E+05 5.410362E
-06 2.884837E+00 1.500000E-01
Mo   -1.614965E+05 1.271097E
-05 3.960809E+00 3.800000E-01
Ni   -1.427297E+05 4.710857E
-05 1.124553E+02 6.600000E+00
N   -1.919643E+05 1.515433E
-06 1.070916E+00 1.500000E-02
Fe   -1.015585E+05 8.341059E
-04 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount   Phase   Mole fraction of component within phase
compnt moles
                                C   Si   Mn
 8.0201E+01 LIQUID   0.0293300   0.0115671   0.0082169
 1.7226E+03 FCC_A1   0.0083008   0.0071091   0.0056404

                                Cr   Mo   Ni
 8.0201E+01 LIQUID   0.0018930   0.0041768   0.0649156
 1.7226E+03 FCC_A1   0.0015865   0.0021048   0.0622590

                                N   Fe
 8.0201E+01 LIQUID   0.0008288   0.8790719
 1.7226E+03 FCC_A1   0.0005831   0.9124163

Gibbs Energy = -1.9054672019E+08 J   System Enthalpy = 9.6039703365E+07 J
     1773.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1773.0000 K

Fixed pressure = 1.013250E+05 Pa,   1.000000E+00 atm

```
Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.081845E+05 6.498910E
-04 1.665140E+01 2.000000E-01
Si                          -2.417942E+05 7.527317E
-08 1.317406E+01 3.700000E-01
Mn                          -1.989361E+05 1.378034E
-06 1.037533E+01 5.700000E-01
Cr                          -1.822447E+05 4.275590E
-06 2.884837E+00 1.500000E-01
Mo                          -1.761105E+05 6.482047E
-06 3.960809E+00 3.800000E-01
Ni                          -1.500094E+05 3.807670E
-05 1.124553E+02 6.600000E+00
N                           -2.068396E+05 8.061568E
-07 1.070916E+00 1.500000E-02
Fe                          -1.058692E+05 7.604109E
-04 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 LIQUID             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 LIQUID             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 LIQUID             0.0005940       0.9109329

Gibbs Energy = -1.9922827325E+08 J   System Enthalpy =  1.2372869355E+08 J
     1823.00
*** MULTIPHASE - Stage 1* Results ***

Temperature =  1823.0000 K

Fixed pressure =  1.013250E+05 Pa,    1.000000E+00 atm

Component      Ref.Phase     Chem.Pot.    Activity     Amount/mol   Mass/kg
C                           -1.127317E+05 5.887990E
-04 1.665140E+01 2.000000E-01
Si                          -2.466871E+05 8.547164E
-08 1.317406E+01 3.700000E-01
Mn                          -2.064441E+05 1.215854E
```

-06 1.037533E+01 5.700000E-01
Cr -1.891250E+05 3.811674E
-06 2.884837E+00 1.500000E-01
Mo -1.830583E+05 5.687757E
-06 3.960809E+00 3.800000E-01
Ni -1.559076E+05 3.410924E
-05 1.124553E+02 6.600000E+00
N -2.137672E+05 7.499911E
-07 1.070916E+00 1.500000E-02
Fe -1.108791E+05 6.653463E
-04 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount	Phase	Mole fraction of component within phase		
compnt moles				
		C	Si	Mn
1.8028E+03	LIQUID	0.0092363	0.0073074	0.0057550
		Cr	Mo	Ni
1.8028E+03	LIQUID	0.0016002	0.0021970	0.0623772
		N	Fe	
1.8028E+03	LIQUID	0.0005940	0.9109329	

Gibbs Energy = -2.0839244200E+08 J System Enthalpy = 1.2779303947E+08 J
1873.00
*** MULTIPHASE - Stage 1* Results ***

Temperature = 1873.0000 K

Fixed pressure = 1.013250E+05 Pa, 1.000000E+00 atm

Component Ref.Phase Chem.Pot. Activity Amount/mol Mass/kg
C -1.173109E+05 5.351663E
-04 1.665140E+01 2.000000E-01
Si -2.516165E+05 9.616990E
-08 1.317406E+01 3.700000E-01
Mn -2.140166E+05 1.075495E
-06 1.037533E+01 5.700000E-01
Cr -1.960680E+05 3.405262E
-06 2.884837E+00 1.500000E-01
Mo -1.900523E+05 5.010878E
-06 3.960809E+00 3.800000E-01
Ni -1.618611E+05 3.062638E
-05 1.124553E+02 6.600000E+00

```
N                          -2.207193E+05 6.993365E
-07 1.070916E+00 1.500000E-02
Fe                         -1.159495E+05 5.840591E
-04 1.642255E+03 9.171500E+01
Total
1.802827E+03 1.000000E+02

Amount      Phase               Mole fraction of component within phase
compnt moles
                                C               Si              Mn
 1.8028E+03 LIQUID             0.0092363       0.0073074       0.0057550

                                Cr              Mo              Ni
 1.8028E+03 LIQUID             0.0016002       0.0021970       0.0623772

                                N               Fe
 1.8028E+03 LIQUID             0.0005940       0.9109329

Gibbs Energy = -2.1766878934E+08 J   System Enthalpy =  1.3189032674E+08 J

                     ************************************
                     * WARNING/ERRORS HAVE BEEN DETECTED *
                     ************************************

   3240 Warnings: Multiphase, temperature range violation -  Unary data

 MULTIPHASE OPTION ?
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