Microsoft Windows XP [Verze 6.0.6002] (C) Copyright 1985-2001 Microsoft Corp.

C:\Users\Terezka\Documents\Perple X clear>werami

Perple X version 6.7.0, source updated July 2, 2014.

Enter the project name (the name assigned in BUILD) [default = my_project]: Al2SiO5

Reading computational options from: perplex_option.dat Writing computational option summary to file: not requested

Perple_X computational option settings for WERAMI:

Keyword: Value: Permitted values [default]:

Input/Output options:

```
spreadsheet
                  Τ
                         [F] T
logarithmic p
                   F
                          [F] T
bad number
                            [0.0]
                    NaN
composition
                           wt [mol]
                  mol
                          wt [vol] mol
proportions
                  mol
interpolation
                         off [on]
                  on
melt is fluid
                  F
                          [F] T
seismic output
                            none [some] all
                   som
```

Information file output options:

```
option_list_files F [F] T; echo computational options
```

Thermodynamic options:

```
approx_alpha T [T] F
Anderson-Gruneisen F [T] F
```

Seismic velocity options:

```
bounds VRH HS [VRH]
vrh/hs_weighting 0.5 0->1 [0.5]
explicit_bulk_modulus T [F] T
poisson_ratio on off [on ] all; Poisson ratio = 0.35
```

To change these options see: www.perplex.ethz.ch/perplex_options.html

Select operational mode:

- 1 properties at specified conditions
- 2 properties on a 2d grid
- 3 properties along a 1d path

```
4 - as in 3, but input from file
  0 - EXIT
2
Select a property [enter 0 to finish]:
  1 - Specific Enthalpy (J/m3)
  2 - Density (kg/m3)
  3 - Specific heat capacity (J/K/m3)
  4 - Expansivity (1/K, for volume)
  5 - Compressibility (1/bar, for volume)
  6 - Composition (Mol or Wt%) of the system
  7 - Mode (Vol, Mol, or Wt proportion) of a phase
  8 - Composition (Mol or Wt%) of a solution phase
  9 - Grueneisen thermal ratio
  10 - Adiabatic bulk modulus (bar)
  11 - Adiabatic shear modulus (bar)
  12 - Sound velocity (km/s)
  13 - P-wave velocity (Vp, km/s)
  14 - S-wave velocity (Vs, km/s)
  15 - Vp/Vs
  16 - Specific entropy (J/K/m3)
  17 - Entropy (J/K/kg)
  18 - Enthalpy (J/kg)
  19 - Heat Capacity (J/K/kg)
  20 - Specific mass of a phase (kg/m3-system)
  21 - Poisson ratio
  22 - Molar Volume (J/bar)
  23 - Dependent potentials (J/mol, bar, K)
  24 - Assemblage Index
  25 - Modes of all phases
  26 - Sound velocity T derivative (km/s/K)
  27 - P-wave velocity T derivative (km/s/K)
  28 - S-wave velocity T derivative (km/s/K)
  29 - Adiabatic bulk modulus T derivative (bar/K)
  30 - Shear modulus T derivative (bar/K)
  31 - Sound velocity P derivative (km/s/bar)
  32 - P-wave velocity P derivative (km/s/bar)
  33 - S-wave velocity P derivative (km/s/bar)
  34 - Adiabatic bulk modulus P derivative (unitless)
  35 - Shear modulus P derivative (unitless)
  36 - All phase &/or system properties
  37 - Absolute amount (Vol., Mol., or Wt) of a phase
  38 - Multiple property output
  39 - Heat capacity ratio (Cp/Cv)
Calculate individual phase properties (y/n)?
```

Select a property [enter 0 to finish]:

Change default variable range (y/n)?

Enter number of nodes in the T(K) and P(bar) directions: 200 200

- **warning ver178** at T(K)= 473.0 P(bar)= 500.0 the shear modulus of: ky is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 509.2 P(bar)= 500.0 the shear modulus of: and is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 1104. P(bar)= 500.0 the shear modulus of: sill is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 473.0 P(bar)= 545.2 the shear modulus of: ky is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 509.2 P(bar)= 545.2 the shear modulus of: and is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 1100. P(bar)= 545.2 the shear modulus of: sill is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 473.0 P(bar)= 590.5 the shear modulus of: ky is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 517.2 P(bar)= 590.5 the shear modulus of: and is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 1096. P(bar)= 590.5 the shear modulus of: sill is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 473.0 P(bar)= 635.7 the shear modulus of: ky is missing or invalid and has been estimated from the default poisson ratio
- **warning ver178** at T(K)= 517.2 P(bar)= 635.7 the shear modulus of: and is missing or invalid and has been estimated from the default poisson ratio

warning ver049 warning 178 will not be repeated for future instances of this problem. currently in routine: GETPHP

Data ranges excluding values equal to bad_number (NaN) specified in perplex option.dat:

```
rho,kg/m3
min 3084.656
max 3680.808
```

Output has been written to the 2d tab format file: Al2SiO5 1.tab

2d tab format files can be processed with:

```
PSTABLE - a Perple_X plotting program
PERPLE_X_PLOT - a MATLAB plotting script
PYWERAMI - petrol.natur.cuni.cz/~ondro/pywerami:home
spread-sheet programs, e.g., EXCEL
```

for details on tab format refer to: perplex.ethz.ch/faq/perple_x_tab_file_format.txt

Select operational mode:

- 1 properties at specified conditions
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- 4 as in 3, but input from file
- 0 EXIT

0

 $C: \label{lem:complex} Vers \label{lem:complex} C: \label{lem:comp$