

MTDATA Installation and Demo Instructions

Installing the MTDATA Package

The MTDATA package comprises a family of MTDATA products:

- A fully functioning Windows version, WinMT. You can view a [non-technical demonstration](#) on how to use this version of MTDATA.
- MTDATA Studio offering high quality graphical output which can be integrated within common Windows applications. It also offers sophisticated temperature-composition phase boundary technology
- High performance version with a standard much loved character interface. One version (mtdata.exe) provides integrated graphics. The alternative version (mtdata_cmd.exe) does not provide graphical output directly but does offer command line recall and text scrolling
- MTDATA Application Programming Interface (optional) implemented as a dll under Windows and linkable object files under Linux
- A set of databases. You may require licences to gain access to these.

The file [mtdata_setup.exe](#) should be downloaded to a temporary folder (eg mt_temp) and then run to start the installation and then follow the prompts given. If you already have a earlier version of MTDATA you can either overwrite your existing installation or install MTDATA into a new folder. The default directory structure given by the installation program (C:\MTDATA) should be suitable.

Please note that for the Demonstration Version to work successfully on Windows 2000, Windows XP and above, MTDATA for Windows must be *installed and run for the first time* by a user with Administrator privileges (ie the Administrator, or a user in the Administrators group).

Unlicensed Users

WinMT, MTDATA for Windows, may be used for restricted types of calculations even if you do not have a valid licence:

- It may be used for demonstration purposes only.
- A restriction has been placed on the number of components, phases and species that can be used in calculations. The demonstration limits are up to 3 components with 22 phases containing up to 27 species in total. An unrestricted MTDATA has 30, 500 and 1000 for these limits.

Example calculations to try:

The data for all these examples are stored in "mpi" files (MultiPhase Input files) which can be download from <http://resource.npl.co.uk/mtdata/examples.exe>. Save this file in the MTDATA Work folder before executing it to unpack these files. They are included for the purpose of gaining experience in the use of MTDATA. They are not intended to give a completely accurate description of the thermodynamics and phase diagrams for the particular systems. In this package also are associated MTDATA macros which can be used to perform simple calculations illustrating some of the types of calculation possible with MTDATA.

- **Binary phase diagrams**

- for any of the following binary systems

"Al-Si"	alsi.mpi	300 to 1700 K
"Cr-Fe"	crfe.mpi	300 to 2200 K
"CaO-SiO ₂ "	caosio2.mpi	300 to 3200 K
"KCl-ZnCl ₂ "	kclzncl2.mpi	300 to 1100 K
H ₂ O-Na ₂ CO ₃	nacoh.mpi	200 to 400 K

- **Ternary phase diagrams**

- for any of the following ternary systems

"Fe-Cr-Ni"	fecrni.mpi	800 to 2150 K
"Al-Si-Zn"	alsizn.mpi	500 to 1600 K
"In-Ga-Sb "	ingasb.mpi	300 to 900 K
"CaO-SiO ₂ -Al ₂ O ₃ "	cas.mpi	1000 to 3000 K
"KCl-CaCl ₂ -ZnCl ₂ "	cakzncl.mpi	400 to 1100 K
"NaCl-KCl-NaBr-KBr"	nakclbr.mpi	400 to 1100 K

note that the last system is a reciprocal system

- **Fixed composition, variable temperature (MULTIPHASE) calculations**

- for the above binary or ternary systems, or for ideal gas and stoichiometric condensed phase calculations to following:

"S"	s.mpi	300 to 1000 K
"C-H-S"	chs.mpi	300 to 1000 K
"Al-O-Si"	alosi.mpi	300 to 3000 K
"Al-H-O"	alho.mpi	300 to 3000 K
"Cl-O-Si"	closi.mpi	300 to 3000 K
"Al-Cl-Si"	alclsi.mpi	300 to 3000 K
"C-O-Cl"	cocl.mpi	300 to 1000 K
"C-H-O"	cho.mpi	700 to 1500 K

- **Aqueous system calculations at fixed or variable temperature (MULTIPHASE) calculations**

- for the following system

"H ₂ O-H ₂ SO ₄ "	hosaq.mpi	vary H ⁺ concentration low amounts of H ₂ SO ₄
"H ₂ O-H ₃ PO ₄ "	hop.mpi	vary H ⁺ concentration low amounts of H ₃ PO ₄

If you feel that the coverage of the MTDATA demonstration database is not sufficient for you to evaluate MTDATA properly then please contact Hugh Davies (hugh.davies@npl.co.uk) with the details and it may be possible to provide you with data more appropriate to your intended application.