Release Notes:

Thermo-Calc Software Package

Version 2019b Update
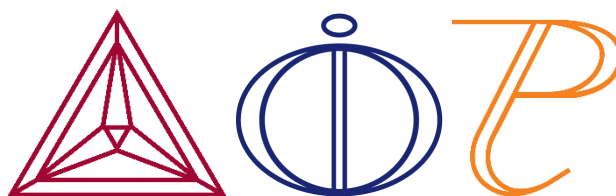
Contents

Thermo-Calc Version 2019b Update

The 2019b release in June included a new Process Metallurgy Module which uses the new TCOX9 TCS Metal Oxide Solutions Database or the TCOX8 TCS Metal Oxide Solutions Database. Some important adjustments to the databases require that an update is available to users. In addition, other bug fixes have been included as briefly described in these release notes.

Who Should Update Their Software?

If you use TCOX8, TCOX9, the Process Metallurgy Module or TC-Python, we recommend that you update your software.

TCOX8 and TCOX9 Database Updates

For improved convergence in equilibrium calculations including charged phases, logic was added to the database to reject constituents for given combinations of elements for the following phases:

- CA2SIO4_ALPHA
- CA2SIO4_ALPHA_PRIME
- ZRO2_MONO
- ZRO2_TETR
- NB2O5

Process Metallurgy Module

Now the components CaC_2, $CaCO_3$ and $MgCO_3$ can be chosen when defining a material.

TC-Python

The caching mechanism in TC-Python sometimes picked up a previously calculated result for a calculation where the setting was not identical. This is fixed.

Precipitation Module (TC-PRISMA)

A bug prevented precipitation calculations with a predefined size distribution to be made with TC-Python on Linux and Mac.

General Improvements

Fixed a bug that prevented the use of the Gibbs phase-type codes for the *Four Substitutional-Sublattice Ordering Model* in user databases.

A bug is fixed where the Thermo-Calc installation folder containing spaces resulted in invalid file paths inside the application. This caused GES6 (the new implementation of the Gibbs Energy System) to fail with *NoSuchFile* exceptions. GES6 now works as expected also when the application folder contains spaces.

# How to Update Your Software from Thermo-Calc

If you already have Thermo-Calc 2019b installed, the update **does not** require a re-installation of the software. Instead, it is a patch that is installed over your current installation.

If you do not currently have Thermo-Calc 2019b installed, follow the complete installation instructions found in the installation guides below.

Installing the Update if You Already Have Thermo-Calc 2019b Installed

If you already have Thermo-Calc 2019b installed, follow these instructions to install the update:

1. Download the update package at the link in the email you received from us. If you did not receive an email from us or you cannot access the download area, contact us at support@thermocalc.com to receive the software.
2. Once the software is downloaded, click on it to run the installation wizard.
3. If you receive an error message stating that Administration rights are required, click OK. Return to the downloaded file, right click on it and select **Run as administrator**.
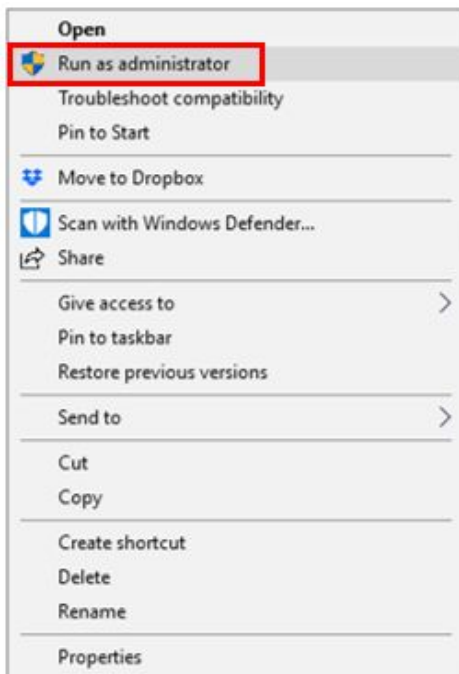
4. Follow the prompts in the installation wizard.
5. Once the software is installed, open it to make sure that it overrode the previous installation. Note that all shortcuts for 2019b will automatically redirect to the updated software. Go to the **Help** menu and select **About**. The version number should be **2019.2.54505-902**.

6. NOTE: TC-Python and add-on databases such as ThermoTech (TT) or user-made databases **DO NOT** need to be re-installed during the updating process.
7. If you use a Windows OS and use TC-API or TQ-Interface, you must manually move the following folders from **Public Documents** to **My Documents**:
   a. For TC-API:
      i. Move the folder Public Documents\Thermo-Calc\2019b\SDK\TCAPI to My Documents\Thermo-Calc\2019b\SDK\TCAPI
   b. For TQ-Interface:
      i. Move the folder Public Documents\Thermo-Calc\2019b\SDK\TQ to My Documents\Thermo-Calc\2019b\SDK\TQ

Installing the Update if You Do Not Already Have Thermo-Calc 2019b Installed

If you do not already have Thermo-Calc 2019b installed, download the full version of the updated software at the link you receive from us. Note that this is not the link you received for the original 2019b release, but is an updated link sent out beginning in September 2019. If you have not received an email from us or cannot access the download area, contact us at support@thermocalc.com.

Once you have downloaded the software, follow the instructions in the relevant installation guides.

Installation Guides

The installation guides can be accessed at the links below. If you cannot access the documents, email us at support@thermocalc.com.

Quick Installation for Windows:
https://www.thermocalc.com/media/30853/thermo-calc-quick-install-windows.pdf

Quick Installation for Mac:
https://www.thermocalc.com/media/36107/thermo-calc-quick-install-mac.pdf

Quick Installation for TC-Python:
https://www.thermocalc.com/media/53735/tc-python-quick-install-guide.pdf

Complete Installation Guide for Mac, Windows and Linux:
https://www.thermocalc.com/media/32479/thermo-calc-installation-guides.pdf

Changes to the 2019b Installation Process

Changes and improvements were made to the Thermo-Calc installation process beginning in version 2019b. Those changes also apply to this update, so they are included here:

Administrative Rights Needed for Windows Installation

Windows installations now require administrator rights to install and uninstall the program.

Resources (e.g. manuals, materials folders) copied from Public to a User Documents folder (Windows only)

This is for Windows operating systems. Note that access to some of the folder contents shown requires additional licenses.

The default folders where documents, materials files, property models and other content is installed is under **Public Documents** for ALL USERS. For a local user these files are copied to the user's Documents folder where this local copy is associated to the user login. The **Public Documents** folder will always contain the original set of contents as per the installation.

After installing Thermo-Calc, and when you first open the program, the set of folders is copied from the source **Public Documents** location into a user **Documents** folder.
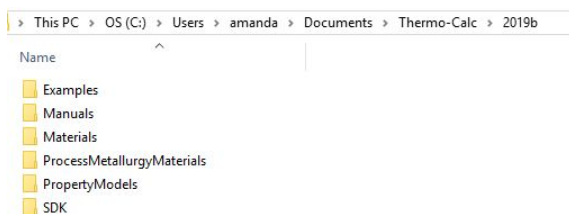
An example of a Windows installation where the folders have been copied from the Public Documents folder into the Documents folder for the <user>.

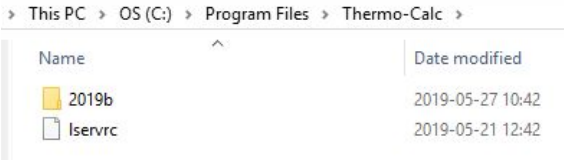| Operating System	Source Resources Folder (version changes each release)	Copied to this user folder

Windows	C:\Users\Public\Documents\Thermo-Calc \\<version>	C:\Users\<user>\Documents\Thermo-Calc\<version>

License File Installation Location

The license file installation location has changed. This information is important for anyone who needs to copy and replace an old version of the license file. *Otherwise the license is installed at the location chosen during the installation process.*

- **Windows and Linux:** License file installed under `<installdir>/Thermo-Calc`

- **Mac:** License file under `/Users/Shared/Thermo-Calc`

- The software program (and when applicable) a license file is installed in the location chosen during the installation process, for example:

General

- When you have several versions of Thermo-Calc installed on your computer, you can now choose the applicable version from lists, for example, when you right-click a file and choose **Open with** you will now see the version listed.
- When installing on Windows you can no longer choose to install for the Current User Only. This relates to the changes where Admin rights are needed for the installation, and files are installed in the Public Documents, then copied to the Documents folder for a specific user when starting the Thermo-Calc program. See the section about Resources in the complete installation guide.

Linux installations

- There is a new shortcut added to the desktop for Linux sudo users.
- Improved the visual appearance of the installer program on Linux for high resolution 4k-screens.

Contact Support

If you encounter any issues during the updating process, please contact Thermo-Calc Software at support@thermocalc.com or contact your local representative. Local representatives are available for Australia, Brazil, China, India, Japan, Korea, Russia and Turkey.