

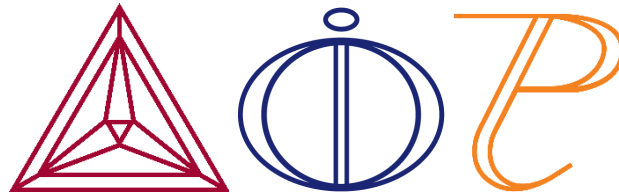


Release Notes:

Thermo-Calc Software Package and Databases

Version 2022a Update 1 and Update 2

January 18 and 19, 2022



Contents

Thermo-Calc 2022a Original Release December 2021	1
FYI Update 1 vs Update 2	1
Thermo-Calc Response to Apache Log4j 2 Vulnerability	2
Graphical Mode: Incorrect Results in One Axis Equilibrium Calculation	2
Solid Solution Strength Contribution Bug Fixed for FCC_L12#2	2
Rare Connection Failure to Property Models	3
Minor Bug Fixes	3
How to Update or Install Your Thermo-Calc Software	3
Updating an Existing 2022a Thermo-Calc Installation	3
New Installations: Installing Only the Latest Version of Thermo-Calc 2022a Including the Updates	4
Installation Guide Contains Full Details for All Types of Operating Systems and License Types	4

Thermo-Calc 2022a Original Release December 2021

The following update to 2022a is primarily driven by the global log4j security issue that came to light the day after we released 2022a on December 8, 2021. In addition we fixed some important bugs as described below. To learn about all the software and database news see our [release overview blog post](#) on the web or go straight to the [full release notes in PDF format](#).

FYI Update 1 vs Update 2

Thermo-Calc version 2022a Update 1 was released on January 18, 2022. An additional important correction was needed related to the One Axis equilibrium calculations, thus on January 19, 2022 Update 2 was released. See [How to Update or Install Your Thermo-Calc Software](#) and then ensure you have the latest (Update 2).

- **CURRENT VERSION: Update 2 = 2022.1.2022.1.95234-411** (January 19).
- Update 1 = 2022.1.95203-408 (January 18).

Thermo-Calc Response to Apache Log4j 2 Vulnerability

A global security issue related to the so-called Log4Shell vulnerability in the Apache Log4j Java logging library was disclosed worldwide on December 9, 2021. Thermo-Calc Software has investigated our products, including Thermo-Calc, the Add-on Modules, SDKs, Property Models, and databases. Our investigations show **none of our products use the Log4j 2 versions affected by the Log4Shell bug**. However, in the wake of Log4Shell, there are strong recommendations to update Log4j to the most recent version. We therefore decided to release an update for Thermo-Calc 2022a.

Log4J has been updated to version 2.17.1, which is the latest available release.

For full technical details and information about earlier versions of Thermo-Calc, including any ongoing updates about this evolving subject, please refer to this blog post:

<https://thermocalc.com/blog/thermo-calc-response-to-apache-log4j-2-vulnerability/>

To update existing versions of 2022a or for new installations, see [How to Update or Install Your Thermo-Calc Software](#).

Graphical Mode: Incorrect Results in One Axis Equilibrium Calculation

Fixed a bug with one axis equilibrium calculations when using the amount (mole/mass percent/fraction) of a component as the axis quantity.

The bug could cause the composition of the other components to be changed (as mentioned in the log info), meaning that the calculation would not be performed under the conditions that the user had set. This would happen for any component with a condition whose numerical value is outside of the minimum-maximum range of the calculation axis.

For example: with a calculation axis of Mole Percent of Carbon from 0 to 5%, and a condition for the Mole Percent of Chromium at 10 %, the chromium mole percent would be changed. However, if the calculation axis would instead go from 0 to 15 % carbon the condition on Cr would be unchanged in this situation, as the numerical value 10 % is now inside the axis range (of course the axis refers to the mole percent of a different component).

Solid Solution Strength Contribution Bug Fixed for FCC_L12#2

A bug is fixed that caused the solid solution model to exclude all FCC phases from being evaluated, which now means that the feature works as it did for 2021b and earlier (i.e. only if you use the original 2022a will this be a problem).

Rare Connection Failure to Property Models

This update fixed a rare issue that was reported on a few computers when trying to run Property Models. On these machines, no Property Models could be loaded, and the debug logging was reporting a connection failure (timeout) of Thermo-Calc to the Property Models. This issue seems to occur on Windows machines that have installed Docker Desktop – however, not on all of them. It is related to the network settings of the localhost adapter.

Minor Bug Fixes

- The new [zirconium-based alloys database \(TCZR\)](#), has a correction to its name in the database information section (available in the software).
- The new Material to Material template incorrectly displayed the text DEMO even when there was the correct licence.

How to Update or Install Your Thermo-Calc Software

If you already have Thermo-Calc 2022a installed, the update **does not** require a re-installation of the software. Instead, it is a patch that is installed over your current installation.

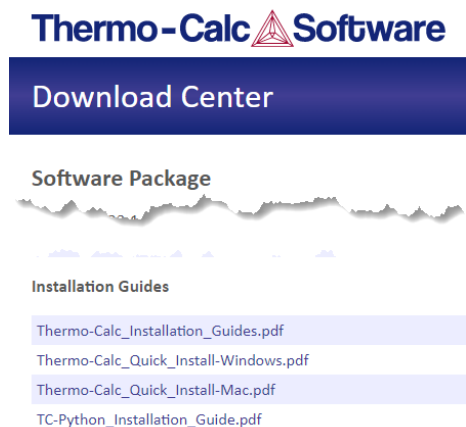
If you do not currently have Thermo-Calc 2022a installed, follow the complete installation instructions found in the installation guides below.

Updating an Existing 2022a Thermo-Calc Installation

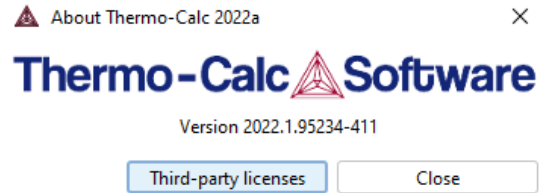
If you already have Thermo-Calc 2022a installed, follow these instructions to go to the Download Center where you can select the file to download and access the installation guides. Note that the download area has the latest version of the 2022a software.

1. Download the update file in one of two ways:
 - a. From within Thermo-Calc 2022a, select **Help > Check for Updates** and the file will be downloaded from the Download Center for you and based on the existing operating system.
 - b. Via the email and link sent to you from Thermo-Calc (you will be directed to the Download Center).

If you did not receive an email from us or you cannot access the Download Center, contact us at support@thermocalc.com to receive the software.



2. Once the software is downloaded, right-click on it and select **Run as administrator** (in Windows) to run the installation wizard. See the installation instructions for other operating systems.
3. Follow the prompts in the installation wizard.
4. Once the software is installed, open it to make sure that it overrode the previous installation. Note that all shortcuts for 2022a will automatically redirect to the updated software. Go to the **Help** menu and select **About**. **The latest version number for UPDATE 2 should be 2022.1.95234-411.**



NOTE: TC-Python and add-on databases such as ThermoTech (TT) or user-made databases DO NOT need to be re-installed during the update process.

New Installations: Installing Only the Latest Version of Thermo-Calc 2022a Including the Updates

If you do not already have Thermo-Calc 2022a installed, download the full version of the updated software at the link you receive from us. If you have not received an email from us or cannot access the Download Center, contact us at support@thermocalc.com.

Installation Guide Contains Full Details for All Types of Operating Systems and License Types

Once you have downloaded the software, follow the instructions found in the complete *Thermo-Calc Installation Guide* for macOS, Windows, and Linux, including installation instructions for TC-Python and TC-Toolbox for MATLAB®. This installation guide (and others) are available from the Download Center (where you downloaded the software).

Alternatively, download the [installation guide from our website](#) or navigate to the [Support > Documentation](#) page for additional links.

