API VERSION 8.0 – September 2023

VERSION 8.0 (September 2023)

- Implemented a back diffusion model for steels in the Solver and Solidification modules.
- Extended the Solidification module with a quench from back diffusion model for steels and titanium alloys, improved existing quench models, and implemented a variant of the quench from Scheil-Gulliver model for titanium alloys.
- Added specific heat and latent heat of formation for each of the austenite decomposition products to the output of a Solidification calculation using the quench from Scheil-Gulliver model for steels and white cast irons.
- Extended the Cooling module for titanium alloys.
- Extended high-temperature strength and flow stress calculations in the Mechanical module for general steels in the tempered condition.
- Improved calculation of latent heat of formation of ferrite from austenite.
- Reassessed creep for BCC phase in steels.
- Improved creep and rupture strength models for nickel-based alloys.
- Added new dislocation cutting mechanism in aluminium alloys kinetics.
- Remodelled age hardening for Al3Sc phase in aluminium alloys.
- Improved stability of the thermodynamic solver.
- Updated the thermodynamic and properties databases to match those included in JMatPro v14.0.
- Adjusted the Al thermodynamic database.
- Reassessed molar volume of Ti2Cu and Ti2Ni phases for titanium alloys.
- Fixed possible failure in aluminium strength calculations.
- Fixed possible failure in high-temperature strength calculations for general steels.