JMatPro
PRACTICAL SOFTWARE FOR MATERIALS PROPERTIES

Version 16.0 – January 2026

VERSION 16.0 (January 2026)

NEW FEATURES

- optimised all calculations for more speed
- added the possibility to use user defined solidification profiles in the solidification of Al, Mg, Ti, Co, Ni, Zr alloys and General/Stainless Steels (linked to back-diffusion)
- added possibility to use any quenched microstructure in the Tempered Hardness calculation of General Steels
- added Simultaneous Precipitation calculation for austenitic Stainless Steels
- added High Temperature Strength and Flow stress calculations to Cu alloys
- added High Temperature Strength and Flow Stress calculations to cast Mg alloys
- added possibility of tempered condition in High Temperature Strength and Flow Stress calculations to Ti alloy
- more rigorous Solidification and Quenching calculations for General Steels
- more advanced model for Simultaneous Precipitation in General Steels
- advanced TTT calculation for Ti alloys
- improved calculation of High Temperature Strength calculation for Al alloys
- adjusted solidification and cooling properties calculations for Titanium alloys
- more robust back-diffusion calculations
- added time axis in solidification graphs when relevant
- fixed failing calculations at highest temperatures in High Temperature Strength when temperature fixed
- added sanity check on time in user defined cooling/solidification/... profiles
- extended model for grain size evolution in Multi-Pass Hot Rolling calculation for General Steels
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- many small changes in the GUI

DATABASES CHANGES

- added element Ta and B to Stainless Steels thermodynamic database with phases BN M3B2 MB2_C32 CR2B FE2B and FE3B
- added Co and S to the Cu alloys thermodynamic database with phases CO_HCP, CO_FCC and CU2S
- adjustments in the physical properties databases

EXPORT CHANGES

- added Transformation Plasticity Coefficients to export to DEFORM-HT
- improved and extended SYSWELD and PROCAST export
- improved Transvalor SIMHEAT Nitriding export
- added Cu alloys export to FORGE, THERCAST, DEFORM, QFORM, Abaqus and Simufact
- added Mg cast alloys export to FORGE, THERCAST, DEFORM, QFORM, Abaqus and Simufact
- improved Ansys Workbench export (strain unit + 100 points limit)

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- added hardness column to Transvalor for Steel export
- fixed default export settings for QFORM-HT

BUG FIXES

- fixed issue in Sysweld export introduced in v15
- fixed potential failures in several calculations linked to the use of a new compiler version
- fixed potential issue using a user defined time-temperature cooling profile for General Steels
- fixed potential issues for Al and Mg alloys strength calculations
- fixed potential issue in Titanium Cooling Properties if no Alpha present but all Martensite
- fixed potential issue with the High Temperature Strength of a General Steel in tempered state when lean composition
- fixed potential failure in Nickel alloys Creep calculation and consistency with rupture calculation
- fixed potential failure in Nickel alloys Heat Treatment calculation
- fixed small inconsistencies in the General Steels TTT calculations
- fixed small renormalisation issues in Ti and Cu alloys when secondary phases are present
- fixed potential issue with the automatic calculation of cooling rate for General Steels properties export to third party packages
- fixed inaccuracy for grain size of Stainless Steel used in High Temperature Strength calculation
- fixed sanity check of user defined cooling profiles
- fixed possible missing specific heat points in General Steels Quench Properties plots
- fixed back-diffusion not used in Homogenisation calculation
- fixed display of cooling profile plots for Homogenisation calculation