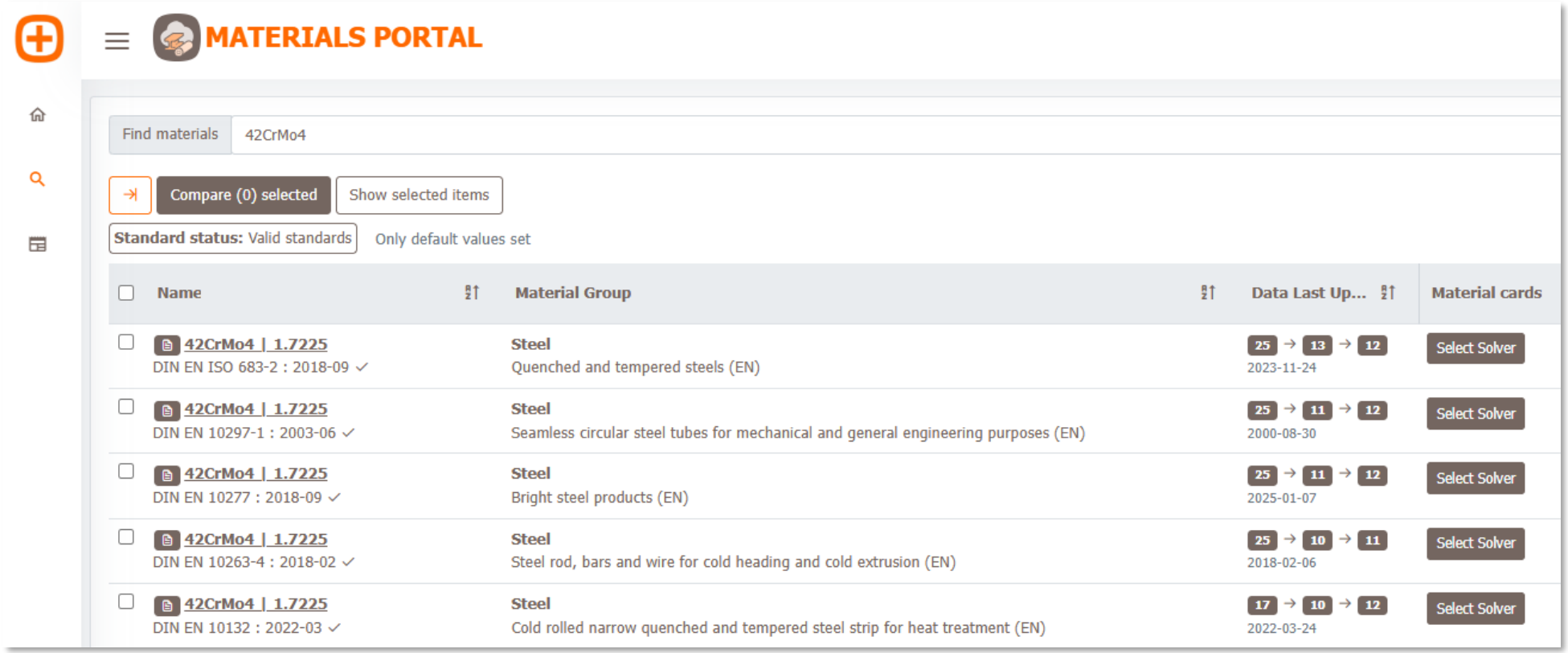
Materials Portal – Quick Reference Guide

1. Search

Find the material by its material name, material number, material standard, vendor designation or trade name

Example: 42CrMo4

- Result list with all the material standards containing this quenched and tempered steel
- The column **Name** contains the material name, the material name and the issue of the standard

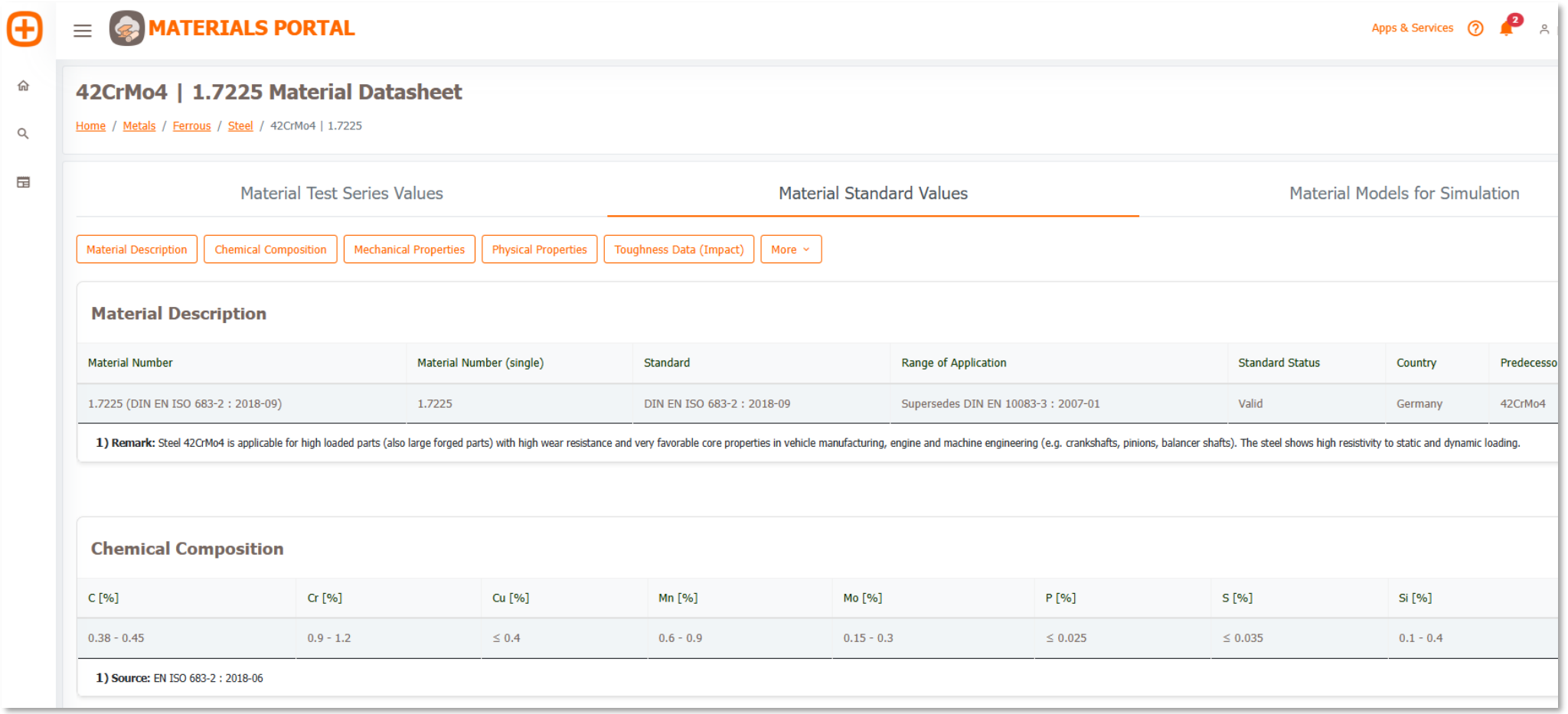


2. Material Data Sheet

Get the material data sheet by clicking on a search result

Example: 42CrMo4

- Standard information is displayed in the center tab **Material Standard Values** of the three tabs
- Jump directly to tables of particular interest by using the outlined **navigation** buttons

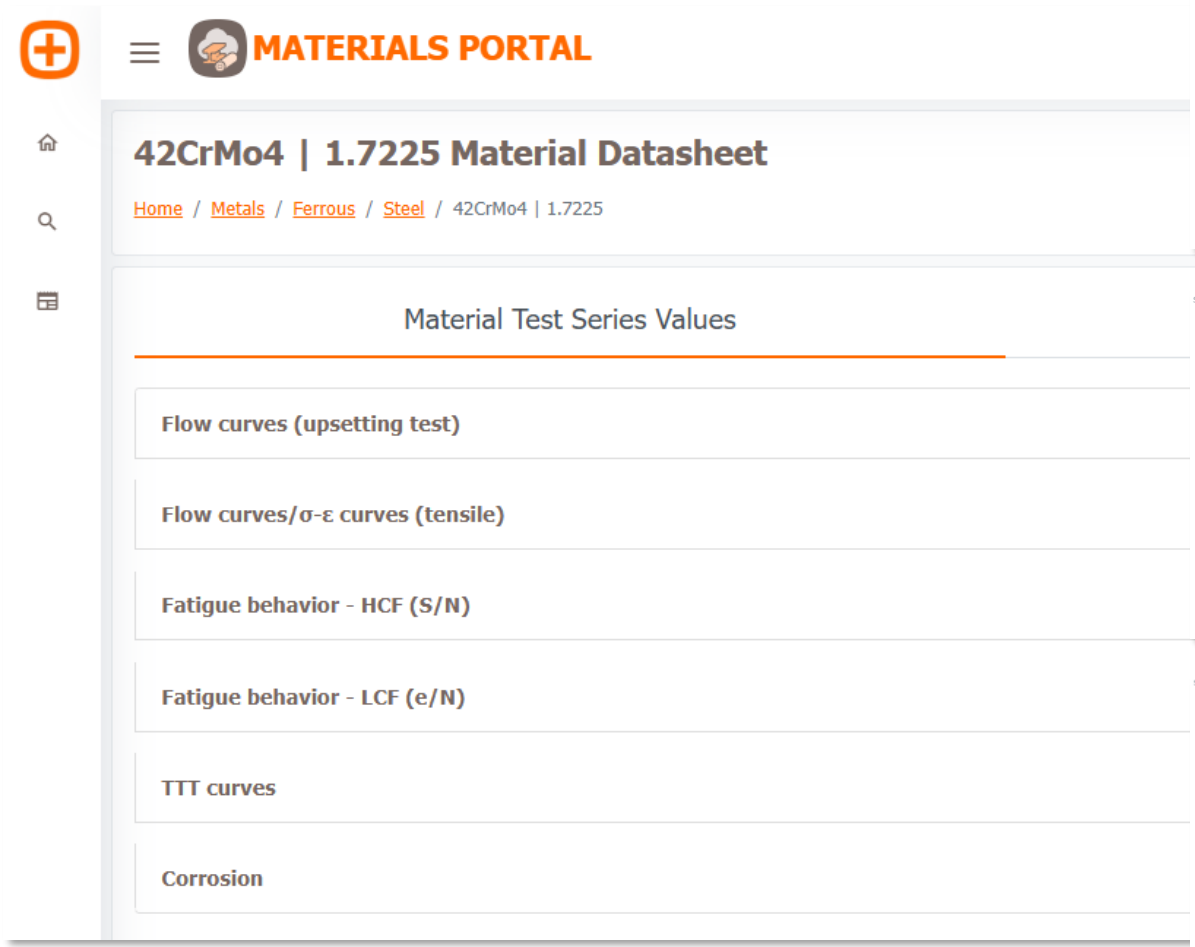


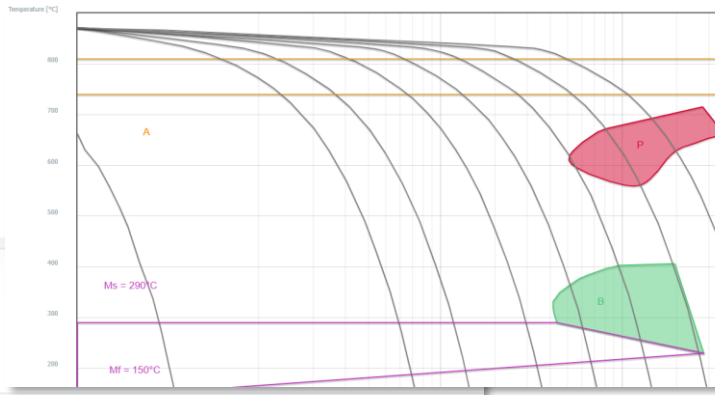
3. Material Test Series Values

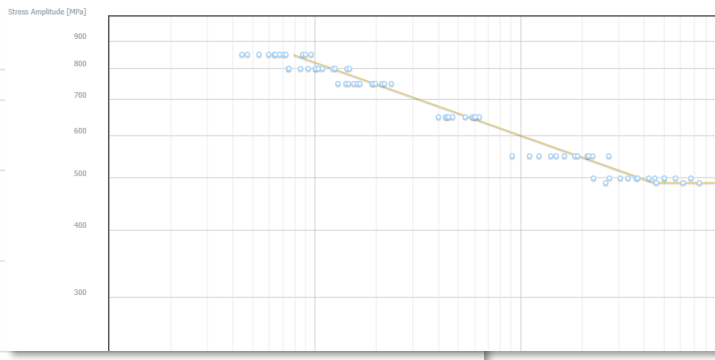
Get belonging material test data from different sources *

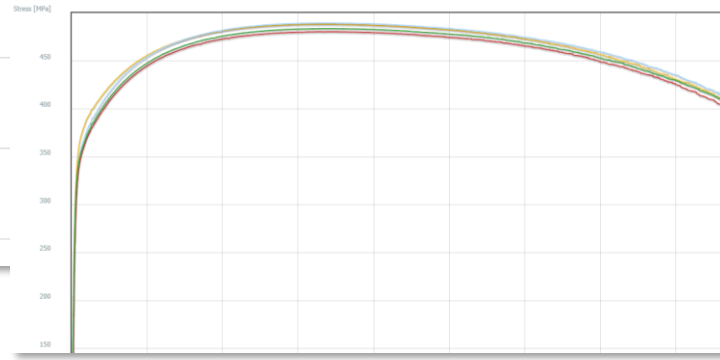
Example: 42CrMo4

- Information is displayed in the left hand tab **Material Test Series Values** of the three tabs
- Flow curves (upsetting test) | TU Dresden
- Flow curves/σ-ε curves (tensile) | TU Dresden
- Fatigue behavior - HCF (S/N) | FKM DABEF
- Fatigue behavior - LCF (e/N) | Boller-Seeger
- TTT curves | TU Freiberg
- Corrosion | Dechema, Sandvik a.o.









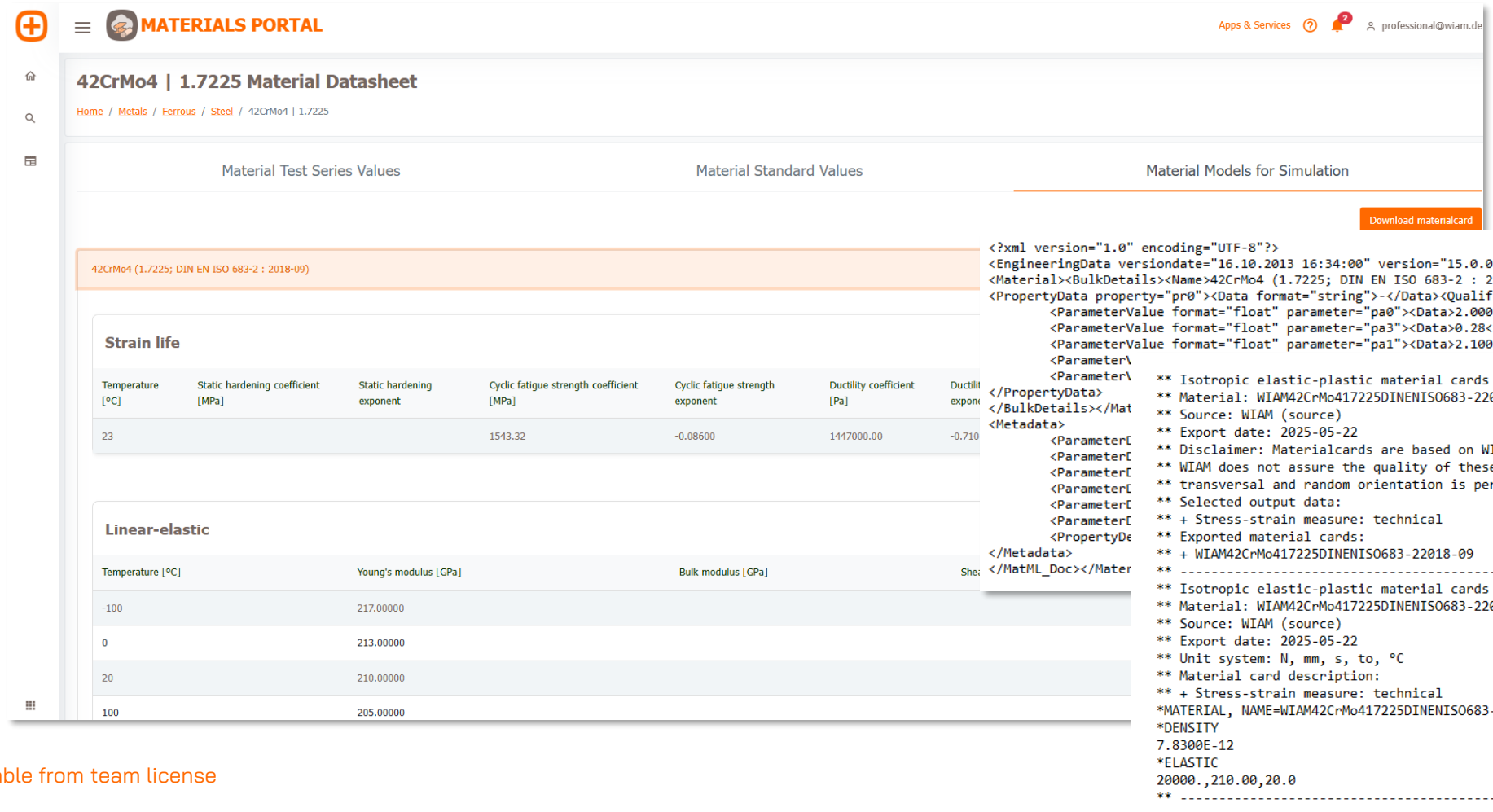
* available for selected materials

4. Material Models for Simulation

Get belonging material models for CAE *

Example: 42CrMo4

- Information is displayed in the right hand tab **Material Models for Simulation** of the three tabs
- Calculation model dependent data display (Strain life, Linear-elastic, Alternating stress, ...)
- Export functionality for Abaqus and Ansys solver



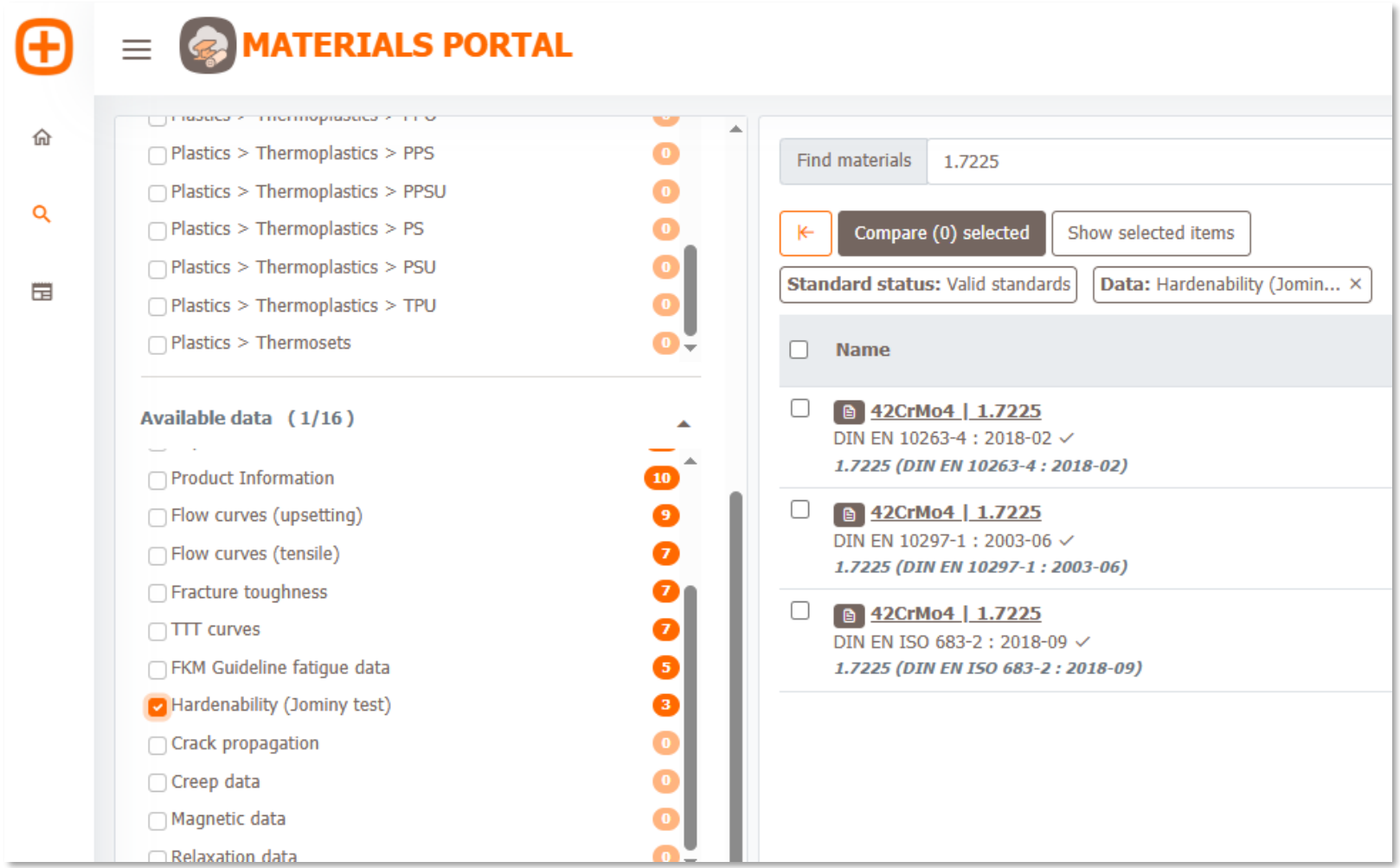
* available for selected materials | available from team license

5. Filtering

Use available filter on the left hand side menu

Example: 42CrMo4

- Filter by **Standard status**, **Material group**, **Available data** and **Semi-finished product**
- The counter shows the current number of hits
- Checking the box filters the search results

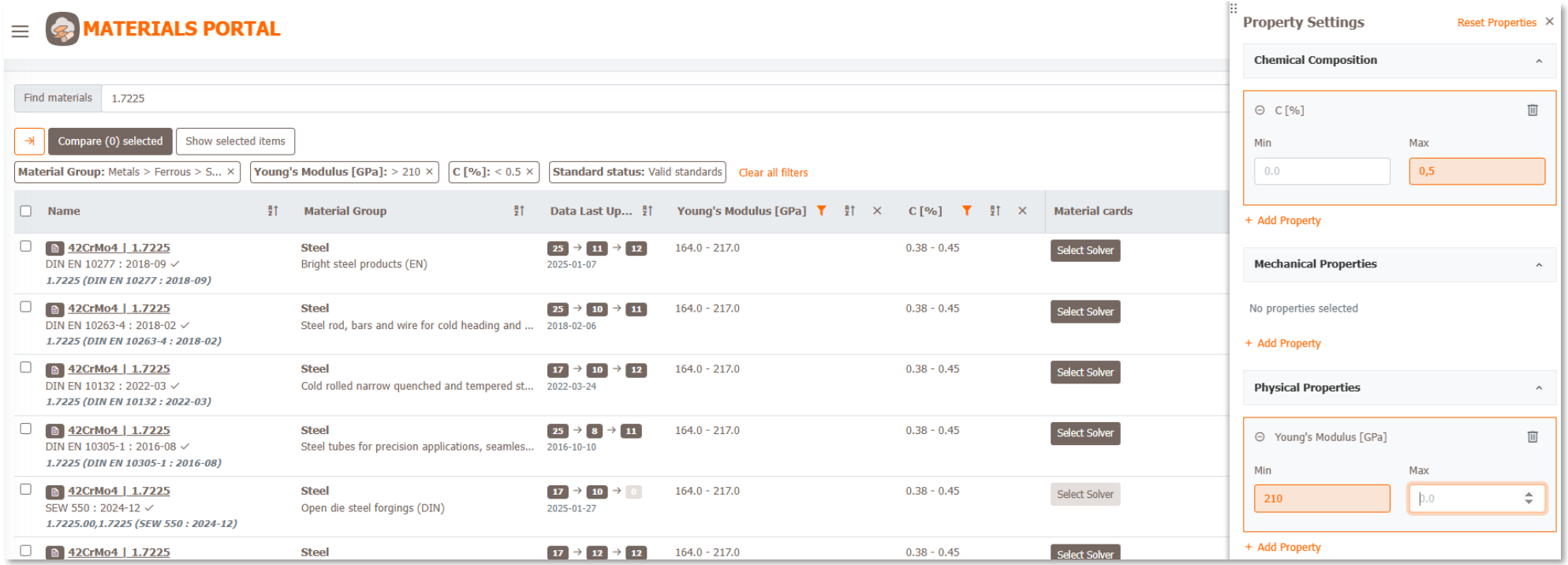


6. Advanced Search

Configure your own search result table

Example: 42CrMo4

- Configure and enhance the search result table by important data and show specified data ranges
- Start the configuration by using the property dialog button below the Start button in the upper right hand corner
- Selection of the desired search properties and specification of the desired numerical value
- Use table header tools for value adjustment, sorting and property removing

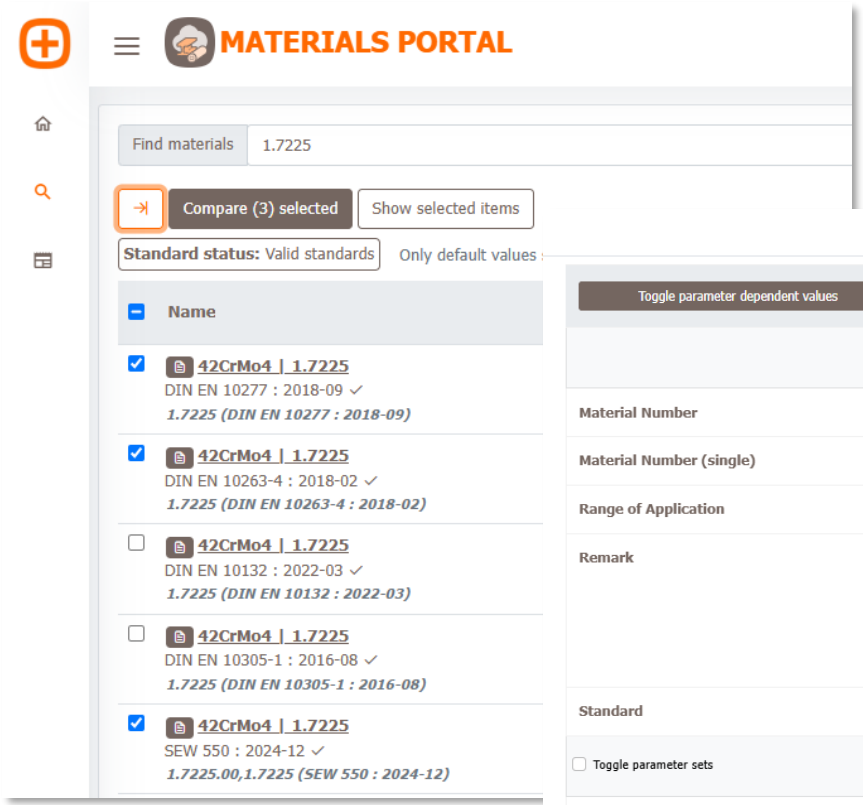


7. Material Comparison

Generate a comparison table for the selected materials

Example: 42CrMo4

- Tabular material comparison of important data for the choosen materials
- Deselection or adding of further materials possible



Compare View

Toggle parameter dependent values	42CrMo4	42CrMo4	42CrMo4
Material Description			
Material Number	1.7225 (DIN EN 10277 : 2018-09)	1.7225 (DIN EN 10263-4 : 2018-02)	1.7225 (SEW 550 : 2024-12)
Material Number (single)	1.7225	1.7225	1.7225
Range of Application	Supersedes DIN EN 10277-5 : 2008-06	Supersedes DIN EN 10263-4 : 2002-02	Supersedes SEW 550 : 1976-08
Remark	Steel 42CrMo4 is applicable for high loaded parts with high wear resistance and very favorable core properties in vehicle manufacturing, engine and machine engineering (e.g. crankshafts, pinions, balancer shafts). The steel shows high resistivity to static and dynamic loading.	Round rod, round bars and wire intended for cold heading, cold extrusion, subsequent quenching and tempering or induction hardening or flame hardening.	Quenched and tempered steel for larger forgings.
Standard	DIN EN 10277 : 2018-09	DIN EN 10263-4 : 2018-02	SEW 550 : 2024-12
Toggle parameter sets	**Physical Properties**		
Coefficient thermal expansion (CTE) [10^-6*K^-1]	10,5 - 14,4	10,5 - 14,4	10,5 - 14,4
Density [g/cm³]	7,83 - 7,85	7,83	7,83
Differential Coefficient of Thermal Expansion [10^-6*K^-1]	9,2 - 16,1	9,2 - 16,1	9,2 - 16,1
Mean Coefficient of Thermal Expansion	10,5 - 14,4	10,5 - 14,4	10,5 - 14,4