

Total Materia Top Use Cases

Material Management Software by Key to Metals

Calculation of Material Data in the Elastic Range

Challenge

- Finding mechanical and physical properties
- Searching and comparing international equivalents
- Keeping pace with changes to national and international standards

Solution

- >380,000 metallic and non-metallic materials with data gathered from 67 different standards
- Cross reference tables covering international materials with side by side material and property comparison
- Full traceability of obsolete, replaced and withdrawn standards

Benefits

- Hours saved in searching material data, time intensive cross referencing and comparison exercises and implementing best business practice by using a consolidated to material data management

Conditions			
Total items found: 17			
5	Cold drawn (K): 40 < t <= 100 mm		
6	Cold drawn (K): 5 < t <= 10 mm		
7	Cold drawn (K): t <= 5 mm		
8	Cold drawn and normalized (K+N): < 100 mm		
9	Cold drawn and Quenched and tempered (K+V): 16 < t <= 40 mm		
10	Cold drawn and Quenched and tempered (K+V): 40 < t <= 100 mm		

Properties			
Condition: Cold drawn and Quenched and tempered (K+V): 16 < t <= 40 mm			
Property	Value	Unit	Note
Yield stress, $R_{p0.2}$	≥ 400	MPa	
Tensile stress, R_m	650 - 800	MPa	
Elongation, A	≥ 16	%	
Reduction of Area	≥ 35	%	

Non-Linear Material Data for Advanced CAE Calculations

Challenge

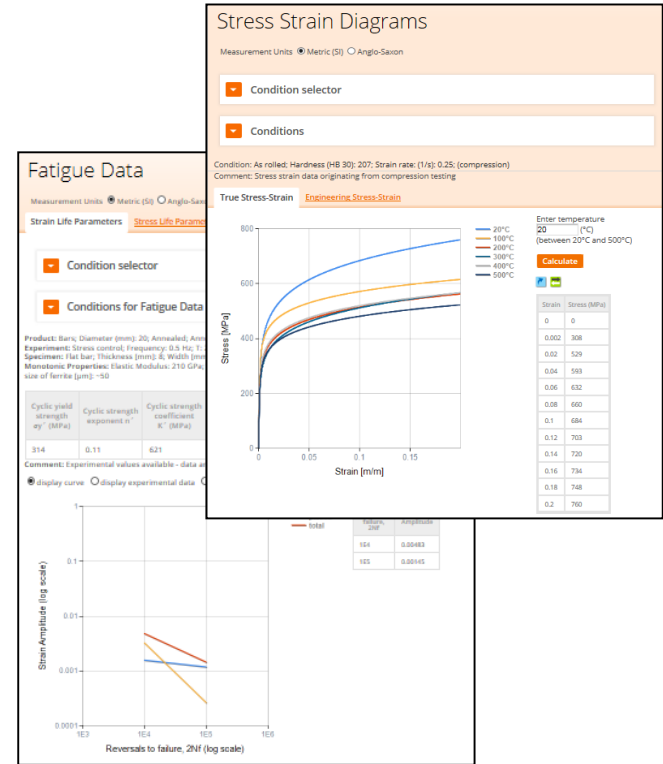
- Finding stress-strain curves for calculations in the plastic range, fatigue properties, fracture mechanics parameters, etc.
- Moving data from source to CAE solvers

Solution

- Stress strain curves, cyclic properties, formability diagrams and more for thousands of materials
- Find property estimates through equivalent materials
- Export directly from Total Materia in HyperWorks formats ready for the material card

Benefits

- Eliminating the possibility of dangerous errors whilst making the massive undertaking of finding experimental data hassle free. Optimizing design and opening new opportunities for advanced CAE/FEA calculation.



Making Decisions Based on Material and Property Comparisons

Challenge

- Quickly and simply comparing equivalent materials side by side
- Deciding about material suitability by comparing specific properties from different materials
- Viewing material behavior relationships based on multiple property data sets

Solution

- Side by side material comparison for up to 4 materials
- Comparing stress strain curves for different materials on the same axis
- Multiple property comparison using radial charts

Benefits

- Allowing smarter engineering decisions to be made as well as huge time savings in laborious manual comparison exercises.

