



microView

Problem:

The new thermo-mechanical cycles can allow to produce steel grade with impressive microstructural and thus mechanical characteristics. DualPhase, CP, LC, ULC, TRIP steels need a strict microstructure design and evolution forecast along the hot rolling mill and the run out table.

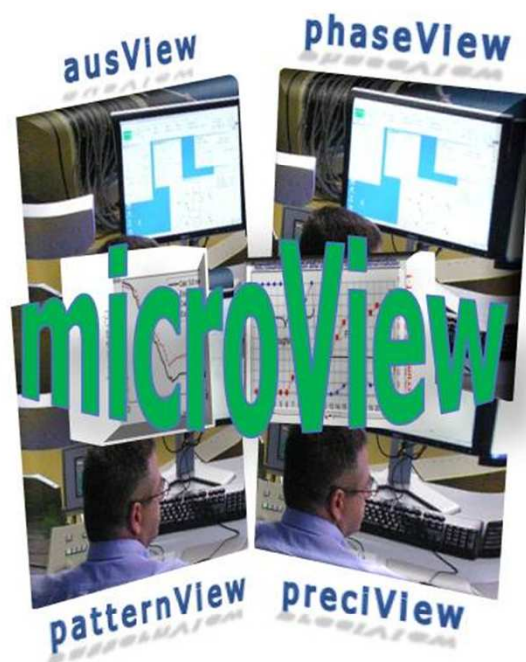


Solution:

CSM recommends its Customers to finalise alloy design and relevant processes in order to obtain target microstructure rather than directly the target mechanical properties.

steelView collects CSM's metallurgical models able, from hot rolling operating practices, to predict microstructure evolution as a function of key process parameters as well as final mechanical properties:

- **ausView**, for austenite evolution in hot rolling (grain size distribution, recrystallised volume fraction and residual work hardening)
- **patternView**, for thermo-mechanical pattern (ϵ , $\dot{\epsilon}$, temperature evolution, mill forces, etc.)
- **preciView**, for precipitation evolution in austenite and ferrite (volume fraction and size distribution of precipitates)
- **phaseView**, for phase transformation (volume fraction of phases and their grain size distribution)
- **mechView**, mechanical properties predictor.



Strip Thickness (mm)	YS (MPa)	UTS (MPa)	EI (%)
4.0	736	794	13
3.5	723	789	18
3.0	730	780	13
2.5	738	791	12
2.0	747	793	11

Two pilot mills for hot and cold rolling, along with fully equipped labs, allow the tuning of models output, so to properly tailor the industrial proposed solutions.

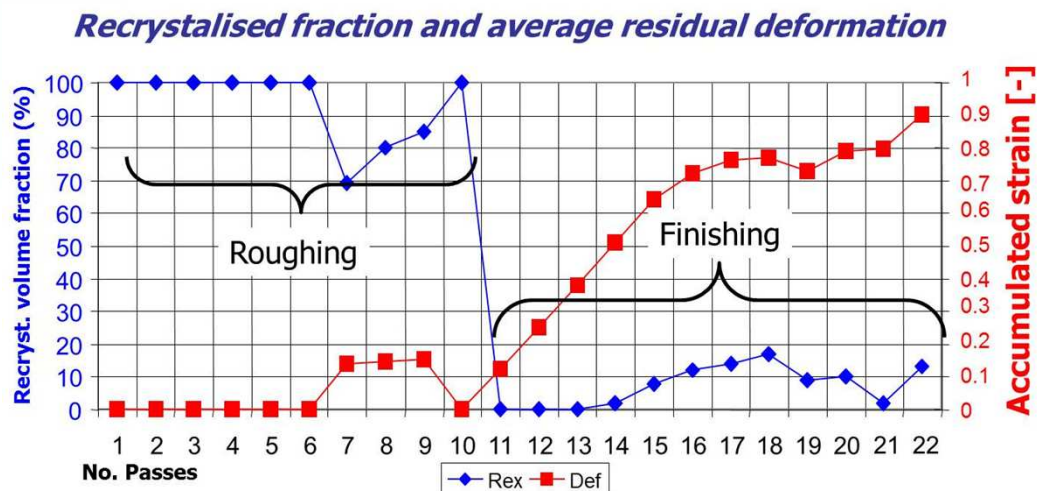
Benefits:

- Cost & timing reduction for new steel grades production
- Full exploitation of hot rolling mill characteristics
 - Full coil microstructure prediction
 - Standardisation of the highest product quality

Input & output:

Present hot rolling mill operating practices
Target mechanical properties

Proposed hot rolling operating practices, including Run Out Table
Maps of full coil microstructure evolution



microView allows to define specific chemical compositions in order to produce specific steel grades (for example Dual Phase) fully exploiting HSM features.

