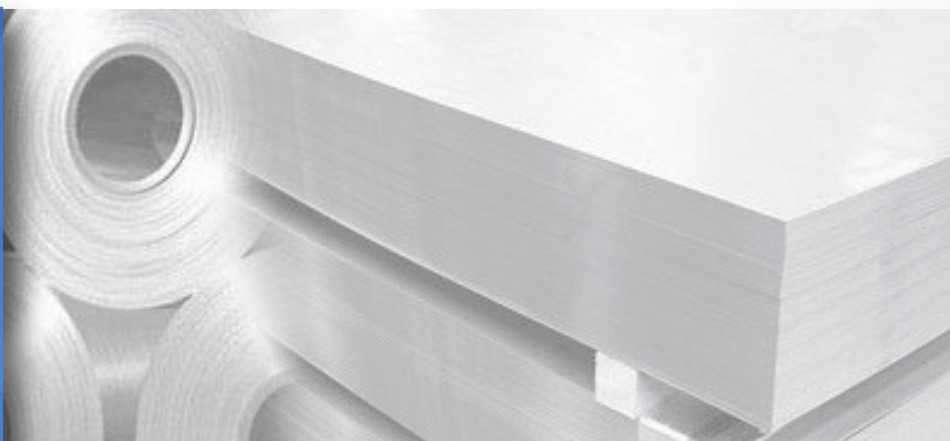


Optimisation of the mixed acid online monitoring and control in stainless steel pickling plants in stainless steel pickling plants



PROJECT DETAILS

Funding Programme:
Research Fund for Coal and Steel (RFCS)

Funding Scheme:
RFCS-PDP (Pilot and demonstration project)

Project Reference:
709694; UE-16-709694

Project Duration:
42 months (from 2016-07-01 to 2019-12-31)

Total Project Value:
€ 1.920.363,40

EU Grant-Aid:
€ 960.181,71

Funding to UniOvi:
€ 157.215,45

PROJECT DESCRIPTION

The European steel sector is under strong economic pressure due to the difficult global market conditions. This demands high flexible and favourable production while maintaining high product quality standards. The customized production of small lots of a wide range of special stainless steel grades distinguishes the European competitive advantage. Especially the pickling step is of high importance for stainless steel production as the product surface quality is a very essential attribute for the customers. In conjunction with the demanded high process flexibility the fast adjustment of defined concentrations in industrial mixed-acid pickling baths is of great importance for achieving consistently high product qualities and plant productivity. Available mixed acid concentration analysis techniques aren't capable to achieve these requirements.

Thus, there is a great demand for advanced mixed acid online concentration supervision and pickling plant process control techniques. Within the RFCS project FLEXPROMUS an innovative method for continuous HF-HNO₃-mixed-acid online analysis was successfully developed. First tests at two stainless steel strip pickling lines showed very promising results. However, further measuring technique optimisations are necessary to reach TRL 7. This pilot project addresses the optimisation of the innovative online concentration measuring technique concerning set-up, long-term reliability and operative range. Besides laboratory investigations and pickling process operation model developments, pilot scale tests shall be carried out at a stainless steel strip pickling line including acid regeneration, and for the first time at a wire rod plant. Finally, modernisation concepts for existing mixed acid pickling plants are to be developed. The overall goal of this pilot research project is the further optimisation of the mixed acid concentration monitoring and control in order to improve the pickling plant process operation and working conditions.



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