Contribution ID: **285**   Type: **Oral Presentation**

Advancing Online, Continuous Surface Cleanliness Monitoring with the TST.1 System

Thursday 9 October 2025 08:50 (20 minutes)

The TST.1 is a practical, simple, non-contact series of systems for continuous, online monitoring of surface contamination loads on moving metal sheet. Designed for real-time process control, the system assesses surface cleanliness before and after cleaning sections in metallic coating and continuous annealing sheet finishing lines, enabling producers to optimize incoming cold-rolled steel processing and cleaning section performance.

Utilizing a laser ablation (LA) technique, the TST.1 stimulates surface contaminants to generate a measurable signal, providing instant contamination data. The system operates at a large stand-off distance, ensuring safe and easy deployment while remaining effective on unstable sheets and in any orientation. The TST.1 is available in two configurations: the TST.1d, is a portable system for temporary diagnostics, troubleshooting, and cleaning section audits, and the TST.1RS, a continuous-use, permanently installed system for real-time monitoring in industrial environments. Both configurations are use "retina-safe" lasers to minimize risk for workers.

This presentation will provide a technical overview of the TST.1 system's capabilities, along with an in-depth discussion of the engineering challenges involved in sourcing suitable lasers and designing support systems to ensure long-term laser reliability in harsh steel plant conditions. Additionally, real-world case studies from production environments will demonstrate the effectiveness and impact of the system in improving process control and ensuring coating quality.

Primary author: Mr ALMQUIST, Eric (StarTool)

Presenter: Mr ALMQUIST, Eric (StarTool)

Session Classification: Quality Control & Inspection

Track Classification: Rolling of long and flat product