



Invitation to the 90. AMAP Colloquium

Presentation by

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The Art of Alloy Sorting:

**Optimizing Aluminum Scrap Utilization in Recycling -
Preventing Downcycling of Twitch and other
Post Consumer Materials**

on Thursday, **November 21st, 2024 at 4.00 pm**

with subsequent discussion at AMAP

All interested persons are sincerely invited to the AMAP foyer.
Snacks and refreshments will be available.

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The Art of Alloy Sorting: Optimizing Aluminum Scrap Utilization in Recycling – Preventing Downcycling of Twitch and other Post Consumer Materials

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Abstract

This presentation examines the application of Laser-Induced Breakdown Spectroscopy (LIBS) technology for the effective sorting of aluminum alloys from post-consumer scrap materials, particularly focusing on TWITCH. As the demand for aluminum rises, optimizing recycling processes is essential to prevent downcycling and ensure high-quality material recovery.

This presentation will inform about TOMRA's highly sophisticated sorting approach, which utilizes dynamic LIBS for precise detection and separation of valuable aluminum alloys. This method enhances sorting efficiency and enables high-throughput processing of mixed aluminum scrap streams.

Key points include:

- **LIBS Sensor Technology and TOMRA's Dynamic LIBS Approach:**
An overview of how LIBS analyzes the elemental composition of aluminum scrap through laser-induced plasma spectroscopy, allowing for rapid and accurate sorting and how this technology optimizes sorting by facilitating real-time analysis, improving the quality of sorted scrap materials.
- **Combining LIBS Detection and Sorting with X-Ray Transmission Sorting:**
Ongoing test work focuses on combining LIBS with X-ray transmission (XRT) technology in a multi-stage sorting process. This combination aims to enhance sorting accuracy by effectively identifying and removing contaminants, thus maximizing the recovery of high-purity aluminum suitable for reprocessing into for example 6xxx series alloys.

The audience will learn about the potential for producing high-quality scrap fractions from various input materials, including both clean post-production scrap and more challenging post-consumer sources like TWITCH.

The findings emphasize that advanced sorting technologies can significantly improve recycling outcomes while supporting a more sustainable circular economy.