

Invitation to the 107. AMAP Colloquium

Presentation by
Stefan Erdmann

(Chief Technology Officer, Outokumpu)

How Aluminum and Stainless Steel Can Accelerate Innovation and Decarbonization Through Industrial Symbiosis

on Thursday, **November 5th, 2026 at 11.30 am**
with subsequent discussion at AMAP

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

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How Aluminum and Stainless Steel Can Accelerate Innovation and Decarbonization Through Industrial Symbiosis

Stefan Erdmann,

Chief Technology Officer, Outokumpu

Abstract

The European metals industry faces a twofold challenge: it must drastically reduce its greenhouse gas emissions while at the same time ensuring its international competitiveness. Although the aluminium and stainless steel industries are traditionally viewed as separate sectors, both face remarkably similar technological and economic challenges.

The presentation highlights how cross-sector collaboration can open up new avenues for decarbonization. Examples range from provision of zero-emission process heat through electrification and induction technologies, to the use of biogenic energy sources, and the application of carbon capture and carbon utilization concepts. At the same time, there are significant synergies along material cycles, particularly in scrap management, alloying elements, and the recycling of metallurgical byproducts and slag. Using concrete practical examples from the stainless steel industry, the presentation demonstrates how industrial carbon, energy and material flows can be integrated into new value chains. These include the use of biogenic carbon sources, the utilization of CO-rich process gases for sustainable fuels and chemicals, and innovative approaches to CO₂ storage through slag mineralization.

A central argument of the presentation is that the economic viability of many decarbonization technologies can be significantly improved through industrial symbiosis. Technologies that often do not appear competitive when viewed in isolation can yield considerable economic and environmental benefits within industrial ecosystems. The concepts presented illustrate that future value creation does not end at the boundaries of individual plants or industries, but rather arises from the intelligent integration of raw material, energy and carbon flows.

The presentation therefore calls for closer cooperation between the aluminium and stainless steel industries in research, demonstration projects, and industrial networks, with the aim of jointly shaping the next generation of climate-neutral metal production in Europe.