

# Global Traceability for the **Canadian Aluminium**

## CASE STUDY



Metals and Minerals



Proof of origin



Authentication

### LEVERAGING END-TO-END TRACEABILITY TO AUTHENTICATE THE ORIGIN OF PRIMARY MATERIALS AND SEMI-FINISHED PRODUCTS

#### CUSTOMER PROFILE

The Aluminium Association of Canada (AAC) is a non-profit organization founded in 1991 to represent the interests of Canada's primary aluminum industry both nationally and internationally. The AAC's mission is to help the industry develop a world-class model of sustainability while strengthening its global competitiveness. The AAC brings together major aluminum producers, which operating smelters in Canada and employing over 8,800 people.

The Canadian primary aluminum industry is the 5<sup>th</sup> largest in the world, generating an annual production of 3.1 million tons of primary aluminum and CDN\$7.3 billion in exports. About 83% of Canada's primary aluminum production is exported to the United States.

#### CUSTOMER NEED

The AAC decided to explore the development of a proof of concept for an end-to-end traceability solution.

The solution would provide real-time visibility into the integrity and sustainability of exported aluminum, thereby certifying the authenticity of the Canadian origin of primary metals as well as their low carbon footprints.

The ultimate goal was to provide an industry platform that would create a global traceability ecosystem for Canadian aluminum for all authorized stakeholders and across the entire value chain—from smelters and producers and all the way to border inspection agencies and end-users.

#### CONTEXT

In the context of the tariff confrontation between Canada and the United States, the Canadian Aluminium Association (AAC) has initiated a process to ensure full traceability of their Canadian production. The technology developed by OPTEL was considered to have an industrial adaptation capability for aluminum smelters.



## CHALLENGES

The AAC's envisioned solution entailed several major challenges.

From a development perspective, the cloud-based traceability, or authentication, platform has to be extremely agile: integration with existing systems and the capability to scale with increasing levels of sophistication was key. The platform had to leverage development that had already been carried out, be quick to implement and onboard, and minimize subsequent operating costs—all while being blockchain-ready for future requirements.

Security considerations also had to be addressed, including how high volumes of data were to be accessed and transparently shared in real-time among different types of pre-authorized users (permissions-based authentication), across a wide range of geographic locations.

Because primary and transformed aluminum data needed to be viewed and downloaded by all authorized stakeholders in the selectively value chain (mining companies, processors, shareholders, producers, users, government agencies, etc.), the platform's security had to be robust. Specific requirements, such as data encryption, the physical and logical storage of digital information, data gap and non-conformity monitoring, and protection against unauthorized access and cybersecurity attacks, also had to be taken into account.

The platform had to capture an array of product information based on GS1 standards and on users' distinct industry needs: its origin, shipping date and destination, place of manufacture, weight and chemical composition are just some examples of the data that needed to be made available. The accuracy of the data and interoperability of all data sources also had to be safeguarded.

Finally, from a performance standpoint, the platform had to be constantly accessible 24/7 with zero lag time and a guaranteed uptime of 99.5 %

## CONTACT US

To learn more about OPTEL's traceability solutions, contact us at [optelgroup.com/contact/](https://optelgroup.com/contact/).

## SOLUTION

The AAC opted for a turnkey OPTEL traceability solution integrated within one tailor-made industry platform to achieve the project's goals.

Two pilot projects were conducted between 2019 and 2020 in order to evaluate the feasibility of the turnkey authentication platform within existing workflows, assess performance levels, and ensure that the needs of all stakeholders were met.

The first pilot project concentrated on carrying out a complete traceability process from the metal's point of origin to the final product's delivery. The second pilot project further tested the platform's robustness as well as more complex traceability processes in the value chain by integrating the processing of metals into semi-finished products.

## RESULTS

The AAC with the financial support of Canada Economic Development for Quebec region and the Quebec government announce the Global traceability project, contributing to the full recognition of the Canadian origin of its metal through its continental markets and integrated value chain such as the automotive industry. The sponsored system will connect all primary aluminium smelters and provide data from full authentication and traceability to the industry.



### NORTH AMERICA

Canada — HEADQUARTERS  
+1 418 688 0334

### EUROPE

Ireland, Germany

### ASIA

India  
+91 832 669 9600

### SOUTH AMERICA

OPTEL Brazil  
+55 19 3113 2570



[optelgroup.com](https://optelgroup.com)

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