

Austin AI's sorting technology Japan's metals industry

**Arbiz Corporation is pioneering
aluminium scrap recycling in
Japan thanks to high-
performing, LIBS-based
advanced technology designed
by Austin AI.**

Arbiz Corporation, established in 2003, is a prominent recycling company in Nagoya, Japan. The company name is derived from 'art recycling business', reflecting the company's commitment to elevating recycling to an art form and becoming an 'ace' in the recycling industry.

HISTORIC MILESTONES

- 2004: initiated car recycling operations
- 2005: expanded into shredding, plastic and paper recycling
- 2008: introduced an e-waste recycling plant
- 2019: obtained R2 certification and opened a digital device recycling facility
- 2025: plant development of specific aluminium recycling processes

ASR LEADER

Arbiz employs approximately 180 people and operates a facility spanning 112 000 square metres. Its recycling operations include plastic, paper, glass and metal materials. The metal recycling rate is approximately 55%

(metal shipment/receivables) and 99.7% for automotive recycling. These figures highlight Arbiz's dedication to efficient resource utilisation and environmental sustainability. Arbiz is Japan's top recycler in for automobile shredder residue (ASR) resource recovery. Even lightweight dust, which is typically processed through energy recovery, is transformed into steelmaking auxiliary materials using a 'thermo-reactor' and sold on as a valuable product. 'With the recent surge in electricity costs, orders from steel mills have significantly increased,' says Takuya Sano, general manager of Arbiz's business division.

LIBS INNOVATION

Through continuous diversification and innovation, the company has solidified its position as a leader in Japan's recycling industry, contributing significantly to environmental conservation and the advancement of a circular economy.

Its next business is the horizontal recycling of aluminium scrap. Sano insists that to achieve



Japan's car recycling expert Arbiz is optimising its business thanks to laser-induced breakdown spectroscopy.



There are no moving parts and the LIBS system is easy to handle and easy to work with.

Technology transforms

the high-quality recycling that Arbiz values, a laser-induced breakdown spectroscopy (LIBS) sorter was the 'essential solution'.

'LIBS is an optical emission spectroscopy used to measure elemental concentrations in different materials,' he explains. 'LIBS machines are more and more widely used in industries for the analysis of metals and alloys, being able to identify a wide range of elements, with high precision.'

'Because of this, LIBS-based sensor sorters are recognised as the key step in the metals scrap sorting process line when mixed aluminium scrap needs to be specifically sorted by alloy types.'

When Arbiz's managers decided to implement a LIBS sensor sorter system at its Nagoya plant, they searched for possible suppliers and visited most of them.

'We were glad to meet the Austin AI Europe team in Budapest and have a chance to run our materials through the unique Austin AI LIBS system, testing different sorting programmes,' Sano adds.

100% PURITY

'At first, based on precisely set Si%, we were able to separate wrought and cast aluminium fractions with 100% purity and very high extraction efficiency. Further on, we sorted not only 6063 but 5052, 3005, ADC12 and other specific alloys by given elemental compositions.'

The Austin AI LIBS always gave exceptionally high purity of the required alloy fraction at reasonably high throughput and reliably performed as low as at <0.1% elemental concentration levels. It provides high flexibility, and it is easy to change from one sorting programme to another.

'The Austin AI mechanical design is far different from all others with the belt-type feeding,' Sano says. The system uses a two-step vibratory feeder to distribute the material across the width of the feeder plates, providing a singular distribution of the pieces and thus ana-

lysing each piece when 'free-falling' along the chute into the laser path.

It has a unique and simple design with a powerful laser that etches down to bare metal for coatings such as painted, corroded and thin polymer materials. There is no need for a so-called 'cleaning' laser ahead of the analytical laser.

There are no moving parts and the LIBS system is easy to handle and easy to work with. 'Considering all our needs, our choice fell on the Austin AI LIBS sensor sorter. The system was installed and commissioned a few weeks ago and we are proud to be the first company in Japan to run a high throughput, LIBS-based sensor sorter.'

URBAN MINING

Japan has a highly developed aluminium industry, despite having no domestic bauxite reserves or primary aluminium smelting operations. Instead, the country relies entirely on imports of primary aluminium while excelling in aluminium processing, recycling and sustainability efforts.

It is one of the largest global consumers of aluminium, utilising it in key industries such as automotive manufacturing, electronics, packaging and construction. Due to the high energy costs associated with aluminium smelting, Japan ceased primary aluminium production in the 1980s, shifting its focus toward refining, processing and recycling.

The Japanese aluminium industry is dominated by leading companies where Arbiz has a key role, supplying high purity, specific aluminium alloys to those who are specialised in producing aluminium sheets, extrusions and precision components for high-tech applications.

'By prioritising sustainability and technological advancements, Arbiz Corporation continues to set a global example in aluminium recycling and resource efficiency, reinforcing its commitment to a greener and more resilient industrial future,' Sano underlines. 



The Austin AI LIBS always gave exceptionally high purity of the required alloy fraction.

ARBIZ CORPORATION CONTACT INFO:

14-24 Showa-cho, Minato-ku
Nagoya, Aichi 455-0026, JAPAN
information@arbiz.co.jp
www.arbiz.co.jp