

CASE STUDY

MATERIAL GAINS: UPCYCLING AT JAGUAR LAND ROVER

This case study describes how Jaguar Land Rover has used circular thinking to reclaim materials from their end-of-life products and reuse them to make new products more sustainable.

What is the issue?

In response to the urgent need to produce cars with lower carbon emissions, many auto manufacturers are choosing to make their cars lighter as a car that weighs less produces fewer carbon emissions. This process called 'lightweighting' means replacing traditional materials, like steel, with lighter ones, like aluminium, in the manufacturing process. However, the production of aluminium is more energy intensive than the production of steel.

What Jaguar Land Rover did

Jaguar Land Rover took a circular approach to addressing this problem. The company set up the innovative REALITY project to work in partnership with its material supplier, Novelis. Under this initiative, aluminium is recovered from existing Jaguar and Land Rover vehicles and reformed into a new high-grade aluminium to create new vehicles. The research Jaguar Land Rover undertook for this project shows that household waste, as well as end-of-use vehicles, can provide aluminium that can be reformulated in this way.

Between September 2013 and March 2020, around 360,000 tonnes of closed-loop scrap have been processed back into Jaguar Land Rover's lightweight aluminium intensive architecture, across

all vehicle lines. When operating at full capacity, REALITY is expected to reduce the CO2 impact of production while reducing the amount of virgin aluminium required to produce vehicles.

26%↓

decrease in aluminium production emissions

50.7%↓

reduction in global operating CO2 emissions per vehicle compared to 2007

REALITY is an Innovate UK funded project with a consortium comprising Jaguar Land Rover, Novelis, Axion Group, Norton Aluminium, Innoval Technologies, as well as two academic partners, Brunel University and Warwick Manufacturing Group. It operates as part of Jaguar Land Rover's wider Reimagine strategy which operates across its supply chain, manufacturing, and operations processes.

What did Jaguar Land Rover learn?

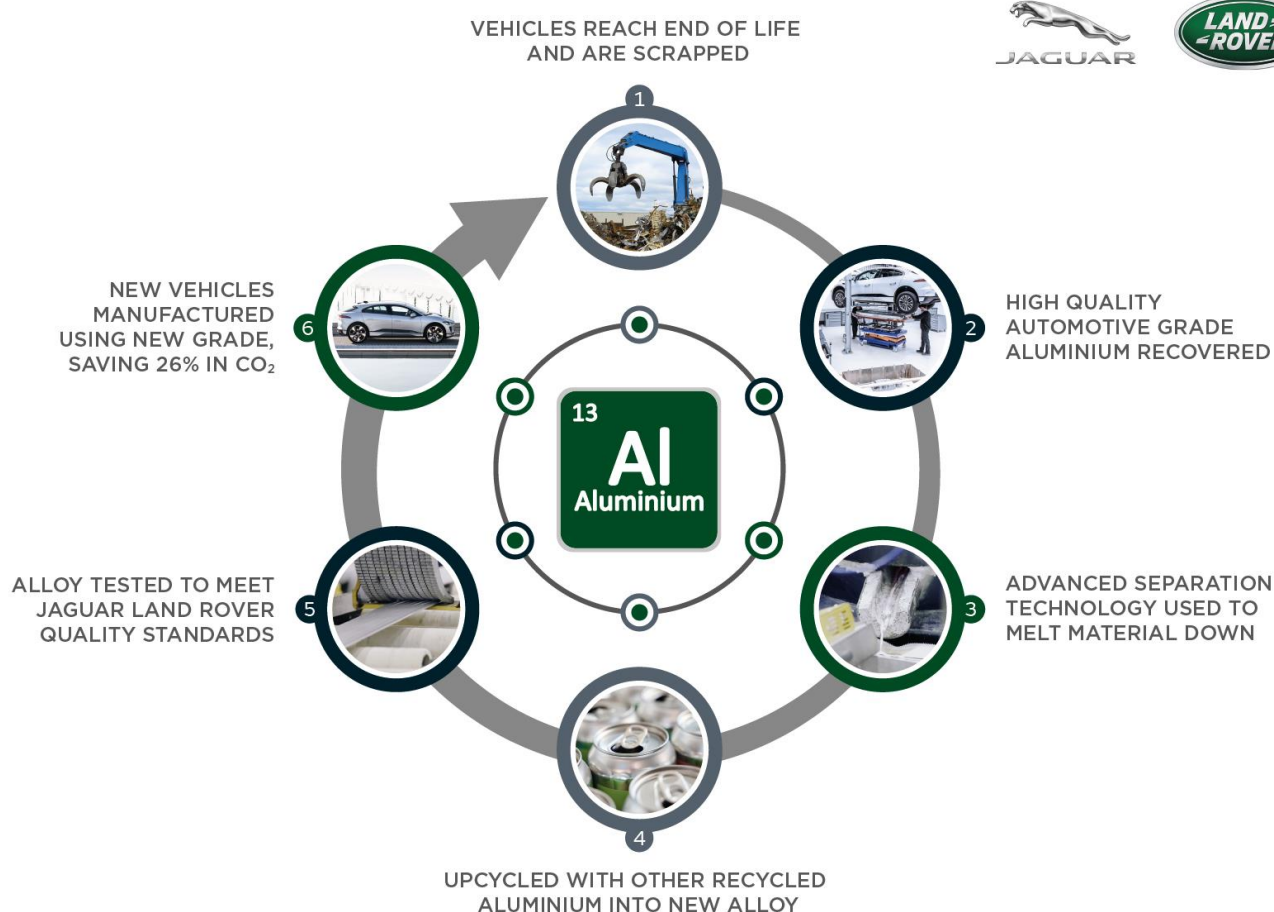
- Solving one environmental problem can sometimes create another or simply shift the problem to someone else. Taking a clear



sighted and holistic approach, allows for solutions that are genuinely sustainable.

- Working in collaboration means better outcomes. The project required a move away from a transactional supplier relationship to a closer partnership and specific processes were introduced to improve active collaboration and governance.
- Tackling in-house problems can result in outcomes that benefit other businesses. The research findings of the REALITY project produced a solution that can be adopted by others in the sector, and possibly beyond.

THIS PROJECT HAS ALLOWED US, FOR THE FIRST TIME, TO RECOVER PREMIUM AUTOMOTIVE-GRADE ALUMINIUM FROM SCRAPPED VEHICLES AND RE-USE ITS UNIQUE PROPERTIES. THE POTENTIAL OF THIS ON THE PRODUCTION PROCESS IS A REDUCTION IN CO2 IMPACT AS WELL AS HELPING US REUSE EVEN MORE ALUMINIUM.



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