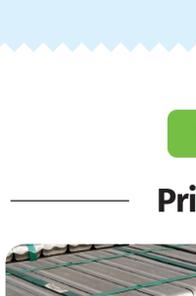


## CMO's MESSAGE



"There are a lot of unknowns in the world right now. But one thing is certain – Vedanta is here for you. As we stand united to revive India's economy, let's promise to do our best in building a better tomorrow for the generations to come."

**Alok Ranjan**  
Chief Marketing Officer  
Vedanta Aluminium Business

## PRODUCT CORNER

### Primary Foundry Alloy

Vedanta Aluminium, with its state-of-the-art 240kT casting facilities spread across Chhattisgarh and Odisha operations, offers a broad product basket for Primary Foundry Alloys. In addition to its standard offerings of specific grades, e.g. A356.2, AlSi3, AlSi11; it also offers customization suited to customer's requirements. Not only alloys, even the product offerings are versatile vis-à-vis size and shape. Vedanta is equipped to supply foundry grade products in Ingot (10kg & 22kg), Cast Bar (10kg) and T-ingot shapes (750 kg).

Vedanta is the first primary aluminium producer in India to manufacture and supply this crucial raw material to the domestic automotive industry for alloys wheels used in Indian automobiles. Besides building indigenous capacity to produce PFAs, Vedanta is boosting the country's self-reliance with regards to automotive parts as well as reducing import dependency. AlSi T-ingot also caters to 'galvalume coating' application for the steel industry.

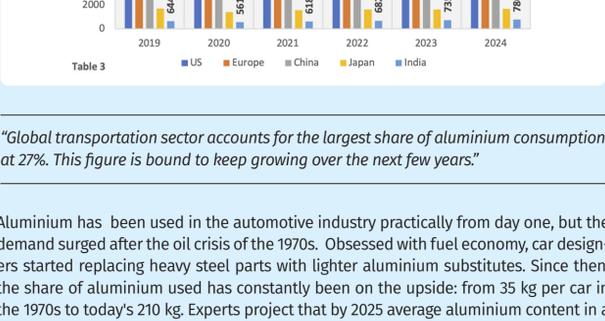
## ALUMINIUM AND AUTOMOBILES

### THE MACROECONOMICS

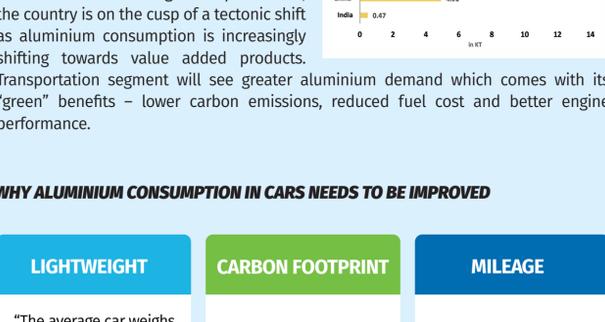
India only has 43 cars per 1000 persons of working age; the number being as high as 967 in the US. The statistics being much less than the rest of the world, India has a huge opportunity to leverage. (Refer table 1)



India is expected to emerge as one of the most promising economies for automotive usage in the times to come. With forecasted GDP of 6.6% in 2021-22, ongoing urbanization, burgeoning consumer class and supportive regulatory policies, India's automotive segment is sure to cater to a growing market. As per market reports, year 2021 is expected to see highest increase of market sales just next to China and Japan; which implies that more Indians will resort to personalised vehicular ownership (Table 2).



Vehicle production being a challenge, India will have to focus more on developing in-house capabilities backed by strong fiscal policies. With growth in transport Sector, increased aluminium consumption in this segment happens naturally for the metal's inherent quality and benefits (Table 3).

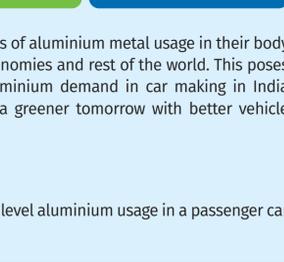


"Global transportation sector accounts for the largest share of aluminium consumption at 27%. This figure is bound to keep growing over the next few years."

Aluminium has been used in the automotive industry practically from day one, but the demand surged after the oil crisis of the 1970s. Obsessed with fuel economy, car designers started replacing heavy steel parts with lighter aluminium substitutes. Since then, the share of aluminium used has constantly been on the upside: from 35 kg per car in the 1970s to today's 210 kg. Experts project that by 2025 average aluminium content in a car will reach 250 kg. With development in automobile segment, the consumption of aluminium is bound to increase.

### INDIA AND ALUMINIUM CONSUMPTION IN TRANSPORT SEGMENT

India has a long way to travel when it comes to the usage of aluminium in the transportation segment. With the Indian government's thrust to increase indigenous production, the country is on the cusp of a tectonic shift as aluminium consumption is increasingly shifting towards value added products. Transportation segment will see greater aluminium demand which comes with its "green" benefits – lower carbon emissions, reduced fuel cost and better engine performance.



### WHY ALUMINIUM CONSUMPTION IN CARS NEEDS TO BE IMPROVED

#### LIGHTWEIGHT

"The average car weighs about 1300 kg. If there were no commercial limitations and as much aluminium as possible was used, it would weigh only 775 kg"

#### CARBON FOOTPRINT

"Lowering automobile weight by 100 kg will equate to lower emissions of 9 grams CO<sub>2</sub>/km"

#### MILEAGE

"100 kg less weight of car saves 0.35 litres of fuels per 100 km"

**DO YOU KNOW ?**

- 100 kg mass reduction in a car = 0.315 litre of fuel saving per 100 km
- Equivalent fuel saving = 46 litre per annum per car
- Overall annual fuel saving = 100 million litres

### WHERE DOES INDIA STAND IN TERMS OF LIGHT-WEIGHTING VEHICLES

#### EUROPE

Average Aluminium Content per Vehicle – 179kg

#### US

Average Aluminium Content per Vehicle – 211 kg

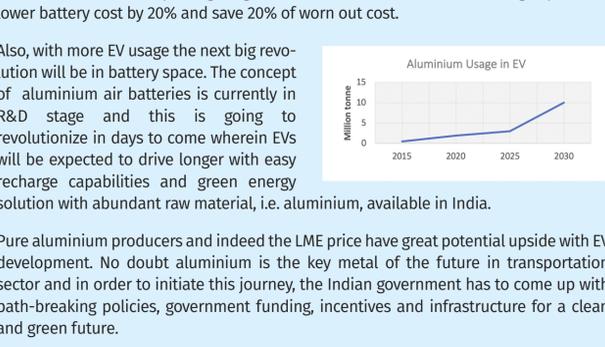
#### INDIA

Average Aluminium Content per Vehicle – 30 kg

This shows that Indian cars lag behind in terms of aluminium metal usage in their body parts when compared to other developed economies and rest of the world. This poses an inherent opportunity to scale up the aluminium demand in car making in India which in turn is an effort to move towards a greener tomorrow with better vehicle performance.

### INDIAN CARS VS EUROPEAN CARS

The following graphic displays the component level aluminium usage in a passenger car made in Europe vs India



### THE FUTURE

40 million Electric Vehicles by 2030 across the world, increasing aluminium metal consumption by 10 million tonnes; a ten-fold increase from 2017.

The automotive future will be electrified, autonomous and efficient. Vehicles fuelled by electricity are poised to transform every aspect of transportation including fuel saving, carbon emission, costs, repair and driving habits.

### GLOBAL OUTLOOK – 2030

Norway aims to have 100% EVs by 2025. Germany plans ban of all internal combustion engines by 2030. France and Britain aim to end gasoline and diesel car sales by 2040.



### INDIA AND ELECTRIC VEHICLES (EV) - 2030

Aluminium metal consumption is expected to grow with Electric Vehicle production in India. We would be seeing more primary aluminium, extrusions and rolled products entering the EV space in terms of light weighting the vehicles and improved battery technologies. As per market reports, currently plug-in hybrid and full battery Electric Vehicles use 25-27% an associated aluminium than the typical internal combustion engine (ICE) car.

Usage of aluminium in internal combustion engine is for the light weighting benefits. The Ford F-150 switch from steel to aluminium was primarily because of this.

It is estimated that every 100kg weight reduction in EVs can increase mileage by 10-11%, lower battery cost by 20% and save 20% of worn out cost.

Also, with more EV usage the next big revolution will be in batteries. The concept of aluminium air batteries is currently in R&D stage and this is going to revolutionize in days to come wherein EVs will be expected to drive longer with easy recharge capabilities and green energy solution with abundant raw material, i.e. aluminium, available in India.

Pure aluminium producers and indeed the LME price have great potential upside with EV development. No doubt aluminium is the key metal of the future in transportation and in order to initiate this journey, the Indian government has to come up with path-breaking policies, government funding, incentives and infrastructure for a clean and green future.

**Sources:**

- 1) <https://reut.rs/3ee70Do>
- 2) <https://bit.ly/2WhdFa7>
- 3) <https://bit.ly/2DoEmTA>
- 4) <https://bit.ly/3jib5Dd>

## ALUMINIUM MARKET OUTLOOK

A new report by global independent research analysts, CM Group, has revealed greater optimism for the aluminum industry post-COVID with global aluminum demand expected to reach 298 million tonnes per year by 2050. Though the fall in aluminium demand for the year is inevitable, reports predict accelerated growth in the coming years owing to its environment friendly solutions in various sectors. The aluminium market is set to be 4.68 MT surplus in 2020. China's aluminium demand is slowly picking up; demand in segments like automobiles and packaging is recovering slowly. Outside China, primary aluminium consumption forecast drops by 14.4% in 2020. It is expected that the LME price will average \$1,510 /t in Q2 FY 21 on rising costs and stronger demand in China, but will drop in Q3. Headwinds in Q2 for 2021, as the global market will remain in surplus after a huge stock buildup in 2020.

## News Update

- India has initiated anti-dumping duty probe against aluminium foil imported from China, Indonesia, Malaysia and Thailand. The product under consideration is aluminium foil of 80 micron and below, and the period of investigation is April 1, 2019 to March 31, 2020.
- India has also initiated anti-subsidy probe against aluminium wire rod imports from Malaysia. The product under consideration is aluminium wire rods and the period of investigation is April 1, 2019 to December 31, 2019.
- Hydro shuts its tubing plant in India. The reason was accounted to the declining precision tubing market used in combustion engines.
- India is preparing to launch the world's largest electricity smart metering programme that aims to replace a total of 250 mn conventional meters procured from China. The programme is expected to help raise revenue of Rs 1.38 trillion and cut power losses by 12%.
- The Indian Government has planned to impose 15-25% on solar gear exports. This would provide more opportunities for the domestic solar panel manufacturing segment. Today, India imports about 80-90% solar panel components.
- Fintech and digital lenders launch schemes for MSME credit. U GRO Capital, a technology-first, small-business lending platform, plans to roll out an end-to-end digital lending platform for the sector and plans to reach out to five lakh MSME clients. In a similar initiative, State Bank of India is planning to launch an e-commerce portal, Bharat Craft for marketing of products manufactured by MSMEs.
- "Responsible water", a one-year old company in Himachal Pradesh has come up with aluminium cans to offer water. The idea was to avoid plastic wastage and they claim to offer Himalayan water full of nutrients at a pH of 7.4. This startup idea of using aluminium metal for water packaging is going to be multiplied in days to come.

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## ABOUT VEDANTA ALUMINIUM AND POWER

Vedanta Aluminium & Power, a part of Vedanta Limited, is India's largest producer of aluminium, producing 1.9 million tonnes per annum (MTPA) in FY20. Vedanta Limited operates a 2 MTPA (million tonnes per annum) capacity alumina refinery in Lanjigarh (Kalahandi district, Odisha), India since 2007 and an associated 90 MW captive power plant. The refinery feeds Vedanta's Aluminium smelters at Jharsuguda in Odisha and at BALCO in Korba, Chhattisgarh. Vedanta Aluminium & Power operates two smelters in Jharsuguda, Odisha, and Korba, Chhattisgarh, with a combined capacity of 2.2 MTPA. Its power business includes the Mansa (Punjab) based Talwandi Sabo Power Limited (TSPL), a wholly owned subsidiary of Vedanta Ltd. Vedanta Aluminium & Power is a leader in value-added aluminium products that find critical applications in core industries. It prides itself in having one of the largest technically qualified, diverse and vibrant workforces in the country spread across its four assets. With its world-class smelters, power plants and alumina refinery spread across India, the company fulfills its mission of spurring emerging applications of aluminium as the 'Metal of the Future' for a greener tomorrow.

For more information please log on to <https://www.vedantalimited.com>

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