

# Aluminium Applications in **Transportation**



In the coming years, Aluminium will play a great role in transportation because of various factors. These factors are as follows:

## **Lightweight**

Because of its lightweight properties, Aluminium used in transport reduces the weight, fuel consumption and greenhouse gas emissions. The potential of aluminium as a mass reduction

material becomes obvious when looking at its specific weight (2.7 grams per cubic centimeter), which is less than half of that iron (7.8 g/cm<sup>3</sup>) and copper (8.9 g/cm<sup>3</sup>). Furthermore, the reduction of the total vehicle weight also offers the potential for indirect weight savings, for e.g. smaller engine or smaller fuel tank in order to fulfill the given requirements for the car (acceleration, mileage per tank).

## **Safe**

Safety is the most important factor in the design and customer choice of a vehicle. In the development of the car body structure, it is most important to find a suitable adjustment among stiffness, crash performance and further body requirements. The specific characteristics of aluminium alloys offer the possibility to design cost effective, lightweight structures with high stiffness and excellent crash energy absorption potential. The mass-specific absorption capacity of aluminium is twice that of mild steel and compares favorably to the newly developed high strength steel grades.

## **Versatile**

The most important advantage of aluminium is its ease of formability. There is no shortage of competition between materials in the transportation market. The key question is which material is the optimal selection for the specific application, technically and economically. The most important advantage of aluminium for the design of lightweight and cost-efficient structures is its ease of formability. Elaborate sheet panels can be efficiently formed using different methods ranging from high productivity stamping processes to low tooling cost technologies for low volume production.

## **Cost Effective**

The manufacturer is increasingly considering how to fully exploit the weight reduction in one or more parts, and allow this weight reduction to offer further weight or cost savings in other vehicle components.

## **Recyclable**

A major property of aluminium is that it can be recycled again and again, saving about 95% of the energy required for primary production. Increased use of aluminium, which has a positive value at the end of life, increases the value of the vehicle and the embodied scrap at the end of its life while decreasing the amount of fluff land filled.

## **Stylish**

It is no surprise that some of the most stylish vehicles (and indeed buildings, consumer products, fashion items and accessories) of the last two centuries, have used its durability, formability and wide range of finishes.

## **Durable**

Aluminium - even unpainted and uncoated - resists corrosion by water and road salt and, in non-cosmetically critical parts, its use can avoid the substantial extra costs of galvanizing, coating and painting required for some competing materials. Aluminium does not rust, if the paint is scratched or chipped. Nor is it weakened or embrittled by desert heat, northern cold, or the ultraviolet radiation in sunlight.

## **Gulf Extrusions** to Double Production

With an aim to cater to growing demand from the industrial and construction sectors, Dubai-based Gulf Extrusions Co will double its output as a new plant comes on stream next year as per reports.

The firm, part of the Al Ghurair Group and one of the largest aluminium product makers in the Gulf, will lift annual output to 100,000 tonnes in the next three to four years, said General Manager Modar al Mekdad, the report added. The General Manager said that the growth is from regional and international demand and in markets where construction and industrial activity is rising "We export over 30 per cent of our production to Europe, India, Africa, the



Middle East and southeast Asia," he said, adding that more than half of the United Arab Emirates' construction market was supplied by Gulf Extrusions.

The firm's current output at its Dubai plant is 50,000 tonnes. A \$225 million plant in Abu Dhabi, close to the Emirates Aluminium smelter, is to be operational by end-2015. The plant is a 50:50 joint venture with Abu Dhabi's General Holding Co (Senaat).

The firm plans to open a plant in Qatar by 2020, to lift its annual output to at least 125,000 tonnes. It also aims to be among in the top 10 aluminium extrusion companies globally by 2020.