

MATERIAL FOR AUTOMOBILES

ALUMINIUM SHEET PRODUCT

Increasing use of aluminium body panels for automobiles

Weight reduction in order to reduce CO₂ emissions is an urgent and important issue for automobiles.

Material substitution from conventional steel to high-tensile steel and then to aluminium alloys is an effective way to reduce weight.



Weight reduction of 2.8 kg by replacing the front fenders with aluminium

Material replacement of the outer body panels from steel to aluminium alloy can reduce the vehicle weight. The trend is to use aluminium for the bonnet and boot lid. The 6000's aluminium alloys, which are aluminium with magnesium and silicon additions, are increasingly being used for body exterior panels because of their medium strength and good formability. This alloy has also "bake hardenability", that it becomes stronger during the paint baking process. On the Mazda MX-5(ND), the front fenders have been made of UACJ's aluminium alloy and the weight reduced by 2.8kg compared to the MX-5(NC). The ability to replace to aluminium for the deep aperture front fenders of Mazda's dynamic 'KODO DESIGN', further expands the use of aluminium alloys in body panels. UACJ's high-strength structural aluminium alloy (AA6061) is used in the powerplant frame (PPF) of the Mazda MX-5.



MAZDA MX-5

The Mazda MX-5(ND) a lightweight sports car whose main selling point is its lightweight body weighing less than one tonne, has a 23.0kg lighter bodyshell than the previous MX-5 (NC). Of this weight saving, 2.1kg is due to the replacement of steel with aluminium alloy.



ENGINEER INTERVIEW

Aluminium alloy for structural components as well as outer panels

In automobile components, we develop both sheet and extruded shapes. The development of processing technology and CAE analysis is also essential. There have been several trends towards aluminium alloys for automobile materials in the past. However, the trend to reduce weight in order to reduce CO₂ emissions is a bigger trend than ever before. Car manufacturers are promoting the use of multi-materials, and if it doesn't reduce the weight, it won't be able to meet environmental regulations. If customers become aware of the fact that the value of a automobile increases when its body is made of aluminium alloy, I believe that the use of aluminium alloy will increase rapidly.



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