

## NEW SECONDARY ALUMINUM ALLOY WITH ENHANCED PROPERTIES

**MATERIAL**  
Secondary aluminum.

**TECHNOLOGY**  
Aluminum Foundry: GDC, LPDC, V-HPDC.

**SECTOR**  
Automotive.

**FIELD OF ACTION**  
Conditioning of recovered molten aluminum.



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“Secondary aluminum is named to be a core material for the manufacturing of components that must work under significant forces. Our work in this field is targeted to growing industry’s trust in this promising material by ensuring it can fulfill their high quality standards.”



### SCOPE

Secondary aluminum has significant cost and environmental benefits in comparison with primary aluminum.

Nevertheless, to boost the development of components manufactured in secondary aluminum alloys, new strategies that make it possible to ensure the properties of the materials and that the right performance of components are needed.

### MAIN CHALLENGES

- To get secondary alloys from aluminum slag and waste that fit with the production needs of car parts manufacturing.
- To develop secondary aluminum alloys that offer mechanical properties similar to those of primary aluminum: high ductility and improved yield strength.

### PROPOSED SOLUTION

An innovative molten aluminum treatment has been developed. This treatment contemplates a proper deoxidizing and degassing of the melt, the cleanliness of the mold and the addition of salts.

This innovative molten aluminum treatment can also handle a physical filtering of the metal if needed, as well as alloying or making micro-additions of elements that counteract the harmful effects of certain levels of impurities.

### RESULTS

The new secondary aluminum grade obtained by means of this treatment shows similar mechanical properties of those presented by primary aluminum.

	Reference	Heat Treat.	Mg (%)	Test Bar	TYS (MPa)	UTS (MPa)	E%	HB	Q
TEST BARS	Primary Aluminium Alloy	T6	0.50-0.60	1	255	331	11,0	110	487
				2	259	339	12,1		501
				3	256	335	11,8		496
				AVERAGE	256,7	335	11,6		495
	Secondary Al alloy	T6	0.50-0.60	1	262	340	9,7	112	488
				2	260	338	10,1		489
				3	265	346	9,4		492
				AVERAGE	262,3	341	9,7		490

