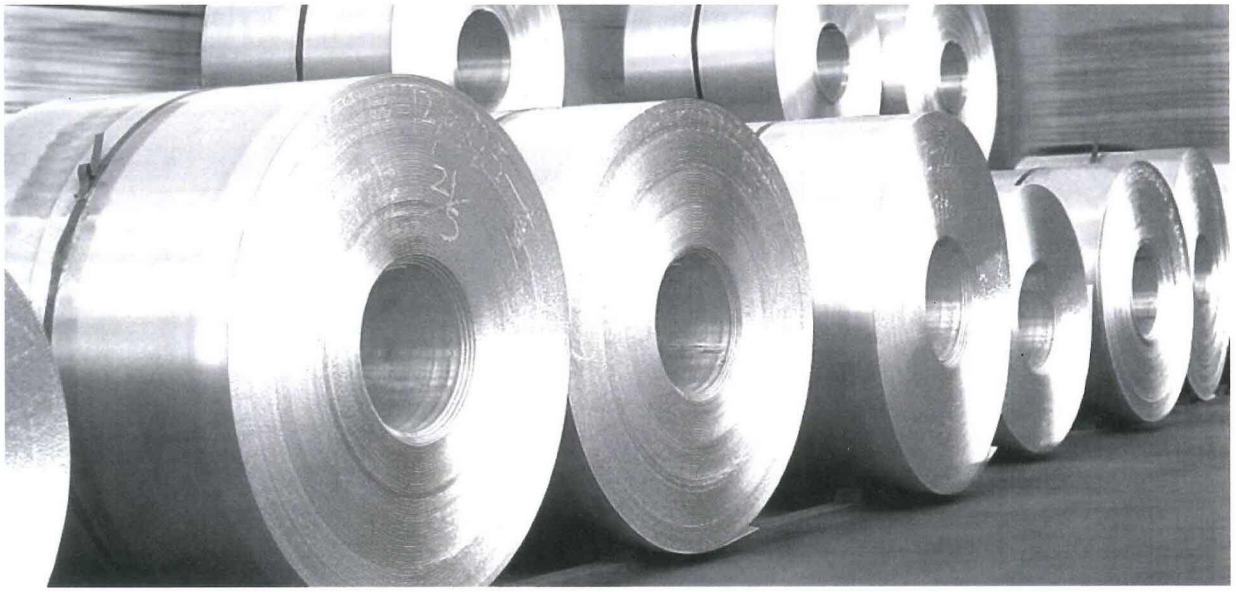


Valeo

SMART TECHNOLOGY
FOR SMARTER CARS

U.S. INTERNATIONAL TRADE COMMISSION HEARING – DECEMBER 21, 2017

ANTIDUMPING INVESTIGATION OF IMPORTS OF COMMON ALLOY ALUMINUM SHEET FROM CHINA

December 21, 2017

VALEO ENGINE COOLING - KEY FIGURES

Greensburg, IN

Sales 2016 (MUSD)

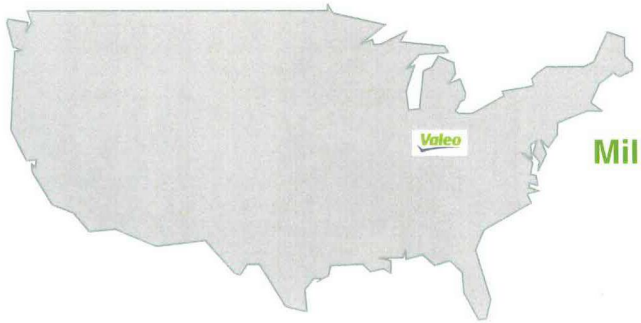
461

400,000

Plant surface (sqf)

160,000

Warehouse surface (sqf)



1,364

Employees

Productive 1,016

Structure 348

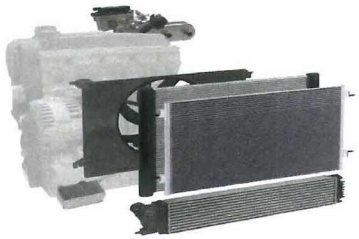
3.5

Million heat exchangers produced

Radiators

Condensers

Charge Air Coolers



1.1

Million modules produced

Engine cooling

Front end

VALEO IMPORTS A SPECIAL TYPE OF ALUMINUM SHEET

VALEO USES BRAZING SHEET THAT IS NOT INTERCHANGEABLE WITH COMMON ALUMINUM SHEET ("CAS")

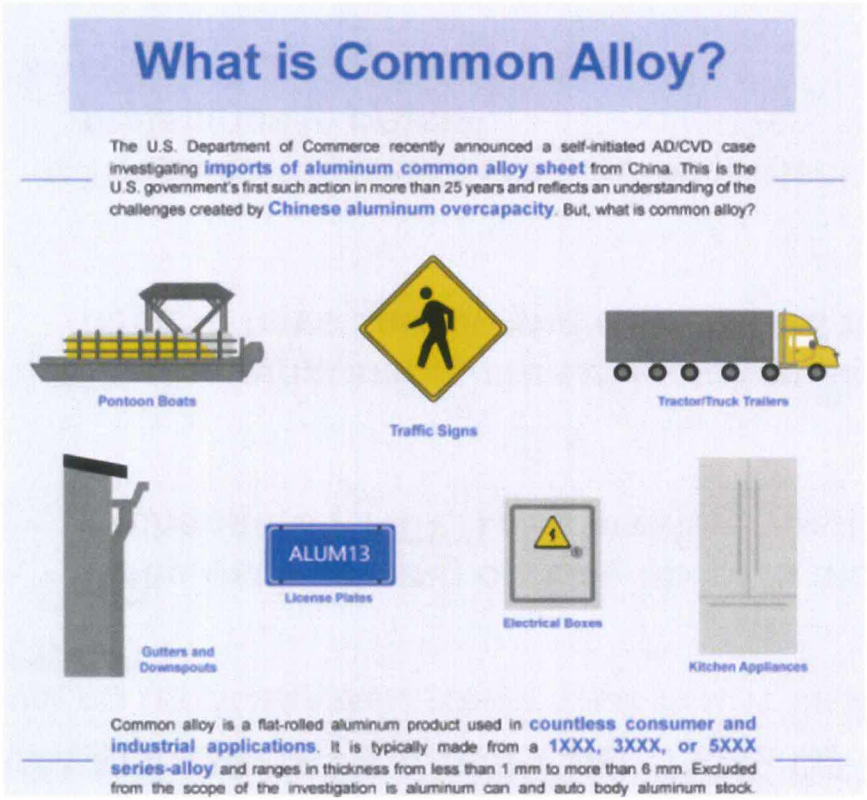
- Valeo uses brazing brazing sheet to manufacture components for automotive heat exchangers ("HEX") and heating, ventilation and air conditioning ("HVAC") systems.

- These components are subjected to significant changes in pressure and temperature and need to have special and customized thermal resistance properties.

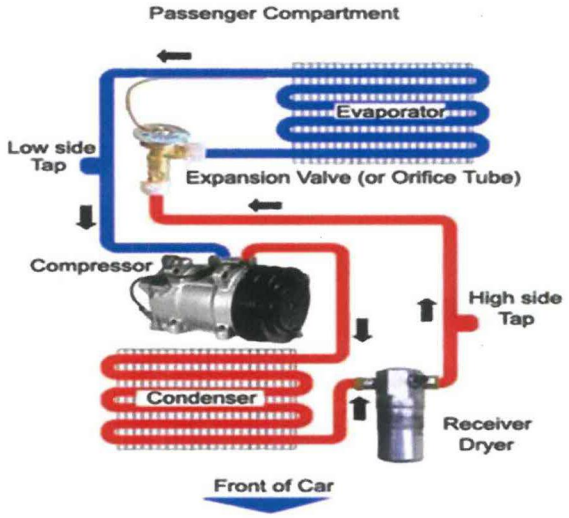
- These components are also in contact with liquids and gases for which high corrosion resistance is crucial.

- CAS cannot be used to replace the sophisticated brazing sheet Valeo imports from China for these specialized applications.

SIGNIFICANTLY DIFFERENT USES FOR BRAZING SHEETAND CAS

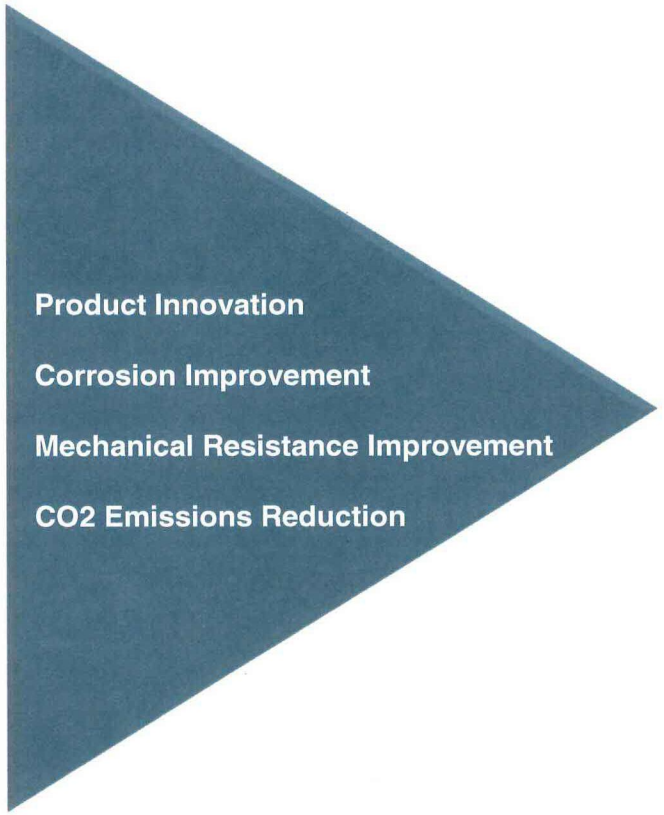


By comparison to CAS, brazing sheet is used to manufacture HEX/HVAC components containing liquids and gases subject to significant changes in pressure and temperature. These uses are much more demanding than those of CAS.



THE PILLARS TO MEET THE CAR MAKERS' REQUIREMENTS

WHAT WE NEED TO PROVIDE	WHAT WE NEED FROM SUPPLIER
Corrosion Resistance	3 Layers Alloys with Sacrifical or Multilayer Material with Anti-Corrosion Interlayer
Mechanical Resistance	High Strength Alloys
Flux Reduction	Fluxless or Fluxfree
Material Consumption Reduction	Material with Lower Thickness

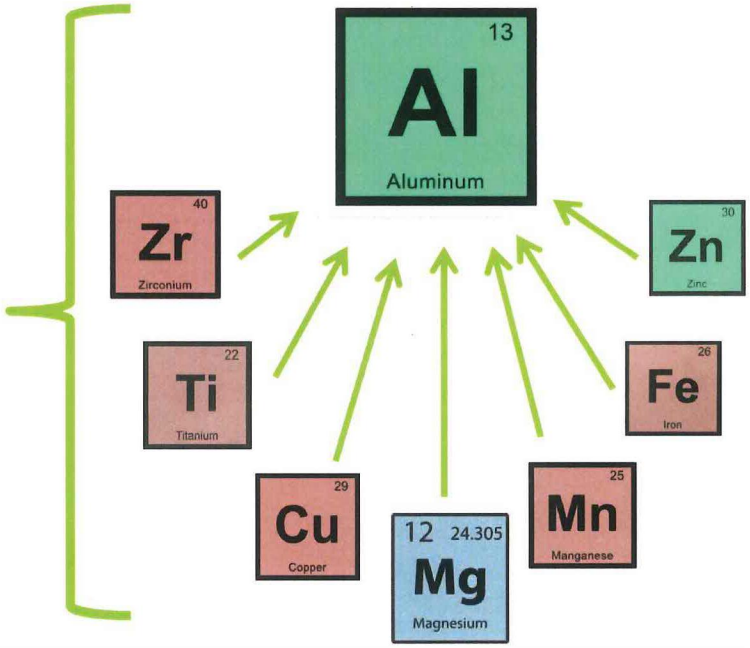


WHAT IS SO SPECIAL ABOUT THE ALLOYS VALEO USES?

Most alloys used by Valeo are proprietary alloys and processes developed by aluminum manufacturers to meet the demanding requirements of the automotive sector. In nearly all cases, common 3XXX series alloys have been replaced with high-strength, highly corrosion-resistant proprietary alloys developed specifically for the automotive market.

- Physical Characteristics
  - Good Post-Braze Mechanical Properties
  - Specialized Long-Life Alloys (for corrosion resistance)
- Processing
  - Super-saturated elements to develop special properties
  - Unique alloys that develop a Band of Dense Precipitates (BDP) and a sacrificial "brown band" during the brazing process.
  - Leveling to improve flatness and waviness of slit rolled aluminum

Special alloying to develop specific physical characteristics



CHEMICAL COMPOSITION OF BRAZING SHEET

Alloy	Si	Fe	Cu	Mn	Mg	Zn	Other	
							Each	Total
3XXX (Proprietary)	≤0.5	≤0.5	0.5～1.0	1.5～2.0	≤0.1	≤0.1	≤0.03	≤0.15
3XXX (Proprietary)	≤0.3	≤0.3	0.5～1.0	1.5～2.0	≤0.1	≤0.1	≤0.03	≤0.15
3003	0.6	0.7	0.05-0.20	1.0~1.5	-	0.1	0.05	0.15

Source: Alcha International Holding Co LTD

COMPOSITION AND CHARACTERISTICS OF VALEO CLAD BRAZING BRAZING SHEET

- Valeo brazing sheet is composed of a proprietary core alloy and one or more layers of braze clad. **In general, the thickness of the material is 0.05mm to 1.0mm with clad percent at 5-15% ± 2%.**

- Clad/Layered Material – 4XXX/7XXX. 3XXXX materials are used for clad layer due to its high Si contents and low melting temperature compared to the core material.

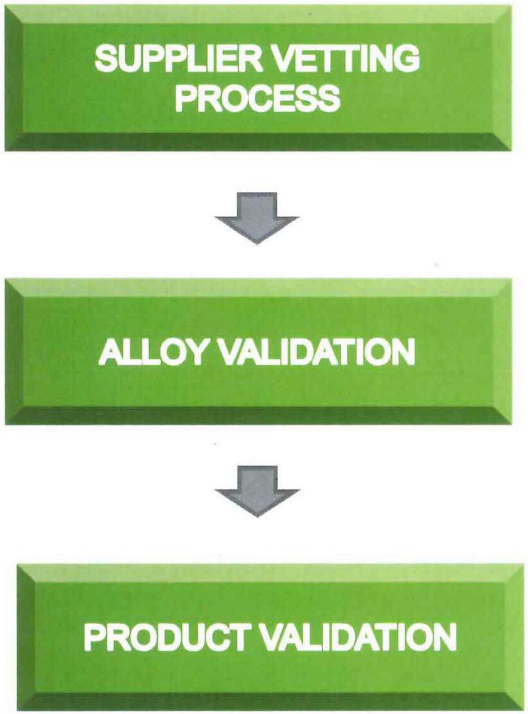
- **Valeo uses proprietary long-life alloys that develop "brown bands" during the brazing process. This special band protects the core alloy from corrosion in the field. Common 3XXX series alloys cannot develop this type of protection.**

- Proprietary alloys provide better mechanical properties (in terms of yield strength, tensile strength and elongation) than 3XXX materials, both at room temperature and at vehicle operating conditions.

HIGHLY CUSTOMIZED PRODUCTS SUPPLIED BY FEW APPROVED PRODUCERS

Developing a new alloy requires several months of development and testing

- Supplier Development
  - Understand Valeo Requirements
  - Undertake Research and Development
  - New Proprietary Alloy Developed
- Material Testing at Branch Laboratory
  - Mechanical Properties / Other Physical Characteristics
  - Corrosion Resistance
- Product Testing and Validation Are Prolonged Processes
  - Covering Pressure Cycle, Heat Transfer, and Vibration
  - Also includes Burst Testing and Erosion/Corrosion Testing



DIFFERENT PRICES FOR CLAD AND NOT CLAD CAS

- US industry argues that "{w}ith respect to price, common alloy sheet is sold within a reasonable range of similar prices" (DOC Initiation Memorandum, Ex. 1A, Attachement 2)...

- ...but official import statistics evidence a radically different scenario...

Clad vs. Unclad Average Unit Price (USD/Short Tons)						
HTS Code	Calendar Year			January - October		Last 12 Months
	2014	2015	2016	2016	2017	
7606.11.3060	$3,383	$3,512	$3,115	$3,088	$3,087	$3,114
7606.12.3090	$2,665	$2,618	$2,335	$2,335	$2,500	$2,477
7606.91.3090	$3,063	$2,952	$2,561	$2,545	$2,703	$2,696
7606.92.6080	$4,161	$3,863	$3,448	$3,439	$3,230	$3,270
Unclad Qty	647,233	785,041	805,076	673,978	799,381	930,478
Unclad Value	$1,760,261,935	$2,081,444,098	$1,901,793,524	$1,591,587,253	$2,012,506,069	$2,322,712,340
Unclad AUV	**$2,720**	**$2,651**	**$2,362**	**$2,361**	**$2,518**	**$2,496**
7606.11.6000	$4,190	$3,858	$4,428	$4,447	$4,355	$4,350
7606.12.6000	$4,430	$3,919	$3,366	$3,372	$3,358	$3,356
7606.91.6080	$5,145	$3,827	$5,180	$4,821	$9,806	$9,793
7606.92.6080	$3,791	$3,750	$3,345	$3,343	$3,631	$3,585
Clad Qty	20,443	22,538	29,633	24,882	30,454	35,205
Clad Value	$86,612,566	$86,829,461	$103,485,199	$87,053,963	$108,050,249	$124,481,485
Clad AUV	**$4,237**	**$3,853**	**$3,492**	**$3,499**	**$3,548**	**$3,536**
% Diff. Clad vs. Unclad AUV	**55.8%**	**45.3%**	**47.8%**	**48.2%**	**40.9%**	**41.7%**

Source: USITC DataWeb Imports. Above table covers imports from all countries.

- Clad brazing tubestock, as a sophisticated high-end product, is even further at the high end of the pricing range for clad aluminum products.

CATEGORIZING FLAT ROLLED PRODUCTS IN TERMS OF VOLUME AND VALUE

▶ 3 MAIN CATEGORIES: MILLS FOCUS EITHER ON VOLUME OR VALUE

Category	High Volume	Low Volume	High Value	Low Value	Comments
Commodity Products	↗	-	-	↗	Common Alloys
Specialty Product	-	↗	↗	-	Brazing Sheet
Can Stock	↗	-	↗	-	Body, End and Food Can Stock

CONCLUSION: BRAZING SHEET IS A SEPARATE LIKE PRODUCT FROM CAS

Difference	Brazing Tube Stock	Common Alloy Sheet (CAS)
Physical Characteristics, Mechanical Properties	High strength and corrosion resistance	Average strength and corrosion resistance
Chemical Composition	Proprietary alloys super-saturated with elements to develop special properties	Much simpler composition remains unaltered for high-volume production runs
Uses	To manufacture HEX/HVAC components containing liquids and gases subject to stark pressure and temperature changes	Basic: gutters, downspouts, traffic signs, license plates, tractor truck trailers, electrical boxes, kitchen appliances, pontoon boats
Distribution Channels	Few approved suppliers, joint product development, subject to long-term contracts	Large number of distributors offering high-volume, interchangeable products
Manufacturing Processes	Complex and costly, with multiple steps and subject to strict controls	Produced in large runs in simpler manufacturing process
Customer Perception, Interchangeability	A specialty product, developed jointly with suppliers, that cannot be substituted	A commodity product with average specifications, not interchangeable with brazing tube stock
Price	Brazing tube stock is a low-volume, high-value product – high prices	CAS is a high-volume, low-value product – low prices

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