OFFICE OF TECHNOLOGY EVALUATION
BUREAU OF INDUSTRY AND SECURITY
U.S. DEPARTMENT OF COMMERCE

COMMENTS ON SECTION 232 NATIONAL SECURITY INVESTIGATION
OF IMPORTS OF ALUMINUM

SUBMITTED BY:
THE ALUMINUM ASSOCIATION
June 20, 2017

*Omits Confidential Business Information
THE FOLLOWING SUBMISSION WILL:

• Provide factual information about the U.S. aluminum industry;
• Outline the aluminum industry’s overall contribution to the economy (employment and economic security);
• Emphasize the role of aluminum in national security applications, including light-weight and high-strength solutions that are essential for today’s defense sector;
• Demonstrate the impact of Chinese overcapacity on the U.S. aluminum industry;
• Highlight the importance of current trading relationships between the U.S. and critical trading partner countries; and
• Illustrate the interconnectivity of the entire aluminum value chain.

• This information packet supports the written comments of the Aluminum Association for the Section 232 Investigation on the Effect of Imports of Aluminum on U.S. National Security
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INDUSTRY’S ECONOMIC IMPACT

- **161,000**
  - The domestic aluminum industry directly employs nearly 161,000 workers.

- **$12 BILLION**
  - Workers directly employed by the U.S. aluminum industry earn more than $12 billion in wages and benefits.

- **$75 BILLION**
  - The domestic aluminum industry directly contributes more than $75 billion to the national economy.

**When supplier and induced impacts are taken into consideration, the aluminum industry’s reach is even more substantial:**

- **$34 BILLION**
  - In wages & benefits

- **$186 BILLION**
  - In economic impact

**Representing more than 1% GDP & 713,000 jobs**
While upstream segments of the industry have seen major job losses in recent years largely due to the continued overproduction of aluminum in China, these losses have been offset by gains in downstream sectors like flat-roll products, extruded products, foundries and metal service centers.
INDUSTRY INVESTMENT

$2.3 Billion Invested/Committed Since 2013

1,000+ permanent U.S. manufacturing jobs

• Kentucky: $1.1 Billion (Aleris, Constellium, Kobe, Logan, Tri-Arrows)
• Iowa: $490 million (Arconic/Alcoa)
• New York: $320 million (Novelis)
• Tennessee: $300 million (Arconic/Alcoa)
• Michigan: $40 million (Constellium)
• Georgia: $32 million (Constellium)
THE INDUSTRY TODAY

- Demand up almost 2.0% Y/Y
  Approaching Mid-2000s record levels

- Up 40.1% since 2009

- Apparent Consumption (excludes exports) up 1.2% Y/Y
THE MARKET FOR ALUMINUM

Trends in Major Markets, 2001-2015
(Millions of Pounds)

- Transportation market up 10% Y/Y and 113% since 2009
- Containers & Packaging up 2% Y/Y, but down 3% since 2009
- Building & Construction up 2% Y/Y and 21% since 2009
THE MARKET FOR ALUMINUM

Shipments by Market - 2015

- Transportation: 35.8%
- Containers & Packaging: 18.3%
- Building & Construction: 12.2%
- Exports: 11.2%
- Machinery & Equipment: 6.6%
- Electrical: 6.8%
- Consumer Durables: 6.3%
- Other: 2.8%
MAJOR MARKETS FOR ALUMINUM

**Building & Construction**
- Windows, doors & screens
- Awnings and canopies
- Residential siding incl. trim coil, soffits & facia
- Manufactured Housing incl. mobile home
- Curtain Wall, Store Fronts and Entrances
- Gutters and Downspouts
- Bridge, street & highway

**Containers & Packaging**
- Metal cans (beverage and non-beverage)
- Semi-rigid food containers
- Other Containers & Packaging
- Household & institutional foil

**Transportation**
- Trailers & semitrailers
- Other Transportation (Aerospace, Rail, Marine, etc.)
- Trucks & buses (GVW over 10K lbs)
IN DEFENSE OF THE MARKET

NORTH AMERICAN SHIPMENTS BY MAJOR MARKET IN 2015
(PERCENT SHARE)

- Direct Defense Applications < 5%
  - Aluminum shipments into defense applications tend to be highly specialized and require certain alloying configurations that provide specific performance attributes.

- Commercial and Public > 95%
  - The vast majority of aluminum shipments are destined for commercial and public market segments. These segments of the industry include packaging, transportation, construction, aerospace, and countless consumer products.
  - Innovative commercial applications are regularly responsible for the development of defense solutions. Therefore, having a competitive, economically healthy U.S. aluminum industry is vital for the defense industrial base of the United States.
ADVANCING ALUMINUM ALLOYS

ALUMINUM ALLOYS 101
An aluminum alloy is a chemical composition where other elements such as iron, silicon, copper, magnesium, manganese and zinc are added to pure molten aluminum in order to enhance its properties. These elements may make up as much as 15% of the alloy by weight.

THREE TYPES OF ALUMINUM ALLOYS:
1. COMMERCIAL PURE
2. HEAT-TREATABLE
3. NON-HEAT-TREATABLE

COMMERCIALLY PURE
Alloys comprised of aluminum 99 percent or higher purity.
Excellent corrosion resistance, workability, and high thermal and electrical conductivity. The 1xxx series is commonly used for transmission or power lines that connect the national grids across the United States.

COMMON ALLOY DESIGNATIONS:
1100 food packaging trays
1350 electrical applications

HEAT-TREATABLE ALLOYS
These types of alloys are strengthened by solution heat-treating, where the solid, alloyed metal is heated to a specific point. Next, the alloy elements (solute) are homogeneously distributed, forming a solid solution. The metal is subsequently quenched, or rapidly cooled, freezing the solute atoms in place. These atoms consequently combine at room temperature (natural aging), or in a low-temperature furnace (artificial aging), creating a finely-distributed precipitate.

NON HEAT-TREATABLE ALLOYS
Non-heat treated alloys are strengthened through cold working. Cold working occurs during rolling or forging processes which build up dislocations and vacancies in the structure. By inhibiting atoms’ movements relative to each other, the alloy increases in strength.

COMMON ALLOY DESIGNATIONS:
3004 aluminum beverage cans
3003 heat exchangers

HEAT-TREATABLE ALLOYS
Copper serves as the principle alloying element, gaining additional strength

COMMON ALLOY DESIGNATION:
2024 aircraft alloy

NON HEAT-TREATABLE ALLOYS
Silicon can be added to lower the melting point of these alloys without affecting brittleness

COMMON ALLOY DESIGNATIONS:
6061 airplane fuselage
6063 automotive applications

COMMERCIAL ALLOY DESIGNATIONS:
5005 architecture applications
5083 marine applications

COMMERCIAL ALLOY DESIGNATIONS:
4000 series:
3004 aluminum beverage cans
3003 heat exchangers

COMMERCIAL ALLOY DESIGNATIONS:
5005 architecture applications
5083 marine applications

COMMERCIAL ALLOY DESIGNATIONS:
6061 airplane fuselage
6063 automotive applications

COMMERCIAL ALLOY DESIGNATIONS:
7075 high strength aircraft and structural applications
7079 aerospace applications
DIFFERENT ALLOYS FOR DIFFERENT MARKETS

ALUMINUM MARKET MAKE-UP
The Relationship Between Unalloyed Aluminum, Scrap, and End Market Applications

The Aluminum Association is the American National Standards Institute (ANSI) Secretariat for aluminum H35 standards. We are the globally-recognized leader in registering aluminum designations.

**GOLD SHEETS**
International Designations for Unalloyed Aluminum (PXXX)

**TEAL SHEETS**
International Designations for Wrought Aluminum

**PINK SHEETS**
Designations for Alloys in Castings and Ingots

APPLICATIONS
- CANS, PACKAGING
- TRANSPORTATION, MARINE & ARMOR
- AEROSPACE

TOUGHNESS
DEMAND FOR HIGHER PURITY UNALLOYED ALUMINUM
SCRAP UTILIZATION
HIGHER IRON AND SILICON CONTENT
LOWER IRON AND SILICON CONTENT
WHAT IS **HIGH PURITY ALUMINUM**?

- “High purity” is essentially a marketing term designed to differentiate certain purity levels from others, but is used differently by producers and customers depending upon the application.

- The Aluminum Association, as the ANSI accredited secretariat for the industry, recognizes there is no industry-agreed upon definition for high purity aluminum.

- “High purity” primary denotes various levels of additional purity (beyond P1020) which are necessary for some commercial aerospace applications, and many defense applications.

- There are numerous smelters within the statutorily defined defense industrial base in North America that either currently produce, or have the capability to produce, high purity aluminum.

- High purity aluminum production can also take place independently from the aluminum smelting process, and is currently being produced through a proprietary downstream process in the United States which purifies re-melted aluminum inputs.
*Confidential Business Information
ALUMINUM IN DEFENSE APPLICATIONS

Light-weight and high-strength solutions are essential for today’s defense industry. Aluminum allows military aircraft, vehicles, and structures to perform in challenging and often harsh environments, all while also providing superior blast protection for our troops. Aluminum’s strength-to-weight ratio allows for products that offer:

• Speed and agility (ability in covert operations to get in and out quickly);

• Additional payload (weapons or personal depending on mission);

• Increased fuel economy (a mile could make the difference in getting back to base safely); and

• State of the art protection, while preserving off-road mobility.
ALUMINUM IN DEFENSE APPLICATIONS

“Austral Delivers Aluminum EPF Catamaran to U.S. Navy”
The USNS Yuma, the 8th Expeditionary Fast Transport (EPF) vessel delivered to the U.S. Navy, provides:
• High-payload transport capability
• Strong weight ratio = high speeds and shallow draft
• Weight is approximately ½ that of a steel ship

Around 700 tonnes of aluminum in the form of plate, extrusions, and forgings is used in the construction of the Yuma.

Other benefits of using aluminum in marine applications:
• Easy to form;
• Resistant to corrosion;
• Doesn’t require paint to protect the surface,
• Can be welded with well-established commercial processes; and
• Easy to repair.

Source: Light Metal Age
Aluminum is vital to many of our nation’s critical infrastructure components:

- Commercial Facilities
- Communications
- Machinery & Equipment Manufacturing
- Defense Industrial Base
- Energy
- Food and Agriculture
- Government Facilities
- Healthcare and Public Health
- Information Technology
- Nuclear Reactors, Materials, and Waste
- Transportation Systems
- Water and Wastewater Systems

Examples of specific products include:

- Highway & Street Signs
- Lighting Standards and Parking Meter Pipe Stands
- Bridges
- Bridge and Guard Rail Systems
- Culverts, Under-drain & Accessories
- Railroad Car & Locomotive Parts
- Railroad Freight Cars, Passenger Cars and Locomotives
- Street, Light Rail, Subway & Rapid Transit Cars
- Third Rail (conductor rail)
- Electrical Machinery & Equipment
- Power Transmission & Distribution
- Busbar (Bus Conductor)
- Alternative Energy: Solar, Wind and Geo-thermal
OVERCAPACITY IN CHINA: IT STARTS UPSTREAM...
CHINA’S GROWING INFLUENCE

China CAGR roughly 17% since 2000

Global Primary Aluminum Production
(Million Metric Tons)

Source: Aluminum Association and the International Aluminium Institute

≈ 55% of Global Primary Production in 2016

≈ 92% of which is powered by coal
CHINA’S OVERSUPPLY SITUATION

China was previously a balanced market, but is now oversupplied.

China primary aluminum supply/demand, 2000-2017E (mmt)

Supply CAGR: +11.1%
Demand CAGR: +10.3%

2010-2017E Chinese supply growth outpacing demand growth

China primary aluminum balance (mmt)

Essentially Balanced

Oversupply

Source: CRU
Some Chinese smelters have been closed or are planning to be shut down, but expansions have outpaced closures.

The Chinese operating rate is estimated to be 72 percent, a level that is not normally sustainable.
Chinese excess capacity in 2016 was estimated at nearly 36% of production in the RoW.

Estimated Chinese excess production in 2017 would total roughly 7.5% of production in the RoW (2016).
Global Bauxite Data, 2016

**Global Bauxite Reserves**

- **Africa**: 34%
- **Central and South America**: 24%
- **Australasia**: 23%
- **Asia (excluding China)**: 15%
- **Europe**: 2%
- **North America**: 0%
- **China**: 2%

**Global Bauxite Mining**

- **China**: 32%
- **Australasia**: 29%
- **Central and South America**: 15%
- **Asia (excluding China)**: 11%
- **Europe**: 3%
- **Africa**: 10%
- **North America**: 0%

**Source:** USGS; CRU International Ltd.; Indonesian Minerals Book, MLR PRC, Indian Ministry of Mining, Chinese Embassy of Indonesia, Mining Exploration Institute (latest available data).

*1 metric ton is 2204.62 lbs.*
THE GLOBAL ALUMINA SUPPLY CHAIN

Global Alumina Data, 2016

Top Ten Alumina Producers

<table>
<thead>
<tr>
<th>Country</th>
<th>Alumina Production (mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>52%</td>
</tr>
<tr>
<td>Australia</td>
<td>17%</td>
</tr>
<tr>
<td>Brazil</td>
<td>9%</td>
</tr>
<tr>
<td>Russia</td>
<td>2%</td>
</tr>
<tr>
<td>U.S.</td>
<td>2%</td>
</tr>
<tr>
<td>Ireland</td>
<td>2%</td>
</tr>
<tr>
<td>Spain</td>
<td>1%</td>
</tr>
<tr>
<td>Canada</td>
<td>1%</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1%</td>
</tr>
</tbody>
</table>

Regional Alumina Supply and Demand

<table>
<thead>
<tr>
<th>Region</th>
<th>Supply</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>10.1</td>
<td>18.9</td>
</tr>
<tr>
<td>China</td>
<td>60.2</td>
<td>63.1</td>
</tr>
<tr>
<td>N. America</td>
<td>3.3</td>
<td>7.9</td>
</tr>
<tr>
<td>C. &amp; S. America</td>
<td>12.1</td>
<td>2.6</td>
</tr>
<tr>
<td>Europe</td>
<td>8.8</td>
<td>15.6</td>
</tr>
<tr>
<td>Australasia</td>
<td>20.4</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Source: USGS; CRU International Ltd.; Indonesian Minerals Book, MLR PRC, Indian Ministry of Mining, Chinese Embassy of Indonesia, Mining Exploration Institute (latest available data).

*1 metric ton is 2204.62 lbs.
ROLE OF **SOES** IN CHINA

Primary Al Capacity By Major Producer in China (end 2016)

- Approximately 48% of China’s smelting capacity is operated by SOEs, the remainder are operated by private companies.

- SOEs can operate smelters even when prices are below the cost of production for extended periods.

- Government grants are offered to China’s smelter operators (SOE and private) and include research grants, electricity price subsidies and grants for environmental protection projects.

Source: CM Group data
ROLE OF SOES IN CHINA

SOE and Private Primary AI Capacity by Province and Ownership

• Private dominate in Shandong and Xinjiang

• Gansu, Yunnan and IM are the stronghold provinces for China’s major SOEs

Source: CM Group data
Decision-making/Management Structure in SOEs & Private Producers

- Decision-making in SOEs is different from private companies. SOEs are businesses, but also government-owned entities, which need to serve both political and social functions. In a large SOE, such as Chalco, the decision-maker is strongly influenced by both internal and external politics, more than by the merit of the business itself.

- Private businesses are more price sensitive. Management can more easily convey decisions to executors and focus on different business metrics, with margins as the priority.

Source: CM Analysis
OVERCAPACITY IN CHINA:

...AND MOVES DOWNSTREAM
## PRIMARY EXPORT DUTIES & VAT REBATE

Tax Policies Incentivizing Downstream (Semi-fabricated) Exports*

### Chinese Aluminum-Related Export Duties

<table>
<thead>
<tr>
<th>Item</th>
<th>Duty Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bauxite</td>
<td>0%</td>
</tr>
<tr>
<td>Alumina</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Unwrought Non-alloy Aluminum</strong>&lt;br&gt;(HS code 76011010, Unwrought aluminum(non-alloy), Al(&lt;=99.5%))</td>
<td><strong>15%</strong></td>
</tr>
<tr>
<td>Unwrought Alloy Aluminum&lt;br&gt;(HS code 76012000, low alkali refined aluminum Alloy)</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Unwrought Alloy Aluminum</strong>&lt;br&gt;(HS code 76012000, other unwrought aluminum alloy)</td>
<td><strong>15%</strong></td>
</tr>
<tr>
<td>Aluminum Scrap</td>
<td>15%</td>
</tr>
<tr>
<td>Rod and bars</td>
<td>0%</td>
</tr>
<tr>
<td>Al alloy rod &amp;bar, circ. (\geq 210) mm</td>
<td>0%</td>
</tr>
<tr>
<td>Al alloy rod &amp;bar, circ. (&lt; 210) mm</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Chinese Semi-fabricated Product VAT Rebate

<table>
<thead>
<tr>
<th>Item</th>
<th>Rebate Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat Rolled (Excluding Foil)</td>
<td><strong>13%</strong></td>
</tr>
<tr>
<td>Foil</td>
<td>15%</td>
</tr>
<tr>
<td>Hollow aluminum alloy profiles</td>
<td>13%</td>
</tr>
<tr>
<td>Other alloyed aluminum profiles</td>
<td>13%</td>
</tr>
<tr>
<td>Non alloyed sections and profiles</td>
<td>0%</td>
</tr>
<tr>
<td>Tube</td>
<td>13%</td>
</tr>
</tbody>
</table>

* As of End of 2015
Huge Investment in Aluminum Rolled Product Capacity in China

- Capacity has increased from 9.5 million metric tonnes/year in 2012 to an estimated 15.8 million tonnes/year in 2016. This is forecast to grow to approximately 19.2 million tonnes/year by 2020.

- The consumption of aluminum rolled products in China has increased but at a much slower rate; 6 million metric tonnes per year in 2012, 8.6 million tonnes estimated in 2016 and 10.2 million tonnes forecast for 2020.
• This has lead to a major growth of overcapacity of Chinese Rolled Products growing from 2.8 million tonnes in 2012, to 5.9 million tonnes in 2016 and forecast at 7.0 million tonnes by 2020.

• This overcapacity is increasingly being exported. The volume of the exports is very significant in the global rolled product market. The U.S. is a key target market for Chinese producers of these products.
Similarly, Chinese extrusion capacity significantly outpacing production

- Extrusion capacity in China has increased from 5.2 million tonnes/year in 2005 to an estimated 26.5 million tonnes/year in 2016.
- At the same time, consumption of aluminum extruded products in China has increased but at a much slower rate; 3.4 million tonnes per year in 2005, to 17.3 million tonnes in 2016.
Growth in Chinese Extrusion Overcapacity Estimated at Nearly 16% (‘05–’16)

• Much like rolled products, growth in extrusion capacity has experienced significant growth, increasing from 1.5 million tonnes in 2005, to 8.0 million tonnes in 2016.

Source: Hydro, Antaike: 2017
### CHINA DOWNSTREAM EXPORTS

Tax Policies have Resulted in a Significant Volume of Mill Product (Semi-fabricated) Exports

#### Chinese Trade Balance, 2016

<table>
<thead>
<tr>
<th>Product</th>
<th>2016 (kmt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingot*</td>
<td>198</td>
</tr>
<tr>
<td>Sheet &amp; Plate</td>
<td>51</td>
</tr>
<tr>
<td>Foil</td>
<td>39</td>
</tr>
<tr>
<td>Extruded Shapes</td>
<td>44</td>
</tr>
<tr>
<td>Total Mill+</td>
<td>206</td>
</tr>
<tr>
<td>Scrap</td>
<td>1,917</td>
</tr>
</tbody>
</table>

Mill Product Exports CAGR = 13% (2005-2016)

*Ingot = Unwrought/Unalloyed Primary Aluminum; + includes Products Not Listed Above

Source: China Customs
Arbitrage widens as the SHFE & LME prices diverge.

China-to-US pricing deals are generally quoted on the LME price and typically do not include the Midwest Premium.

Chinese exports of rolled products benefit from an VAT rebate of 13%.

Chinese aluminum is therefore at a discount by the difference b/w the MWP and the net export rebate (VAT – U.S. import duties).
OVERCAPACITY IN CHINA:

...LEADING TO MARKET DISTORTING AND ILLEGAL BEHAVIOR
# Global Trade Measures Against China

## Current Antidumping Orders

<table>
<thead>
<tr>
<th>Aluminum Product</th>
<th>Country</th>
<th>Date of Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum extrusions</td>
<td>Australia</td>
<td>AD duties imposed 10/28/2010; Re-imposed 10/20/2015</td>
</tr>
<tr>
<td>Aluminum road wheels</td>
<td>Australia</td>
<td>AD duties imposed 7/5/2012</td>
</tr>
<tr>
<td>Aluminum zinc coated steel</td>
<td>Australia</td>
<td>AD duties imposed 8/5/2013</td>
</tr>
<tr>
<td>Aluminum printing plates</td>
<td>Brazil</td>
<td>AD duties imposed 3/5/2015</td>
</tr>
<tr>
<td>Aluminum extrusions</td>
<td>Canada</td>
<td>AD duties imposed 3/17/2009; Re-imposed 3/14/2017</td>
</tr>
<tr>
<td>Extruded aluminum profiles</td>
<td>Colombia</td>
<td>AD duties imposed 11/13/2013 &amp; 10/19/2015</td>
</tr>
<tr>
<td>Aluminum foil (certain)</td>
<td>European Union</td>
<td>AD duties imposed 10/6/2009; Re-imposed 12/18/2015</td>
</tr>
<tr>
<td>Aluminum foil in small rolls</td>
<td>European Union</td>
<td>AD duties imposed 3/13/2013</td>
</tr>
<tr>
<td>Aluminum radiators</td>
<td>European Union</td>
<td>AD duties imposed 11/9/2012</td>
</tr>
<tr>
<td>Aluminum road wheels</td>
<td>European Union</td>
<td>AD duties imposed 10/28/2010</td>
</tr>
<tr>
<td>Aluminum foil</td>
<td>India</td>
<td>AD duties imposed May 16, 2017</td>
</tr>
<tr>
<td>Aluminum radiators</td>
<td>India</td>
<td>AD duties imposed 3/31/2017</td>
</tr>
<tr>
<td>Cast aluminum alloy wheels</td>
<td>India</td>
<td>AD duties imposed 5/22/2015</td>
</tr>
<tr>
<td>Aluminum kitchenware</td>
<td>Mexico</td>
<td>AD duties imposed 10/25/2016</td>
</tr>
<tr>
<td>Aluminum extrusions</td>
<td>Trinidad &amp; Tobago</td>
<td>AD duties imposed 2/21/2016</td>
</tr>
<tr>
<td>Aluminum foil (not backed)</td>
<td>Turkey</td>
<td>AD duties imposed 7/26/2014</td>
</tr>
</tbody>
</table>

## Pending Antidumping Orders

<table>
<thead>
<tr>
<th>Aluminum Product</th>
<th>Country</th>
<th>Date of Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum alloy wheels</td>
<td>Argentina</td>
<td>AD investigation initiated 5/30/2016; Provisional (prelim) duties imposed 12/7/2016</td>
</tr>
<tr>
<td>Aluminum profiles</td>
<td>Paraguay</td>
<td>AD investigation initiated 9/28/2016</td>
</tr>
<tr>
<td>Aluminum printing plates</td>
<td>South Korea</td>
<td>AD investigation initiated 9/8/2016</td>
</tr>
<tr>
<td>Aluminum foil</td>
<td>United States</td>
<td>AD investigation initiated 3/9/2017; ITC affirmative prelim injury determination 5/1/2017</td>
</tr>
</tbody>
</table>

## Countervailing Duty (Subsidy) Orders

<table>
<thead>
<tr>
<th>Aluminum Product</th>
<th>Country</th>
<th>Date of Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium extrusions</td>
<td>Australia</td>
<td>CVD Duties imposed 10/29/2012; Re-imposed 10/20/2015</td>
</tr>
<tr>
<td>Aluminium road wheels</td>
<td>Australia</td>
<td>CVD Duties imposed 7/5/2012</td>
</tr>
<tr>
<td>Aluminium zinc coated steel</td>
<td>Australia</td>
<td>CVD Duties imposed 8/5/2013</td>
</tr>
<tr>
<td>Aluminium extrusions</td>
<td>United States</td>
<td>CVD Duties imposed 5/26/2011</td>
</tr>
</tbody>
</table>

## Pending Countervailing Duty (Subsidy) Orders

<table>
<thead>
<tr>
<th>Aluminum Product</th>
<th>Country</th>
<th>Date of Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum foil</td>
<td>United States</td>
<td>CVD Investigation initiated 3/9/2017; ITC affirmative prelim injury determination 5/1/2017</td>
</tr>
<tr>
<td>Subsidy Programs Under Investigation in Aluminum Foil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Income Tax Reduction for High or New Technology Enterprises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Income Tax Deductions for R&amp;D Expenses Under the Enterprise Tax Law</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Income Tax Concessions for Enterprises Engaged in Comprehensive Resource Utilization</td>
<td></td>
<td></td>
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<tr>
<td>• Income Tax Deductions/Credits for Purchase of Special Equipment</td>
<td></td>
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</tr>
<tr>
<td>• Import Tariff and VAT Exemptions on Imported Equipment in Encouraged Industries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Stamp Tax Exemption on Share Transfers Under Non-Tradeable Share Reform</td>
<td></td>
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<tr>
<td>• Deed Tax Exemption for State-Owned Enterprises Undergoing Mergers or Restructuring</td>
<td></td>
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</tr>
<tr>
<td>• Government Provision of Land for Less Than Adequate Remuneration</td>
<td></td>
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<tr>
<td>• Government Provision of Primary Aluminum for Less Than Adequate Remuneration</td>
<td></td>
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<tr>
<td>• Government Provision of Steam Coal for Less Than Adequate Remuneration</td>
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<tr>
<td>• Government Provision of Electricity for Less Than Adequate Remuneration</td>
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<tr>
<td>• Exemptions for State-Owned Enterprises from Distributing Dividends</td>
<td></td>
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<tr>
<td>• Policy Loans to the Aluminum Foil Industry</td>
<td></td>
<td></td>
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<tr>
<td>• Preferential Loans for State-Owned Enterprises</td>
<td></td>
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<tr>
<td>• Export Loans from Chinese State-Owned Banks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Export Seller’s Credit from Export-Import Bank of China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Export Buyer’s Credit from Export-Import Bank of China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Equity Infusions in Nanshan Aluminum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• VAT Rebates for Domestically-Produced Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Famous Brand and China Top World Brand Grants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• State Key Technology Project Fund Grants</td>
<td></td>
<td></td>
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<tr>
<td>• Foreign Trade Development Fund Grants</td>
<td></td>
<td></td>
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<tr>
<td>• Grants for Energy Conservation and Emission Reduction</td>
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<td></td>
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<tr>
<td>• Grants for the Retirement of Capacity</td>
<td></td>
<td></td>
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<tr>
<td>• Grants for the Relocation of Productive Facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Grants to Nanshan Aluminum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GROWTH IN CHINESE IMPORTS

Decline from 2015 to 2016 due to the suspension of irregular and nontransparent trade practices (i.e. fake-semis). In this case, primary aluminum disguised as aluminum plate.

Antidumping/Countervailing Duties imposed on Chinese imports of extruded products.
• Irregular trading behavior in HS code: 7606113030 – Aluminum Plates, Sheets, And Strip; Rectangular, Including Square; *Not Alloyed*, Not Clad, With Thickness >6.3Mm (Plate).

• There is little to no market in the US for *unalloyed* plate.

• This is a method of deliberate misclassification of primary aluminum to avoid export duties.

### U.S. Imports of Aluminum Plate from China, 2012-2016 (Pounds)

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imports</td>
<td>104,411,137</td>
<td>151,988,828</td>
<td>59,873,131</td>
<td>-60.6%</td>
</tr>
</tbody>
</table>
GROWTH IN CHINESE FAKE SEMIS

1) Such coils is specially designed to replace Aluminium Ingot that has high export tax and rarely being exported.
2) This type of coil is with Aluminium more than 99.7%, which can fit customer’s remelting furnace just like ingot, and don’t need to make any change to the production line that was previously used for ingot.
3) The common thickness is 7-8mm, width 1100-1300mm and surface without defect, such as Oil stain, Inclusion, Oxide Discoloration, Corrosion, etc.
4) Our production capacity is 1000 ton/month for this ingot coil.
5) Now the Ingot coil has been widely exported to many Countries.

https://www.alibaba.com/product-detail/Aluminium-Ingot-Coil-for-Remelting-to_60150093069.html?spm=a2700.7724838.2017115.17.uCaMoP
GLOBAL ALUMINUM PRODUCTION

HOW IT WORKS

1. MOLTEN ALUMINUM
2. INGOT
3. WITH ALLOYING
4. BILLET
5. PRODUCTION
6. SOLD ON THE GLOBAL MARKET

HOW CHINA IS DOING IT

1. MOLTEN ALUMINUM
2. INGOT
3. WITHOUT ALLOYING
4. BILLET
5. PRODUCTION
6. REMELTING ALUMINUM

EXPORTATION TO VIETNAM, MALAYSIA, MEXICO
To avoid 15% export tax & collect 13% VAT refund
Also creates a new country of origin

Sold globally as “primary aluminum”

terms to know:

INGOT: A cast product intended and suitable for remelting or forming by hot or cold working.
BILLET: Extrusion ingot cut to length.
ALLOYING: Chemical composition where other elements - i.e. iron, silicon, copper, magnesium, zinc - are added to pure molten aluminum in order to enhance its properties.
OVERCAPACITY IN CHINA:

…IMPACT FELT IN THE US
ALUMINUM PRICE & CHINESE PRIMARY PRODUCTION

• Despite economic pressures and a collapse of the global price for aluminum in late 2014 – late 2015, Chinese primary production continued to increase.

• From July 2014 to July 2015, Chinese primary aluminum production increased nearly 12%, while the All-in Price fell 23%.

• Subsidies, lending and other incentives artificially propped up aluminum production, while also preventing inefficient and costly facilities from closing.
U.S. PRIMARY PRODUCTION

U.S. Primary Aluminum Production
(000 Metric Tons)

Source: The Aluminum Association
GROWTH IN FOIL IMPORTS

US Demand for Aluminum Foil
(Millions of Pounds)

The Aluminum Association and U.S. Census Bureau
THE VALUE OF OUR TRADING PARTNERS

IMPORTS: A VITAL COMPONENT OF SUPPLY
SUPPLYING THE METAL

Components of the U.S. Aluminum Supply
(Billions of LBs)

- **Primary**: 1.8
- **Secondary**: 9.0
- **Imports**: 13.1
- **Inventories**: 0.0
- **Total**: 23.9

72% Primary
28% Mill Products

Aluminum Association, U.S. Census Bureau, USGS
*Includes additives and melt loss
• The US is a deficit market, and therefore relies on imports to help meet increasing demand.

• Thus, imports have represented the largest component of the supply of aluminum in the US over the last 16 years.
Supplying the Metal

Despite the recent increase in imports as a share of the US supply for aluminum, the split between primary and mill products has remained more or less the same.
## U.S. IMPORTS OF PRIMARY ALUMINUM

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>1,924</td>
<td>1,674</td>
<td>1,924</td>
<td>1,674</td>
<td>1,924</td>
</tr>
<tr>
<td>China</td>
<td>2,294</td>
<td>2,294</td>
<td>2,294</td>
<td>2,294</td>
<td>2,294</td>
</tr>
<tr>
<td>Russia</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Middle East</td>
<td>421</td>
<td>421</td>
<td>421</td>
<td>421</td>
<td>421</td>
</tr>
<tr>
<td>Canada</td>
<td>2,061</td>
<td>2,002</td>
<td>2,208</td>
<td>2,294</td>
<td>2,584</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6,265</td>
<td>5,691</td>
<td>6,456</td>
<td>6,463</td>
<td>6,695</td>
</tr>
<tr>
<td><strong>% of Canadian Imports</strong></td>
<td>50%</td>
<td>54%</td>
<td>66%</td>
<td>66%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: GTIS; *Jan-Feb 2017 annualized for imports.
1Argentina, Venezuela, South Africa, India, Australia (sorted largest to smallest, 2017)
2United Arab Emirates, Bahrain, Qatar, Saudi Arabia, Oman (sorted largest to smallest, 2017)
CANADA: INTEGRAL TO THE US SUPPLY CHAIN

US Primary Aluminum Imports from Canada
(Volume in Millions of Pounds)

Share (L axis)
Imports (R axis)

U.S. Census Bureau
SHARE OF US MILL PRODUCT IMPORTS

Share of Mill Product Imports into the US

- NAFTA
- RoW
- China

U.S. Census Bureau
## US Aluminum Imports by Country

### Total Imports

<table>
<thead>
<tr>
<th>Country</th>
<th>Millions of Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>6,067.4</td>
</tr>
<tr>
<td>Russia</td>
<td>1,665.6</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>1,225.4</td>
</tr>
<tr>
<td>China</td>
<td>1,145.2</td>
</tr>
<tr>
<td>Bahrain</td>
<td>426.2</td>
</tr>
<tr>
<td>Argentina</td>
<td>413.6</td>
</tr>
<tr>
<td>Qatar</td>
<td>255.1</td>
</tr>
<tr>
<td>Germany</td>
<td>186.6</td>
</tr>
<tr>
<td>South Africa</td>
<td>161.3</td>
</tr>
<tr>
<td>Venezuela</td>
<td>153.3</td>
</tr>
<tr>
<td>All Others</td>
<td>1,402.8</td>
</tr>
</tbody>
</table>

### Ingot (Millions of Pounds)

<table>
<thead>
<tr>
<th>Country</th>
<th>Millions of Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>5,085.5</td>
</tr>
<tr>
<td>Russia</td>
<td>1,590.9</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>1,225.4</td>
</tr>
<tr>
<td>Argentina</td>
<td>383.0</td>
</tr>
<tr>
<td>Qatar</td>
<td>255.1</td>
</tr>
<tr>
<td>Bahrain</td>
<td>235.0</td>
</tr>
<tr>
<td>Venezuela</td>
<td>147.5</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>117.0</td>
</tr>
<tr>
<td>Brazil</td>
<td>63.6</td>
</tr>
<tr>
<td>India</td>
<td>58.4</td>
</tr>
<tr>
<td>All Others</td>
<td>229.0</td>
</tr>
</tbody>
</table>

### Mill Products

<table>
<thead>
<tr>
<th>Country</th>
<th>Millions of Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1,140.6</td>
</tr>
<tr>
<td>Canada</td>
<td>981.9</td>
</tr>
<tr>
<td>Bahrain</td>
<td>191.2</td>
</tr>
<tr>
<td>Germany</td>
<td>184.8</td>
</tr>
<tr>
<td>South Africa</td>
<td>134.9</td>
</tr>
<tr>
<td>Mexico</td>
<td>114.9</td>
</tr>
<tr>
<td>Indonesia</td>
<td>99.6</td>
</tr>
<tr>
<td>Russia</td>
<td>74.8</td>
</tr>
<tr>
<td>Austria</td>
<td>73.6</td>
</tr>
<tr>
<td>Japan</td>
<td>68.7</td>
</tr>
<tr>
<td>All Others</td>
<td>649.3</td>
</tr>
</tbody>
</table>

U.S. Census Bureau
THE ALUMINUM VALUE CHAIN:
PRIMARY, MILL PRODUCTS, AND EVERYTHING IN-BETWEEN
# Aluminum Value Chain

Includes the primary sector, semi-finished products, and end products

<table>
<thead>
<tr>
<th>Primary Sector</th>
<th>Semi-finished Products</th>
<th>End Products (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mine Bauxite (approx. 300M t/yr)</td>
<td>Extruded Profiles</td>
<td>Beverage Cans</td>
</tr>
<tr>
<td></td>
<td>Rod and Bar</td>
<td>Automotive Wheels</td>
</tr>
<tr>
<td>Refine Alumina (approx. 100M t/yr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smelt Primary Aluminum (approx. 60M t/yr)</td>
<td></td>
<td>Aerospace Components</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electric Cable</td>
</tr>
</tbody>
</table>

- Extruded Profiles
- Rod and Bar
- Coil, Sheet, and Plate
- Beverage Cans
- Automotive Wheels
- Aerospace Components
- Electric Cable

*1 metric ton is 2204.62 lbs.*

- ~$20-50/t
- ~$200-300/t
- ~$1500-2000/t

*Includes the primary sector, semi-finished products, and end products.*
# U.S. Dependent on Bauxite and Alumina Imports

## Bauxite and Alumina Import Data, 2015-2016

### Bauxite

- **0.7%**  
  U.S. bauxite reserves as a percentage of global reserves  
  **U.S. reserves:** 20M tons

- **100%**  
  U.S. bauxite imports as a percentage of bauxite consumption  
  **U.S. imports:** 5.8M tons

- **0**  
  The amount of bauxite mined in the U.S.

### Alumina

- **2.27%**  
  U.S. alumina refinery production as percentage of global production  
  **U.S. production:** 2.8M tons

- **1.13M tons**  
  The amount of alumina imported into the U.S.

### Bauxite Import Sources (2016)

- Jamaica: 65%
- Brazil: 23%
- Guyana: 3%
- Singapore: 3%
- Other: 9%

### Alumina Import Sources (2016)

- Brazil: 39%
- Australia: 33%
- Jamaica: 10%
- China: 5%
- Other: 13%

### Source:

- Datamyne; U.S. Customs and Border Protection (CBP); USGS; CRU International Ltd.; Indonesian Minerals Book, MLR PRC, Indian Ministry of Mining, Chinese Embassy of Indonesia, Mining Exploration Institute (latest available data).

*1 metric ton is 2204.62 lbs.
LIFE CYCLE OF ALUMINUM
ALUMINUM VALUE CHAIN

Changing focus throughout the value chain

Focus on Resources
Focus on Process Capabilities
Focus on Customers/Proximity to Market

Aluminium
Traded on LME

Standard ingot
Regional Premium

Extrusion ingot
Value added products
Foundry alloy
Sheet ingot
Wire rod

Pricing throughout the Aluminum Value Chain

Priced above standard ingot

Semi’s
Extrusions
Coils

Priced above Value Added Product plus a “conversion premium”
THANK YOU

www.aluminum.org

www.aluminum.org/joinaluminumnation

www.drivealuminum.org

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/AluminumAssociation

www.tradeenforcement.org