

Specialty Metals and National Security

Fiscal Year 2014

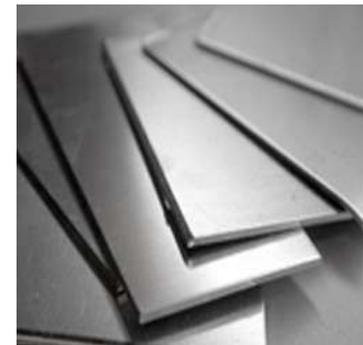
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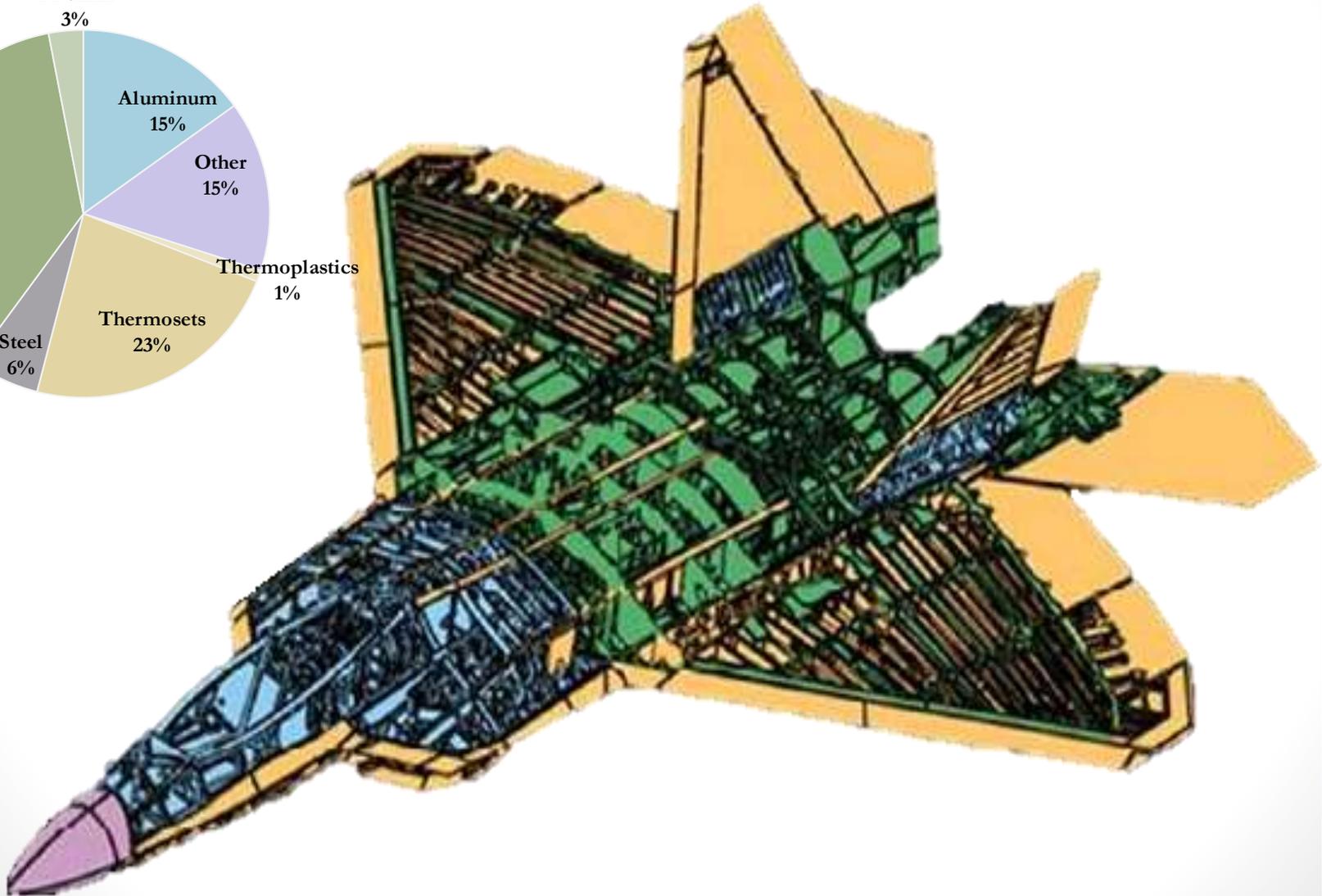
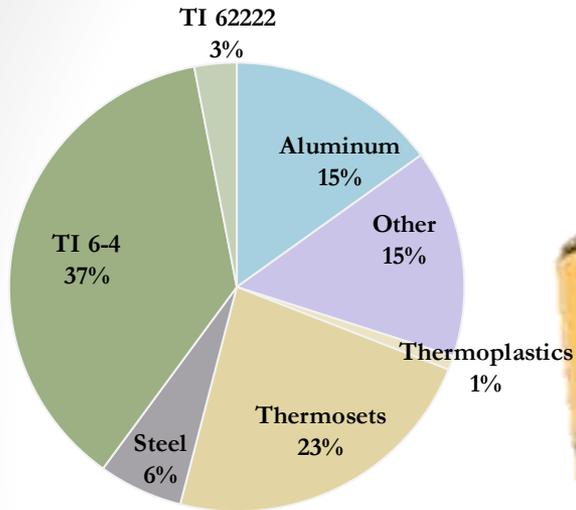
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- Fiscal Year 2014

What are “Specialty Metals”?

- “Specialty metal” defined as:
 - Steel
 - w/alloy content exceeding 1.65% manganese, 0.6% silicon or copper
 - w/alloy content exceeding 0.25% aluminum, chromium, cobalt, niobium, molybdenum, nickel, titanium, tungsten, or vanadium
 - Metal alloys of nickel, iron-nickel, and cobalt base alloys containing other alloying metals (except iron) above 10%
 - Zirconium & zirconium base alloys
 - Titanium & titanium alloys



Military Applications (F-22A)

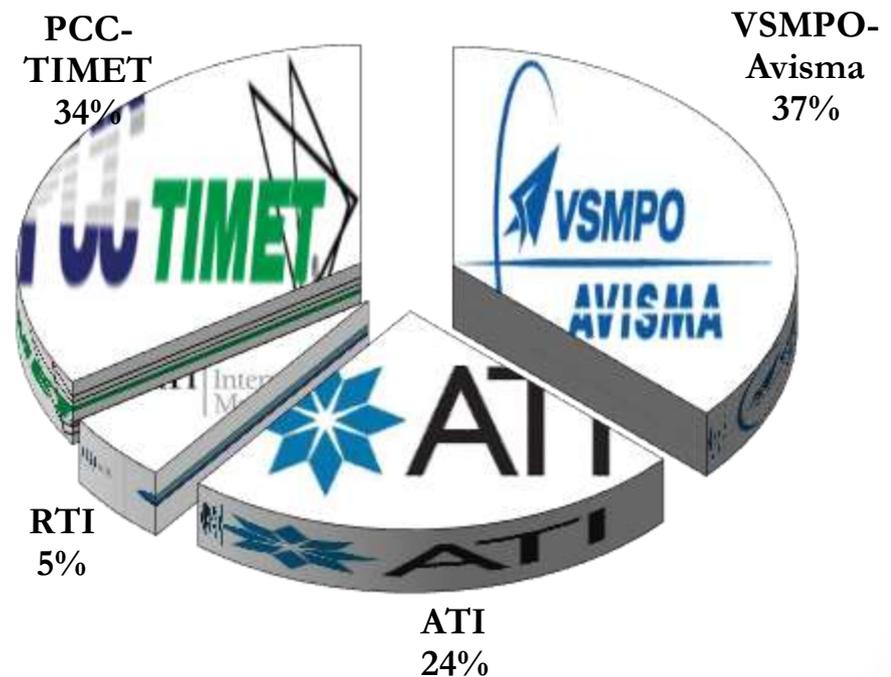


Source: Gonzalez & Perkins, "Application of Structural Titanium Castings on the USAF F-22 Raptor", RTO-MP-069(II)

Overseas Competition

- VSMPO-Avisma is the largest supplier of aerospace titanium
- Formerly 77% owned by Rostec (parent of Rosoboronexport), today is:
 - 25% Rostec
 - 50.02% Nordcom (25% Gazprombank / 75% VSMPO-Avisma management)

Titanium Revenue (2011)



Sources: U.S. Geological Survey, "Titanium & Titanium Dioxide", *Mineral Commodity Summaries 2013*
"VSMPO-Avisma world titanium giant gets back its shares", *Russia Today* (27 November 2012)
10-K filings of TIMET, RTI, and ATI for Fiscal Year 2011
Audited (KPMG) Financial Statements of VSMPO-Avisma for Fiscal Year 2012
Seong et. al., *Titanium: Industrial Base, Price Trends, and Technology Initiatives* (RAND Corp., 2009)

STEM & Industry Investment

- Since 2010, U.S. titanium companies have invested more than \$1 billion in capital improvements and research & development
- Titanium industry is strongly supportive of National Network for Manufacturing Innovation (NNMI) projects:
 - National Additive Manufacturing Innovation (NAMI)
 - Lightweight and Modern Metals Manufacturing Innovation (LM3I)
 - Digital Manufacturing & Design Innovation (DMDI)
- The titanium industry is pursuing advanced 3-D printing and laser sintering of complex, low-volume parts to reduce cost

Specialty Metals History

- **1941 – 1994:** Berry Amendment introduced, requiring acquisition of certain items from domestic sources; reintroduced in annual defense appropriations bills until made permanent in P.L. 103-139
- **FY1973 Defense Appropriations Act:** specialty metals added to the Berry Amendment; subsequent SECDEF Melvin Laird Memo serves as foundation for today's specialty metals clause

“Rather it is clear that its purpose is to afford reasonable protection to the specialty metals industry to help preserve our domestic production capacity to satisfy mobilization requirements, without forcing a massive disruption of our existing procurement methods and programs.”

- **FY2007 NDAA:** Berry Amendment & Specialty Metals split (10 U.S.C. §2533a & 10 U.S.C. §2533b)
- **FY2008 NDAA:** 2% *de minimis* and COTS exceptions added, National Security waiver added, market basket / co-mingling allowed
- **DFARS Final Rule (FR Vol. 74, No. 144; 7/29/2009):** DoD interprets “produce” to include quenching & tempering of armor plate
- **FY2011 NDAA §823:** Congress requires DoD to review its rule, taking into consideration Congressional intent

Specialty Metals History (cont.)

- **FY2013 NDAA House Report:** requires a GAO report on “Factors Affecting U.S. Titanium Aircraft Component Manufacturers’ Market Share of DoD Business”
- **F-35 National Security Waivers (Nov. 2012):** AT&L issues first waiver for non-compliant Japanese specialty metals based on schedule delay (4 years) and requalification cost (\$6M); 3 domestic / qualified firms currently supply the same specialty metal to DoD
- **F-35 National Security Waivers (Dec. 2012):** AT&L amends first waiver to include non-compliant specialty metals from China
- **DFARS Final Rule (FR Vol. 78, No. 60; 3/28/2013):** DoD redefines “produce” as atomization, sputtering, or final consolidation of non-melt derived powders
- **F-35 National Security Waivers (Apr. 2012):** AT&L issues second waiver for non-compliant specialty metal of unknown origin and provides a second amendment to the first waiver to cover additional non-compliant specialty metals from China
- **F-35 National Security Waivers (Jun. 2012):** HASC requires GAO investigation of National Security Waivers; AT&L and PEO-JSF acknowledge waiver issue in written testimony to SASC

Ongoing Compliance Concerns

- Lack of transparency on the issuance of and justification for National Security Waivers
- Concerns about “supply chain remediation” efforts and follow-up with small business suppliers
- Waivers based on end items
- Use of National Security Waiver despite domestic capabilities

GAO Analysis – Titanium

- Cost to DoD:

“Officials from prime contractors and aircraft component manufacturers told us that price differences have not been large enough to have a significant impact on the cost of a DoD aircraft.”

“According to industry officials, DoD aircraft and engine prime contractors leverage their buying power by arranging long term agreements with titanium producers to ensure titanium availability and pre-negotiated prices.”

- Industry Competitiveness:

“Industry officials noted that U.S. produced titanium has been competitively priced relative to foreign produced titanium.”

“Industry officials told us that prime contractors’ long term agreements, prime contractors’ approval of titanium producers, and industry consolidation—rather than titanium price—are major factors affecting the ability of U.S. aircraft component manufacturers to compete for DoD contracts.”

Additional Statutory Guidance

- 10 U.S.C. §139(b):
 - **DASD-Manufacturing & Industrial Base Policy** shall be the principal advisor to Office of AT&L for—
 - Ensuring policies of the Department of Defense for developing and maintaining the defense industrial base of the United States and ensuring a secure supply of materials critical to national security.
 - Ensuring reliable sources of materials critical to national security, such as specialty metals, armor plate, and rare earth elements.
- 10 U.S.C. §2501:
 - **SECDEF** shall develop a strategy to ensure the national technology and industrial base is capable of—
 - Ensuring reliable sources of materials critical to national security, such as specialty metals, armor plate, and rare earth elements

Protecting the Integrity of the Specialty Metals Clause

- *Reuters* (3 Jan. 2014) report of national security waivers for F-35
- *Reuters* (10 Mar. 2014) report of Chinese parts in F-16, B-1B, SM-3
- National security waiver process needs transparency to maintain the carefully crafted balance between suppliers and customers

Exclusive: U.S. waived laws to keep F-35 on track with China-made parts

BY JOHN SHIFFMAN AND ANDREA SHALAL-ESA

WASHINGTON | Fri Jan 3, 2014 3:45pm EST

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Exclusive: Chinese raw materials also found on U.S. B-1 bomber, F-16 jets

BY ANDREA SHALAL

WASHINGTON | Mon Mar 10, 2014 7:28pm EDT

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Four U.S. Air Force B-1B Lancer bombers from the 405th Air Expeditionary Wing taxi down the runway prior to taking off on a combat mission, January 3, 2002 during Operation Enduring Freedom.

CREDIT: REUTERS/USAF/SHANE CUOMO

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(Reuters) - After discovering China-made components in the F-35 fighter jet, a Pentagon investigation has uncovered Chinese materials in other major U.S. weaponry, including Boeing Co's B-1B bomber and certain Lockheed Martin Corp F-16 fighters, the U.S. Defense Department said.

Titanium mined in China may also have been used to build part of a new Standard Missile-3 IIA being developed jointly by Raytheon Co and Japan, said a senior U.S. defense official, who said the incidents raised fresh concerns about lax controls by U.S. contractors.



Amphibious assault ship USS Wasp August 24, 2013.

Chinese-built components on Lockheed Martin Corp F-35 fighter are voicing concern about

Concluding Observations

- Specialty metals are unique, long lead-time materials that are critical to national security
- §2533b is the result of a healthy paradigm shift among producers of specialty metals, prime contractors, and DoD
- GAO's investigation demonstrates that the specialty metals statute has no significant impact on competitiveness or DoD weapon system cost
- Key acquisition and industrial base offices of OSD have responsibility for ensuring reliable supply of specialty metals
- Ensure transparency of future national security waivers
- The existing balance struck by §2533b ought to be maintained to ensure a vibrant national security industrial base