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OMB Control Number: 0694-0119
Expiration Date: 31 December 2014

# DEFENSE INDUSTRIAL BASE ASSESSMENT:
## Strategic Materials - TITANIUM

## SCOPE OF ASSESSMENT

The U.S. Department of Commerce, Bureau of Industry and Security (BIS), Office of Technology Evaluation (OTE), in coordination with the Defense Logistics Agency (DLA) is conducting an industrial base survey and assessment of the supply chain associated with select critical and strategic materials required for key defense systems and platforms.

The primary goal of this assessment is to assist the defense community in understanding the health and competitiveness of critical material suppliers, and identify specific issues and challenges facing the industry. Over the long term, agencies will be better informed to develop targeted planning and acquisition strategies to ensure the availability of the materials supply chain to support critical defense missions and programs.

## RESPONSE TO THIS SURVEY IS REQUIRED BY LAW

A response to this survey is required by law (50 U.S.C. app. Sec. 2155). Failure to respond can result in a maximum fine of $10,000, imprisonment of up to one year, or both. Information furnished herewith is deemed confidential and will not be published or disclosed except in accordance with Section 705 of the Defense Production Act of 1950, as amended (50 U.S.C App. Sec. 2155). Section 705 prohibits the publication or disclosure of this information unless the President determines that its withholding is contrary to the national defense. Information will not be shared with any non-government entity, other than in aggregate form. The information will be protected pursuant to the appropriate exemptions from disclosure under the Freedom of Information Act (FOIA), should it be the subject of a FOIA request.

Not withstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number.

## BURDEN ESTIMATE AND REQUEST FOR COMMENT

Public reporting burden for this collection of information is estimated to average 14 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information to BIS Information Collection Officer, Room 6883, Bureau of Industry and Security, U.S. Department of Commerce, Washington, D.C. 20230, and to the Office of Management and Budget, Paperwork Reduction Project (OMB Control No. 0694-0119), Washington, D.C. 20503.

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**Important Note:**
Complete Section 2 before moving on to later sections. Menu options in later sections are based on information in Section 2.

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## Section I: General Instructions

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| A | Your organization is required to complete this survey using an Excel template, which can be downloaded from the U.S. Department of Commerce, Bureau of Industry and Security (BIS) website: www.bis.doc.gov/MetalSurvey. At your request, survey support staff will e-mail the Excel survey template directly to your organization. For your convenience, a PDF version of the survey is available on the BIS website to aid internal data collection. DO NOT submit the PDF version of your organization's response to BIS. |
| B | Respond to every question. Surveys that are not fully completed will be returned for completion. Use comment boxes to provide any information to supplement responses provided in the survey form. Make sure to record a complete answer in the cell provided, even if the cell does not appear to expand to fit all the information.<br><br>**DO NOT COPY AND PASTE RESPONSES WITHIN THIS SURVEY.** Survey inputs should be made manually, by typing in responses or by use of a drop-down menu. The use of copy and paste can corrupt the survey template. If your survey response is corrupted as a result of copy and paste responses, a new survey will be sent to you for immediate completion. |
| C | **Do not disclose any classified information in this survey form.** |
| D | If information is not available from your organization's records in the form requested, you may furnish estimates. |
| E | Questions related to this survey should be directed to BIS survey staff at **MetalSurvey@bis.doc.gov** or by calling survey support staff and team lead Matthew Sigmund at 202-482-7808. Email is the preferred method of contact. |
| F | Upon completion, review, and certification of this Excel survey, transmit the survey via e-mail attachment to: **MetalSurvey@bis.doc.gov**. Be sure to retain a copy for your records. |
| G | For questions related to the overall scope of this strategic materials industrial base assessment, contact:<br><br>Brad Botwin, Director, Industrial Studies<br>Office of Technology Evaluation, Room 1093<br>U.S. Department of Commerce, BIS<br>1401 Constitution Avenue, NW<br>Washington, DC 20230 |

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**Section II: Definitions**

| Term | Definition |
|---|---|
| Alloy Metal | A metal made by combining two or more metallic elements to give, for example, greater strength or resistance to corrosion. |
| Applied Research | Systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. This activity includes work leading to the production of useful materials, devices and systems or methods, including design, development, and improvement of prototypes and new processes. |
| Authorizing Official | Executive officer of the organization or business unit or other individual who has the authority to execute this survey on behalf of the organization. |
| Basic Research | Systematic, scientific study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. |
| Commercial and Government Entity (CAGE) Code | Commercial and Government Entity (CAGE) Code identifies companies doing or wishing to do business with the U.S. Federal Government. The code is used to support mechanized government systems and provides a standardized method of identifying a given facility at a specific location. Find CAGE codes at: http://www.logisticsinformationservice.dla.mil/BINCS/begin_search.aspx |
| Component | Any raw material, substance, piece, part, software, firmware, labeling, or assembly which is intended to be included as part of the finished, packaged, and labeled device. |
| Customer | An entity to which an organization directly delivers the product or service that the facility produces. A customer may be another company or another facility owned by the same parent organization. The customer may be the end user for the item but often will be an intermediate link in the supply chain, adding additional value before transferring the item to yet another customer. |
| Data Universal Numbering System (DUNS) | A nine-digit numbering system that uniquely identifies an individual business. Find DUNS numbers at: http://fedgov.dnb.com/webform |
| Direct Sales/Support | Product/service is provided by your organization to the specified customer, not through a third party (for example, prime contractor or distributor). |
| Distributor | An entity that buys noncompeting products or product lines, warehouses them, and resells them to retailers or directly to the end users or customers. |
| Finished Product | Any product, or accessory to any product, that is suitable for use or capable of functioning, whether or not it is packaged or labeled. |
| Full Time Equivalent (FTE) Employees | Employees who work for 40 hours in a normal work week. Convert part-time employees into "full-time equivalents" by taking their work hours as a fraction of 40 hours. |
| Indirect Sales/Support | Product/service is provided to the specified customer through a third party (for example, prime contractor or distributor). |
| Manufacturer | An organization that uses labor and capital to convert raw materials into finished or semi-finished goods. For the purpose of this survey, manufacturing includes integration and assembly. |
| Manufacturing Material | Any material or substance used in or used to facilitate the manufacturing process, a concomitant constituent, or a byproduct constituent produced during the manufacturing process, which is present in or on the finished device/product. |
| North American Industry Classification System (NAICS) Code | North American Industry Classification System (NAICS) codes identify the category of product(s) or service(s) provided by your organization. Find NAICS codes at: http://www.census.gov/epcd/www/naics.html |
| Precious Metals | Metals that have high economic value due to their rarity. Most commonly gold, silver, platinum, and palladium. |
| Product/Process Development | The systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements. |
| Rare Earth Element | A category that includes element numbers 57-71 of the periodic table (lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium) as well as yttrium (39) and scandium (21). |
| Service | An intangible product (in contrast to a good, which is a tangible product). Services typically cannot be stored or transported, are instantly perishable, and come into existence at the time they are bought and consumed. |
| Single Source | An organization that is designated as the only accepted source for the supply of parts, components, materials, or services, even though other sources with equivalent technical know-how and production capability may exist. |
| Sole Source | A organization that is the only source for the supply of parts, components, materials, or services. No alternative U.S. or non-U.S. based suppliers exist other than the current supplier. |
| STEM | STEM stands for Science, Technology, Engineering, and Mathematics. |
| Supplier | An entity from which your organization obtains inputs. A supplier may be another firm with which you have a contractual relationship, or it may be another facility owned by the same parent organization. The inputs may be goods or services. |
| Unalloyed Metal | A metal in its pure form, not combined with any other substance. |
| United States | The "United States" or "U.S." includes the 50 states, Puerto Rico, the District of Columbia, the island of Guam, the Trust Territories, and the U.S. Virgin Islands. |
| Utilization Rate | The percent of an organization's potential output that is actually being used in current production, where potential output is based on a 7 day-a-week, 3x8-hour shift production schedule. Note: 100% utilization rate equals no downtime with full employment. |



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## Section 1a: Organization Information

| | | | |
|---|---|---|---|
| A | From the dropdown, select the description that best identifies your organization: | | |
| B | Indicate whether this survey response captures the operations of your whole organization or an individual business unit/division. Your organization may provide one corporate-level response, but all **titanium**-related activities must be included.<br><br>All data in this response must be reported at the same organizational level. | | |

**C** Provide the following information for the level at which your organization is responding to this survey.

| | |
|---|---|
| Organization Name | |
| Business Unit/Division Name (if applicable) | |
| Street Address | |
| City | |
| State | |
| Zip Code | |
| Website | |
| Phone Number (number only) | |
| Primary DUNS Code for this Level (nine-digit number with no dashes) | |

**D** Provide the following information for your parent company, if applicable.

| | |
|---|---|
| Organization Name | |
| Street Address | |
| City | |
| State | |
| Country | |
| Postal Code/Zip Code | |
| Primary DUNS Code for Parent Company (nine-digit number with no dashes) | |

| | | | |
|---|---|---|---|
| E | Is your organization publicly traded or privately held? | | |

**F** Point of Contact regarding this survey:

| Name | Title | Phone Number | E-mail Address | State |
|---|---|---|---|---|
| | | | | |

| | |
|---|---|
| Comments: | |

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## Section 1b: Organization Information

| | | | |
|---|---|---|---|
| A | From the list below, identify any of the market segments your organization currently serves: | | |
| | Aerospace | | |
| | Automotive | | |
| | Consumer goods | | |
| | Construction/Infrastructure | | |
| | Electronics | | |
| | - Optics/Sensors | | |
| | - Semiconductors | | |
| | - Other electronics | (specify here) | |
| | Engineering | | |
| | Food/Agriculture | | |
| | Healthcare/Medical | | |
| | Industrial | | |
| | - Chemical | | |
| | - Desalinization | | |
| | - Energy/Power generation | | |
| | - Petrochemical | | |
| | - Other industrial | (specify here) | |
| | Marine (surface and underwater) | | |
| | Research and Development | | |
| | Telecommunication | | |
| | Other | (specify here) | |
| B | From the list below, identify any of the defense-related market segments that your organization currently serves: | | |
| | Aircraft | | |
| | Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) | | |
| | Electronics | | |
| | Energy | | |
| | Ground Vehicles | | |
| | Missiles | | |
| | Research and Development | | |
| | Ships (surface and underwater) | | |
| | Space | | |
| | Other | (specify here) | |
| Comments: | | | |

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## Section 1c: Organization Information

**A**

From the list below, select all operations your organization currently performs:

| | | |
|---|---|---|
| Extraction & mining | | |
| Processing & refining | | |
| Melting | | |
| Recycling | | |
| Casting | | |
| Forging (including extrusion) | | |
| Molding | | |
| Machining (turning, boring, drilling, milling, electrochemical, electron beam, ultrasonic, etc.) | | |
| Stamping (punching, blanking, flanging, etc.) | | |
| Fabrication (cutting, bending, assembling, etc.) | | |
| Finishing (coating, plating, heat treating, etc.) | | |
| Research and Development | | |
| Testing/Evaluation/Validation | | |
| Other operation(s) | (specify here) | |

**B**

Is your organization considered a small business as defined by the Small Business Administration (SBA)?

For information on SBA's small business size standards, see:
http://www.sba.gov/category/navigation-structure/contracting/contracting-officials/eligibility-size-standards

If yes, specify the type(s) below.

**C**

Provide the following identification codes (see definitions), as applicable, to your organization.
*Find your organization's Commercial and Government Entity (CAGE) Codes at:
http://www.logisticsinformationservice.dla.mil/BINCS/begin_search.aspx

**Find your organization's North American Industry Classification System (NAICS) codes at:
http://www.census.gov/epcd/www/naics.html

| Commercial and Government Entity (CAGE) Code(s)* | | NAICS (6-digit) Code(s)** | |
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Comments:

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**Section 1d: Organization Information**

Identify all of your organization's facilities with **titanium**-related operations. Provide the **LOCATION** of the facility, indicate its primary **OPERATION**, and specify any changes that may impact that facility over the next five years.

| | Facility Name | Location | | | Operations | | Outlook | |
|---|---|---|---|---|---|---|---|---|
| | | City | State | Country | Facility Primary Operation (select from dropdown) | Specify Additional Detail or "Other" Operation | Do you anticipate any significant changes in the operations at this facility over the next five years? | If yes or unknown, provide a brief explanation. |
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## Section 2a: Titanium-Related Products

Complete the table below to describe **ALL** your organization's **titanium**-related capabilities. Capabilities include items sold to external customers in addition to semi-finished items requiring further processing by your organization. For example, if your organization produces titanium sponge that it further processes into titanium ingot and/or bar, each related product must be included.

For each unique **titanium**-related product your organization produces, provide a **PRODUCT NAME**, indicate the **TYPE** of product, and whether your organization distributes or manufactures the product. Manufacturing includes all value-added operations beyond distribution. In the **PRODUCT COMPOSITION/GRADE** section, specify whether the product is an alloy, indicate the **COMPOSITION/GRADE,** and provide a brief **ADDITIONAL DESCRIPTION** with any additional information/unique properties of the product. Complete the **END USE** portion by selecting the **PRIMARY SECTOR END USE** to indicate the product's general end user type and select a **PRIMARY END USE APPLICATION**. If needed, provide an **ADDITIONAL/OTHER DESCRIPTION.**

In the **PRODUCTION/DISPOSITION** portion, provide your organization's **AVERAGE MONTHLY OUTPUT,** in kilograms, of each product and the **MAXIMUM MONTHLY OUTPUT,** in kilograms, your organization would be capable of producing with three eight-hour shifts operating seven days per week utilizing your current facilities and equipment. Next, specify the **PERCENTAGE UTILIZED WITHIN YOUR ORGANIZATION.** If exact percentages are not known, estimates are acceptable. Last, specify if your organization is a **SOLE SOURCE** of each product.

**NOTE:** You must use one row for each unique combination of product **TYPE** and **COMPOSITION/GRADE**. If **OTHER** is selected, provide a description in the applicable write-in section.

| | Product Name (write-in) | Type (select from dropdown) | Manufacture/ Distribute (select from dropdown) | Product Composition/Grade | | | End Use | | | Production/Disposition (Output includes both manufacturing and distribution) | | | Sole Source (select from dropdown) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Alloy/Unalloyed (select from dropdown) | Composition/Grade* (select from dropdown) | Additional/Other Description (write-in) | Primary Sector End Use (select from dropdown) | Primary End Use Application (select from dropdown) | Additional/Other Description (write-in) | Average Monthly Output** (kilograms) | Maximum Monthly Output** (kilograms) | Percentage utilized within your organization | |
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* Composition/Grade notes:

| Composition/Grade | Approximate Description | Composition/Grade | Approximate Description |
|---|---|---|---|
| CP | Commercially Pure | 6-2-4-6 | 6% Aluminum, 2% Tin, 4% Zirconium, 6% Molybdenum |
| 10-2-3 | 10% Vanadium, 2% Iron, 3% Aluminum | 6-6-2 | 6% Vanadium, 6% Aluminum, 2% Tin |
| 6-4 | 6% Aluminum, 4% Vanadium | 3-2.5 | 3% Aluminum, 2.5% Vanadium |
| 6-2-4-2 | 6% Aluminum, 2% Tin, 4% Zirconium, 2% Molybdenum | | |

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## Section 2b: Other (Non-Titanium) Products

| | | |
|---|---|---|
| A | Does your organization provide **non-titanium**-related products? If no, proceed to Section 3a. | |

B

For each **TYPE** of material your organization provides, indicate the **PRIMARY MATERIAL** of the product and whether your organization manufactures or distributes the product. Manufacturing includes all value-added operations beyond distribution. Next, provide a brief **PRODUCT DESCRIPTION** that includes additional materials in the product. Complete the **PRIMARY SECTOR END USE** to indicate the product's general end user type, select the **PRIMARY END USE APPLICATION** to specify the type of end use, and, if needed, provide an **ADDITIONAL/OTHER DESCRIPTION**.

**NOTE:** One row must be completed for each unique **TYPE** and **PRIMARY MATERIAL** combination. If **OTHER** is selected, provide a description in the applicable write-in section.

| | Product Composition | | | Manufacture/ Distribute (select from dropdown) | End Use | | |
|---|---|---|---|---|---|---|---|
| | Type (select from dropdown) | Primary Material (select from dropdown) | Product Description (write-in) | | Primary Sector End Use (select from dropdown) | Primary End Use Application (select from dropdown) | Additional/Other Description (write-in) |
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## Section 3a: Suppliers for Titanium-Related Operations

In the table below, identify the **EXTERNAL** suppliers for your organization's **titanium**-related product line(s) **since 2012**. For each of the products your organization identified in the **PRODUCTS** Section (2a), indicate the suppliers providing key inputs and/or services. Provide the **EXTERNAL SUPPLIER NAME** and indicate whether they provided your organization materials or services in the **TYPE OF SUPPLIER** column. In the **INPUT/SERVICE INFORMATION** section, choose the general **TYPE** of input/service the supplier provided, and add a brief **DESCRIPTION.** All items supplied internally should be identified in Section 2 as products your organization provides.

Next, select the **STATE** and **COUNTRY** where the supplier is located and indicate whether they are your **SINGLE/SOLE SOURCE**. In the remaining five columns, indicate where the supplied items are utilized in the products you identified in Section 2. If a supplier is utilized for more than the available product columns, repeat their information on an additional row.

**NOTE:** Scroll to the right to view all columns.

| | **Supplier Information** | | **Input/Service Information** | | **Supplier Information** (select from dropdown) | | | **Product Use** (select from dropdown) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **External Supplier Name** | **Type of Supplier** | Type (select from dropdown) | Description (write-in) | Supplier State | Supplier Country | Single/Sole Source | Titanium Product 1 | Titanium Product 2 | Titanium Product 3 | Non-Titanium Product 1 | Non-Titanium Product 2 |
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## Section 3b: Inventory of Titanium-Related Inputs

Detail the inventory levels of material inputs required for **titanium**-related operations that your organization maintains. Calculate inventory levels as the average level maintained (in weeks) under normal operating conditions since 2012.

The first column has been populated by the **MATERIALS** your organization indicated receiving from external suppliers for **titanium**-related operations in section 3a. In the middle three columns, specify **INVENTORY LEVELS** (in weeks) for each scenario; and in the remaining columns indicate whether a **SUPPLY DISRUPTION** has occurred since 2012.

| | Titanium-Related Input (select from dropdown) | Inventory Levels (in weeks) (write-in) | | | Supply Disruptions Since 2012 | |
|---|---|---|---|---|---|---|
| | | **A** | **B** | **C** | | |
| | | Quantity of inventory (in weeks) maintained | How many weeks would the inventory listed in column A last if your utilization rate was 100%, given current facilities and equipment? | Given a 100% drawdown in inventory, how many weeks would it take to return to the level maintained in column A. | Has a disruption in supply occurred? (select from dropdown) | If yes, provide a brief description. (write-in) |
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Comments:

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## Section 3c: Inputs and Sourcing

**A** If your organization utilizes any of the materials listed in **part B** (below) for **titanium**-related operations, **non-titanium** operations, or **both,** complete this section. If not, proceed to section 4.

**B** For each material, indicate if it is utilized within **titanium**-related operations and/or n**on-titanium** operations, whether your organization **MAINTAINS** inventory of each, and if so, provide the **QUANTITY** with the associated **UNIT OF MEASURE.**

In the **DIRECT SOURCE** section, select the primary **TYPE** of supplier providing the material (options include: Distributor; Mine, Original Manufacturer, Recycler) and the supplier's **LOCATION.** In the **PRIMARY ORIGINAL SOURCE** column, indicate the primary country the material was originally sourced from (if known).

| Material | | Utilization in Titanium and/or Non-Titanium Operations | Inventory | | | | Direct Source (select from dropdown) | | Primary Original Source |
|---|---|---|---|---|---|---|---|---|---|
| | | | Maintain | Quantity | Quantity Unit of Measure | Quantity in kilograms | Type | Location (Country) | |
| Aluminum (AL) | | | | | | 0 | | | |
| Ceramics & Carbon Fibers | | | | | | | | | |
| Carbon fibers | (specify here) | | | | | 0 | | | |
| Silicon carbide fibers | (specify here) | | | | | 0 | | | |
| Abrasives | (specify here) | | | | | 0 | | | |
| Refractories | (specify here) | | | | | 0 | | | |
| Other ceramics | (specify here) | | | | | 0 | | | |
| Cobalt (Co) | | | | | | 0 | | | |
| Copper (Cu) | | | | | | 0 | | | |
| Gallium (Ga) | | | | | | 0 | | | |
| Lead (Pb) | | | | | | 0 | | | |
| Lithium (Li) | | | | | | 0 | | | |
| Magnesium (Mg) | | | | | | 0 | | | |
| Molybdenum (Mo) | | | | | | 0 | | | |
| Nickel (Ni) | | | | | | 0 | | | |
| Niobium (Nb) | | | | | | 0 | | | |
| Platinum Group & Precious Metals | | | | | | | | | |
| Palladium (Pd) | | | | | | 0 | | | |
| Platinum (Pt) | | | | | | 0 | | | |
| Gold (Au) | | | | | | 0 | | | |
| Silver (Ag) | | | | | | 0 | | | |
| Rare Earth Element (specify) | | | | | | | | | |
| | | | | | | 0 | | | |
| | | | | | | 0 | | | |
| | | | | | | 0 | | | |
| | | | | | | 0 | | | |
| | | | | | | 0 | | | |
| Steel | | | | | | | | | |
| Alloys | (specify here) | | | | | 0 | | | |
| Carbon | (specify here) | | | | | 0 | | | |
| Stainless | (specify here) | | | | | 0 | | | |
| Tool | (specify here) | | | | | 0 | | | |
| Tantalum (Ta) | | | | | | 0 | | | |
| Tin (Sn) | | | | | | 0 | | | |
| Tungsten (W) | | | | | | 0 | | | |
| Vanadium (V) | | | | | | 0 | | | |
| Zinc (Zn) | | | | | | 0 | | | |
| Zirconium (Zr) | | | | | | 0 | | | |
| Other | (specify here) | | | | | 0 | | | |
| Other | (specify here) | | | | | 0 | | | |
| Other | (specify here) | | | | | 0 | | | |

**C** Is your organization concerned about the availability of the inputs mentioned in part B (above) for your organization's operations?

If yes, which inputs? (select from dropdown)

Provide a brief description of your concern(s):

**D** Has your organization **experienced supply chain disruptions** regarding the inputs mentioned in part B (above) that have impacted operations?

If yes, which inputs? (select from dropdown)

Provide a brief description of your concern(s):

**E** What steps has your organization taken to minimize the impact of disruptions in the availability of these key inputs?

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## Section 4: Operations and Challenges

**A**

Describe your organization's utilization rates and constraints. "Utilization" is the fraction of an organization's potential output that is actually being used in current production, where potential output is based on a 7 day-a-week, 3x8-hour shift production schedule.
**Note**: 100% utilization rate equals no downtime with full employment.

| | | |
|---|---|---|
| 1 | What is your organization's current utilization rate? (select from dropdown) | |
| | What is your organization's current **titanium**-related utilization rate? (select from dropdown) | |
| | How many weeks would it take to raise your organization's **titanium**-related utilization rate to 100% in light of a surge in demand. (write-in) | |

2 Identify the general constraints your organization would face in meeting a surge in demand for **titanium**-related products. Provide a brief description of each.

| Type of Constraint | Yes/No | Description (write-in) |
|---|---|---|
| Capital: Equipment, Facilities, Infrastructure | | |
| Workforce: Labor Availability, Costs | | |
| Quality Control: Evaluation/Testing/Validation | | |
| Inventory: Availability of Input Materials | | |
| Other (specify in description) | | |

**B**

Identify the issues that have impacted your organization's **titanium**-related operations since 2010. In column A, select **YES/NO** from the dropdown menu. In column B, rank your top five issues (one being most important) by writing in numbers one through five and using each only one time. In column C, provide a brief explanation of at least your organization's top five issues.

| | Type of Issue | A<br>Yes/No | B<br>Rank Top 5 | C<br>Explanation of Issue (write-in) |
|---|---|---|---|---|
| 1 | Aging equipment, facilities, or infrastructure | | | |
| 2 | Domestic competition | | | |
| 3 | Environmental regulations/remediation | | | |
| 4 | Export Controls/ITAR | | | |
| 5 | Foreign competition | | | |
| 6 | Government purchasing volatility | | | |
| 7 | Government regulatory burden | | | |
| 8 | Healthcare | | | |
| 9 | Labor availability | | | |
| 10 | Labor costs | | | |
| 11 | Material price volatility | | | |
| 12 | New production methods | | | |
| 13 | New products | | | |
| 14 | Non-US material availability | | | |
| 15 | Non-US supplier reliability | | | |
| 16 | Pension costs | | | |
| 17 | Proximity to customers | | | |
| 18 | Proximity to suppliers | | | |
| 19 | Reduction in U.S. Government demand | | | |
| 20 | Qualifications/certifications | | | |
| 21 | Quality of inputs | | | |
| 22 | R&D costs | | | |
| 23 | Taxes | | | |
| 24 | U.S. material availability | | | |
| 25 | U.S. supplier reliability | | | |
| 26 | Worker/skills retention | | | |
| 27 | Other | | | |

Comments:



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## Section 5: Competitiveness and Outlook

In parts A and B, identify three key actions your organization has taken or plans to take to **improve competitiveness**. Select general improvement categories from the dropdown menu and provide an explanation for each. General areas include: business restructuring; capital investment; customer service improvements; innovation, R&D, and design improvements; marketing improvements; qualitfy control improvements; staff adjustments.

**A** Improvement actions taken since 2010.

| | Improvement Action (select from dropdown) | Explanation of Action (write-in) |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |

**B** Improvement actions anticipated within the next five years.

| | Improvement Action (select from dropdown) | Explanation of Action (write-in) |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |

**C** From the list of programs below, identify the key developments your organization anticipates will affect the U.S. **titanium** industry over the next five years. Utilize the **OTHER** options for programs and/or systems not listed. Provide a brief explanation of the impact.

| | Program/System Name | Impact Yes/No | Explanation (write-in) |
|---|---|---|---|
| Military Aircraft | | | |
| 1 | F-35 Joint Strike Fighter | | |
| 2 | Other fixed wing military aircraft (specify model) | | |
| 3 | Other fixed wing military aircraft (specify model) | | |
| 4 | Rotary wing military aircraft (specify model) | | |
| 5 | Rotary wing military aircraft (specify model) | | |
| Commercial Aircraft | | | |
| 6 | Boeing 787 | | |
| 7 | Other Boeing aircraft (specify model) | | |
| 8 | Airbus A350 | | |
| 9 | Other Airbus aircraft (specify model) | | |
| 10 | Other aircraft (specify manufacturer/model) | | |
| 11 | Other aircraft (specify manufacturer/model) | | |
| Aircraft Engines by Manufacturer (specify model) | | | |
| 12 | CFM International* | | |
| 13 | Engine Alliance** | | |
| 14 | General Electric Aviation | | |
| 15 | Pratt & Whitney | | |
| 16 | Honeywell | | |
| 17 | Rolls Royce | | |
| 18 | Other (specify) | | |
| Non-Aerospace Programs/Systems (select general sector category from the dropdown and provide additional detail in comments). | | | |
| 19 | | | |
| 20 | | | |
| 21 | | | |
| 22 | | | |

*CFM International is a joint venture between General Electric Aviation and Snecma. Models include CFM56 and LEAP.
**Engine Alliance is a joint venture between General Electric Aviation and Pratt and Whitney. Models include the GP7000 series.

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## Section 6a: U.S. Government and DOD Participation

| | On a scale of 1-5 (1 = not dependent; 5 = highly dependent), specify the dependency of your organization on: | Type of Operation (select from dropdown) | | Provide a brief explanation (write-in) |
|---|---|---|---|---|
| | | Titanium-Related | Non-Titanium Related | |
| A | U.S. Government defense demand | | | |
| | U.S. Government non-defense demand | | | |
| | Commercial demand | | | |

| | | |
|---|---|---|
| B | In the event of a rapid decline in U.S. Government demand for **titanium**-related products/services, can your organization readily convert your U.S. Government business lines to commercial, non-government business lines? (select from dropdown) | |
| | Estimate the percentage of your U.S. Government **titanium**-related business lines that are readily compatible with commercial business lines. (select from dropdown) | |
| | Does your organization consider itself dependent upon current U.S. Government programs for its continued viability? Explain your response below. | |
| | | |

| | From the list below, select the potential impacts that a sudden decrease in direct and/or indirect U.S. Government demand would have on your organization: | | | |
|---|---|---|---|---|
| C | Decreased capital expenditures | | Movement of operations to non-U.S. locations | |
| | Decreased research & development expenditures | | Pursuit of new product/service lines | |
| | Disproportionate reduction in sales revenue | | Pursue non-U.S. customers | |
| | Elimination of all participation in U.S. Government contracts | | Pursuit of other U.S. customers | |
| | Increased product/service costs (ex. an increase in per unit cost) | | Reduced participation in U.S. Government contracts | |
| | Loss of organization viability or solvency | | Reduction or elimination of particular product lines | |
| | Loss of personnel with key skills | | Sale of key production equipment | |
| | Other (specify here) | | Other (specify here) | |

| | | |
|---|---|---|
| D | Since 2010, has your organization received a rated order (DO or DX) from a U.S. Government agency and/or affiliated contractor? A rated order means a prime contract, a subcontract, or a purchase order in support of an approved program issued in accordance with the provisions of the Defense Priorities and Allocation System (DPAS) regulations (15 CFR part 700). | |

| | |
|---|---|
| Comments: | |

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## Section 6b: U.S. Government and DOD Participation

| | | | |
|---|---|---|---|
| A | Since 2010, has your organization directly or indirectly supported any U.S. Government agencies or programs? If no, proceed to section 7. If yes, complete part B below. | | |

B

From the list of U.S. Government agencies below, select those your organization has supported since 2010. Indicate whether **titanium**-related support, **non-titanium** related supportm, or both types of support were provided.

| | | | | | | |
|---|---|---|---|---|---|---|
| U.S. Air Force | | U.S. Intelligence Community (such as CIA, NGA, NRO, NSA) | | Department of Energy (DOE) | | |
| U.S. Army | | Missile Defense Agency (MDA) | | Defense Logistics Agency (DLA) | | |
| U.S. Marine Corps | | National Aeronautics & Space Administration (NASA) | | Other | (specify here) | |
| U.S. Navy | | National Oceanic & Atmospheric Administration (NOAA) | | Other | (specify here) | |

C

Identify the specific U.S. Government programs/systems your organization has supported since 2010. In the first column, write-in the **GOVERNMENT PROGRAM/SYSTEM NAME.** Provide as much detail as possible and spell out all acronyms. The **AGENCY NAME** column dropdown will be populated with the agencies you identified above (in part B), select the applicable agency.

In the **TITANIUM-RELATED PRODUCT** columns, select the specific **titanium**-related products your organization provides in support of the specific program/system. In the final column, select a **NON-TITANIUM PRODUCT** your organization provides in support of that program. The dropdown options for the **TITANIUM-RELATED PRODUCT** and **NON-TITANIUM PRODUCT** columns are based on the products identified in Section 2. If additional products are provided in support of a specific government program/system, repeat the program/system on a new row and select the remaining products.

**NOTE:** If your organization is unsure of the specific **GOVERNMENT PROGRAM/SYSTEM NAME** or **AGENCY NAME**, provide as much information as possible. Do not disclose any classified information.

| | Government Program/System Name (write-in) | Agency Name (select from dropdown) | Titanium-Related Product 1 (select from dropdown) | Titanium-Related Product 2 (select from dropdown) | Titanium-Related Product 3 (select from dropdown) | Titanium-Related Product 4 (select from dropdown) | Titanium-Related Product 5 (select from dropdown) | Non-Titanium Product (select from dropdown) |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |

Comments:



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## Section 7: Sales

Provide your U.S. operation's 2010-2013 U.S. and non-U.S. sales information. In part A, provide your organization's **total sales** and a breakout of those sales in lines 1 and 2 (should sum to 100%). In part B, provide your organization's total **titanium-related sales** and a breakout of those sales in lines 1 and 2 (should sum to 100%). For 2014, estimate the percentage change in **total sales** and **titanium-related sales** (from 2013).

*Government sales include direct sales to government customers and indirect sales to government customers (such as sales through a prime contractor). All sales with government end uses should be reported as government sales.

**Note:** Ensure your **Source of Sales Data** is consistent with your response in section 1a. In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

| | |
|---|---|
| Source of Sales Data: | |
| Reporting Schedule: | |

| "U.S." means U.S. domestic sales; "Non-U.S." means export sales from U.S. locations | Record in $ Thousands, e.g. $12,000.00 = survey input $12 | | | | | | | | Record as Percent Change from 2013 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2010 | | 2011 | | 2012 | | 2013 | | 2014* | |
| | U.S. | Non-U.S. | U.S. | Non-U.S. | U.S. | Non-U.S. | U.S. | Non-U.S. | U.S. | Non-U.S. |
| A Total Sales, all Customers | | | | | | | | | | |
| 1 Total Non-Government Sales [as a % of line A] | | | | | | | | | | |
| 2 *Total Government Sales [as a % of line A] | | | | | | | | | | |
| Lines 1 & 2 must sum to 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | |
| B Total Titanium-Related Sales | | | | | | | | | | |
| 1 Titanium-Related Non-Government Sales [as a % of line B] | | | | | | | | | | |
| 2 *Titanium-Related Government Sales [as a % of line B] | | | | | | | | | | |
| Lines 1 & 2 must sum to 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | |
| a *Titanium-Related U.S. Government Defense Sales [as a % of line B] | | | | | | | | | | |
| b *Titanium-Related U.S. Government, Non-Defense Sales [as a % of line B] | | | | | | | | | | |

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## Section 8: Customers

A

Identify your leading direct customers for **titanium**-related business lines based on average annual sales 2010-2013. Provide the **DIRECT CUSTOMER NAME**, and their location (**City, State, Country**). Estimate the **AVERAGE ANNUAL SALES 2010-2013** (in thousands) to each customer, and select the **titanium**-related products your organization provided to each.

| | Direct Customer Name (write-in) | City | State | Country | Average Annual Sales 2010-2013 (in $1,000's) (write-in) | Titanium Product Provided 1 (select from dropdown) | Titanium Product Provided 2 (select from dropdown) | Titanium Product Provided 3 (select from dropdown) |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |

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## Section 9: Financials

Report line items from your organization's financial statement for years 2010-2013. From the drop-down indicate whether the reported income statement and balance sheet line items are Business Unit/Division or Corporate/Whole Organization financials.

**Note:** Ensure your **Source of Financial Line Items** is consistent with your response in section 1a. This means if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

| | |
|---|---|
| Source of Financial Line Items: | |
| Reporting Schedule: | |

| | Income Statement (Select Line Items) | Record in $ Thousands, e.g. $12,000.00 = survey input of $12 | | | |
|---|---|---|---|---|---|
| | | 2010 | 2011 | 2012 | 2013 |
| A | Net Sales (and other revenue) | | | | |
| B | Cost of Goods Sold | | | | |
| C | Total Operating Income (Loss) | | | | |
| D | Earnings Before Interest and Taxes | | | | |
| E | Net Income | | | | |

| | Balance Sheet (Select Line Items) | Record in $ Thousands, e.g. $12,000.00 = survey input of $12 | | | |
|---|---|---|---|---|---|
| | | 2010 | 2011 | 2012 | 2013 |
| A | Cash | | | | |
| B | Inventories | | | | |
| C | Total Current Assets | | | | |
| D | Total Assets | | | | |
| E | Total Current Liabilities | | | | |
| F | Total Liabilities | | | | |
| G | Retained Earnings | | | | |
| H | Total Owner's Equity* | | | | |

*Total Owner's Equity (line H in the Balance Sheet) should equal Total Assets less Total Liabilities.

| | |
|---|---|
| Comments: | |

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## Section 10: Workforce

Record the total number of full-time equivalent (FTE) employees in your U.S.-based operations for the 2010-2013 period. Then, estimate the percentage of these employees that perform the professional occupations indicated in parts a-i.

Do not double count personnel who may perform cross-operational roles. Estimates are encouraged.

Note: Ensure your **Source of Workforce Data** is consistent with your response in section 1a. In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

| | |
|---|---|
| Source of Workforce Data: | |
| Reporting Schedule: | |

| | | | | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|
| A | | | Professional Occupations | | | | |
| | 1 | | Total Full-Time Equivalent (FTE) Employees | | | | |
| | | a | Administrative, Management, & Legal Staff [as a % of line 1] | | | | |
| | | b | Engineers, Scientists, and R&D Staff [as a % of line 1] | | | | |
| | | c | Facility & Maintenance Staff [as a % of line 1] | | | | |
| | | d | Information Technology Professionals [as a % of line 1] | | | | |
| | | e | Marketing & Sales [as a % of line 1] | | | | |
| | | f | Production Line Workers [as a % of line 1] | | | | |
| | | g | Testing Operators, Quality Control, & Support Technicians [as a % of line 1] | | | | |
| | | h | Other (specify here) | | | | |
| | | i | Other (specify here) | | | | |
| | | | Lines a through i must sum to 100% | 0% | 0% | 0% | 0% |
| | 2 | | Estimate the percentage of your total FTEs that work on **titanium-**related business lines [as a % of line 1]: | | | | |

| | | |
|---|---|---|
| B | Does your organization have difficulty hiring and/or retaining any of your workforce? If so, provide a brief explanation. | |

Identify any unique **titanium-**related skills/competencies that are essential to your organization. Identify the general type of skill/competency from the drop-down menu then describe it in the right hand box.

| C | | Type of Skill/Competency (select from dropdown) | Explanation (write-in) |
|---|---|---|---|
| | 1 | | |
| | 2 | | |
| | 3 | | |
| | 4 | | |
| | 5 | | |

| | |
|---|---|
| Comments: | |

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## Section 11: Research and Development

Estimate your company's total research and development (R&D) dollar expenditures for the years 2010 to 2013. In addition, estimate the percentage of total R&D expenditures related to **titanium**-related business lines and **defense** business lines. Next, detail the source of your organization's R&D funds.

Note: Ensure your **Source of R&D Reporting** is consistent with your response in section 1a. In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

| | |
|---|---|
| Source of R&D Reporting: | |
| R&D Reporting Schedule: | |

| | | **R&D Expenditures** | Record in $ Thousands, e.g. $12,000.00 = survey input of $12 | | | |
|---|---|---|---|---|---|---|
| | | | **2010** | **2011** | **2012** | **2013** |
| A | | Total R&D Expenditures | | | | |
| | 1 | Basic Research [as a % of A] | | | | |
| | 2 | Applied Research [as a % of A] | | | | |
| | 3 | Product/Process Development [as a % of A] | | | | |
| | | Lines 1 through 3 must sum to 100% | 0% | 0% | 0% | 0% |
| | 4 | Titanium-related R&D Expenditures [as a % of A] | | | | |
| | 5 | Defense-related R&D Expenditures [as a % of A] | | | | |

| | | **R&D Funding Sources** | Record in $ Thousands, e.g. $12,000.00 = survey input of $12 | | | |
|---|---|---|---|---|---|---|
| | | | **2010** | **2011** | **2012** | **2013** |
| B | | Total R&D Funding Sources | | | | |
| | 1 | Internal/Self-Funded/IRAD [as a % of B] | | | | |
| | 2 | Total Federal Government [as a % of B] | | | | |
| | 3 | Total State and Local Government [as a % of B] | | | | |
| | 4 | Universities - Public and Private [as a % of B] | | | | |
| | 5 | U.S. Industry, Venture Capital, Non-Profit [as a % of B] | | | | |
| | 6 | Non-U.S. Investors [as a % of B] | | | | |
| | 7 | Other (specify here) | | | | |
| | | Lines 1 through 7 must sum to 100% | 0% | 0% | 0% | 0% |
| C | | Please provide a brief description of your organization's **titanium**-related R&D activities. | | | | |

| | |
|---|---|
| Comments: | |

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## Section 12: Capital Expenditures

Record your organization's capital expenditures corresponding to the select categories below.

Note: Ensure your **Source of Capital Expenditure Data** is consistent with your response in section 1a. In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

| | |
|---|---|
| Source of Capital Expenditure Data: | |
| Capital Expenditure Reporting Schedule: | |

| | | Capital Expenditure Category | | Record in $ Thousands, e.g. $12,000.00 = survey input of $12 | | | |
|---|---|---|---|---|---|---|---|
| | | | | 2010 | 2011 | 2012 | 2013 |
| A | | Total Capital Expenditures | | | | | |
| | 1 | Machinery, Equipment, & Vehicles [as a % of A] | | | | | |
| | 2 | IT, Computers, Software [as a % of A] | | | | | |
| | 3 | Land, Buildings, & Leasehold Improvements [as a % of A] | | | | | |
| | 4 | Other | (specify here) | | | | |
| | 5 | Other | (specify here) | | | | |
| | | Lines 1 through 5 must sum to 100% | | 0% | 0% | 0% | 0% |
| | 6 | **Titanium**-related capital expenditures [as a % of A] | | | | | |

| | | |
|---|---|---|
| B | From 2010-2013, were your organization's capital expenditures adversely impacted by reductions in U.S. Government defense spending, or do you anticipate them to be in the future? Explain your response below. | |
| | | |

C Identify any unique or critical equipment, infrastructure, and/or facilities owned and/or operated by your organization for **titanium**-related applications. Provide a brief description of each.

| | Type of Equipment, Infrastructure, or Facility (select from dropdown) | Description (write-in) |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

| | |
|---|---|
| Comments: | |

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NOTICE: PDF is for internal data collection purposes only, BIS will only accept Excel-formatted survey responses. This survey utilizes dropdowns menu options not visible in PDF format.

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## Section 13: Certification

The undersigned certifies that the information herein supplied in response to this questionnaire is complete and correct to the best of his/her knowledge. It is a criminal offense to willfully make a false statement or representation to any department or agency of the United States Government as to any matter within its jurisdiction (18 U.S.C.A. 1001 (1984 & SUPP. 1197)).

| | |
|---|---|
| Organization Name: | |
| Organization's Internet Address: | |
| Name of Authorizing Official: | |
| Title of Authorizing Official: | |
| E-mail Address: | |
| Phone Number and Extension: | |
| Date Certified: | |

In the box below, provide any additional comments or any other information you wish to include regarding this survey assessment.

| | |
|---|---|
| How many hours did it take to complete this survey? | |

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**