Next Pa OMB Control Number: 0694-0120 Expiration Date: March 31, 2020 Section 232 Investigation: The Effect of Imports of Titanium Sponge on U.S. National Security **Producers and Melters Survey** SCOPE OF ASSESSMENT The U.S. Department of Commerce, Bureau of Industry and Security (BIS), Office of Technology Evaluation (OTE), is conducting a survey of U.S. titanium sponge production and titanium production. The survey results will be used to support an ongoing investigation of the effect of imports of titanium sponge on U.S. national security initiated under Section 232 of the Trade Expansion Act of 1962, as amended. The principal goal of this survey is to assist the U.S. Department of Commerce in determining whether titanium sponge is being imported into the United States in such quantities or under such circumstances as to threaten to impair the national security. Information collected will include facilities and production data, mergers and acquisitions, joint ventures, imports and exports, supply chain networks, customers, sales and demand data, employment information, conditions of domestic and global competition, research and development, and other factors. The resulting data will provide the U.S. Department of Commerce detailed titanium industry information that is otherwise not publicly available and needed to effectively conduct this Section 232 investigation. **RESPONSE TO THIS SURVEY IS REQUIRED BY LAW** A response to this survey is required by law (50 U.S.C. Sec. 4555). 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 Information furnished herewith is deemed confidential and will not be published or disclosed except in accordance with Section 705 of the Defense Production Act of 1950, as amended (50 U.S.C. Sec. 4555). 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. Notwithstanding 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 11 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. 0694-0120), Washington, D.C. 20503.

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| | III. General Instructions |
| | Your organization is required to complete this survey of U.S. titanium sponge production and titanium production, using an Excel template, which can be downloaded from the BIS website: <u>http://www.bis.doc.gov/TiSponge232</u> |
| Α. | If you are unable to download the survey document, at your request, BIS survey support staff will e-mail the Excel survey template directly to you. |
| | For your convenience, a PDF version of the survey and required drop-down content is available on the BIS website to aid internal data collection. DO NOT SUBMIT the PDF version of the survey as your response to BIS. Should this occur, your organization will be required to resubmit the survey in the requested Excel format. |
| В. | Respond to every question. Surveys that are not fully completed will be returned for completion. Use the comment boxes to provide any information to supplement responses provided in the survey form. Make sure to record a complete answer in the space provided, even if the space does not appear to expand to fit all of the information. This is a comprehensive survey of sponge production and consumption. As such, some questions may not be relevant to your organization. Read each question carefully to ensure its applicability to your organization . |
| | DO NOT CUT AND PASTE RESPONSES WITHIN THIS SURVEY OR PASTE IN RESPONSES FROM OUTSIDE THE SURVEY. Survey inputs should be completed by typing in responses or by using a drop-down menu. The use of cut and paste can corrupt the survey template. If your survey response is corrupted as a result of cut and paste response, your survey will be rejected and your organization must immediately resubmit the survey. |
| C. | Do not disclose any USG classified information in this survey form. |
| D. | Upon completion of the survey, final review, and certification, transmit the survey document via e-mail to: <u>Titanium232@bis.doc.gov</u> |
| | Questions related to the survey should be directed to BIS survey support staff at <u>Titanium232@bis.doc.gov</u> . |
| E. | E-mail is the preferred method of contact. |
| | You may speak with a member of the BIS survey support staff by calling (202) 482-3110. |
| | For questions related to the overall scope of this Section 232 Investigation, contact <u>Titanium232@bis.doc.gov</u> or: |
| F. | Brad Botwin, Director, Industrial Studies Office of Technology Evaluation, BIS, Room 1093 U.S. Department of Commerce 1401 Constitution Avenue, NW Washington, DC 20230 |
| | DO NOT submit completed surveys to Mr. Botwin's postal or personal e-mail address. All surveys must be submitted electronically to: <u>Titanium232@bis.doc.gov</u> |
| | BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act |

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| Term | IV. Definitions Definition |
| Authorizing Official | An executive officer of the organization or business unit or another individual who has the authority to execute this survey on behalf of the organization. |
| 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. |
| 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. |
| Capital Expenditures | Investments made by an organization in buildings, equipment, property, and systems where the expense is depreciated. This does not include expenditures for consumable materials, other operating expenses, and salaries associated with normal business operations. |
| Chlorination | As applied to titanium sponge production, chlorination is the process in which chlorine gas is introduced to rutile or ilmenite ore to produce titanium tetrachloride. |
| Crushing/Shearing | The process by which large masses of titanium sponge produced via chemical methods are reduced to smaller sizes suitable for melting into ingots and other forms. |
| Customer | Any organization (external or internal entity) for which your organization manufactures/processes any product comprised of, or containing, titanium in any form. |
| DPAS | The purpose of DPAS is to assure the timely availability of industrial resources to meet current national defense and emergency preparedness program requirements and to provide an operating system to support rapid industrial response in a national emergency. The Defense Production Act of 1950 authorized the President to require preferential treatment of national defense programs. |
| Electrolysis | As applied to titanium sponge production, electrolysis is the process used to separate magnesium and chloride into magnesium and chlorine, resulting in the recycling of magnesium and chlorine. |
| Exports | Shipments to destinations outside the United States, including shipments to Canada and Mexico. |
| Facility | A building or the minimum complex of buildings or parts of buildings in which an organization operates to serve a particular function, producing revenue, and incurring costs for the company. A facility may produce an item of tangible or intangible property or may perform a service. It may encompass a floor or group of floors within a building, a single building, or a group of buildings or structures. Often, a facility is a group of related locations at which organization employees work, together constituting a profit-and-loss center for the company, and it may be identified by a unique DUNS number. |
| Finishing | Finishing treats the exterior of a metal product with the application of a thin complementary layer. Finishing is performed to improve a metal object's appearance and/or durability, titanium finishing steps include heat treating, machining, grinding, sizing, cutting, flattening and other surface preparation processes as well as inspection and testing processes to ready the product for shipment to customers |
| Forging | This process shapes titanium metal through the application of localized compressive forces, usually a hammer or die. It can be performed at various temperatures depending on the requirement for the final product. |
| 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. |
| Full Time Equivalent (FTE) Contractors | Contractors who work for 40 hours in a normal work week. Convert part-time contractors into "full time equivalents" by taking their work hours as a fraction of 40 hours. |
| Global Headquarters | A location that serves as the organization's hub of worldwide operations with all global branches or divisions reporting to it. |
| Harmonized Tariff Schedule (HTS) | A 10-digit numbering system that classifies a good based on its name, use, and/or the material used in its construction. The number provides Customs and Border Protection (CBP) with a standardized method of tracking all merchandise imported into the United States and sets out the tariff rates and statistical categories. |
| Import Value | Values reported should be the CIF duty un-paid value. |
| Inventory | The goods or materials an organization holds for its own use or for the ultimate goal of sale, or disposition or future conversion, enrichment, fabrication, or other use. This is material to which your organization has title; this does not include holding material for third-party use or storage. |

| MettingThis process heats thanium metal feedstock, including both scrap, sponge, and any alloy additions. This step is required to produce semi-debricated thanium products, such a ingots.MultingThis is the process of converting ingots and other metted forms into downstream products such as billet, bar, is and finabring.MultingThis is the process of converting ingots and other metted forms into downstream products such as billet, bar, is and finabring.MultingThis is the process of converting ingots and other metted forms into downstream products or broning.Major Non NATO Ally SalesSales of thanium products to militaries of Adphanistan, Argentina, Australia, Bahrain, Brand, Lephnie, Alepahie, Creati, C | | 50129 |
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| NATO Military SalesUnited States. These states include Albania, Belgium, Bulgaria, Canada, Croatia, Crech Republic, Demmark, Escolas, Prance, Germany, Grecce, Hungary, Iedinal, Lavia, Libunaia, Lucembourg, Montenego, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, and the United KingdomNon-U.S. FacilityA facility that is physically located outside of the United States.OrganizationA company, firm, laboratory, or other entity that owns or controls one or more U.S. establishment or facility involved in titanium production or consumption.Product/Process DevelopmentThe 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.Product/Process DevelopmentBasic and applied research in the engineering sciences, as well as design and development of prototype products and processes. Efforts that an organization conducts towards innovating, introducing and/or improving products and processes. Efforts that an organization conducts towards innovating, introducing and/or improving products and processes. Efforts that an organization conducts towards innovating, introducing and/or improving products and processes.SpongeStatesAll reported and unreported sales of titanium, including sales to end-users, and sales within divisions of the organization.Sponge - Standard CualityTitanium metal that is recovered from the reduction of titanium tetrachloride. This is most frequently achieved through the Knoil process.Sponge - Non-Rotating GradeTitanium, sponge with chemical compositions suitable for use in aerospace applications such as blade rotors, shats, fin and compressor blades, and other static aerospace s | Major Non-NATO Ally Sales | Japan, Jordan, Kuwait, Morocco, New Zealand, Pakistan, the Philippines, Republic of Korea (South Korea), |
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| United States Territories, and the U.S. Virgin Islands. Vacuum Distillation Reduction of titanium tetrachloride with magnesium metal in a reactor followed by a distillation process to | Titanium-Related | Components/products produced and/or consumed by your organization that contain titanium metal. |
| Vacuum Distillation | United States | |
| BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act | Vacuum Distillation | remove magnesium and chlorine impurities. |

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| | | | 1. Orgai | nization Information | | | |
| | Provide the following information for your organiza | tion | | | | | |
| | Organization Name | | | | | | |
| | Street Address | | | | | | |
| | City | | | | | | |
| Α. | State ZIP Code | | | | | | |
| | Country of Global Headquarters | | | | | | |
| | U.S. Point of Contact Name | | | | | | |
| | U.S. Point of Contact Email | | | | | | |
| | U.S. Point of Contact Phone | | | | | | |
| | Is this organization owned, in whole or in part, by a | ny priva | ate or government entity? In | dicate Yes/No, then identify th | e entities below, if applicable | e. List entities | |
| | with at least 5% ownership. | | | | | | |
| | Entity Name Glo | hal Hea | dquarters Street Address | Global Headquarters City | Global Headquarters | Global Headquarters | Ownership % |
| | | barrica | aquarters street riduress | elobar neuaquarters eley | State/Province | Country | Ownership / |
| В. | | | | | | | |
| l | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | For the listed titanium related activities, record the | numbe | er of facilities your organization | on owns that conduct these ac | tivities. If one facility does m | ore than one of the listed ac | tivities, count it |
| | in each category. | | | | | | |
| | | | Number of U.C. | Leasted Facilities | Niuminau af | New U.C. Leaster Teaching | |
| | Activities | | Number of U.S. | Located Facilities | Number of | Non-U.S. Located Facilities | |
| | Titerium Conner Draduation | | | | | | |
| | Titanium Sponge Production | | | | | | |
| | Titanium Melting | | | | | | |
| | | | | | | | |
| | Titanium Recycling | | | | | | |
| | Titanium Casting | | | | | | |
| | | | | | | | |
| | Titanium Milling | | | | | | |
| | Titanium Forging | | | | | | |
| | | | | | | | |
| _ | Titanium Finishing | | | | | | |
| C. | Aerospace Structural Parts (e.g. spars, ribs) | | | | | | |
| | | | | | | | |
| | Aerospace High-impact Parts (e.g. landing gear) | | | | | | |
| | Aerospace External Engine Parts (e.g. cowl, fan) | | | | | | |
| | Aerospace Internal Engine Parts (e.g. low pressure | | | | | | |
| | compressor) | | | | | | |
| | | | | | | | |
| | Titanium Satellite Components/Finished Parts | | | | | | |
| | Land-Based Turbine Engine and Structural Parts | | | | | | |
| | Manifina Turkina Frains and Churchard Danta | | | | | | |
| | Maritime Turbine Engine and Structural Parts | | | | | | |
| | Chemical Processing Equipment (e.g. tubing) | | | | | | |
| | Specialty Titanium Parts Manufacturing (not to inclu | ude | | | | | |
| | aerospace) | | | | | | |
| | Other (Explain in Comments) | | l | | | | |
| | | | | | | | |
| | Comments: | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | ROS | SINESS CONFIDENTIAL - Per S | ection 705(d) of the Defense | Production Act | | |

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|-----|----------|--|--------------------------|---|--|-----------------------|---|---|-----------|
| | | | | | | | uisitions, Divestitures and Joint | | |
| | | | | | | Merge | ers, Acquisitions, and Divestiture | es | |
| | | 2015-2019, record the total num o report related private/public p | | | | ictivities, product o | development and design, and R8 | D activities. Be | |
| | Identi | fy your organization's mergers, a | acquisitions, and div | estitures below, if applicable. | | | | | |
| | | Organization Name | Type of Activity | % of Equity Held by Partner Organization | Partner Organization Country Headquarters | Year Initiated | Primary Scope of Activity | Primary Purpose of Activity | Explain |
| | 1 | | | | | | see below section | | |
| | 2 | | | | | | | | |
| | 3 | | | | | | | | |
| Α. | 4 | | | | | | | | |
| | 5 | | | | | | | | |
| | 6 | | | | | | | | |
| | 7 | | | | | | | | |
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| | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| | 10 | | | | | | Joint Ventures | | |
| | | | | | | | | | |
| | | 2015-2019, record the total num ling public/private partnerships, | | | hips related to all titanium | related activities, p | product development and design | , and R&D, | |
| | Identi | fy your organization's joint vent | ure relationships bel | ow, if applicable. | | | | · | |
| | | Organization Name | Type of Joint Venture | % of Equity Held by Organization | Organization Country Headquarters | Year Initiated | Primary Scope of Relationship | Primary Purpose of Relationship | Explain |
| | 1 | | | | | | Titanium Sponge Production | | |
| | 2 | | | | | | Titanium Melting | | |
| | 3 | | | | | | Titanium Recycling | | |
| в. | 4 | | | | | | Titanium Casting | | |
| | 5 | | | | | | Titanium Milling | | |
| | 6 | | | | | | Titanium Forging | | |
| | 7 | | | | | | Titanium Finishing | | |
| | 8 | | | | | | Titanium Ore Mining | | |
| | 9 10 | | | | | | Aerospace Structural Parts | | |
| | 10 | | | | | | Aerospace High-impact Parts | | |
| | 12 | | | | | | Aerospace External Engine | Chaminal Processing Fauitament (s. s. | |
| | 12 | | | | | <u> </u> | Aerospace Internal Engine Titanium Satellite | Chemical Processing Equipment (e.g. Specialty Titanium Parts Manufacturing | |
| | 14 | | | | | 1 | Land-Based Turbine Engine | Other (Explain in Comments) | |
| | 15 | | | 1 | | ł | Maritime Turbine Engine and | cale (explain in comments) | |
| | | | | | 1 | | | | 1 |
| | | Comments: | | | | | | | |
| - | | | | | BUSINE | SS CONFIDENTIAL | - Per Section 705(d) of the Defe | nse Production Act | |
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| Previous Page | | | | | 3. Facilities | | | | | | Next Page |
|---|---|-------------------------------------|---|---|---|---------------------------------------|---|---|---|--|---------------------------|
| | | | | | | | | | | | |
| Identify all of your organization's facilities with tit one operation, list each operation at the facility and | tanium related operations (e.g. sponge produced | ction, milling, forging, casting, a | nd components) including facili | ties that are on standby/idled. Provid | ie the LOCATION (U.S. and Non | U.S.) of the facility, indicate all o | operations at each facility using t | he drop down menus, and speci | fy any changes that may impact that fa | cility over the next five years. If a give | en facility has more than |
| one operation, list each operation at the facility a | nd the given operation's capacity on separate | lines. | | | | | | | | | |
| | | Location | | | Facility 0 | Operation | Facility | Capacity | | Outlook | |
| Facility Name | City State | Country | Facility Located in a Free Trade Zone? | Facility Located in an Opportunity Zone? | Operation Type | Facility Operating Status | Total Facility Capacity (MT) | Average Capacity Utilization Rate (Last Full Year of Operation) | Do you anticipate any significant changes in this particular operation the next five years? | If yes or unknown, provide a l | brief explanation. |
| 1 | | | y/n | Y/N | Titanium Sponge Production | | | | yes | | |
| 2 | | | 10 | 1/18 | Titanium Melting | | | | no | | |
| 3 | | | | | Titanium Recycling | | | | unknown | | |
| 4 5 | | | | | Titanium Casting Titanium Milling | | | | | | |
| 6 | | | | | Titanium Forging | | | | | | |
| 7 | | | | | Titanium Finishing | | | | | | |
| 8 | | | | | Titanium Ore Mining Aerospace Structural Parts | | | | | | |
| 9 10 | | | | | Aerospace High-impact Parts | | | | | | |
| 11 | | | | | Aerospace External Engine | | | | | | |
| 12 | | | | | Aerospace Internal Engine Titanium Satellite | | | | | | |
| 13 | | | | | Land-Based Turbine Engine | | | | | | |
| 15 | | | | | Maritime Turbine Engine and | | | | | | |
| 16 | | | | | Chemical Processing | | | | | | |
| 17 18 | | | | | Specialty Titanium Parts Other (Explain in Comments) | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| 21 22 | | | | | | | | | | | |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 26 | | | | | | | | | | | |
| 27 | | | | | | | | | | | |
| 28 29 30 | | | | | | | | | | | |
| 30 | | | | | | | | | | | |
| 31 | | | | | | | | | | | |
| 32 | | | | | | | | | | | |
| 33 34 | | | | | | | | | | | |
| 35 | | | | | | | | | | | |
| 36 | | | | | | | | | | | |
| 37 38 | | | | | | | | | | | |
| 39 | | | | | | | | | | | |
| 40 Has your organization benefited from being locate | | | | | | | | | | | |
| opportunity zones? If any of your organization's titanium sponge | production facilities were idled in the 2015-2 | 2019, or may be idled after 2019 | | | | | | | | | |
| | Facility Name | Possible to Restart? | Estimated Time to Restart (in | Estimated Total Cost to Restart (in | | biting Restart | Estimated Cost of Each Factor | Time to Reach 100% Capacity | Cost to Reach 100% Capacity | Factors Inhibiting 100% Cap | |
| - | , | | days) | \$1000s USD) | Factor | Degree of Impact High | (in \$1000s USD) | Utilization | Utilization | Factor | Degree of Impact |
| - | | | | | | - | | | | | High |
| | | | | | | Medium | | | | | Medium |
| 1 | | | | | | Low | | | | | Low |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Facility Name | Possible to Restart? | Estimated Time to Restart (in | Estimated Total Cost to Restart (in | Factors Inhi | biting Restart | Estimated Cost of Each Factor | Time to Reach 100% Capacity | Cost to Reach 100% Capacity | Factors Inhibiting 100% Cap | pcity Utilization |
| | Facility Name | Possible to Restart? | days) | \$1000s USD) | Factor | Degree of Impact | (in \$1000s USD) | Utilization | Utilization | Factor | Degree of Impact |
| - | | | | | | | | | | | |
| | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | Fasters lab | biting Restart | | | | Factors Inhibiting 100% Cap | a status Datificanation a |
| | Facility Name | Possible to Restart? | Estimated Time to Restart (in days) | Estimated Total Cost to Restart (in \$1000s USD) | Factors Inni Factor | Degree of Impact | Estimated Cost of Each Factor (in \$1000s USD) | Time to Reach 100% Capacity Utilization | Cost to Reach 100% Capacity Utilization | Factors Inhibiting 100% Cap Factor | Degree of Impact |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
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| | | | | | l | l | l | | | | L |
| For any idled sponge facilities, explain the | | | | | | | | | | | |
| circumstances that led to idling in the | | | | | | | | | | | |
| comment box to the right. | | | | | | | | | | | |
| | | | | | | | | | | | |
| Is your organization considering the | | | | | | | | | | | |
| development of expanded and/or new titanium production capacity, whether inside or outside | Y/N | | | | | | | | | | |
| the United States? If yes, describe. | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments: | | | | | | | | | | | |
| | | | | | | | | | | | |
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|------------|----------|--|-----------------------|-----------------------------------|-----------------------|-----------------------------------|-----------------------|-----------------------------------|-----------------------|-----------------------------------|------------------------|-----------------------------------|
| Indicate | if you | r organization produced sponge between the ye | ars 2015-2019 in | he box to the right | . If yes, complete | section A, B, and C. | If no, proceed to | section D. | | | | y/n |
| For year | s 2015 | -2019, provide the following capcity utilization ra | tes by facility and | aggregated producti | ion data for U.S. tit | tanium sponge pro | duction. If your org | sanization did not pr | oduce sponge duri | ing this time perio | d move to section B of | this tab. |
| 1 | | Facility Name | 2015 Capacity | Utilization Rate | 2016 Capacity | Utilization Rate | 2017 Capacity | Utilization Rate | 2018 Capacity | Utilization Rate | 2019 YTD (June) (| apacity Utilization Rate |
| | 1 | Tucing Hume | | | | | | | | | | |
| A | | | | | | | | | | | | |
| | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | | Type of Sponge (Record in Kilograms) | 2 | 015 | 2 | 016 | 2 | 017 | 20 | 018 | 20 | 19 (YTD) |
| | | | Kilograms Produced | Average cost per Kg to produce | Kilograms Produced | Average cost per Kg to produce |
| в | | | Produced | Kg to produce | Floudded | Ng to produce | Floduced | Kg to produce | Floduced | Kg to produce | | produce |
| 5 | 1 | Standard Quality | | | | | | | | | | |
| | 2 | Non-Rotating Aerospace | | | | | | | | | | |
| | 3 | Rotating Grade Total: | | | | | | | | | | |
| If your o | organiz | ation has obtained qualification/certification to p | roduce Aerospace | Rotating Grade spor | nge provide the fol | lowing. | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | 1 | Organization Certifying | | | | | | | | | | |
| с | 2 | Date of Certification | | | | | | | | | | |
| | 3 | Description of Certification Process | | | | | | | | | | |
| | 3 | Description of Certification Process | | | | | | | | | | |
| For all ti | tanium | products below answer the applicable questions | to your organizati | ons U.S. based prod | luction by year. Re | port all quantities in | kilograms for the | years 2015-2019. | | | | |
| | | Type of Titanium Metal (Record all Responses in Kilograms) | 2 | 015 | 2 | 016 | 2 | 017 | 20 | 018 | 2010 | (to date) |
| | | (Record all Responses in Kilograms) | 2 | | 2 | | 2 | | 20 | | 2015 | |
| | 1 | Titanium Ingot (Total) | | | | | | | | | | |
| | 1a | Titanium Ingot Containing Standard Quality | | | | | | | | | | |
| | - | Sponge | | | | | | | | | | |
| | 1b | Titanium Ingot Containing Aerospace Non- Rotating Sponge | | | | | | | | | | |
| | 1c | Titanium Ingot Containing Rotating Grade | | | | | | | | | | |
| | 2 | Sponge Titanium Billet (Total) | | | | | | | | | | |
| | 2 2a | Titanium Billet Containing Standard Quality | | | | | | | | | | |
| D | 2a 2b | Sponge Titanium Rillet Containing Aerospace Non- | | | | | | | | | | |
| | 20 2c | Rotating Soonge Titanium Billet Containing Rotating Grade | | | | | | | | | | |
| | 3 | Sponge Titanium Scrap | | | | | | | | | | |
| | 4 | Titanium Bar | | | | | | | | | | |
| | 5 | Titanium Plate | | | | | | | | | | |
| | 7 | Titanium Tube | | | | | | | | | | |
| | 8 | Titanium Tube | | | | | | | | | | |
| | 9 | Titanium Sheet (Cold Rolled) | | | | | | | | | | |
| | 10 | Titanium Coil | | | | | | | | | | |
| | | Other (Explain in Comments) | | | | | | | | | | |
| If your | | ation produces any of the below products indic | ate co in the box t | the right If yes o | omplete sections | and Elif no proce | ed to the next na | 10 | | | | y/n |
| n your | Jigania | | ate so in the box o | o the right. It yes, th | ompiete sections | e and P. II no, proce | eu to the next pa | se. | | | | 4/11 |
| | | Provide the median, and maximum quantities of titanium scrap that can be used for the | | Comments | | Me | dian Scrap Quantit | .y (%) | Ma | aximum Scrap Qua | ntity (%) | |
| | _ | following parts. | | | | | | | | | | |
| | 1 | Aerospace Structural Parts (e.g. spars, ribs) Aerospace High-impact Parts (e.g. landing | | | | | | | | | | |
| | 2 | Aerospace High-Impact Parts (e.g. landing eear) Aerospace External Engine Parts (e.g. cowl, | | | | | | | | | | |
| E | 3 | fan) Aerospace Internal Engine Parts (e.g. Jow | | | | | | | | | | |
| ć. | 4 | Aerospace Internal Engine Parts (e.g. low pressure compressor) Land-Based Turbine Engine and Structural | | | | | | | | | | |
| | 5 | Parts | | | | | | | | | | |
| | 6 | Maritime Turbine Engine and Structural Parts | | | | | | | | | | |
| | 7 | Chemical Processing Equipment (e.g. tubing) | | | | | | | | | | |
| | 8 | Titanium Satellite Components/Finished Parts | | | | | | | | | | |
| | 9 | Other (Explain in Comments) What percentage of your business (by weight) is used for defense products vs. commercial | | | | I | | | | | | 1 |
| | | is used for defense products vs. commercial products? | | Defense | Products | | | Commercia | ii Products | | Co | mments |
| | 1 | Aerospace Structural Parts (e.g. spars, ribs) | | | | | | | | | | |
| | 2 | Aerospace High-impact Parts (e.g. landing gear) | | | | | | | | | | |
| | 3 | Aerospace External Engine Parts (e.g. cowl, fan) | | | | | | | | | | |
| | 4 | Aerospace Internal Engine Parts (e.g. low | | | | | | | | | | |
| F | 5 | pressure compressor) Land-Based Turbine Engine and Structural | | | | | | | | | | |
| | 6 | Parts Maritime Turbine Engine and Structural Parts | | | | | | | | | | |
| | 7 | Chemical Processing Equipment (e.g. tubing) | | | | | | | | | | |
| | 8 | Titanium Satellite Components/Finished Parts | | | | | | | | | | |
| | 8 | Other (Explain in Comments) | | | | | | | | | | |
| | 9 | Total (Explain in comments if defense plus | | | | | | | | | | |
| | 10 | commercial does not equal 100%): | | | | | | | | | | |
| | | Comments: | | | | | | | | | | |

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| | age | | | | | | 5. Cost of Produc | | | | | |
|----------|--|-----------------------|---------------------|---|--|---|---|---|--|---------------------------|--|---------|
| or all 1 | facilities owned by your organization (U. Facility Location (City, State) | S. and non-U.S.) proc | Operating Status | Estimated Total Annual Operating Costs | Primary Inputs to Titanium Sponge Primary Inputs to Titanium Sponge Production | | | | | t 2018 YTD (June) Average | | Explain |
| | | | | costs | | of input osed | of input osed | of input osed | of input osed | Annual cost of input osed | Annual cost of input osed | |
| ŀ | | | operating/idled | | Labor | | | | | | | |
| | | | | | Electricity Rutile | | | | | | | |
| | | | | | Ilmenite | | | | | | | |
| | | | | | Coke | | | | | | | |
| | | | | | Chlorine | | | | | | | |
| | | | | | Magnesium | | | | | | | |
| | | | | | TiCl4 | | | | | | | |
| | | | | | Slag Inert Gas | | | | | | | |
| | | | | | Transportation | | | | | | | |
| | | | | | Other Facility Overhead Costs | | | | | | | |
| t | | | | | Labor | | | | | | | |
| ſ | | | | | Electricity | | | | - | | | |
| I | | - | | | Rutile | | | | | | | |
| l | | | | | Ilmenite Coke | | | | | | | |
| l | | | | | Coke | | | | | | | |
| L | | | | | Magnesium | | | | | | | |
| l | | | | | TiCl4 | | | | | | | |
| l | | | | | Slag | | | | | | | |
| l | | | | | Inert Gas | | | | | | | |
| l | | | | | Transportation | | | | | | | |
| ļ | | | | | Other Facility Overhead Costs | | | | | | | |
| ŀ | | | | | Labor | | | | | | | |
| l | | | | | Electricity Rutile | | | | | | | |
| L | | | | | Ilmenite | | | | | | | |
| L | | | | | Coke | | | | | | | |
| L | | | | | Chlorine | | | | | | | |
| l | | | | | Magnesium | | | | | | | |
| l | | | | | TiCl4 | | | | | | | |
| l | | | | | Slag | | | | | | | |
| | | | | | Inert Gas Transportation | | | | | | | |
| | | | <u> </u> | | Other Facility Overhead Costs | | | | | | | |
| t | | 1 | · | | outer rucinty overhead costs | | I I | | | | | |
| 1 | of your organization's U.S. and non-U.S. | Comments: | se the drop down t | to select all relevant input costs. The val | ues presented should be an average of | all of your organization's ing | got production operations. A | II dollar values should be re | ported as \$1000s USD. | | | |
| | | Primary | Inputs to Titaniur | n Ingot Production | | 2015 Average Annual Cost of Input Used | 2016 Average Annual Cost of Input Used | 2017 Average Annual Cost of Input Used | 2018 Average Annual Cos of Input Used | t 2018 YTD (June) Average | 2019 YTD (June) Average Annual Cost of Input Used | |
| | | | Labor | | | of input osed | of input osed | or input osed | or input osed | sumal cost of input used | sumour cost or input Used | |
| | | | Electricit | | | | | | | | | |
| | | | Titanium Sp | | | | | | | 1 | | |
| | | | Aluminu | | | | | | | 1 | | |
| | | | Vanadiu | m | | | | | | | | |
| | | Other All | | pecify in Comments) | | | | | | | | |
| | | | Transporta | | | | | | | | | |
| | | - | Other Facility Ove | rhead Costs | | | | | | | | |
| | Comments: | | | | | | | | | | | |
| | | | | | | | | | | | | |

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|---|---|--|--|---|--|---|---|---|
| | | | 6. Su | rge Capacity | | | | |
| Provide the following information regarding y | your organization's U.S. 2018 production capaci | ty for the below titanium products: | | | | | | |
| | What is 2018 utilization rate averaged across U.S. facilites for the below products? | Current shift schedule (expressed as number of shifts/length of shift/days per week operational) | Time needed to re utilization | | Estimate costs to reach 100% capacity utilization? (USD) | Time needed to hire and train personnel to reach 100% capacity utilization? (Months) | Total additional number of FTE's required to reach 100% capacity utilization? | Shift Schedule under 100% capacity utilization (expressed as number of shifts/length of shift/days per week operational) |
| 1 Standard Quality Sponge | | | | | | | | |
| A 2 Aerospace Non-Rotating Sponge | | | | | | | | |
| 3 Rotating Sponge | | | | | | | | |
| 1 Titanium Ingot | | | | | | | | |
| 2 Titanium Billet | | | | | | | | |
| 3 Titanium Scrap | | | | | | | | |
| 4 Titanium Bar | | | | | | | | |
| B 5 Titanium Plate | | | | | | | | |
| 6 Titanium Sheet | | | | | | | | |
| 7 Titanium Tube | | | | | | | | |
| 8 Titanium Sheet | | | | | | | | |
| 9 Other (Explain in Comments) | | | | | | | | |
| | Do any factors exist that inhibit surge capacity beyond 100% capacity utilization? | If yes, list and descirbe the inhibiting factors. | Amount of Potential Surge Capacity Beyond 100% Capcity Utilization (MT) | Time needed to reach surge capacity? (Months) | Estimate costs to reach surge capacity? (USD) | Time needed to hire and train personnel to reach surge capacity? (Months) | Total additional number of FTE's required to reach surge capacity? | Shift Schedule under surge capcity (expressed as number of shifts/length of shift/days per week operational) |
| 1 Standard Quality Sponge | | | | | | | | |
| C 2 Aerospace Non-Rotating Sponge | | | | | | | | |
| 3 Rotating Sponge | | | | | | | | |
| 1 Titanium Ingot | Yes | | | | | | | |
| 2 Titanium Billet | No | | | | | | | |
| 3 Titanium Scrap | | | | | | | | |
| 4 Titanium Bar | | | | | | | | |
| D 5 Titanium Plate | | | | | | | | |
| 6 Titanium Sheet | | | | | | | | |
| 7 Titanium Tube | | | | | | | | |
| 8 Titanium Sheet | | | | | | | | |
| 9 Other (Explain in Comments) | | | | | | | | |
| Comments: | | | | | | | | |
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| Previous | Page | | 7. Facility Inve | ntory | | | | Next Page |
|--------------------------|--|--|---|---|-----------------------------|----------------------------|----------------------------|---------------------|
| Provide a | II U.S. inver | tories held directly or indirectly by you for the 2015 to 2018 period, current as of the | | | | | | |
| | | | | | | | | |
| | | | Working Inver | ntory | | | | |
| Indicate t | itanium you | ar organization maintains in working inventory, and the amounts of each in inventory f | or the 2015 to 2019 p | eriod. Report all amou | unts in kilograms. If your | organization has more th | an one alloy of a given pr | oduct in inventory, |
| list each a inventory | alloy separa / is defined | tely. (e.g., if your organization has Titanium Billet with Alloys A and B, provide two entr as the combination of work-in-progress material and finished material held as invento | ies for Titanium Billet ry in anticipation of fu | with 'A' in the Alloy co ture sales. | olumn for the first entry a | nd 'B' in the Alloy column | for the second). For this | question, working |
| | | | | | | | | 1 |
| | | Types of Titanium in Inventory | Alloy | 2015 | 2016 | 2017 | 2018 | Comments |
| | 2 | Titanium Sponge - Standard Grade Titanium Sponge - Rotating Grade | | | | | | |
| | 3 | Titanium Sponge - Aerospace Non-Rotating Grade | | | | | | |
| | 4 | Titanium Ingot Containg Standard Grade Sponge Titanium Ingot Containg Rotating Grade Sponge | | | | | | |
| | 6 | Titanium Ingot Containg Aerospace Non-Rotating Grade Sponge | | | | | | |
| | 7 | Titanium Billet Containing Standard Grade Sponge Titanium Billet Containing Rotating Grade Sponge | | | | | | |
| | 9 | Titanium Billet Containing Aerospace Non-Rotating Grade Sponge | | | | | | |
| | 10 | Titanium Scrap Titanium Bar | | | | | | |
| | 12 13 | Titanium Plate Titanium Sheet (Hot Rolled) | | | | | | |
| | 14 | Titanium Sheet (Cold Rolled) | | | | | | |
| | 15 16 | Titanium Tube Titanium Coil | | | | | | |
| | 17 | Titanium Satellite Components/Finished Parts | | | | | | |
| А | 18 19 | Aerospace Structural Parts (e.g. spars, ribs) Aerospace High-impact Parts (e.g. landing gear) | | | | | | |
| A | 20 | Aerospace External Engine Parts (e.g. cowl, fan) | | | | | | |
| | 22 | Aerospace Internal Engine Parts (e.g. low pressure compressor) Land-Based Turbine Engine and Structural Parts | | | | | | |
| | 23 | Maritime Turbine Engine and Structural Parts Other (Explain in Comments) | | | | | | |
| | 25 | ours (speak in comments) | | | | L | | |
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| | 40 | | Strategic Inve | | | | | |
| | | tely. (e.g., if your organization has Titanium Billet with Alloys A and B, provide two entr as material kept by your organization as a reserve or hedge against supply disruption, Types of Titanium in Inventory | Alloy | 2015 | 2016 | 2017 | 2018 | Comments |
| | 1 | Titanium Sponge - Standard Grade | | | | | | |
| | 2 | Titanium Sponge - Rotating Grade Titanium Sponge - Aerospace Non-Rotating Grade | | | | | | |
| | 4 | Titanium Ingot Titanium Billet | | | | | | |
| | 6 | Titanium Scrap | | | | | | |
| | 7 | Titanium Bar Titanium Plate | | | | | | |
| | 9 | Titanium Sheet (Hot Rolled) | | | | | | |
| | 10 | Titanium Sheet (Cold Rolled) Titanium Tube | | | | | | |
| | 12 13 | Titanium Coil Titanium Satellite Components/Finished Parts | | | | | | |
| | 14 | Specialty Titanium Parts Manufacturing (not to include aerospace) | | | | | | |
| | 15 16 | Aerospace Structural Parts (e.g. spars, ribs) Aerospace High-impact Parts (e.g. landing gear) | | 1 | | | | |
| | 17 | Aerospace External Engine Parts (e.g. cowl, fan) | | | | | | |
| в | 18 19 | Aerospace external engine Parts (e.g. cowi, fail) | | | | | | |
| в | | Aerospace Internal Engine Parts (e.g. low pressure compressor) Land-Based Turbine Engine and Structural Parts | | | | | | |
| | 20 | Aerospace Internal Engine Parts (e.g. low pressure compressor) Land-Based Turbine Engine and Structural Parts Maritime Turbine Engine and Structural Parts | | | | | | |
| | 20 21 22 | Aerospace Internal Engine Parts (e.g. low pressure compressor) Land-Based Turbine Engine and Structural Parts | | | | | | |
| | 20 21 22 23 | Aerospace Internal Engine Parts (e.g. Iow pressure compressor) Land-Based Turbine Engine and Structural Parts Maritime Turbine Engine and Structural Parts Chemical Processing Equipment (e.g. tubing) | | | | | | |
| | 20 21 22 23 24 25 | Aerospace Internal Engine Parts (e.g. Iow pressure compressor) Land-Based Turbine Engine and Structural Parts Maritime Turbine Engine and Structural Parts Chemical Processing Equipment (e.g. tubing) | | | | | | |
| | 20 21 22 23 24 | Aerospace Internal Engine Parts (e.g. Iow pressure compressor) Land-Based Turbine Engine and Structural Parts Maritime Turbine Engine and Structural Parts Chemical Processing Equipment (e.g. tubing) | | | | | | |
| | 20 21 22 23 24 25 26 27 28 | Aerospace Internal Engine Parts (e.g. Iow pressure compressor) Land-Based Turbine Engine and Structural Parts Maritime Turbine Engine and Structural Parts Chemical Processing Equipment (e.g. tubing) | | | | | | |
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| | 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 | Aerospace Internal Engine Parts (e.g. Iow pressure compressor) Land-Based Turbine Engine and Structural Parts Maritime Turbine Engine and Structural Parts Chemical Processing Equipment (e.g. tubing) | | | | | | |
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| | 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 9 40 60yen you | Aerospace Internal Engine Party (e.g., low presure compressor) Lond-Stard Turbine Engine and Structural Parts Chemical Processing (duplement (e.g., lobing) Other (Explain in Comments) Chemical Processing (duplement (e.g., lobing) Chemical Processing (dupl | | | | | | |
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| c | 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 9 40 60yen you | Aerospace Internal Engine Party (e.g., two presure compressor) Lond-Assert Turkine Engine and Structural Parts Mariner Turkine Engine and Structural Parts General Presence (gupment (e.g., tubing) Other (Buplan in Comments) | | | | | | |
| c | 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 9 40 60yen you | Aerospect Internal Trighe Party (e.g., two presure compressor) Land Assert Turking Targen and Structural Parts benchmer Structure Langen and Structural Parts Definitions Structure Lange and Structure Lange Other (Explain in Comments) | | | | | | |
| c | 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 9 40 60yen you | Aerospace Internal Engine Party (e.g., low presure compressed) Lean-Saved Turkine Engine and Structural Parts Maritime Turbine Engine and Structural Parts Maritime Turbine Engine and Structura Parts Other (Explain in Comments) Other (Explain in Comments) | Mon | nths Able to Sustain Op | perations | | | |

| evious Page | | | 8. National | Defense Support | | | | | <u>Next Pa</u> | | | | | |
|-------------|---|---|--|---|---|---|---|---|--|--|--|--|--|--|
| А | Did your organization directly | y or indirectly supply titanium products for U.S. d | efense systems bet | ween 2015 and 201 | 9? If no, proceed to | o next tab. If yes, co | mplete sections B, (| C, and D below. | yes/no | | | | | |
| | From the list of U.S. Gove | ernment agencies below, select those whose syste | ems you supported | between 2015 and | 2019. | | I | | | | | | | |
| | U.S. Air Force | | уе | s/no | U.S. Coast Guard | | yes/no | Department of Energy | yes/no | | | | | |
| в | U.S. Army | | yes/no | | U.S. Intelligence Community (such as CIA, NGA, NRO, NSA) | | yes/no | Other (Specify to the Right) | write in | | | | | |
| | U.S. Marine Corps | | ye | s/no | Missile Defense Agency (MDA) | | yes/no | Other (Specify to the Right) | write in | | | | | |
| | U.S. Navy | | ye | s/no | Defense Logist | ics Agency | yes/no | Other (Specify to the Right) | write in | | | | | |
| | Identify the specific U.S. Government programs/systems your organization has supported since 2015. In the first column, write-in the DEFENSE SYSTEM NAME. Provide as much detail as possible and spell out a 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, write in the products that your organization has provided. 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. | | | | | | | | | | | | | |
| | | Defense System Name | Agency Name (select from dropdown) | Estimated Total Amount of Titanium Provided for System (Kilograms) | Titanium Product and/or Finished Good 1 | Titanium Product and/or Finished Good 2 | Titanium Product and/or Finished Good 3 | Titanium Product and/or Finished Good 4 | Titanium Produc and/or Finishec Good 5 | | | | | |
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| D | | 's titanium related contracts rated under the ns System (DPAS)? Further information about ss://www.dcma.mil/DPAS/ | yes/no | If yes, specify the nature and product of the DPAS rating. | | | | | | | | | | |
| | Con | iments: | | | | | | | | | | | | |
| | | BUSINESS CONFI | L DENTIAL - Per Sect | ion 705(d) of the De | fense Production 4 | Act | | | | | | | | |

| evi | ious Page | | | 9. C | ritical Infrastructure | | | Next I |
|-----|--|-----------------------------------|---|-----------------------------------|---|--------------------------------|--|------------------------|
| | From the list of Critical Infra | structure Sectors below, indicate | e which sectors your organization | | | may be found at : https://www. | dhs.gov/cisa/critical-infrastructure-sectors | |
| | Chemical Sector (e.g. pipes and tubes for chemical factories, pressure vessels, heat exchangers) | y/n | Dams Sector (e.g. titanium parts for electric turbines used | y/n | Financial Services Sector (e.g. titanium parts for data systems used by financial services firms) | y/n | Information Technology Sector (e.g. titanium parts for batteries) | y/n |
| | Commercial Facilities Sector (e.g. cladding, structural supports) | y/n | in dams) | | Food and Agriculture Sector (e.g. titanium parts used in agricultural equipment) | y/n | Nuclear Reactors, Materials, and Waste Sector (e.g. waste storage, pipes and tubing for reactors, reactor shields) | y/n |
| 4 | Communications Sector (e.g., titanium parts for communications satellites) | y/n | Emergency Services Sector (e.g. titanium applications for police, fire, and EMS) | y/n | Government and Facilities Sector (e.g. titanium parts provided for end use in U.S. government facilities) | y/n | Transportation Systems Sector (e.g. civil aviation, titanium parts for oil and gas pipelines, titanium parts for motor vehicles, ships, and railroad equipment) | y/n |
| | Critical Manufacturing Sector (e.g. titanium parts for various industrial machinery, titanium parts for aircraft engines) | y/n | Energy Sector (e.g. titanium parts for solar panels, titanium turbine parts, pipes for power plants) | y/n | Healthcare and Public Health Sector (e.g. replacement joints, prosthetics, medical instruments) | y/n | Water and Wastewater Systems Sector (e.g. pipes for water and sewer and treatment plant systems) | y/n |
| | In the TITANIUM-RELATED F remaining products. | PRODUCT columns, state the tita | | nization provides in support of f | the specific sector. If additional products a | | ific sector, repeat the program/system on a ne | ew row and select the |
| | North a your organization is | Critical Infrastructure System | Sector Name (select from dropdown) | Titanium-Related Product 1 | Titanium-Related Product 2 | Titanium-Related Product 3 | Titanium-Related Product 4 | Titanium-Related Produ |
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| revious Page | | | | | 10. Suppliers/Purchases | | | | | | | | | | | Next Pa |
| r each type of titanium input purcha | sed (purchases include both dome | estic and imports) b | y your organization from 2015-2019, state | e the supplier, amounts purchased, and | prices paid. When applicable specify the a | illoy. | | | | | | | | | | |
| | | | | | Slag (Kilograms) | | | | | | | | | | | |
| entify your organization's total numb ecessary, input 0. | per of suppliers for Slag. Where | | | | | | | | | | | | | | | |
| | | | | | | | 2 | 015 | 2 | 016 | 2 | 017 | 2 | 018 | 201 | .9 |
| Supplier | Supplier Headquarters | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD |
| 1 2 | | | | | | Commercial Research | | | | | | | | | | |
| 3 | | - | | | | U.S. Government (Non-defense) | | | | | | | | + | + | |
| 4 | | | | | | U.S. Government (Defense) | | | | | | | | | | |
| 5 | | | | | | Other | | | | | | | | | | |
| 6 | | | | | | Unknown | | | | | | | | | | |
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| | | | | | Rutile (Kilorams) | | | | | | | | | | | |
| entify your organization's total numb ccessary, input 0. | per of suppliers for Rutile. Where | | | | | | 2 | 015 | 2 | 016 | | 017 | | 018 | 201 | 0 |
| Supplier | Supplier Headquarters | Is the Supplier a | Manufacturer/Processor (if different | Country of Titanium Origin | Alloy | End-Use | | | | | | | | | | Value |
| | | Related Party? | from supplier) | | | | Volume | Value (\$USD) | Volume | (\$USD) |
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| entify your organization's total numb ccessary, input 0. | | | Manufacturer/Processor (if different | | | | 2 | 015 | 2 | 016 | 2 | 1017 | 2 | 018 | 201 | .9 |
| Supplier | Supplier Headquarters | Related Party? | from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value |
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| | | | | | Titanium Sponge Standard Quality (K | ilograms) | | | | | | | | | | |
| entify your organization's total numb onge - Standard Quality. Where nec | per of suppliers for Titanium essary, input 0. | | | | | | | | | | | | | | | - |
| Supplier | Supplier Headquarters | Is the Supplier a | Manufacturer/Processor (if different | Country of Titanium Origin | Alloy | End-Use | | 015 | 2 | 016 | 2 | 017 | 2 | 018 | 201 | |
| Subbuei | supplier neauquarters | Related Party? | from supplier) | country of ritalium origin | Alloy | LIIU-USC | Volume | Value (\$USD) | Volume | Value (\$USD |
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| | | | | | Tita | nium Sponge Aerospace Non-Rotating Qu | lity (Kilograms) | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| Identify your or | rganization's total number of pace Non-Rotating Quality. V | suppliers for Titanium | | | | | | | | | | | | | | | |
| Shoulde - Mei Osh | pace Non-Notating Quality. | where necessary, input o. | | | | | | | | | | | | | | | |
| | | | Is the Supplier a | Manufacturer/Processor (if different | | | | 2 | 015 | 2 | 016 | 2 | 017 | 2 | 018 | 2 | 019 |
| | Supplier | Supplier Headquarters | Related Party? | from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) |
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| | | 1 | 1 | | Titar | nium Sponge Aerospace Rotating Parts Qu | lity (Kilograms) | | | | | | 1 | | 1 | | |
| Identify your or | rganization's total number of | suppliers for Titanium | | | | | | | | | | | | | | | |
| Sponge - Aerosp | pace Rotating Parts Quality. | Where necessary, input 0. | | | | | | | | | | | | | | | |
| | | | Is the Supplier a | Manufacturer/Processor (if different | | | | 2 | 015 | 2 | 016 | 2 | 017 | 2 | 018 | 2 | 019 |
| | Supplier | Supplier Headquarters | Related Party? | from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) |
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| | | | | | | Titanium Scrap (Kilograms) | | | 1 | | | | | | 1 1 | | 1 |
| Identify your or | rganization's total number of | suppliers for Titanium Scrap. | | | | | | | | | | | | | | | |
| Where necessar | | | | | | | | | | | | | | | | | |
| | | | | | | | | 2 | 015 | 2 | 016 | 2 | 017 | 2 | 018 | 2 | 019 |
| | Supplier | Supplier Headquarters | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use | | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | | Value (\$USD) | | Value |
| 1 | | | | | | | | Volume | value (\$6555) | Volume | Value (\$050) | Foldine | Vulue (2030) | volume | value (9030) | | (\$USD) |
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| Identify your on | rganization's total number of | suppliers for Titanium Ingot. | | | | | | | | | | | | | | | |
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| | Supplier | Supplier Headquarters | Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value |
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| | | | | | Titanium Slab (Kilograms) | | | | | | | | | | | |
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| | suppliers for Titopius: Cl-b | | | | ricanium siao (mi0g1ams) | | | | | | | | | | | |
| y your organization's total number of necessary, input 0. | suppliers for Titanium Slab. | | | | | | | | | | | | | | | |
| | | | | | | | 2 | 015 | 2 | 016 | | 2017 | 2 | 018 | 20 | 9 |
| Supplier | Supplier Headquarters | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | | Value (\$USD) | | Value (\$USD) | | Value (\$USD) | | Value |
| | | Related Party? | from supplier) | | | | voiume | value (\$USD) | voiume | value (SUSD) | volume | value (\$05D) | volume | value (\$05D) | voiume | (\$USD) |
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| | | | | | Titanium Billet (Kilograms) | | | | | | | | | | | |
| y your organization's total number of necessary, input 0. | suppliers for Titanium Billet. | | | | | | | | | | | | | | | |
| | | Is the Supplier a | Manufacturer/Processor (if different | | | | 2 | 015 | 2 | 016 | 2 | 2017 | 2 | 018 | 20 | |
| Supplier | Supplier Headquarters | Related Party? | from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value |
| | | | | | | | | | | | | | | | | (\$USD |
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| | | | | | Titanium Bar (Kilograms) | | | | | | | | | | | |
| | suppliers for Titanium Bar. | | | | Titanium Bar (Kilograms) | | | | | | | | | | | |
| y your organization's total number of necessary, input 0. | | Is the Supplier 2 | Monifecture Decourse (if different | | | | 2 | 015 | 24 | 016 | 2 | 2017 | 2 | 018 | 20 | 19 |
| y your organization's total number of | suppliers for Titanium Bar. Supplier Headquarters | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Titanium Bar (Kilograms) Alloy | End-Use | 2 Volume | D15 Value (\$USD) | 2i Volume | 016 Value (\$USD) | | 2017 Value (\$USD) | | | | Value |
| y your organization's total number of necessary, input 0. | | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | 018 Value (\$USD) | | Value |
| y your organization's total number of necessary, input 0. Supplier | | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | | is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use | | | | | | | | | | Value |
| y your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | from supplier) | Country of Titanium Origin | Alloy | | Volume | | Volume | | Volume | | Volume | | | Value (\$USD) |
| y your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD |
| y your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | from supplier) | | Alloy | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD |
| your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | from supplier) | | Alloy | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD |
| y your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | from supplier) | | Alloy | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD |
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| y your organization's total number of necessary, input 0. Supplier your organization's total number of necessary, input 0. Supplier | Supplier Headquarters | Related Party? | from supplier) | | Alloy | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD |
| your organization's total number of necessary, input 0. Supplier your organization's total number of necessary, input 0. Supplier Supplier | Supplier Headquarters | Related Party? | from supplier) | | Alloy | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) |

| | | | | | Titanium Sheet (Kilograms) | | | | | | | | | | | |
|---|----------------------------------|-------------------------------------|--|-----------------------------|---|------------------------|--------|---------------|--------|---------------|--------|---------------|--------|---------------|--------|------------------|
| Identify your organization's total number Where necessary, input 0. | of suppliers for Titanium Sheet. | | | | | | | | | | | | | | | |
| | | | | | | | 7 | 015 | | 2016 | 2 | 017 | 2 | 018 | 20 | 119 |
| Supplier | Supplier Headquarters | Is the Supplier a Related Party? | Manufacturer/Processor (if different from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | | Value (\$USD) | | Value (\$USD) |
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| 10 | | | | | Titonium Tubo (Vilograms) | | | | | | | | | | | |
| | C 10 C - 10 C - 10 | | | | Titanium Tube (Kilograms) | | | | | | | | | | | |
| Identify your organization's total number Where necessary, input 0. | of suppliers for Titanium Tube. | | | | | | | | | | | | | | | |
| Supplier | Supplier Headquarters | Is the Supplier a | Manufacturer/Processor (if different | Country of Titanium Origin | Alloy | End-Use | 2 | 015 | | 2016 | 2 | 017 | 2 | 018 | 20 | 19 |
| | Supplier Heauquarters | Related Party? | from supplier) | Country of Intallium Origin | Alloy | Enu-Ose | Volume | Value (\$USD) | Volume | Value (\$USD) |
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| 10 | | | | | Titanium (Other - Explain in Comm | ontc) | | 1 | | 1 1 | | 1 1 | | | | |
| Identify your organization's total number (Other). Where necessary, input 0. | of suppliers for Titanium | | | | Intallium (other - Explain in Contin | | | | | | | | | | | |
| | | Is the Supplier a | Manufacturer/Processor (if different | | | | 2 | 015 | : | 2016 | 2 | 017 | 2 | 018 | 20 | 19 |
| Supplier | Supplier Headquarters | Related Party? | from supplier) | Country of Titanium Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) |
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| | | | | BUSINESS CO | ONFIDENTIAL - Per Section 705(d) of the | Detense Production Act | | | | | | | | | | |

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| ne of titanium sold by your org | anization from 2015-2019 state | e the customer (both U.S. and | non-U.S.), ammount sold, and price receiv | ved. When applicable specify the allow | 11. Customers | | | | | | | | | | | |
| pe of tranium solu by your org | anization nom 2015-2019, state | e the customer (both 0.5. and | non-o.s.j, animount solo, and price received | | | | | | | | | | | | | |
| | | | | Tita | anium Sponge Standard Quality (Kilogra | ns) | | | | | | | | | | |
| ur organization's total number | of customers for Titanium Spor | nge - Standard Quality. Where | | | | | | | | | | | | | | |
| | necessary, input 0. | | | | | | | | | | | | | | | |
| | | | | | | | 2 | 015 | 20 | 016 | 2 | 017 | YT | 0 2018 | YTD | D 2019 |
| Customer | Customer Headquarters | Is This Customer a Related Party? | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | | | | | | | | | Val |
| | | | | | | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | (\$U\$ |
| | | Yes No | | | | Commercial Research | | | | | | | | | | _ |
| | | No | | | | U.S. Government (Non-defense) | | | | | | | | | | |
| | | | | | | U.S. Government (Defense) Other | | | | | | | | | | _ |
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| | | | | Titanium S | ponge Aerospace Non-Rotating Quality | Kilograms) | | | | | | | | | | |
| ur organization's total number | of suppliers for Titanium Spon | ge - Aerospace Non-Rotating | | | | | | | | | | | | | | |
| Quality. | Where necessary, input 0. | | | | | | | | | | | | | | | |
| | | Is This Customer a Related | | | | | 2 | 015 | 20 | 016 | 2 | 017 | YT | 2018 | YTD | D 2019 |
| Customer | Customer Headquarters | Party? | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Va |
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| | | | | Titanium Sr | ponge Aerospace Rotating Parts Quality | (Kilograms) | | | | | | | | | | _ |
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| Customer | Customer Headquarters | Is This Customer a Related | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | 015 | |)16 | | 017 | | 2018 | | v |
| Customer | Customer Headquarters | Is This Customer a Related Party? | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | D15 Value (\$USD) | | 016 Value (\$USD) | | D17 Value (\$USD) | | 0 2018 Value (\$USD) | | Va |
| Customer | Customer Headquarters | | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | | | | | | | | | D 2019 Va (\$U |
| Customer | Customer Headquarters | | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | | | | | | | | | Va |
| Customer | Customer Headquarters | | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | | | | | | | | | Va |
| Customer | Customer Headquarters | | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | | | | | | | | | Va |
| Customer | Customer Headquarters | | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | | | | | | | | | Va |
| Customer | Customer Headquarters | | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy | End-Use | | | | | | | | | | Va |
| Customer | Customer Headquarters | | End User (If Different from Customer) | Country of Titanium Sponge Origin | Alloy Titanium Scrap (Kilograms) | End-Use | | | | | | | | | | Va |
| | | Party? | End User (if Uitterent from Luxomer) | Country of Titanium Sponge Origin | | End-Use | | | | | | | | | | Va |
| | Customer Headquarters | Party? | End User (if Uitterent from Luxomer) | Country of Titanium Sponge Origin | | End-Use | | | | | | | | | | Va |
| ur organization's total number | of customers for Titanium Scra | Party? | End user (if Uillerent from Luxoner) | | Titanium Scrap (Kilograms) | | Volume | | Volume | | Volume | | Volume | | Volume | Va (\$U |
| | | Party? | End User (if Uitterent from Luxomer) | | | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume 2 | Value (SUSD) | Volume | Value (\$USD) | Volume | Va (\$L |
| ur organization's total number | of customers for Titanium Scra | Party? | End user (if Uillerent from Luxoner) | | Titanium Scrap (Kilograms) | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume 2 | Value (SUSD) | Volume | Value (\$USD) | Volume | Va (\$U |
| ur organization's total number | of customers for Titanium Scra | Party? | End user (if Uillerent from Luxoner) | | Titanium Scrap (Kilograms) | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume 2 | Value (SUSD) | Volume | Value (\$USD) | Volume | Va (\$U |
| ur organization's total number | of customers for Titanium Scra | Party? | End user (if Uillerent from Luxoner) | | Titanium Scrap (Kilograms) | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume 2 | Value (SUSD) | Volume | Value (\$USD) | Volume | Va (\$U |
| ur organization's total number | of customers for Titanium Scra | Party? | End user (if Uillerent from Luxoner) | | Titanium Scrap (Kilograms) | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume 2 | Value (SUSD) | Volume | Value (\$USD) | Volume | Va (\$U |
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| ur organization's total number | of customers for Titanium Scra | Party? | End user (if Uillerent from Luxoner) | | Titanium Scrap (Kilograms) | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume 2 | Value (SUSD) | Volume | Value (\$USD) | Volume | Va (\$L |
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| ur organization's total number Customer | of customers for Titanium Ingo | Party? | End User (If Different from Customer) End User (If Different from Customer) | Country of Titanium Scrap Origin | Titanium Scrap (Kilograms) Alloy Titanium Ingot (Kilograms) | End-Use | Volume 20 Volume | Value (\$USD) | Volume 20 Volume | Value (\$USD) | Volume 2 Volume | Value (SUSD) | Volume | Value (\$USD) | Volume | Va (\$U |
| ur organization's total number Customer | of customers for Titanium Scra | Party? | End User (If Different from Customer) End User (If Different from Customer) End User (If Different from Customer) | Country of Titanium Scrap Origin | Titanium Scrap (Kilograms) Alloy | | Volume 20 Volume 21 | Value (SUSD) | Volume 20 Volume 22 | Value (SUSD) | Volume 2 Volume 2 | Value (SUSD) | Volume YT Volume | Value (SUSD) 2018 Value (SUSD) 2018 Value (SUSD) 2018 2018 2018 2018 2018 2018 2018 2018 | Volume Volume VTD Volume VTD Volume VTD | V3 (Star D 2019 D 2019 D 2019 D 2019 D 2019 V3 |
| ur organization's total number Customer | of customers for Titanium Ingo | Party? | End User (If Different from Customer) End User (If Different from Customer) | Country of Titanium Scrap Origin | Titanium Scrap (Kilograms) Alloy Titanium Ingot (Kilograms) | End-Use | Volume 20 Volume 21 | Value (SUSD) | Volume 20 Volume 22 | Value (SUSD) | Volume 2 Volume 2 | Value (SUSD) | Volume YT Volume | Value (SUSD) 2018 Value (SUSD) 2018 Value (SUSD) 2018 2018 2018 2018 2018 2018 2018 2018 | Volume Volume VTD Volume VTD Volume VTD | V. (\$) |
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| ir organization's total numb | er of customers for Titanium Bille | t. Where necessary input 0 | | | | | | | | | | | | | | |
| ar organization s total numb | for customers for manian bille | et. where necessary, input o. | | | | | | | | | | | | | | |
| Customer | | Is This Customer a Related | | | | E. d Har | 20 | 15 | 20 | 16 | 2 | 017 | YTE | 0 2018 | YTE | D 20 |
| Customer | Customer Headquarters | Party? | End User (If Different from Customer) | Country of Billet Fabrication | Alloy | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | 2 |
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| | | | | | Titanium Bar (Kilograms) | | | | | | | | | | | Ē |
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| our organization's total numb | er of customers for Titanium Bar. | r. Where necessary, input 0. | | | | | | | | | | | | | | |
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| Customer | Customer Headquarters | Is This Customer a Related | End User (If Different from Customer) | Country of Bar Fabrication | Alloy | End-Use | 20 | | 20 | | | 017 | | D 2018 | YTE | |
| | customer neudquarters | Party? | End osci (il binerent nom editoriter) | country of built abrication | Puloy | | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | ŧ. |
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| Customer | Customer Headquarters | Is This Customer a Related Party? | End User (If Different from Customer) | Country of Plate Fabrication | Alloy | End-Use | Volume | 15 Value (\$USD) | 20 Volume | Value (\$USD) | | 017 Value (\$USD) | | Value (\$USD) | YTE Volume | |
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| | | | | | Titanium Sheet (Kilograms) | | | | | | | | | | | |
| r organization's total numb | of curtomors for Titanium Shoo | t Where pererany input 0 | | | Titanium Sheet (Kilograms) | | | | | | | | | | | |
| ır organization's total numb | r of customers for Titanium Shee | et. Where necessary, input 0. | | | Titanium Sheet (Kilograms) | | | | | | | | | | | |
| | | | | | | fad line | 20 | 15 | 20 | 16 | 2 | 017 | YTE | D 2018 | YTE | D 2 |
| ur organization's total numbr | r of customers for Titanium Shee Customer Headquarters | et. Where necessary, input 0. Is This Customer a Related Party? | End User (If Different from Customer) | Country of Sheet Fabrication | Titanium Sheet (Kilograms) Alloy | End-Use | | 15 Value (\$USD) | | 16 Value (\$USD) | | 017 Value (\$USD) | | D 2018 Value (\$USD) | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| | | Is This Customer a Related | | Country of Sheet Fabrication | | End-Use | | | | | | | | | | |
| Customer | Customer Headquarters | Is This Customer a Related Party? | | Country of Sheet Fabrication | Alloy | End-Use | | | | | | | | | | |
| Customer | | Is This Customer a Related Party? | | Country of Sheet Fabrication | Alloy | End-Use | | | | | | | | | | |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? | End User (If Different from Customer) | Country of Sheet Fabrication | Alloy | | Volume | | | Value (\$USD) | Volume | | Volume | | | 2 |
| Customer | Customer Headquarters | Is This Customer a Related Party? | End User (If Different from Customer) | Country of Sheet Fabrication | Alloy | End-Use | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (SUSD) | Volume | e D : |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related | End User (If Different from Customer) | | Alloy Titanium Tube (Kilograms) | | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (\$USD) | Volume | e D |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related | End User (If Different from Customer) | | Alloy Titanium Tube (Kilograms) | | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (SUSD) | Volume | e D |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related | End User (If Different from Customer) | | Alloy Titanium Tube (Kilograms) | | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (SUSD) | Volume | e D : |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related | End User (If Different from Customer) | | Alloy Titanium Tube (Kilograms) | | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (SUSD) | Volume | e D |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related | End User (If Different from Customer) | | Alloy Titanium Tube (Kilograms) | | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (SUSD) | Volume | e D : |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related | End User (If Different from Customer) | | Alloy Titanium Tube (Kilograms) | | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (SUSD) | Volume | e D 2 |
| Customer ur organization's total numb | Customer Headquarters | Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related | End User (If Different from Customer) | | Alloy Titanium Tube (Kilograms) | | Volume | Value (\$USD) | Volume 20 | Value (\$USD) | Volume 2 | Value (\$USD) | Volume | Value (SUSD) | Volume | e D : |

| | | | | | | Titanium (Other - Explain in Comment | .) | | | | | | | | | |
|-----------------------------------|-----------------------------------|--|--|---------------------------------------|---------------------------------------|--------------------------------------|---------|-------------|----------------------|-------------|----------------------|-------------|----------------------|--------|-------------------------|-------------------------|
| Identify yo | our organization's total number o | f customers for Titanium Finis input 0. | shed Goods. Where necessary, | | | | | | | | | | | | | |
| | | | Is This Customer a Related | | | | | 2 | 015 | 2 | 016 | 2 | 017 | YTI | D 2018 | YTD 2019 |
| | Customer | Customer Headquarters | Party? | End User (If Different from Customer) | Country of Other Titanium Fabrication | Comments | End-Use | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume | Value (\$USD) | Volume Value (\$USD) |
| 2 | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 10 | | | | | | Titanium (Other - Explain in Comment | .) | | | | | | | | 1 | 1 1 |
| Identify yo | | | | | | | | | | | | | | | | |
| | ur organization's total number o | f customers for Titanium (Oth | er). Where necessary, input 0. | | | | | 2 | 015 | 2 | 016 | 2 | 017 | YTI | D 2018 | YTD 2019 |
| | Customer | f customers for Titanium (Oth Customer Headquarters | er). Where necessary, input 0. Is This Customer a Related Party? | | Country of Other Titanium Fabrication | Comments | End-Use | 2 Volume | 015 Value (\$USD) | 2 Volume | 016 Value (\$USD) | 2 Volume | 017 Value (\$USD) | | D 2018 Value (\$USD) | Matur |
| 1 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |
| 1 2 3 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |
| 3 L 4 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |
| L 4 5 6 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |
| 3 L 4 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |
| 3 L 4 5 6 7 8 9 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |
| L 4 5 6 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |
| 3 L 4 5 6 7 8 9 | | | Is This Customer a Related | | Country of Other Titanium Fabrication | Comments | End-Use | | | | | | | | | Volume Value |

| | | your organization should be listed at fair mark | | | | Year | | |
|----|--------|--|------|---------------|------|------|----------|----------|
| | | Product | 2015 | 2016 | 2017 | 2018 | 2018 YTD | 2019 YTD |
| 1 | | Standard Quality Sponge | | | | | | |
| 2 | | Aerospace Non-Rotating Sponge | | | | | | |
| 3 | | Rotating Grade Sponge | | | | | | |
| 4 | | Titanium Scrap | | | | | | |
| - | | | т: | tanium Ingot | | | | |
| | | | II | tanium Ingot | | 1 | T T | |
| 5 | A | Titanium Ingot Containing Standard Quality Sponge | | | | | | |
| | В | Titanium Ingot Containing Aerospace Non- Roatating Sponge | | | | | | |
| | с | Titanium Ingot Containing Rotating Grade Sponge | | | | | | |
| | | | Tì | tanium Billet | | | | |
| | A | Titanium Billet Containing Standard Quality Sponge | | | | | | |
| 6 | в | Titanium Billet Containing Aerospace Non- Rotating Sponge | | | | | | |
| | с | Titanium Billlet Containing Rotating Grade Sponge | | | | | | |
| 7 | | Titanium Bar | | | | | | |
| 8 | | Titanium Plate | | | | | | |
| 9 | | Titanium Sheet | | | | | | |
| 10 | | Titanium Tube | | | | | | |
| 11 | | Other (Explain in Comments) | | | | | | |
| 12 | Aer | ospace Structural Parts (e.g. spars, ribs) | | | | | | |
| 13 | Aeros | pace High-impact Parts (e.g. landing gear) | | | | | | |
| 14 | Aeros | pace External Engine Parts (e.g. cowl, fan) | | | | | | |
| 15 | Aerosp | ace Internal Engine Parts (e.g. low pressure compressor) | | | | | | |
| 16 | Land- | Based Turbine Engine and Structural Parts | | | | | | |
| 17 | Mari | time Turbine Engine and Structural Parts | | | | | | |
| 18 | Chei | nical Processing Equipment (e.g. tubing) | | | | | | |
| 19 | Titan | ium Satellite Components/Finished Parts | | | | | | |
| 20 | | Other (Explain in Comments) | | | | | | |

| | | | | | - Sponge Production | | | | Next Pa |
|-------|--|-------------------------|--|---|----------------------------------|---|---------------------------------------|----------------------|-------------|
| ndic | ate in the box to the right if your organization pr | oduced titanium spo | nge at a U.S. facility betwe | en 2015-2019. If yes, comp | ete sections A-F. If no, procee | d to the next page. | | y/n | |
| Reco | rd the total number of full time equivalent (FTE) e | mployees and contra | ctors for the 2015 to 2019 | | | | | | |
| A | FTE Emp | loyees | | 2015 | 2016 | 2017 | 2018 | 2019 | |
| | FTE Contr | | | | | | | | |
| Reco | rd the total number of employees for each occupa | ation type below for 2 | | | | 1 | I | T | |
| | Occupation | | 2015 | 2016 | 2017 | 2018 | 2019 | Comments | |
| ŀ | | | | | | | | | |
| 5 | Sponge Mass Production | | | | | | | | |
| 1 | Electrolysis | | | | | | | | |
| | Crushing/Shearing | | | | | | | | |
| | nspection | | | | | | | | |
| В | aboratory Testing | | | | | | | | |
| | 3lending/Packaging | | | | | | | | |
| | Maintenance and Engineering | | | | | | | | |
| | Administrative, Management, Legal Staff, IT Staff | | | | | | | | |
| 1 | Marketing and Sales | | | | | | | | |
| | Other | (specify here) | | | | | | | |
| Provi | de the following information about employment o | lifficulties, workforce | age, educational requirem | ents, vacancies, and change | s in employment for the 2015 t | to 2019 period. | | | |
| | Occupation | | Explanation for Difficulty, if Applicable | Current Average Age of Worker (2018) | Formal Education Requirements | On the Job Training Requirements (OTJ) | Current Number of Vacancies (2018) | Average Weeks Vacant | Explanation |
| | Chlorination | | | | | | | | |
| 1 | Sponge Mass Production | | | | | | | | |
| Ī | Electrolysis | | | | | | | | |
| | Crushing/Shearing | | | | | | | | |
| c | nspection | | | | | | | | |
| | aboratory Testing | | | | | | | | |
| Ī | Blending/Packaging | | | | | | | | |
| Ī | Maintenance and Engineering | | | | | | | | |
| , | Administrative, Management, Legal Staff, IT Staff | | | | | | | | |
| I | Marketing and Sales | | | | | | | | |
| (| Dther | (specify here) | | | | | | | |
| Di | Are the skills associated with the workforce n your organization transferable to other non-titanium industries? | | | | | | | | |
| E | f you resumed operations at an idled acility, do you reasonably anticipate being able to hire or rehire workers? What would the hiring timeline be? | | | | | | | | |
| F | Does the geographic location of your organization's facilities play any role in the challenges in hiring, retaining, and rehiring employees? | | | | | | | | |
| | | | | | | | | | |

| | | (| | ponge Titanium Production | | | | |
|----------------|--|--|--|----------------------------------|---|---------------------------------------|----------------------|------------|
| <pre>lei</pre> | ecord the total number of full time equivalent (FTE) employees and contract | ors for the 2015 to 2019 pe | riod for U.S. facilities. Do not 2015 | include any sponge employee 2016 | 2017 | 2018 | 2019 | 1 |
| A | | | 2015 | 2010 | 2017 | 2010 | 2015 | |
| 20 | FTE Contractors ecord the total number of employees for each occupation type below for 20: | 15 to 2019 | | | | I | | 1 |
| | Occupation | 2015 | 2016 | 2017 | 2018 | 2019 | Comments | |
| | Furnace/Melt Shop Operators | | | | | | | |
| | Grinders, Cutters, Forge Operators | | | | | | | |
| | Casters, Finishers | | | | | | | |
| | Machinists and Technicians | | | | | | | |
| в | Inspection and Quality Control 3 | | | | | | | |
| | Other Production Staff | | | | | | | |
| | Maintenance, Engineering, and Chemical | | | | | | | |
| | Administrative, Management, Legal Staff, IT Staff | | | | | | | |
| | Marketing and Sales | | | | | | | |
| | Other (specify here) | | | | | | | |
| ro | ovide the following information about employment difficulties, workforce a | ge, educational requiremer | nts, vacancies, and changes in | employment for the 2015 to 2 | 2019 period. | | | |
| | Occupation | Explanation for Difficulty, if Applicable | Current Average Age of Worker (2018) | Formal Education Requirements | On the Job Training Requirements (OTJ) | Current Number of Vacancies (2018) | Average Weeks Vacant | Explanatio |
| | Furnace/Melt Shop Operators | | | | | | | |
| | Grinders, Cutters, Forge Operators | | | | | | | |
| | Casters, Finishers | | | | | | | |
| | Machinists and Technicians | | | | | | | |
| с | C Inspection and Quality Control | | | | | | | |
| | Other Production Staff | | | | | | | |
| | Maintenance, Engineering, and Chemical | | | | | | | |
| | Administrative, Management, Legal Staff, IT Staff | | | | | | | |
| | Marketing and Sales | | | | | | | |
| | Other (specify here) | | | | | | | |
| D | Does the industry experience any amount of 0 workforce cross-over between commercial and U.S. government titanium activities? | | | | | | • | J |
| E | Are the skills associated with the workforce | | | | | | | |
| F | If you resumed operations at an idled facility, do you reasonably anticipate being able to hire or rehire workers? What would the hiring timeline be? | | | | | | | |
| G | Does the geographic location of your organization's facilities play any role in the challenges in hiring, retaining, and rehiring employees? | | | | | | | |
| | Comments: | | | | | | | |
| | | | | on 705(d) of the Defense Produ | | | | |

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|------|---|--------------------|----------------------------|------------------------------------|--------------------------|-----------------------------|
| | | 15. Fina | ancials | | | |
| | vide the following financial line items for your organiza 9 period. Only complete section B if your organization | | | • | .S. operations be | elow for the 2015 to |
| | Source of Financial Data: | | | | | |
| | Reporting Schedule: | | | | | |
| Α. | Income Statement (Select Line Items) | Re 2015 | cord \$ in Thousan 2016 | ds, e.g. \$12,000.0 2017 | 0 = survey input 2018 | cof \$12 2019 (estimate) |
| 1 | Net Sales (and other revenue) | 2015 | 2010 | 2017 | 2010 | 2013 (cstimate) |
| 2 | Cost of Goods Sold | | | | | |
| 3 | Total Operating Income (Loss) | | | | | |
| 4 | Earnings Before Interest and Taxes | | | | | |
| 5 | Net Income | | | | | |
| В. | Income Statement (Select Sponge Line Items) | Re 2015 | cord \$ in Thousan 2016 | ds, e.g. \$12,000.0 2017 | 0 = survey input 2018 | of \$12 2019 (estimate) |
| 1 | Sponge Net Sales | | | | | , , |
| 2 | Cost of Sponge Sold | | | | | |
| 3 | Sponge Total Operating Income (Loss) | | | | | |
| 4 | Sponge Earnings Before Interest and Taxes | | | | | |
| 5 | Sponge Net Income | | | | | |
| C. | Balance Sheet (Select Line Items) | Re | cord \$ in Thousan | ds, e.g. \$12,000.0 | 0 = survey input | of \$12 |
| | | 2015 | 2016 | 2017 | 2018 | 2019 (estimate) |
| 1 | Cash | | | | | |
| 2 | Inventories | | | | | |
| 3 | Total Current Assets | | | | | |
| 4 | Total Assets | | | | | |
| 5 | Total Current Liabilities | | | | | |
| 6 | Total Liabilities | | | | | |
| 7 | Retained Earnings | | | | | |
| 8 | Total Owner's Equity | | | | | |
| | Comments: | | | | | |
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|---------------|--|---|---|--|------|------|--|-----------|--|----------|--|--|
| 16. Sales | | | | | | | | | | | | |
| | From 2015 to 2019, record your organization's total sales data for all titanium products, including sponge. | | | | | | | | | | | |
| | In Li | In Line 1, indicate your total sales (including commercial and government sales). | | | | | | | | | | |
| | In Line 2, indicate what percent of your total sales which were non-U.S. sales (sales from U.S. facilities which are exported outside of the U.S.) | | | | | | | | | | | |
| | In Line 3, indicate what percent of your total sales (Line A) that were U.S. defense-related (including commercial, government) | | | | | | | | | | | |
| | In Line 4, indicate what percent of your total sales (Line A) that were NATO (non-U.S.) military-related In Line 5, indicate what percent of your total sales (Line A) that were Major Non-NATO Ally military-related | | | | | | | | | | | |
| | Note: "Non-U.S." means export sales from U.S. locations. | | | | | | | | | | | |
| | | | <corporate business="" division="" organization,="" unit="" whole=""></corporate> | | | | | | | | | |
| | | Sales | <calendar fiscal="" year=""></calendar> | | | | | | | | | |
| Α. | | | Record in \$ Thousands, e.g. \$12,000.00 = survey input \$12 | | | | | | | | | |
| | | | 2015 | | 2016 | 2017 | | 2018 | | 2019 YTD | | |
| | 1 | Total Sales, all domestic and foreign customers | | | | | | | | | | |
| | Lines 2-5 need not sum to 100%. Estimates are acceptable. | | | | | | | | | | | |
| | 2 | Total non-U.S. Sales (as a % of A) | % | | % | % | | % | | % | | |
| | 3 | Total U.S. Defense Related Sales (as a % of A) | % | | % | % | | % | | % | | |
| | 4 | Total NATO (Non-U.S.) Military Sales (as a % of A) | % | | % | % | | % | | % | | |
| | 5 | Total Major Non-NATO Ally Military Sales (as a % of A) | % | | % | % | | % | | % | | |
| | Expl | ain any irregularities with the sales data: | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act | | | | | | | | | | | |

| Pre | Previous Page 17. Research & Development and Capital Expenditures Next Page | | | | | | | | |
|--|--|------------------------|-----------------------------------|---|--------------------|--------------------------------|-----------------------------|--|--|
| | | | h & Development | and Capital Expendi | tures | | | | |
| A. Has your organization conducted titanium sponge, titanium melt, or titanium fabrication related research and development (R&D) from 2015-2019? If no, proceed to Section D below. | | | | | | | | | |
| Rec | cord your organization's total R&D dollar expenditures and type of R&D expenditure for the | 2015 to 2019 period. | | | | | | | |
| | | | | Record | Ś in Thousands, a | e.g. \$12,000.00 = survey inpu | t of \$12 | | |
| | | 2015 | ; | 20 | | 2017 | 2018 | 2019 | |
| | 1 Total R&D Expenditures | | | | 10 | 2017 | 2010 | 2015 | |
| в. | 2 Basic Research [as a % of B1] | | | | | | | | |
| Б. | 3 Applied Research [as a % of B1] | | | | | | | | |
| | 4 Product/Process Development [as a % of B1] | | | | | | | | |
| | 5 Total of 2 - 4 [must equal 100%] | 0% | | 0% | | 0% | 0% | 0% | |
| | 6 Titanium sponge and/or titanium melting and/or titanium fabrication -related R&D [as a % of B1] | | | | | | | | |
| | From 2015-2019, were your investments in R&D related to titanium sponge and/or tit | anium melting and/or | titanium fabricati | on diminished by fina | ncial constraints? | | y/n | | |
| C. 1 If yes, identify the reasons for these constraints: | | | | | | | | | |
| Rec | cord your organization's titanium sponge, titanium melting, and titanium fabrication related | capital expenditures c | orresponding to t | he select categories b | elow for the 2015 | 5-2019 period. | Below, provide any addition | nal comments in relation to in the past 5 years (2015-2019). | |
| | | | Record \$ in Thou | sands, e.g. \$12,000.0 | 0 = survey input o | of \$12 | | in the past 5 years (2015-2015). | |
| Capital Expenditure Activity Type | | 2015 | 2016 | sands, e.g. \$12,000.00 = survey input of \$12 2017 2018 2019 | | | - | | |
| _ | D. Total Capital Expenditures | 2013 | 2010 | 2017 | 2018 | 2019 | | | |
| | 1 Machinery, Equipment, and Vehicles [as a % of D] | | | | | | 4 | | |
| | 2 IT, Computers, Software [as a % of D] | | | | | | - | | |
| | 3 Land, Buildings, and Leasehold Improvements [as a % of D] | | | | | | - | | |
| | | | | | | | 4 | | |
| | | | | | | | 4 | | |
| _ | | 001 | 001 | 001 | 001 | | 4 | | |
| Line | es 1 through 5 must total 100% | 0% | 0% | 0% | 0% | 0% | - | | |
| | For the below categories, indicate whether your organization experienced significant changes (increases, decreases, or both), in titanium sponge and/or titanium melting and/or titanium fabrication expenditures over the past ten years (20010-2019). Explain what factors have been affecting changes in your organization's capital expenditures from 2010 to 2019, including, but not limited to, U.S. Government or state government policies or regulations, domestic and foreign competition, and declining sponge prices. | | | | | | | | |
| Е. | | Yes/No | If Yes, Type of Explain Change | | | 1 | | | |
| | 1 Machinery, Equipment, and Vehicles | y/n | | | | | 4 | | |
| 2 IT, Computers, Software | | | | | | | 4 | | |
| | 3 Land, Buildings, and Leasehold Improvements | | | | | | 4 | | |
| | 4 Other (Specify) | | | | | | 4 | | |
| | 5 Other (Specify) | | | | | | 4 | | |
| | Comments: | | | | | | | | |
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|-----|-------------|---|--|-----------------|-----------------------------|-----------------------------|---|--|--|--|
| | | | | | 18. Competition and Der | nand Trends | | | | |
| | Froi pro | om 2009 to 2019, indicate whether import competition has affected your U.S. titanium related operations, sales, employment, planned expansions, etc. with respect to the oduction of any type of titanium. Indicate Yes/No to the right and explain below. | | | | | | | | |
| | | | Item | Yes/No | | Ex | plain | | | |
| А | 1 | Manufacturin | ng Operations | | | | | | | |
| A | 2 | Sales | | | | | | | | |
| | | Employment | | | | | | | | |
| | | Planned Expa | | | | | | | | |
| | 5 | Other: | | | | | | | | |
| | _ | | l. | | | | | | | |
| | Doe cou | s your organiz ntries below? | organization anticipate any negative effects on its business due to future imports of titanium sponge and finished products into the United States from the listed below? Indicate Yes/No to the right and explain below. | | | | | | | |
| | | Item | | Sponge | Explain | Finished Products | Explain | | | |
| | 1 | Russia | | y/n | | y/n | | | | |
| | 2 | Kazakhstan | | | | | | | | |
| в | 3 | China | | | | | | | | |
| | 4 | Japan | | | | | | | | |
| | 5 | Ukraine | | | | | | | | |
| | 6 | India | | | | | | | | |
| | 7 | Saudi Arabia | | | | | | | | |
| | 8 | Other: | | | | | | | | |
| | 9 | Other: | | | | | | | | |
| - | 10 | Other: | | | | | | | | |
| | | our organizatio lain below. | on aware of any government assis | tance and/or no | n-market support given t | o sponge producers in the | following countries? Indicate Yes/No to the right and | | | |
| | | | Item | Yes/No | | Ex | plain | | | |
| | 1 | Russia | | | | | | | | |
| с | 2 | Kazakhstan | | | | | | | | |
| | 3 | China | | | | | | | | |
| | | Japan | | | | | | | | |
| | 5 | Ukraine | | | | | | | | |
| | 6 | India | | | | | | | | |
| | 7 | Saudi Arabia | | | | | | | | |
| | | | no U.S. facilities producing nge would your operations be | | | | | | | |
| | 1 | impacted? Ex | as your organization taken to | | | | | | | |
| D | 2 | protect busin | less if in a hypothetical situation onge were unavailable? Explain. | | | | | | | |
| | | Has your orga | anization ever experienced a | | | | | | | |
| | 3 | shortage or c imports? Exp | omplete cut off of sponge lain. | | | | | | | |
| | | Describe the top five most significant challenges to the competitive position of your organization in the U.S. titanium market. | | | | | | | | |
| | | 1 | | | | | | | | |
| | | 2 | | | | | | | | |
| | 1 | 3 | | | | | | | | |
| | | 4 | | | | | | | | |
| | | 5 | | | | | | | | |
| E | | Describe the | top five most significant challenge | s to the compet | itive position of your orga | nization in the non-U.S. ti | tanium market. | | | |
| | | 1 | | | | | | | | |
| | | 2 | | | | | | | | |
| | 2 | 3 | | | | | | | | |
| | | 4 | | | | | | | | |
| | | 5 | | | | | | | | |
| | Co | mments: | | | | | | | | |
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| Previous Page | | | | | | | |
|--|---|--|--|--|--|--|--|
| 19. Certification | | | | | | | |
| | | | | | | | |
| The undersigned certifies that the information h | nerein supplied in response to this questionnaire is complete and correct to the best of his/her | | | | | | |
| _ | ake 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. | 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 comme | ents or any other information you wish to include regarding this survey assessment. | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| How many hours did it take to complete this sur | vey? | | | | | | |
| BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act | | | | | | | |