Next Page 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 End Users Survey End Users 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 the U.S. titanium end users. 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, 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 Information furnished herewith is deemed confidential and will not be published or disclosed except in accordance with Section 705 of the Defense Production Act of 1950, as amended (50 U.S.C. Sec. 4555).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 end users using an Excel template, which can be downloaded
	from the BIS website: http://www.bis.doc.gov/TiSponge232
	If you are unable to download the survey document, at your request, BIS survey support staff will e-mail the Excel survey template
Α.	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.
	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 the titanium end user. As
	such, some questions may not be relevant to your organization. Read each question carefully to ensure its applicability to your
В.	organization.
5.	DO NOT CUT AND DAGTE DECIDINESS WITHIN THE CUDIESS OD DAGTE IN DECIDINESS FROM OUTCIDE THE CUDIESS. Summarization
	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.
С.	Do not disclose any USG classified information in this survey form.
<u> </u>	
D.	Upon completion of the survey, final review, and certification, transmit the survey document via e-mail to: Titanium232@bis.doc.gov
	Questions related to the survey should be directed to BIS survey support staff at Titanium232@bis.doc.gov.
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:
	Brad Botwin, Director, Industrial Studies
	Office of Technology Evaluation, BIS, Room 1093
_	U.S. Department of Commerce
F.	1401 Constitution Avenue, NW
	Washington, DC 20230
	DO NOT submit completed surveys to Mr. Detuin's pastal or personal a mail address. All surveys must be submitted alerter inductor
	DO NOT submit completed surveys to Mr. Botwin's postal or personal e-mail address. All surveys must be submitted electronically to: Titanium232@bis.doc.gov
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	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.
Buy-to-Fly Ratio	This is the weight of the titanium used in a product's manufacturing process divided by the weight of the final product (e.g., if 100 pounds of titanium is required to make a 10 pound part, the ratio is 10:1).
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.
Critical Infrastructure	As defined by the Department of Homeland Security, critical infrastructure is defined as sectors of the economy whose assets, systems, and networks, whether physical or virtual, are considered vital to the United States's national security, economic security, public health and safety, or any combination of the above. More information may be found here: https://www.dhs.gov/cisa/critical-infrastructure-sectors
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.
Defense Priorities and Allocation System (DPAS)	This system, administered by the Department of Commerce, assigns priority ratings to prime contracts, subcontracts, and purchase orders for all authorized Department of Defense programs. Suppliers must accepted and fulfill rated orders according to their assigned priority.
Electrolysis	As applied to titanium sponge production, this is the process that separates magnesium chloride into magnesium and chlorine for subsequent use in the chlorination and vacuum distillation processes.
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 landed, duty paid values at the U.S. port of entry, including ocean freight and insurance costs, brokerage charges, and import duties (i.e., all charges except inland freight in the United States).
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.
Melting	This process heats titanium metal feedstock, including both scrap, sponge, and any alloy additions within a high frequency induction furnace in an inert atmosphere. This step is required to produce semi-fabricated titanium products, such as ingots.
Milling	This is the process of converting ingots and other melted forms into downstream products such as billet, bar, extrusions, plate, sheet, coil, tube and wire. Processes involved in milling include forging, hot rolling, cold rolling and finishing.
Major Non-NATO Ally Sales	Sales of titanium products to the militaries of Afghanistan, Argentina, Australia, Bahrain, Brazil, Egypt, Israel, Japan, Jordan, Kuwait, Morocco, New Zealand, Pakistan, the Philippines, Republic of Korea (South Korea), Thailand, and Taiwan (Republic of China).
NATO Military Sales	Sales of titanium products to militaries of North Atlantic Treaty Organization member states other than the United States. These states include Albania, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Latvia, Lithuania, Luxembourg, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, and the United Kingdom
Non-U.S. Facility	A facility that is physically located outside of the United States.
Organization	A company, firm, laboratory, or other entity that owns or controls one or more U.S. establishment or facility involved in titanium production or consumption.
Opportunity Zones	An Opportunity Zone is an economically-distressed community where new investments, under certain conditions, may be eligible for preferential tax treatment. A list of these zones may be found at: https://www.cdfifund.gov/Pages/Opportunity-Zones.aspx

Product/Process Development	The systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.
Production	The process of transforming inputs (raw materials, semi-finished goods, subassemblies, ideas, information, knowledge) into goods or services.
Research & Development	Basic 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.
Sales	All reported and unreported sales of titanium, including sales to end-users, and sales within divisions of the organization.
Scrap	Titanium metal that is recovered from the titanium manufacturing process or through dismantling older objects containing titanium. Scrap can be used as feedstock for a melt.
Sponge	A porous, brittle form of titanium created from the reduction of titanium tetrachloride. This is most frequently achieved through the Kroll process.
Sponge - Standard Quality	Titanium sponge with chemical compositions suitable for use in structural non-aerospace applications.
Sponge - Non-Rotating Aerospace	Titanium sponge with chemical compositions suitable for use in aerospace applications such as struts, turbine frames, exhaust sidewalls, and other static aerospace structures.
Sponge - Rotating Grade	Titanium sponge with chemical compositions suitable for use in aerospace applications such as blade rotors, shafts, fan and compressor blades, and shifters. The titanium sponge must be of sufficient quality to ensure zero-tolerance for structural failure.
Supplier	An entity from which your organization obtains inputs, which may be goods or services. A supplier may be another organization with which you have a contractual relationship, or it may be another facility owned by the same parent organization.
Titanium -Related	Components/products produced and/or consumed by your organization that contain titanium metal.
Titanium Tube	This is tube manufactured from titanium. It is primarily used in aerospace ducting applications since it does not have the strength for most hydraulic applications. It is also used power generation, chemical processing, and medical applications
United States	The "United States" or "U.S." includes the 50 states, Puerto Rico, the District of Columbia, Guam, the Trust 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 remove magnesium and chlorine impurities.
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				1. Organization Info	rmation				
	Provide the following information for	or your organization							
	Organization Name								
	Street Address								
	City								
	State								
Α.	ZIP Code								
	Country of Global Headquarters								
	U.S. Point of Contact Name								
	U.S. Point of Contact Email								
	U.S. Point of Contact Phone								
		e or in part, by any private or governm	ont ontitu	Pindicata Vac/Na, than ident	futhe entities below if applies	blo List optitios with at loast l	E 0/		
		e or in part, by any private or governme	ententity	r indicate res/NO, then ident	Ty the entities below, if applica	ible. List entities with at least :	5%		
	ownership.								
	Entity Name	Global Heado	quarters S	treet Address	Global Headquarters City	Global Headquarters		adquarters	Ownership %
			•			State/Province	Cou	ntry	
В.									
	For the listed titanium related activi	ities, record the number of facilities yo	ur organiz	zation owns that conduct the	e activities. If one facility does	more than one of the listed a	ctivities, count	it in each cate	gory. For the
	purposes of this section, "aircraft" in	ncludes both fixed-wing and rotary air	craft.						
		Activities		Number of	U.S. Facilities	Number of Non-U.S. F	acilities	Com	ments
	Aircraft Manufacturing/Assembly								
	Aircraft Turbine Engine Manufacturi	ing/Assembly							
	Land/Naval Turbine Engine Manufac	cturing/Assembly							
	Aerospace Structural Parts (e.g. span	rs, ribs)							
	Aerospace High-impact Parts (e.g. la	anding gear)							
	Aerospace External Engine Parts (e.	g. cowl, fan)							
	Aerospace Internal Engine Parts (e.g	g. low pressure compressor)							
	Titanium Satellite Components/Finis								
С.	Satellite and Other Space Manufactu	uring/Assembly							
	Land-Based Turbine Engine and Stru								
	Maritime Turbine Engine and Struct								
	Chemical Processing Equipment (e.g								
	Specialty Titanium Parts Manufactur								
	Titanium Recycling	ing (not to include delospace)							
	Titanium Milling								
	Titanium Forging								
	Titanium Finishing	(Cresite)							
	Other	(Specify)							
	Other Other	(Specify)							
		(Specify)							
	Other	(Specify)							
	Comments:								
	conments.								
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Provide the following financial line ite	ems for your organization	on's titanium-related U.	S. cost center/business activity	U.S. operations below for the 2	2. Faciliti 015 to 2019 period.	25		
			Location			Facility Operation	0	utlook
Facility Name	City	State	Country	Facility Located in a Free Trade Zone?	Facility Located in an Opportunity Zone?	Operation Type	Do you anticipate any significant changes in this particular operation over the next five years that may affect your titanium consumption and/or production?	If yes or unknown, provide a brief explanation.
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10								
12		1						
13							1	
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40								
Is your organization considering the development of new titanium-related facilities, whether inside or outside the United States? If yes, describe.						1		
If any of your organization's facilities are Opportunity Zone, explain the impact tha had on your organization's operations. If does not have facilities located in an Opp your organization consider relocation?	located in an at these zones have f your organization portunity Zone, would							
Comments:					ONEIDENTIAL - Der Sertion 70	5(d) of the Defense Production Act		
				DUSINESS C	UNFIDENTIAL - PER SECTION /U	of the Derense Production Act		

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						isitions, Divestitures, and Joint Ventures		
					Merge	ers, Acquisitions, and Divestitures		
	om 2015-2019, record the total re to report related private/pub			o all titanium metal and tita	anium metal parts prod	uction, product development and design, and R&D	activities. Be	
Id	entify your organization's merge	ers, acquisitions, and divestitu	ires 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								
3								
A. 2								
e	5							
7					-			
9	9							
1								
1								
1								
1	5							
						Joint Ventures		
	om 2015-2019, record the total cluding public/private partnersh			elated to all titanium metal	and titanium metal pa	rts production, product development and design, a	nd R&D,	
Id	entify your organization's joint v	enture relationships below, i	f 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
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B	1							
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1	3							
1								
1	5							
	Comment	S:						
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_	organization certified titanium sponge for use in rotating	parts? If yes, complete section A. If no	, proceed to section B.				
vour or	rganization maintained certification for any manufacturers	of rotating grade titanium sponge duri	ng the 2015-2019 neriod, list the sum	plier you have certified, date of certifi	cation, and describe the certifi	cation process. If the certification	has been withdrawn, state the date an
	ances of withdrawal, if still active leave the cell blank. You n		ing the 2013 2013 period, list the supp		cation, and accentic the certain	cation process. In the certification	This seen within a with state the date and
		1	2	3		4	5
1	Organization Certified						
2	Date of Certification						
А 3	Date of Certification Withdrawal (If Applicable)						
4	Description of Certification Process						
4	Description of certification Process						
5	If the certification was withdrawn as indicated in A3, describe the reasons for withdrawal.						
	describe the reasons for withdrawai.						
	Comments:						
	om the drop down at right if your organization produces ar	ny of the below products containing tit	anium. If yes, complete section B. If	no, proceed to			
ection C							
or all tit	anium products below answer the applicable categories to	your organizations production by year	Only report production at U.S. facil	ities. Report all quantities in kilogram	s for the years 2014-2019.		
	Type of Titanium Metal (Record all Responses in Kilograms)	2015	2016	2017	2018	2018 YTD (July)	2019 YTD (July)
1	Titanium Ingot (Total)						
	Titanium Ingot Containing Standard Quality Sponge						
1b	Titanium Ingot Containing Aerospace Non-Rotating Sponge						
10	Titanium Ingot Containing Rotating Grade Sponge						
2 2a	Titanium Billet (Total) Titanium Billet Containing Standard Quality Sponge				-		
B 2b	Titanium Billet Containing Acrossess Non Botating				-		
20 20	Sponge						
3	Titanium Scrap						
4	Titanium Bar Titanium Plate			+	+		
6	Titanium Sheet						
	Titanium Tube Titanium Coil						
9	Finished Titanium Products (List in Comments)						
11	Other (List in Comments)						
	Comments:						
elect fre	om the drop down to the right if your organization produce	es any of the below products in the U.S	5. and they contain titanium scrap. If	yes, complete			
ction C	C. If no, proceed to section D.						
	Provide the median and maximum quantities of titanium rap, in kilograms, that can be used for the following parts your organization produces.	Median Scrap Quant	ity N	laximum Scrap Quantity		Comments	
	Aircraft Manufacturing/Assembly						
2	Aircraft Turbine Engine Manufacturing/Assembly						
2	Aircraft Turbine Engine Manufacturing/Assembly Land/Naval Turbine Engine Manufacturing/Assembly Aerospace Structural Parts (e.g. spars, ribs)						
2 3 4 5	Aircraft Turbine Engine Manufacturing/Assembly Land/Naval Turbine Engine Manufacturing/Assembly Aerospace Structural Parts (e.g. spars, ribs) Aerospace High-impact Parts (e.g. landing gear)						
2 3 4 5 6	Aircraft Turbine Engine Manufacturing/Assembly Land/Naval Turbine Engine Manufacturing/Assembly Aerospace High-impact Parts (e.g. parts, ribb) Aerospace High-impact Parts (e.g. landing gear) Aerospace External Engine Parts (e.g. Cow (f.an) Aerospace Internal Engine Parts (e.g. Cow (f.an)						
2 3 4 5 6 7	Aircraft Turbine Engine Manufacturing/Assembly Land/Naval Turbine Engine Manufacturing/Assembly Aerospace Structural Parts (e.g. spars, ribs) Aerospace Engine Parts (e.g. landing gear) Aerospace External Engine Parts (e.g. cowl, fan)						
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2 3 4 5 6 7 8 9 10 11	Aircraft Turbine Engine Manufacturing/Assembly Land/Naval Turbine Engine Manufacturing/Assembly Aerospace Turciural Parts (e.g. gars, ritka) Aerospace Turcinal Engine Parts (e.g. Ionding gear) Aerospace Internal Engine Parts (e.g. cow, f.m) Aerospace Internal Engine Parts (e.g. tow pressure compressor) Titanium Satellite Components/Finished Parts Satellite and Other Space Manufacturing/Assembly Land-Based Turbine Engine and Structural Parts Martime Turbine Engine and Structural Parts Ohemical Processing Equipment (e.g. tubing) Specially Titanium Parts Manufacturing (not to include						
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5. Finished Products Containing Titanium

Provide the following information about your organization's finished products made in the U.S. containing titanium. Order these products by volume (highest to lowest) of titanium contained in the product. For the purposes of this section, a "finished product" is defined as an end product sold to the consumer. If your organization sells aircraft, for example, the "finished product" would be an individual argnet. "Production Cost" is defined as an end product sold to the consumer. If your organization sells aircraft, for example, the "finished product" would be an individual argnet. "Production Cost" is defined as the cost of the arcraft. If your organization sells aircraft, by the cost of intermediate goods and services, labor, energy, transportation, and other factors making up the total cost of the arcraft. If your organization model in the lost of product. "Cost total cost of the intermediate goods and services, labor, energy, transportation."

-										
	Fini	ished Product Name	Product Category	For Defense End- Use?	Number of Units Produced in 2018	Estimated Titanium Content (kilograms)	Average Per-Unit Production Cost (USD)	Cost of Titanium As Percentage of Average Per-Unit Production Cost	Plurality Country of Origin for Titanium Used In Product	Product Titanium "Buy-to-Fly" Ratio
ľ	1									
ľ	2									
ľ	3									
ľ	4									
ľ	5									
ľ	6									
ľ	7									
ľ	8									
ľ	9									
ľ	10									
ľ	11 12 13 14									
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- [26									
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- [28									
[29									
	30									
		Comments:								
					BUSINESS CONFIDENT	IAL - Per Section 705(d) of the	Defense Production Act			

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Previo	us Page			6. Facility Inve	ntory	_		Next Pag
Provid	e all U.S	. inventories held directly or indirectly by your organization for the 2015 to 2	2018 period, current as of the er					
				Working Inven				
Indica	e quant	ity of titanium your organization maintains in working inventory, and the an	nounts of each in inventory for t	he 2015 to 2019 perio	od. Report all amounts in	kilograms. If your organiz	ation has more than one	alloy of a given product in inventory, list each alloy
separ	tely. (e.	g., if your organization has Titanium Billet with Alloys A and B, provide two e	entries for Titanium Billet with 'A	in the Alloy column	for the first entry and 'B'	in the Alloy column for th	e second). For this question	on, working inventory is defined as the combination of
work-	n-progre	ess material and finished material held as inventory in anticipation of future	sales.		1	1		T
		Types of Titanium in Inventory	Alloy	2015	2016	2017	2018	Comments
	1							
	2							
	4							
	5							
	7							
	8							
	10							
	11 12							
	12							
	14							
	15 16							
	17							
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A	20							
	21 22							
	23							
	24 25							
	26							
	27 28							
	29							
	30 31							
	32							
	33 34							
	35							
	36							
	37 38							
	39							
	40			Strategic Inver				
your o	rganizat	ion as a reserve or hedge against supply disruption, market conditions, etc.	1	2045	2015	2007	2010	Commente
your o		on as a reserve or neoge against supply disruption, market conditions, etc. Types of Titanium in Inventory	Alloy	2015	2016	2017	2018	Comments
your o	1 2		1	2015	2016	2017	2018	Comments
your o	1 2 3		1	2015	2016	2017	2018	Comments
your o	1 2 3 4 5		1	2015	2016	2017	2018	Comments
your o	1 2 3 4 5 6		1	2015	2016	2017	2018	Comments
your o	1 2 3 4 5 6 7 8		1	2015	2016	2017	2018	Comments
your o	1 2 3 4 5 6 7 8 9		1	2015	2016	2017	2018	Comments
your o	1 2 3 4 5 6 7 7 8 9 10 11		1	2015	2016	2017	2018	Comments
your o	1 2 3 4 5 6 7 7 8 9 10 11 12		1	2015	2016	2017	2018	Comments
your c	1 2 3 4 5 6 7 8 9 10 11 12 13 14		1	2015	2016	2017	2018	Comments
your t	1 2 3 4 5 6 7 8 9 10 11 11 12 13 14 15		1	2015	2016	2017	2018	Comments
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	1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16		1	2015	2016	2017	2018	Comments
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	1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 7 17 18 19		1	2015	2016	2017	2018	Comments
	1 2 3 4 5 6 7 7 8 9 10 11 12 13 13 14 15 16 17 18 19 20 21 22 23		1	2015	2016	2017	2018	Comments
	1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 9 20 22 21 22 22 24		1	2015	2016	2017	2018	Comments
	1 2 3 4 5 5 6 7 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 18 19 22 23 24 5 26		1	2015	2016	2017	2018	Comments
	1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 22 23 22 6 27		1	2015	2016	2017	2018	Comments
	1 2 3 4 5 6 7 7 8 9 10 11 11 12 13 13 14 15 16 17 7 8 9 9 20 21 22 23 24 22 22 22 22 22 22 22 22 22 22 22 22		1	2015	2016	2017	2018	Comments
	1 2 3 4 5 6 7 7 8 9 9 10 11 11 12 13 14 15 6 6 17 18 9 20 21 22 23 24 22 22 22 22 22 22 22 22 30		1	2015	2016	2017	2018	Comments
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	1 2 3 4 5 6 6 7 7 8 9 9 10 11 13 13 14 15 16 17 17 13 14 15 26 27 23 24 22 23 22 30 31 22 33 33 34		1	2015	2016	2017	2018	Comments
	1 2 3 4 4 5 6 7 7 8 9 9 10 11 12 13 14 15 16 17 13 14 15 16 17 12 21 22 22 22 22 22 22 22 22		1	2015	2016	2017	2018	Comments
	1 2 3 4 4 5 6 7 7 8 9 9 10 11 12 13 14 15 16 6 7 7 8 9 9 10 11 12 13 14 15 16 20 21 22 23 24 25 26 27 28 29 20 31 31 31 31 34 4 5 5 5 5 5 5 5 5 5 5 5 5 5		1	2015	2016	2017		Comments
	1 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 39 39 39 39 39 39 30 39 39 39 39 30 39 39 39 39 30 39 39 30 39 39 30 39 30 30 30 30 30 30 30 30 30 30		1		2016	2017	2018	Comments
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Prev	vious Page							Next Page					
_				7. National Defer									
A	Did your organization, directly or indirectly, supply titanit complete sections B, C, and D below.	um products for U.S. def	ense systems between 202	15 and 2019? If no, proceed t	to the next page. If yes,								
	From the list of U.S. Government agencies below, sele	ect those whose systems	you supported between 2	015 and 2019.									
	U.S. Air Force			U.S. Coast Guard			Department of Energy						
в				U.S. Intelligence Commun	nity (such as CIA, NGA, NRO,								
_	U.S. Army			NSA)			Other (Specify to the Right)						
	U.S. Marine Corps			Missile Defense Agency (MDA)		Other (Specify to the Right)						
	U.S. Navy			Defense Logistics Agency			Other (Specify to the Right)						
	Identify the specific U.S. Government programs/systems your organization has supported since 2015. In the first column, select the defense system name from the dropdown menu. In the agency name column, select the applicable agency from the drop down options. In the titanium related products 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 system name or agency name, provide as much information as possible. Do not disclose any classified information. Estimated Total Amount Titanium Product and/or Produc												
	Defense System Name (select from	Agency Name (select from dropdown)		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 Product and/or Finished Good 5					
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Prev	ious Page				8. Critical Infrastructure			Next Page
	From the list of Critical Infras	ructure Sectors below, indicate	which sectors your organization has su		In-depth definitions of each sector 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)		Dams Sector (e.g. titanium parts for electric turbines		Financial Services Sector (e.g. titanium parts for data systems used by financial services firms)		Information Technology Sector (e.g. titanium parts for batteries)	
	Commercial Facilities Sector (e.g. cladding, structural supports)		used in dams)		Food and Agriculture Sector (e.g. titanium parts used in agricultural equipment)		Nuclear Reactors, Materials, and Waste Sector (e.g. waste storage, pipes and tubing for reactors, reactor shields)	
A	Communications Sector (e.g., titanium parts for communications satellites)		Emergency Services Sector (e.g. titanium applications for police, fire, and EMS)		Government and Facilities Sector (e.g. titanium parts provided for end use in U.S. government facilities)		Transportation Systems Sector (e.g. civil aviation, titanium parts for oil and gas pipelines, titanium parts for motor vehicles, ships, and railroad equipment)	
	Critical Manufacturing Sector (e.g. titanium parts for various industrial machinery, titanium parts for aircraft engines)		Energy Sector (e.g. titanium parts for solar panels, titanium turbine parts, pipes for power plants)		Healthcare and Public Health Sector (e.g. replacement joints, prosthetics, medical instruments)		Water and Wastewater Systems Sector (e.g. pipes for water and sewer and treatment plant systems)	
		cts columns, state the titanium -			sector. If additional products are provided o not disclose any classified information.	in support of a specific sector, re	peat the program/system on a new row and select the	e remaining products.
		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 Product 5
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					rices				
		• • •	kilogram your organization has p . (Include purchases of both U.S.		elow titanium a	and/or titanium-	related produc	ts over the 2015	-2019 period.
						Ŷ	'ear		
		Pro	duct	2015	2016	2017	2018	2018 YTD	2019 YTD
				Titar	nium Ingot	-		· · · · · · · · · · · · · · · · · · ·	
	А	Titanium Ingot Conta	ining Standard Quality Sponge						
1	В	Titanium Ingot Conta Sponge	ining Aerospace Non-Rotating						
	с	Titanium Ingot Conta	ining Rotating Grade Sponge						
				Titar	nium Billet				
	А	Titanium Billet Conta	ining Standard Quality Sponge						
2	В	Titanium Billet Conta Sponge	ining Aerospace Non-Rotating						
	с	Titanium Billet Conta	ining Rotating Grade Sponge						
3	Titar	nium Bar							
4	Titar	nium Plate							
5	Titar	nium Sheet (Hot Rolled	and Cold Rolled)						
6	Titar	nium Tube							
7	Titar	nium Coil							
8	Aero	ospace Structural Parts	(e.g. spars, ribs)						
9		ospace High-impact Par							
10	Aero	ospace External Engine	Parts (e.g. cowl, fan)						
11	com	pressor)	Parts (e.g. low pressure						
12	Land	I-Based Turbine Engine	and Structural Parts						
13		itime Turbine Engine a							
14	_	mical Processing Equip							
15	Titar	nium Satellite Compon	ents/Finished Parts						
16		Other	(specify)						
17		Other	(specify)						
18		Other	(specify)						
		Comr	nents: BUSINESS CONFIDENTIA	Day Castin	- 705(d) of the	Defense Dradus	tion Act		
1			DUSINESS CUNTIDENTIA		1 705(u) 01 the	Delense Produc			

						10. Suppli	ers/Purchases											
be o	of titanium purchased by your	organization with receipt at a	a U.S. facility from 2015-2019,	state the supplier, amounts purchased, an	d prices paid. If your organization has m	ore than ten suppliers for a given produc	t, provide the top ten suppliers by	y volume. For any	category of iten	ns you do not p	urchase, enter a (in the corresp	onding box.					
						Titanium Ingot Containing Sta	ndard Quality Sponge (Kilograms)											
our	organization's total number o	f suppliers for Titanium Ingot	Containing Standard Quality															
	Sponge. V	Where necessary, input 0.																
								20)15	2	016	2	017		2018	YTD 2018 (July)	YTD	2019 (Ju
	Supplier	Supplier Headquarters	Is This Supplier a Related Party?	Manufacturer/Processor (if different from supplier)	Country of Ingot Fabrication	End-Use	Comments		Value (\$USD)		Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)			Valu
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						Titanium Ingot Containing Aerospace	Non-Rotating Grade Sponge (Kilo	ograms)	1				1		1	1 1		_
our	r organization's total number o Rotating Grade Sp	of suppliers for Titanium Ingot oonge. Where necessary, inpu	t Containing Aerospace Non- it 0.															
								20)15	2	016	2	017		2018	YTD 2018 (July)	YTD	2019 (Ju
	Supplier	Supplier Headquarters	Is This Supplier a Related Party?	Manufacturer/Processor (if different from supplier)	Country of Ingot Fabrication	End-Use	Comments		Value (\$USD)		Value (\$USD)		Value (\$USD)		Value (\$USD)			Va
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						Titanium Ingot Containing Ro	otating Grade Sponge (Kilograms)											
our	r organization's total number of	of suppliers for Titanium Ingo	t Containing Rotating Grade															
	Sponge. V	Vhere necessary, input 0.						20	015	2	016	2	017		2018	YTD 2018 (July)	VTD	2019 (J
	Supplier	Supplier Headquarters	Is This Supplier a Related Party?	Manufacturer/Processor (if different from supplier)	Country of Ingot Fabrication	End-Use	Comments		Value (\$USD)		Value (\$USD)		Value (\$USD)		Value (\$USD)			
			Faity:	nom supplier)				volume	value (SUSD)	volume	value (\$050)	volume	value (\$05D)	volume	value (\$05D)	volume value (\$05) volume	Vd
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						Titanium Billet Containing Sta	ndard Quality Sponge (Kilograms)											
our	organization's total number o Snonge M	f suppliers for Titanium Billet Vhere necessary, input 0.	Containing Standard Quality															
	B	,,,,,,,,,,,,,,																
	Supplier	Supplier Headquarters	Is This Supplier a Related	Manufacturer/Processor (if different	Country of Billet Fabrication	End-Lise	Comments	20	015	2	D16	2	017		2018	YTD 2018 (July)	YID	2019 (J
	Supplier	supplier neauquarters	Party?	from supplier)	Country of Billet Fabrication	End-Ose	comments	Volume	Value (SUSD)	Volume	Value (SUSD)	Volume	Value (SUSD)	Volume	Value (SUSD)	Volume Value (SUS) Volume	Val
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				ı I		Titanium Billet Containing Aerospace	Non-Rotating Grade Sponge(Kilo	grams)										
	r organization's total number o	of suppliers for Titanium Billet	Containing Aerospace Non-															
ur	Rotating Grade Sp	oonge. Where necessary, inpu	it 0.															
ur	Supplier	Supplier Headquarters	Is This Supplier a Related	Manufacturer/Processor (if different	Country of Billet Fabrication	End-Use	Comments		015		016		017		2018	YTD 2018 (July)		2019 (.
ur			Party?	from supplier)				Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume Value (\$US) Volume	Va
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ur	заррне						1	1	1	1	1							1
our	зиррнен																	
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						Titanium Billet Containing Rot	ating Grade Sponge (Kilograms)												
Identify		er of suppliers for Titanium Billet	Containing Rotating Grade																
	sponge.	Where necessary, input 0.						2	015		2016	20	017	2	:018	YTD 20	018 (July)	YTD 2	019 (July)
	Supplier	Supplier Headquarters	Is This Supplier a Related Party?	Manufacturer/Processor (if different from supplier)	Country of Billet Fabrication	End-Use	Comments	Volume	Value (\$USD)		Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume		Volume	Value (\$US
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10						Titanium B:	ır (Kilograms)			L	_								
						ritanian or	(mograno)												
Identify	your organization's total numb	er of suppliers for Titanium Bar.	Where necessary, input 0.																
	Supplier	Supplier Headquarters	Is This Supplier a Related	Manufacturer/Processor (if different	Country of Bar Fabrication	End-Use	Comments		015		2016		017		:018		018 (July)		019 (July)
			Party?	from supplier)	,			Volume	Value (\$USD)	Volume	Value (\$US								
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6															1				
8																			
9																			
10						Titanium Pla	te (Kilograms)	1	1								1 1		1
dentify y	your organization's total numbe	r of suppliers for Titanium Plate.	. Where necessary, input 0.																
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	Supplier	Supplier Headquarters	Is This Supplier a Related Party?	Manufacturer/Processor (if different from supplier)	Country of Plate Fabrication	End-Use	Comments	Volume	Value (\$USD)	Volume	Value (\$US								
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4																			
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10						Titanium She	et (Kilograms)												
lontifuu	our organization's total number	r of suppliers for Titanium Sheet	Where pergraps input 0			Tranium Site	et (Kilogranis)												
uentity y	your organization's total number	for suppliers for maniful sheet						2	015		2016	2	017		1018	VTD 20	018 (July)	VTD 2	019 (July)
	Supplier	Supplier Headquarters	Is This Supplier a Related Party?	Manufacturer/Processor (if different from supplier)	Country of Sheet Fabrication	End-Use	Comments		Value (\$USD)		Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume		Volume	Value (\$US
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dontifi	wour organization's total	r of suppliers for Titanium Tube.	Where performent input 0			ritanium ru	(
uentity y	your organization's total numbe	or suppliers for Litanium Tube.	. where necessary, input 0.																
	Supplier	Supplier Headquarters	Is This Supplier a Related	Manufacturer/Processor (if different	Country of Tube Fabrication	End-Use	Comments		015		2016		017	2	:018		D18 (July)		019 (July)
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						Titanium (Other - 1	explain in Comments)											
lentify w	our organization's total number of	suppliers for Titanium (Other	r) Where necessary input 0															
uchtery y	var organization s total namber of .	suppliers for manian (other	, mere necessary, mpare.					2015		2010					VTD 20	18 (July)	1000	010 (1-1-1)
	Supplier	Supplier Headquarters	Is This Supplier a Related Party?	Manufacturer/Processor (if different from supplier)	Country of Other Titanium Fabrication	End-Use	Comments	2015 Volume Value (\$U		2016 Value (\$USD)		017 Value (\$USD)		018 Value (\$USD)		Value (\$USD)		019 (July) Value (\$U
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dentify y	our organization's total number of	suppliers for Titanium (Other	r). Where necessary, input 0.															
	Supplier	Supplier Headquarters	Is This Supplier a Related	Manufacturer/Processor (if different	Country of Other Titanium Fabrication	End-Use	Comments	2015		2016	20	017	2	018	YTD 20	18 (July)		019 (July)
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	Supplier	Currenting Upped Surgers	Is This Supplier a Related		Country of Other Titaging Tabaiant	Cod Has	Comments	2015		2016	20)17	2	018	YTD 20	18 (July)	YTD 20	019 (July)
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	um-related product sold by your or	ganization from 2015-2019. st	tate the customer, amounts purchased and	prices. If your organization has more th		stomers vide the top ten customers by vo	ume. Titanium (Other) should in	clude finished pro	oducts. For those	items for which	n you do not hav	ve customers. e	nter a 0 in the co	orresponding bo	ox.	
				,,		ap (Kilograms)	,, ,,, ,,, ,,, ,,, ,,,				,					
rganization's total numb	ber of customers for Titanium Scra	p. Where necessary, input 0.														
		Is This Customer a Related					2015	201	16	20:	17	20	018	YTD 20	018 (July)	YTD 20
Customer	Customer Headquarters	Party?	End User (If Different from Customer)	Country of Titanium Scrap Origin	End-Use	Comments	Volume Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD) Volu	ime
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organization's total num	ber of customers for Titanium Ingo	ot. Where necessary, input 0.														
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Customer	Customer Headquarters	Is This Customer a Related	End User (If Different from Customer)	Country of Ingot Fabrication	End-Use	Comments			-							
	customer neauquarters	Party?	and over (in our creater from customer)	country of mport addication	Ling-Ose		Volume Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD) Volu	ime
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		L		<u> </u>					t							_
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					<u> </u>				+				<u> </u>			
					Titanium Bill	et (Kilograms)										
organization's total num	ber of customers for Titanium Bille	et. Where necessary, input 0.														
							2015	201	16	20:	17	20	018	YTD 20	018 (July)	YTD 2
Customer	Customer Headquarters	Is This Customer a Related	End User (If Different from Customer)	Country of Billet Fabrication	End-Use	Comments			-							
		Party?					Volume Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD) Volu	me
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					Titanium Ba	ır (Kilograms)										
organization's total num	mbor of customore for Titanium Pa															
	inder of customers for maniam ba	r. Where necessary, input 0.														
	inder of customers for manian ba	r. Where necessary, input 0.					2015		C		7		10	MER OF	018 (104)	VTD 2
Customer	Customer Headquarters	Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication	End-Use	Comments	2015	201	16	20:	17	20	018	YTD 20	018 (July)	YTD 2
			End User (If Different from Customer)	Country of Bar Fabrication		Comments	2015 Volume Value (\$USD)				17 Value (\$USD)		018 Value (\$USD)		018 (July) Value (\$USD) Volu	
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication		Comments										
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication		Comments										
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication		Comments										
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication		Comments										
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication		Comments										
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication		Comments										
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication		Comments										
		Is This Customer a Related	End User (If Different from Customer)	Country of Bar Fabrication	End-Use											
Customer	Customer Headquarters	Is This Customer a Related Party?		Country of Bar Fabrication	End-Use	Comments										
Customer		Is This Customer a Related Party?		Country of Bar Fabrication	End-Use									Volume	Value (SUSD) Volue	ime
Customer	Customer Headquarters	Is This Customer a Related Party?			End-Use	te (Kilograms)			Value (SUSD)		Value (\$USD)	Volume		Volume	Value (SUSD) Volue	ime
Customer	Customer Headquarters	Is This Customer a Related Party?		Country of Bar Fabrication	End-Use		Volume Value (SUSD)	Volume	Value (\$USD)	Volume 20:	Value (\$USD)	Volume 20	Value (SUSD)	Volume YTD 20	Value (SUSD) Volue	YTD 2
Customer	Customer Headquarters	Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related			End-Use	te (Kilograms)	Volume Value (SUSD)	Volume	Value (\$USD)	Volume 20:	Value (SUSD)	Volume 20	Value (\$USD)	Volume YTD 20	Value (SUSD) Volue	YTD 2
Customer	Customer Headquarters	Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related			End-Use	te (Kilograms)	Volume Value (SUSD)	Volume	Value (\$USD)	Volume 20:	Value (SUSD)	Volume 20	Value (\$USD)	Volume YTD 20	Value (SUSD) Volue	YTD 2
Customer	Customer Headquarters	Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related			End-Use	te (Kilograms)	Volume Value (SUSD)	Volume	Value (\$USD)	Volume 20:	Value (SUSD)	Volume 20	Value (\$USD)	Volume YTD 20	Value (SUSD) Volue	YTD 2
Customer	Customer Headquarters	Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related			End-Use	te (Kilograms)	Volume Value (SUSD)	Volume	Value (\$USD)	Volume 20:	Value (SUSD)	Volume 20	Value (\$USD)	Volume YTD 20	Value (SUSD) Volue	YTD 2
Customer	Customer Headquarters	Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related			End-Use	te (Kilograms)	Volume Value (SUSD)	Volume	Value (\$USD)	Volume 20:	Value (SUSD)	Volume 20	Value (\$USD)	Volume YTD 20	Value (SUSD) Volue	YTD 20
Customer	Customer Headquarters	Is This Customer a Related Party? e. Where necessary, input 0. Is This Customer a Related			End-Use	te (Kilograms)	Volume Value (SUSD)	Volume	Value (\$USD)	Volume 20:	Value (SUSD)	Volume 20	Value (\$USD)	Volume YTD 20	Value (SUSD) Volue	YTD 20

						Titanium She	et (Kilograms)												
Idontify you	ur organization's total number o	f sustamors for Titanium Shoo	t Where pergraps input 0																
identity you	or organization's total number o	Customers for ritaliant silee	t. where necessary, input o.					20	015	2	016	2	017	2	018	VTD 20	18 (July)	VTD 2	019 (July)
	Customer	Customer Headquarters	Is This Customer a Related Party?	End User (If Different from Customer)	Country of Sheet Fabrication	End-Use	Comments		Value (\$USD)		Value (\$USD)		Value (\$USD)	Volume	Value (\$USD)		Value (\$USD)		Value (\$USD)
1																			,
2																			
F 4																			
5																			
7																			
9																			
10						Titanium Tul	be (Kilograms)			L									
l dan biferra	our organization's total number of																		
Identify yo	our organization's total number o	of customers for Titanium Tube	e. where necessary, input u.													1000 000		1000	
	Customer	Customer Headquarters	Is This Customer a Related	End User (If Different from Customer)	Country of Tube Fabrication	End-Use	Comments		015		016		017		018		18 (July)		019 (July)
			Party?					Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)						
1																			
G 4																			
5																			
6																			
8																			
10																			
Idontifuyou	ur organization's total number of	customors for Assembled Airs	rafte Whore personal input	•		Assembl	ed Aircraft												
identity you	ar organization's total number of	0.	and, where necessary, inpu	c c															
	Customer		Is This Customer a Related	End User (If Different from Customer)	Country of Assembled Aircraft			20	015	2	016	2	017	2	018	YTD 20:	18 (July)	YTD 2	019 (July)
	Customer	Customer Headquarters	Party?	End User (If Different from Customer)	Fabrication	End-Use	Comments	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)						
1																			
2																			
H 4																			
6																			
7																			
9																			
10						Assembled En	gine for Aircraft				II		II		1				1
Identify yo	our organization's total number o	f customers for Titanium Shee	t. Where necessary, input 0.																
								20	015	2	016	2	017	2	018	YTD 20:	18 (July)	YTD 2	019 (July)
	Customer	Customer Headquarters	Is This Customer a Related Party?	End User (If Different from Customer)	Country of Assembled Engine for Aircraft Fabrication	End-Use	Comments	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)						
1																			
2																			
1 4																			
5												_		-					
7																			
8								1							1				1
10						Titanium (Othor E	xplain in Comments)	1	I	1			1		1		1	1	1
Identify y	our organization's total number	of customers for Assembled E	ngines for Aircrafts. Where			namum (otilei - E	in connents)												
	n	ecessary, input 0.														1000 - 1	10 (1.4.)		010 (1-1-2
	Customer	Customer Headquarters	Is This Customer a Related	End User (If Different from Customer)	Country of Other Titanium Fabrication	End-Use	Comments		015		016		017		018		18 (July)		019 (July)
			Party?					Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)						
1	-																		
3																			
4 5															-				-
6																			
8																			
9																			
10		1	1	1	1 I I		I	1	1	1	1 1		1 1		1	1 1	I	I	1

						Titanium (Other - E	xplain in Comments)											
Identify your org	ganization's total numbe	r of customers for Titanium (Othe	er). Where necessary, input 0.					21	015	20	016	017	2	018	YTD 20:	18 (July)	YTD 20	119 (July)
	Customer	Customer Headquarters	Is This Customer a Related Party?	End User (If Different from Customer)	Country of Other Titanium Fabrication	End-Use	Comments	Volume	Value (\$USD)	Volume	Value (\$USD) Volume	Value (\$USD)	Volume	Value (\$USD)		Value (\$USD)	Volume	Value (\$USD)
1												,						
2 3																		
4 5																		<u> </u>
7																		L
9																		
						Titanium (Other - E	xplain in Comments)						1	1 1				
Identity your org	ganization's total numbe	r of customers for Titanium (Othe						20	015	20	116	017	2	018	YTD 20:	L8 (July)	YTD 20	119 (July)
	Customer	Customer Headquarters	Is This Customer a Related Party?	End User (If Different from Customer)	Country of Other Titanium Fabrication	End-Use	Comments	Volume	Value (\$USD)	Volume	Value (\$USD) Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)
1																		
L 3																		
5									-									
7 8																		
9 10																		
						Titanium (Other - E	xplain in Comments)											
Identify your org	ganization's total numbe	r of customers for Titanium (Othe	er). Where necessary, input 0.												1000		1000	
	Customer	Customer Headquarters	Is This Customer a Related Party?	End User (If Different from Customer)	Country of Other Titanium Fabrication	End-Use	Comments		Value (SUSD)	20 Volume	Value (SUSD) Volume	Value (SUSD)	2 Volume	018 Value (SUSD)	YTD 20:	Value (SUSD)	VOlume	19 (July) Value (SUSD)
1			Faity:					volume	value (\$05D)	volume	value (\$05D) Volume	value (\$05D)	volume	value (\$05D)	volume	value (\$05D)	volume	value (\$05D)
2 3																		
M 4 5																		
6 7																		
9																		
						Titanium (Other - E	xplain in Comments)					1	1					
Identify your org	anization's total numbe	r of customers for Titanium (Othe						20	015	20	116	017	2	018	YTD 20:	L8 (July)	YTD 20	119 (July)
	Customer	Customer Headquarters	Is This Customer a Related Party?	End User (If Different from Customer)	Country of Other Titanium Fabrication	End-Use	Comments	Volume	Value (\$USD)	Volume	Value (\$USD) Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)
1																		
N 3 4																		
5																		
7 8																		<u> </u>
9 10						Titanium (Other - E	xplain in Comments)											
Identify your org	anization's total numbe	r of customers for Titanium (Othe	er). Where necessary, input 0.			internet (Other - E												
			In This Containing Related					20	015	20	116	017	2	018	YTD 20	L8 (July)	YTD 20	19 (July)
	Customer	Customer Headquarters	Party?	End User (If Different from Customer)	Country of Other Titanium Fabrication	End-Use	Comments	Volume	Value (\$USD)	Volume	Value (\$USD) Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)	Volume	Value (\$USD)
1 2																		
0 3 4																		
5								-		-								
7 8																		
9 10																		
	Comments:																	
						BUSINESS CONFIDENTIAL - Per Sectio	n 705(d) of the Defense Productio	n Act										

A Has your organization conducted titanium-related research and devel United States from 2015-2019?	lopment (R&D) in the	12. Research & Deve	If no, proceed to S	•			
Record your organization's total R&D dollar expenditures and type of R&D	expenditure for the 2	015 to 2019 period. L	ines 6-8 will addres	s specific titanium-	related expenditures.		
			Recor	d \$ in Thousands, e	e.g. \$12,000.00 = survey inpu	ıt of \$12	
	20:	15	20	016	2017	2018	2019
1 Total R&D Expenditures							
2 Basic Research [as a % of B1] 3 Applied Research [as a % of B1]							
4 Product/Process Development [as a % of B1]							
B 5 Total of 2 - 4 [must equal 100%]	09	6	C	%	0%	0%	0%
6 Titanium-related Basic Research [as a % of B1]					0,0	0,0	0,0
7 Titanium-related Applied Research [as a % of B1]							
8 Titanium-related Product/Process Development [as a % of B1]							
Total of 6-8	0%	6	C	%	0%	0%	0%
C Has your organization conducted titanium-related capital expenditure States from 2015-2019?	es in the United		If no, proceed to t	he next page.			
Record your organization's titanium-related capital expenditures in the Un	ited States correspond	l ding to the select cate	egories below for th	e 2015-2019 period	d.		l comments in relation to your itures made in the past 5 years
		Record S in Thous	ands, e.g. \$12,000.	00 = survey input o	ıf \$12	(2015-2019).	itures made in the past 5 years
Capital Expenditure Activity Type	2015	2016	2017	2018	2019	(2013 2013).	
D Total Titanium-Related Capital Expenditures							
1 Machinery, Equipment, and Vehicles [as a % of A]							
2 IT, Computers, Software [as a % of A]							
3 Land, Buildings, and Leasehold Improvements [as a % of A]							
4 Other (Specify) [as a % of A]							
5 Other (Specify) [as a % of A]							
Lines 1 through 5 must total 100%	0%	0%	0%	0%	0%		
Comments:							
	BUSINESS	CONFIDENTIAL - Per	Section 705(d) of th	e Defense Product	tion Act		

Prev	revious Page Next Page											
		13. F	inancials									
Pro	vide the following financial line items for your o	organization's tita	anium-related U.S.	. cost center/busin	ess activity operat	ions for the 2015						
to 2	019 period.											
	Source of Financial Data:											
	Reporting Schedule:											
•	Income Chatemant (Calact Line Itema)	Rec	ord \$ in Thousand	ls, e.g. \$12,000.00	= survey input of	\$12						
Α.	Income Statement (Select Line Items)	2015	2016	2017	2018	2019						
1	Net Sales (and other revenue)											
2	Cost of Goods Sold											
3	Total Operating Income (Loss)											
4	Earnings Before Interest and Taxes											
5	Net Income											
В.	Balance Sheet (Select Line Items)	Rec	ord \$ in Thousanc	ls, e.g. \$12,000.00	= survey input of	\$12						
D.	Balance Sheet (Select Line Rems)	2015	2016	2017	2018	2019						
6	Cash											
7	Inventories											
8	Total Current Assets											
9	Total Assets											
10	Total Current Liabilities											
11	Total Liabilities											
12	Retained Earnings											
13	Total Owner's Equity											
	Comments:											
i i	BUSINESS CONFIDE	NTIAL - Per Secti	on 705(d) of the I	Defense Productio	n Act							

Data Confirmation
2019 Net Sales
None

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	14. Certification
-	on herein supplied in response to this questionnaire is complete and correct to the best of his/her y make a false statement or representation to any department or agency of the United States Government 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 con	ments or any other information you wish to include regarding this survey assessment.
How many hours did it take to complete this	survey?
BUSINE	SS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act