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OMB Control Number: 0694-0120

Expiration Date: December, 31 2020

Section 232 Investigation into Imports of Vanadium



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. vanadium industry. The survey results will be used to support an ongoing investigation on the effect of imports of vanadium products on the 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 vanadium imports are 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, capacity utilization, 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 vanadium 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 Information furnished herewith is deemed confidential and will not be published or disclosed except in accordance with Section 705 of the Defense Production Act of 1950, as amended (50 U.S.C. Sec. 4555).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 10 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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Previous Page **Next Page General Instructions** Your organization is required to complete this survey of the U.S. vanadium industry, which can be downloaded from the BIS website: http://www.bis.doc.gov/XXX 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. 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. 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. Upon completion of the survey, final review, and certification, transmit the survey document via e-mail to: Vanadium232@bis.doc.gov Questions related to the survey should be directed to BIS survey support staff at Vanadium232@bis.doc.gov E-mail is the preferred method of contact. You may speak with a member of the BIS survey support staff by calling (202) 482-5481. For questions related to the overall scope of this Section 232 Investigation, contact Vanadium232@bis.doc.gov or: Jason D. Bolton Program Manager, Industrial Studies BIS/Export Administration/Office of Technology Evaluation 1401 Constitution Avenue, NW, Room 1093 Washington, DC 20230 DO NOT submit completed surveys to Mr. Bolton's postal or personal e-mail address. All surveys must be submitted electronically to:

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Vanadium232@bis.doc.gov

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Term	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.
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.
Tipping/Recycling Fees	Fees collected for the recycling of waste products.
Conversion	The process of converting one form of vanadium, typically vanadium pentoxide, into another form of vanadium, typically ferrovanadium.
Vanadium Master Alloys	Master alloys produced from high purity vanadium pentoxide, including Aluminum-Vanadium master alloys (containing 35% aluminum and 64.5% vanadium).
High Purity Vanadium Pentoxide	Vanadium Pentoxide with vanadium content of 99% percent or more vanadium content.
Primary/By-Product Production	The process of producing vanadium products from mining operations or in conjunction with mining operations for other minerals.
Secondary Production	The process of transforming waste materials (spent catalyst, slag, ash, residues, etc.) into vanadium products, including vanadium pentoxide, ferrovanadium, vanadium metals, and metal alloys that contain vanadium.
Co-Production	The process of extracting vanadium from titaniferous magnetite ores during steel production.
Distributor	An independent selling agent who has a contract to sell the products of a manufacturer.
Customer	Any organization (external or internal entity) for which your organization manufactures/processes any product comprised of, or containing, steel in any form.
Customer	Any organization (external or internal entity) for which your organization manufactures/processes any product comprised of, or containing, steel in any form.
Defense-related Activities	Any product or service that your organization produces that is ultimately used by the U.S. Government for defense purposes, whether by the armed services, the Department of Defense, or any other U.S. Government entity.
Development	The design, simulation, and testing of a prototype, including experimental software or hardware systems, to validate technological feasibility or concept of operation in order to reduce technological risk, or provide test systems prior to production approval.
Exports	Shipments to destinations outside the United States.

_	Definitions
Term	Definition
Facility	A building or the minimum complex of buildings or parts of buildings that conduct steel production, 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.
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.
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.
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 capable of designing and/or manufacturing steel products.
Product/Process Development	Conceptualization and development of steel product or steel production techniques prior to the production of the product for customers (i.e., utilities, governmental agencies etc.).
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 steel, including sales to end-users, producers, financial entities, intermediaries, traders, distributors, et al.
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.
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.
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				1. Organiz	zation Inform	ation				
	Provide the following information for your	organization								
	Organization Name	- 0								
	0									
	City									
	·									
A.	State									
	U.S. Point of Contact Email									
	U.S. Point of Contact Phone									
		art, by any priv	ate or government entity? In	dicate Yes/No,	then identify	the entitie	s below, if applicable	. List entities with at least 5%		
	ownership.								<u> </u>	
	Entity Name	Global Hea	adquarters Street Address	Global Heado	uarters City		l Headquarters	Global Headquarters Countr	ν	Ownership %
	,		·			Sta	ate/Province	·	<u> </u>	
В.										
υ.										
	Identify the subject products that your organ	nization curre	ntly uses/sources and sells/n	rovides						
	identify the subject products that your orga	inization curre	ittly uses/sources and sens/pi							
		uhiect Produc	ts			Uses/So	urces	Sells/Provides	H.	TSUS Code Used for
		abjectirodae				0303/30	urces	Selis/110vides		Import/Export
	Vanadium Ores and Concentrates					Import	Only	Export Only		
	Vanadates			So	urce Domes	stically Only	Sell Domestically Only			
	Vanadium Carbides				Impor	t and Sourc	e Domestically	Export and Sell Domestically		
	Vanadium Sulfates					Not Appl		Not Applicable		
	Vanadium Hydrides, Nitrides, Azides, Silicid	es, and Boride	S					·		
C.	Vanadium Pentoxide - Up to 99% Vanadiur	n								
	High Purity Vanadium Pentoxide - 99%+ Van	nadium								
	Other Vanadium Oxides and Hydroxides (Ex	cluding Pento	xide)							
	Ferrovanadium - 40-60% Vanadium									
	Ferrovanadium - 80%+ Vanadium									
	Vanadium Master Alloys									
	·	ding Master Al	lovs)							
	Other									
				zation currentl	v operatos ir	cluding cta	ndhy/idlo facilities in	side and outside the LLS that man	ufacturo	and/or distribute any of
		ie total numbe	or racincles triat your organi	zation currenti	y operates, ii	iciuuiiig sta	iluby/lule lacilities, ili	iside and outside the o.s., that man	uracture	and/or distribute any or
		and the state of the state of	.		N.		C ===!!!#!	Nb.a. af N.a.	11.6.5-	ettet
		ubject Produc	ıs			ımber of U.		Number of Non	-U.S. Fac	
					Manufa	acture	Distribute Only	Manufacture		Distribute Only
			s							
υ.	·									
	<u> </u>									
		es, Spent Catal	ysts, Vanadium Slag, Etc.)							
	Vanadium Master Alloys									
		-	· ·							
	Other	(Spe	ecify)							
	Comments									
	comments:									
	vide the following information for your organization panization Name eet Address /- /- /- /- /- /- /- /- /- /- /- /- /-			rtion 705(d) (of the Defer	se Production Act				

Prev	rious Page					2 5-115-1-6						Next Pag
						2. Facility Info	rmation					
					on standby and facilities under construction		tation, distribution, pro	duction, or exploration of vana	dium products.			
aci	lities supporting multiple	product categories shou	ıld be counted just on	ce for the total number but dupl	icated for each product category supporte	d in the facility description						
					the importation, distribution or production to standby or idle facilities, include any fac		and facilities under son	anter cation				
	Remember to duplicate ti	ne racility in a dedicated	row for each product	category supported. In addition	to standby or idle facilities, include any fac	cilities shut down since 2015	and facilities under cor	istruction.				
							Current Operating Stat	uic .		itution from	Future Operating Status	
							current operating stat		Standby/I	dle/Shutdown	ratare operating status	
	Facility Name	City	State	Type of Facility	Product Category Supported		Start Date of			Estimated Cost to		Comments
	racinty rearrie	City	State	Type of Facility	r rouder category supported	Current Operating Status	Standby/Idle or	Primary Reason for	Months to	Reconstitute	Primary Change in 2020-	Comments
							Shutdown	Satndby/Idle or Shutdown	Reconstitute	(Thousands USD)	2023	
							(MM/DD/YYYY)			, ,		
	1			Primary/By-Product Production	Vanadium Ores and Concentrates	Operating		Vanadium Price			Expansion	
	2			Secondary Production	Vanadates	Idle/Standby		Loss of Market Share to Import			Upgrade	
	3			Co-Production	Vanadium Carbides	Under Construction	Loss of	Market Share to Domestic Con	npetition		Starting Operations	
	4	1	1	Conversion Services	Vanadium Sulfates	Shutdown		Declining Demand			Restarting Operations Standby/Idle	
۹.	5			Master Alloy Production Distribution Only	Vanadium Hydrides, Sulfides, Nitrides, Vanadium Pentoxide - Up to 99%			Low Profitability Firm Restructuring			,,	
	7			Other	High Purity Vanadium Pentoxide - 99%+			COVID-19/Pandemic			Significant Modernization Closure	
	8			Other	Other Vanadium Oxides and Hydroxides			Other			None	
	9				Vanadium-Bearing Feedstocks (Ash,							
	10				Ferrovanadium - 40-60% Vanadium							
	11				Ferrovanadium - 80%+ Vanadium							
	12				Vanadium Master Alloys							
	13				Vanadium, Wrought and Unwrought							
	14 15				Other Vanadium-Related							
	16											
	17											
	18											
	19											
	20											
	Briefly explain the sc	ope of your organization	's vanadium-related a	ctivities.								
	1											
	For each identified ta	cility scheduled to incur	a change in operating	status in 2020-2023, describe t	ne circumstances behind your decision.							
3.	2											
	For each identified id	le/standby facility sched	luled [or considering t	o schedule] for restart in 2020-2	023, describe the circumstances behind yo	our decision.						
	3											
7												
	Comments:											
					BUSINESS CO	NFIDENTIAL - Per Section 70	5(d) of the Defense Pro	duction Act				

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				3a. U.S. Production						
Record the total annual quantity of each subject product your organization promessurement. If your organization toll produces any material, include the type								required to continue ope	erations. Remember to	confirm the units of
If you only distribute and do not manufacture any of the subject vanadium $$ pr. next section.	oducts, indicate so h	nere and move to the			ı	Do not include data or	n subject products that you	ur organization only dist	ributes.	
Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here										
			U.S. Pro	duction						
	2015	2016	2017	2018	2019	2020 (YTD July)	Current Annual Capacity	Capacity Utilization Rate Required to Remain Profitable	Average Cost to Produce Per Kg	Price V2O5 required to continue operations
Vanadium Ores and Concentrates										
Vanadates										
Vanadium Carbides										
A. Vanadium Sulfates										
Vanadium Hydrides, Nitrides, Azides, Silicides, and Borides										
Vanadium Pentoxide - Up to 99% Vanadium										
High Purity Vanadium Pentoxide - 99%+ Vanadium										
Other Vanadium Oxides and Hydroxides (Excluding Pentoxide)										
Vanadium-Bearing Feedstocks (Ash, Residues, Spent Catalysts, Slag, Etc.)										
Ferrovanadium - 40-60% Vanadium										
Ferrovanadium - 80%+ Vanadium										
Vanadium Master Alloys										
Vanadium, Wrought and Unwrought (Excluding Master Alloys)										
Comments:										
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3b. U.S. Sales and Exports For your organization's U.S. operations, answer the followingn questions about revenues, sales, and exports. Record Sales \$ in Thousands USD, e.g. \$12,000.00 = survey input of \$12. Average sales price per unit should not be in thousands USD. If your organization is a toll producer, do not include sales of vanadium materials below; if your organization is a tollee, record any vanadium sales below. For your organization's U.S. operations, by subject product category, record both your U.S. sales and exports (shipments from the U.S. to destinations outside the U.S.) from 2015-2020 (YTD July). Distributors must complete this section. Vanadium Ores and Concentrates Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. and Export Sales 2015 2016 2017 2018 2019 2020 (YTD July) A. U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Kg (\$) Export Sales (Kg) Export Sales (Thousands USD) Average Export Sales Price per Kg (\$) Percentage of Total 2019 Sales Attributable to Product Vanadates Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. and Export Sales 2015 2016 2017 2018 2019 2020 (YTD July) B. U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Kg (\$) Export Sales (Kg) Export Sales (Thousands USD) Average Export Sales Price per Kg (\$) Percentage of Total 2019 Sales Attributable to Product Vanadium Carbides Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. and Export Sales 2015 2016 2017 2018 2019 2020 (YTD July) C. U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Kg) Export Sales (Thousands USD) Average Export Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product Vanadium Sulfates Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. and Export Sales 2015 2016 2017 2018 2019 2020 (YTD July) D. U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Kg) Export Sales (Thousands USD) Average Export Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product

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	Vanadium Hydrides	Nitridos Azidos Silio	ides and Borides			
	vanadium riyundes	, Milliues, Aziues, Silic	iues, and bondes			
Select 'Not Applicable' if category is not relevant to your operations						
Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
U.S. Sales (Kg)						
·						
Export Sales (Kg)						
Export Sales (Thousands USD)						
Average Export Sales Price per Unit (\$)						
Percentage of Total 2019 Sales Attributable to Product						
	Vanadium P	entoxide - Up to 99%	Vanadium			
Select 'Not Applicable' if category is not relevant to your operations						
Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
U.S. Sales (Thousands USD)						+
						+
Export Sales (Kg)						1
Export Sales (Thousands USD) Average Export Sales Price per Unit (\$)						
-	High Purity Van	nadium Pentoxide - 999	%+ Vanadium			
Select 'Not Applicable' if category is not relevant to your operations						
Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
Export Sales (Kg)						
Export Sales (Thousands USD)						
Average Export Sales Price per Unit (\$)						
Percentage of Total 2019 Sales Attributable to Product						
	Other Vanadium Oxid	des and Hydroxides (Ex	cluding Pentoxide)			
Select 'Not Applicable' if category is not relevant to your operations						
Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
U.S. Sales (Thousands USD)				1		+
Average U.S. Sales Price per Unit (\$)						1
Export Sales (Kg)						
Export Sales (Thousands USD)						
ÿ.	andium Popular Facilit	ocks (Ach Pasidus Ca	ont Catalusta Slag Ft. 1			
Select 'Not Applicable' if category is not relevant to your operations	iauium bearing Feedst	ocks (Asn, Kesiaue, Sp	ent Catalysts, Slag, Etc.)			
Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
				-		+
						+
Export Sales (Kg)						
Export Sales (Thousands USD)			İ			1
Average Export Sales Price per Unit (\$)						
	Contained vanadium, indicate unit used here U.S. and Export Sales U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Rg) Export Sales (Rg) Export Sales (Thousands USD) Average Export Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. and Export Sales U.S. Sales (Kg) U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. and Export Sales (Rg) U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Kg) Export Sales (Kg) Export Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. and Export Sales U.S. Sales (Kg) Export Sales (Rg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product U.S. sales (Kg) U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product Van Sales (Kg) U.S. Sales (Kg) U.S. Sales (Kg) Export Sales Price per Unit (\$) Percentage U.S. Sales Price per Unit (\$) Percentage of Total 2019 Sales Attributable to Product Van Sales (Kg) U.S. Sales (Kg) U.S. Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Percentage Export Sales Pri	Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. sales (Kg) U.S. Sales (Kg) U.S. Sales (Flousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Siles) U.S. and Export Sales (Siles) U.S. Sales (Siles) Export Sales (Siles) Export Sales (Siles) Export Sales (Siles) U.S. Sales (Siles) Export Sales (Siles) U.S. Sales (Siles) Export Sales (Siles) Export Sales (Siles) U.S. Sales (Siles) U.S. Sales (Siles) Export Sales (Siles) Export Sales (Siles) U.S. Sales (Siles) Export Sales (Siles) U.S.	Select Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. sales (Kg) Export Sales (Thousands USD) Average U.S. Sales Price per Unit (S) Export Sales (Thousands USD) Average U.S. sales Price per Unit (S) Percentage of Total 2019 Sales Attributable to Product Vanadium Pentoxide - Up to 99%: Select 'Not Applicable' if category is not relevant to your operations Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here U.S. sales (Kg) U.S. sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Thousands USD) Average U.S. Sales Price per Unit (\$) Export Sales (Kg) U.S. sales (Kg)	Record data in Kg contained vanadium, if unable to record data in Kg contained vanadium, indicate unit used here U.S. Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) Export Sales (Kg) U.S. Sales (Kg) U.S	Select Not Applicable if category is not relevant to your operations Record data in King contained variation. If invalide to record data in King U.S. sales (King) U.S. sales	Select Wox Applicable* if Category is not relevant to your operations Record data in Rg contained variation. If marble to record data in Rg U.S. and Export Selec Variance U.S. Selec Rigi Incommend Select Variance U.S. Selec Rigi Incommend Select Variance U.S. Selec Rigi Incommend Select Variance U.S. Select Va

		Ferrova	nadium - 40-60% Vana	dium			
	Select 'Not Applicable' if category is not relevant to your operations						
	Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
	U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
J.	U.S. Sales (Kg)						
	U.S. Sales (Thousands USD)						
	Average U.S. Sales Price per Unit (\$)						
	Export Sales (Kg)						
	Export Sales (Thousands USD)						
	Average Export Sales Price per Unit (\$)						
	Percentage of Total 2019 Sales Attributable to Product						
		Ferrova	anadium - 80%+ Vanad	ium			
	Select 'Not Applicable' if category is not relevant to your operations						
	Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
	U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
Н.	U.S. Sales (Kg)					<u> </u>	
	U.S. Sales (Thousands USD)						
	Average U.S. Sales Price per Unit (\$)						
	Export Sales (Kg)						
	Export Sales (Thousands USD)						
	Average Export Sales Price per Unit (\$)						
	Percentage of Total 2019 Sales Attributable to Product						
		Va	nadium Master Alloys				
	Select 'Not Applicable' if category is not relevant to your operations						
	Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
	U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
1.	U.S. Sales (Kg)						
	U.S. Sales (Thousands USD)						
	Average U.S. Sales Price per Unit (\$)						
	Export Sales (Kg)						
	Export Sales (Thousands USD)						
	Average Export Sales Price per Unit (\$)						
	Percentage of Total 2019 Sales Attributable to Product						
		Vanadium, Wrought a	and Unwrought (Exclud	ling Master Alloys)			
	Select 'Not Applicable' if category is not relevant to your operations						
	Record data in Kg contained vanadium. If unable to record data in Kg contained vanadium, indicate unit used here						
	U.S. and Export Sales	2015	2016	2017	2018	2019	2020 (YTD July)
J.	U.S. Sales (Kg)						
	U.S. Sales (Thousands USD)						
	Average U.S. Sales Price per Unit (\$)						
	Export Sales (Kg)						
	Export Sales (Thousands USD)						-
	Average Export Sales Price per Unit (\$)				l		
	Percentage of Total 2019 Sales Attributable to Product						
	Comments:						
	BUSIN	ESS CONFIDENTIAL - Per	Section 705(d) of the I	Defense Production Act			
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Pre	vious Page							Next Page
			3c. Product	ion Feedstock, End Uses, Substitutes, ar	d Supply Disruptions			
Ans	swer the following questions related to your orga	anization's manufacturing inputs ar	nd market end uses.					
	Answer the following questions regarding your	organization's vanadium production	on end uses and potential substitutes for va	nadium end uses.				
	Vanadium End Use	Percent of 2019 Production Attributable to End Use	Average Percent Cost of Vanadium Attributable to End Product Total Cost	Average Percent Vanadium Content Attributable to End Product	Primary Vanadium Product/Grade Needed for End Use	Substitutes Available for Vanadium Usage?	Indicate Primary Substitute, if relevant	Comments
	1 Steel - High Strength Low Alloy							
	2 Steel - Full Alloy							
A.	3 Steel - Carbon							
	4 Steel - Other							
	5 Vanadium-Redox Flow Battery							
	6 Aerospace (Master Alloys)							
	7 Chemical							
	8 Other - Specify							
	icate the subject vanadium products and specific adium products and only distributes them, and p		n has capabilites. Select "Distribute Only" if	f your organization does not produce				
	Subject Product Capability	Current Capability	Indicate any other products your organi capital investment and/o				Explain	
	1	Yes						
	2	No						
	3	Idle Capability						
В.	4							
	5							
	7							
	8							
pro	icate whether your organization uses vanadium oduce and/or sell other vanadium products. (incluycling).			If you indicated	Yes, answer the following ques	tions:		
	Subject Product	Primary Feedstock Used to Produce Subject Product	Primary Original Country Source of Feedstock	Primary Reason for Sourcing	Impact on Operations if Unable to Import Feedstock	Domestic Feedstock Sources Available?	Supply Disruption or Shortage Experienced?	Explain
	1 Vanadates	Vanadium Ore and Concentrate		Financial Consideration	Positive	Significant Domestic Sources	Ongoing	
	2 Vanadium Carbides	Vanadium Slag		Technical Specification	Negative	Limited Domestic Sources	Past	
	3 Vanadium Sulfates Vanadium Hydrides, Sulfides, Nitrides,	Ash		Relationship	Neutral	No Domestic Sources	Future Expected	
	Silicides, and Borides	Residues		Delivery			None	
	S Vanadium Pentoxide - Up to 99% Vanadium High Purity Vanadium Pentoxide - 99%+	Spent Catalysts Vanadium Pentoxide - Up to 99%		Other				
C.	Vanadium	Vanadium						
	7 Other Vanadium Oxides and Hydroxides (Excluding Pentoxide)	High Purity Vanadium Pentoxide - 99%+ Vanadium						
	8 Ferrovanadium - 40-60% Vanadium 9 Ferrovanadium - 80%+ Vanadium	Vanadates						
	10 Vanadium Master Alloys	Vanadium Carbides Vanadium Sulfates						
	Vanadium, Wrought and Unwrought	Vanadium Hydrides, Nitrides,						
	(Excluding Master Alloys)	Silicides, and Borides						
	Have feedstock sourcing issues impacted your organization's ability to fulfill contracts for vanadium products?		Explain:					
	Comments:							
			BUSINESS COI	NFIDENTIAL - Per Section 705(d) of the D	Defense Production Act			

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			3d. Secondary and Toll	Production				
Ans	swer the following questions regarding your organi	ization's rsecondary production/recycling or toll produ	ction operations.					
		Tipping	Fees and Other Process	sing/Recycling Fees				
	If your organization accrues tipping fees due to re	ecycling or processing any vanadium-bearing materials,	complete this question	for the years 2015-2020	O (YTD July).			
	Select 'Not Applicable' if your organization does not continue to question 2.	not recycle/process vanadium-bearing materials, and						
	Average Tipping/Recycling Fee Charged per Custo	omer	2015	2016	2017	2018	2019	2020 (YTD July)
	Total Tipping/Recycling Fees Accrued							
	Net Tipping/Recycling Fees Accrued (Less Metals Total Facility Operating Costs							
1	Percent of Total Revenues Attributable to Tipping Percent of Total Revenues Attributable to Vanadi							
	Average Vanadium Price Needed for Metals Credit to go to Refinery	(specify vanadium type)						
	Average Percent of Sales Price Lost to Metals Credit/Refinery							
	Do vanadium prices impact your organization's de	ecision to perform recycling/processing operations?		Explain:				
	Does your organization's profitability depend on			Explain:				
	Cor	mments:						
	Answer the following questions related to your o	rganization's toll production operations. Then, list your	Toll Production -		ime) for 2019, the aver	age nercent revenue atti	ibutable to each, the o	antity produced for
	each, and the primary country of feedstock origin Select 'Not Applicable' if your organization does n	n for material supplied by each customer.	l l	Jesseenumg order by voic		age percent revenue utti	Toucasie to each, the qu	
	question 3.							
	Record data in Kg contained vanadium. If unable unit used here	to record data in Kg contained vanadium, indicate						
	Total Tolling Fees Accrued		2015	2016	2017	2018	2019	2020 (YTD July)
	Total Raw Material Supplied Total Raw Material Supplied	(Specify Type) (Specify Type)						
	Total Quantity Produced	(Specify Type)						
	tal Quantity Produced (Specify Type)							
2	Customer Name	Percent Revenue Attributable to Customer	Total Quantity	Produced - 2019	Primary Country	of Feedstock Origin	Com	nents
	Cor	I mments:			L			
			Toll Production -	Tollee				
	Answer the following questions related to your or	rganization's U.S. tollee operations. Then, list the top t	hree toll organization's	used to convert materia	l in 2019, and the total	percent quantity attribu	table to each organizati	on.
	Select 'Not Applicable' if your organization does n section.	not operate as a tollee firm, and continue to the next						
	Record data in Kg contained vanadium. If unable unit used here	to record data in Kg contained vanadium, indicate						
			2015	2016	2017	2018	2019	2020 (YTD July)
	Total Conversion/Tolling Fees Paid Total Raw Material Supplied to Toller (Kg)	(Coosife Town)						
3	Total Raw Material Supplied to Toller (Kg)	(Specify Type)						
	Total Material Available for Sale (Returned by	(Specify Type)						
	Toller) Total Material Available for Sale (Returned by	(Specify Type)						
	Toller)	(Specify Type)						
	Toller Name	Percent Tolled Attributable to Toller						
	Cor	mments:						
	Comr	ments:						
		DISCINECE CONFIDENCE	TIAL Dox Soction 705/	d) of the Defense Produ	ction Act			

								4. Suppliers/Imports												
	each product category involving	purchases by your org	inization from 2015-20	9, including both U.S. as	nd import purchases, record at	l header criteria describir	g said procurements. If your organization oper			um material, do i	ot include mat	erial supplied by cu	stomers for con	version here Record	\$ in Thousand	ls USD, e.g. \$12,00	0.00 = survey in	put of \$12		
ú	Identify your total number of su	medians for this newton	category If none innu	10			Var	radium Ores and Concentrate	15											
	Record data in Kg contained var																			
	secoro data in Rg contained vai	sadum. If unable to pr	wide in Ag contained va	nacium, incicate unit us	ed nere:				20	115		016	2	017		018	2	019	2020	NTD July1
	Record your total purchases for	this product category	ry volume and value for	each applicable year.					Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (5000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (
							Derrontees of	Purchases that are imported												
	Supplier Name (in		Country of Feedstock	Common Ownership	Primary Source of Disruption			Top Factor Influencing	20	115		016	2	017		018	2	019	2020	(yrus arry)
	descending order by period volume)	Country of Fabrication	Origin	With Your Organization?	Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Purchase from Supplier	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (5000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value
	1 2			Yes No	Customs/Port Issue Disease/Quarantine	Single Source Sole Source	Steel - High Strength Low Alloy Steel - Full Alloy	Financial Consideration Technical Specification												-
	3 4				Labor Disruption Natural Disaster	Neither	Steel - Carbon Steel - Other	Relationship Delivery												
	5				Supplier Ended Production Supplier Production Delays		Vanadium-Redox Flow Battery Aerospace (Master Alloys)	Other												
	7 8				Supplier Went Out of Business Trade Dispute/Tariffs		Chemical Other													
	9				Transportation Issue Other															
	dentify your total number of su	and the first this second or						Vanadates												
	sentry your total number or so second data in Ke contained var																			
	lecord data in Kg contained var	radium. If unable to pr	wide in Kg contained va	nadium, indicate unit us	ed here:					115		016		017		018		019		(YTD July)
	Record your total purchases for	this product category	ry volume and value for	each applicable year.						Value (\$000)	Volume	Value (\$000)		Value (5000)		Value (\$000)		Value (\$000)	Volume	
										Total (print)		Table (green)		Table (part)		Table (parts)		Table (parts)		
	Supplier Name (in		Country of Front	Common Ownership	Datases Farmer of Div.			Purchases that are imported	20	115	-	016	2	017		018	2	019	2020	(YTD July)
	Supplier Name (in descending order by period volume)	Country of Fabrication	Origin	With Your Organization?	Primary Source of Disruption Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Top Factor Influencing Purchase from Supplier	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value
	1																			
	3																			
	5																			
	7																			
	9																			
	10				l			Vanadium Carbides												_
	dentify your total number of su	appliers for this produc	category. If none, inpu	10.																
	ecord data in Kg contained var	nadium. If unable to pr	wide in Kg contained va	nadium, indicate unit us	ed here:															
	Record your total purchases for	this asset out and asset								Value (\$000)		016 Value (\$000)		017 Value (5000)		018 Value (\$000)		019 Value (\$000)	Volume	(YTD July)
	occura your count parcriates to	on productingory	y voicine and take to	each approache year.					Volume	Value (pool)	VOLITE	V2000 (2000)	voune	vanar (pocc)	VOLUME	V2020 (2000)	VOISING	Varie (2000)	VOLIN	*****
	Supplier Name (in						Percentage of	Purchases that are imported	20	115		016	2	017		018	2	019	2020	(yrto auty)
	descending order by period volume)	Country of Fabricatio	Country of Feedstock Origin	Common Ownership With Your Organization?	Primary Source of Disruption Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Top Factor Influencing Purchase from Supplier	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (
	1																			
	3																			
	4 5																			
	7																			
	9																			
	10	l	l		l			Vanadium Sulfates	l .	l .								ı.	L	
k	Identify your total number of su	appliers for this produc	category. If none, inpu	0.																
R	Record data in Kg contained var	radium. If unable to pr	wide in Kg contained va	nadium, indicate unit us	ed here:															
										Value (\$000)		016 Value (\$000)		017 Value (5000)		018 Value (\$000)		019 Value (\$000)		(YTD July)
R	Record your total purchases for	this product category	ry volume and value for	each applicable year.					Volume	Value (2000)	VOLITIE	Value (5000)	Volume	Asins Docol	Volume	Value (5000)	voume	Value (SCCO)	Valime	VELUE
							Percentage of	Purchases that are imported		115		016		017		018		019		(YTD July)
	Supplier Name (in descending order by period volume)	Country of Fabricatio	Country of Feedstock Origin	Common Ownership With Your	Primary Source of Disruption Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Top Factor Influencing Purchase from Supplier		Value (\$000)	Volume	Value (\$000)	Volume	Value (5000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (
	volume)			Organization?					Volume	varie (Joos)	VOLINE	Value (acco)	voune	vanar (pocc)	VOLUME	Value (3000)	VOISING	Variat (2000)	VOLIN	easte !
	3																	1		
	2 3 4 5																			ш
	2 3 4 4 5 5 6 6																			
	2 3 4 4 4 5 5 6 6 7 7																			
	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						Vanadium Hydri	des, Nitrides, Asides, Slicide	, and Borides											
	entify your total number of su	appliers for this produc	category, if none, input	0.			Vanadium Hydri	des, Nitrides, Azides, Silicide	, and Borides											
					ed here:		Varadium Hydri	des, Nitrides, Azides, Silicide												
	lecord data in Kg contained var	radium. If unable to pr	wide in Kg contained va	nadium, indicate unit us	sed here:		Vanadum Hydri	des, Nitrides, Asides, Silicides	20	105 Value (5000)		016 Value (5000)		027 Value (5000)		OIB Volus (SOOO)		019 Value (C000)		
	Record data in Kg contained var	radium. If unable to pr	wide in Kg contained va	nadium, indicate unit us	and barne:				20	105 Value (\$000)		016 Value (\$000)		017 Value (\$000)		018 Value (\$000)		019 Value (\$000)	2020 Volume	
The second secon	Record data in Kg contained var Record your total purchases for	nadium. If unable to pr	wide in Kg contained value for	nadium, indicate unit us each applicable year.			Percentage of	Purchases that are imported	20										Volume	Value
The second secon	Record data in Kg contained var Record your total purchases for	nadium. If unable to pr	wide in Kg contained value for	each applicable year. Common Ownership	ed here: Primery Source of Disruption Experiment, If Applicable	Single/Sole Source?			20										Volume	Value (YTD July)
The second secon	Record data in Kg contained var Record your total punchases for Supplier Name (in descending order by period	nadium. If unable to pr	wide in Kg contained value for	nadium, indicate unit us each applicable year.		Single/Sole Source?	Percentage of	Purchases that are imported	Volume X	Value (\$000)	Volume	Value (\$000)	Volume 2	Value (\$000)	Volume	Value (\$000) 018	Volume 2	Value (\$000)	Volume 2020	Value (YTD July)
The second secon	Record data in Kg contained var Record your total punchases for Supplier Name (in descending order by period	nadium. If unable to pr	wide in Kg contained value for	each applicable year. Common Ownership		Single/Sole Source?	Percentage of	Purchases that are imported	Volume X	Value (\$000)	Volume	Value (\$000)	Volume 2	Value (\$000)	Volume	Value (\$000) 018	Volume 2	Value (\$000)	Volume 2020	Value (YTD July)
	Record data in Kg contained var Record your total purchases for Supplier Name (in descending order by period	nadium. If unable to pr	wide in Kg contained value for	each applicable year. Common Ownership		Single/Soile Source?	Percentage of	Purchases that are imported	Volume X	Value (\$000)	Volume	Value (\$000)	Volume 2	Value (\$000)	Volume	Value (\$000) 018	Volume 2	Value (\$000)	Volume 2020	Value (YTD July)
	2 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	nadium. If unable to pr	wide in Kg contained value for	each applicable year. Common Ownership		Single/Sole Source?	Percentage of	Purchases that are imported	Volume X	Value (\$000)	Volume	Value (\$000)	Volume 2	Value (\$000)	Volume	Value (\$000) 018	Volume 2	Value (\$000)	Volume 2020	(YTD July) Value ((YTD July) Value (

						Variadio	m Pentoxide - Up to 99% Var	nadium											
entify your total number of s	suppliers for this product	category. If none, inpu	to.																
scord data in Kg contained va	anadium. If unable to pro	vide in Kg contained va	nadium, indicate unit ur	ed here:															
								2	015	2	016	2	017		018	2	1019	2020 /	(YTD July)
ecord your total purchases fo	or this product category b	y volume and value for	each applicable year.					Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (5000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (
						Percentage of	Purchases that are imported										1		
upplier Name (i		Country of Feedstock	Common Ownership	Primary Source of Disruption			Top Factor Influencing	21	015	2	016	2	017		018	2	1019	2020 ((yrus arry)
descending order by period volume)	Country of Fabrication	Origin	With Your Organization?	Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Purchase from Supplier	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (
	+															-		-	+
	+																		
																_	_		-
•						High Purity	Vanadium Pentoxide - 99%+	Vanadium							•				•
entify your total number of s	suppliers for this product	category. If none, inpu	t 0.																
cord data in Kg contained va	enadium. If unable to pro	vide in Kg contained va	nadium, indicate unit u	ed here:															
									015	_	016		017		018		1019		(yrus arry)
cord your total purchases fo	er this product category b	y volume and value for	each applicable year.					Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (5000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value
						Decreptors of	Purchases that are imported												
iupplier Name (i			Common Ownership			recenge		21	015	2	016	2	017		018	- 7	1019	2020 /	(yrus arry)
descending order by period	Country of Fabrication	Country of Feedstock Origin	With Your	Primary Source of Disruption Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Top Factor Influencing Purchase from Supplier	Volume	Value (S000)	Volume	Value (S000)	Volume	Value (5000)	Volume	Value (S000)	Volume	Value (5000)	Volume	Value
volume)			Organization?					Volume	varie (Joos)	VOLUME	Value (pccc)	voune	Tanar (Jucco)	VOLITE	Value (3000)	VOIZING	Value (2000)	Volume	*****
	+																	-	1
	1																		
	<u> </u>						Oxides and Hydroxides (Exclu												
entify your total number of s ecord data in Kg contained va				sed here:				2	015	2	016	2	017	,	018		019	2020	(yrus arry)
cord your total purchases fo	or this product category b	y volume and value for	each applicable year.					Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value
upplier Name (ii			Common Ownership			Percentage of	Purchases that are imported	2	015	2	016	2	017		018	- 1	1019	2020 ((YTD July)
descending order by period		Country of Feedstock Origin	With Your	Primary Source of Disruption Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Top Factor Influencing Purchase from Supplier	Volume	Value (5000)	Volume	Value (S000)	Volume	Value (5000)	Volume	Value (S000)	Volume	Value (S000)	Volume	Value
volume)	-		Organization?																
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	+																		⊨
<u> </u>				'		Vanadium-Bearing Fee	dstocks (Ash, Residues, Spen	t Catalysts, Slag,	Etc.)										_
ntify your total number of s	suppliers for this product	category. If none, inpu	to.																
cord data in Kg contained va	anadism. Funable to on	uide in Ke contained ve	nadium indicate unit u	and harrer															
			AL AND DE LA SE					2	105	2	016	2	217		018	1	1019	2020	(YTD July
ord your total purchases fo	or this product category h	y volume and value for	each applicable year.					Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value
						Percentage of	Purchases that are imported	_	205		016		217		018	Щ.	1019	2020	OTD JUN
applier Name (in descending order by period	Country of Fabrication	Country of Feedstock	Common Ownership With Your	Primary Source of Disruption	Single/Sole Source?	Primary End-Use	Top Factor Influencing												
volume)		Origin	Organization?	Experienced, If Applicable			Purchase from Supplier	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (5000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value
	+																		=
	+																		
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						Ferr	ovanadium - 40-60% Vanadi	in											
	uppliers for this product	category. If none, inpu	£0.																
lecord data in Kg contained v	nadium. If unable to pro	ovide in Kg contained va	anadium, indicate unit us	ed here:															
								20	115		016	2	117	20	218	21	119	2020	(ytto July)
lecord your total purchases fi	r this product category l	by volume and value for	reach applicable year.					Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (S
						Percentage o	f Purchases that are Imported												
Supplier Name (Country of Feedstock	Common Ownership	Primary Source of Disruption			Top Factor Influencing	20	105	- 2	016	2	217	21	218	21	119	2020	(yrus arry)
descending order by period volume)	Country of Fabrication	Origin	With Your Organization?	Experienced, If Applicable	Single/Sole Source?	Primary End-Use	Purchase from Supplier	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (5
1																			
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dentify your total number of	unniars for this renduct	category If none innu	*0			Fe	rovanadium - 80%+ Vanadiu												
lecord data in Kg contained v	radium. If unable to pro	ovide in Kg contained va	inadium, indicate unit us	ed here:															
secord your total purchases for	r this product category l	by volume and value for	each applicable year.					Volume 20	Value (\$000)	Volume	016 Value (\$000)	Volume 2	127 Value (\$000)	Volume 21	Value (\$000)	Volume 21	19 Value (\$000)	Volume	YTD July) Value ()
						Percentage o	Purchases that are imported												<u> </u>
Supplier Name (descending order by period		Country of Feedstock	Common Ownership With Your	Primary Source of Disruption	Single/Sole Source?	Primary End-Use	Top Factor Influencing		105		016		117		218		119		(ytto auly)
volume)	Country of Facincation	Origin	Organization?	Experienced, if Applicable	andian was popular.	Princey Lind-Oile	Purchase from Supplier	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (
1																			
3																			
3																			
7																			
9	1																		
10																			
				-d b			Vanadium Master Alloys	•	•			•							
dentify your total number of lecord data in Kg contained v lecord your total punchases fi	nadium. If unable to pro	ovide in Kg contained va	enadium, indicate unit us	ed here:			Vanadium Master Alloys	Volume 20	125 Value (\$000)	Volume	016 Value (\$000)	Volume 2	127 Value (5000)	Volume 21	018 Value (\$000)	2) Volume	119 Value (\$000)	2020 Volume	(YTD July) Value (S
ecord data in Kg contained v	nadium. If unable to pro	ovide in Kg contained va	enadium, indicate unit us	ed here:			Vanadium Master Alloys Furchases that are imported	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (
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er each product category involving	5. Customers/ Exports ach product category involving shipments by your organization from 2015-2019, including U.S. internal and U.S. export shipment but excluding shipments from non-U.S. locations, record all header criteria describing the shipments. rd S in Thousands USD, e.g. \$12,000.00 = survey input of \$12															
					Vanadi	um Ores and Conce	ntrates									
		Identify your total	I number of current customers for this product cate	gory. If none, input 0.												
		Record data in Kg containe	d vanadium. If unable to provide data in Kg containe	ed vanadium, indicate unit used here:												
Customer Name (in	Country	Common Ownership		Industry/Sector Represented by	20	15	20	016	2	2017	20	18	2	019	2020 (YTD July)
descending order by period volume)	Destination	With Your Organization?	Primary End Use of Product	Customer (NAICS)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)
1 2		Yes No	Steel - High Strength Low Alloy Steel - Full Alloy													
3		iii o	Steel - Carbon													
5			Steel - Other Vanadium-Redox Flow Battery													
6			Aerospace (Master Alloys)													
7			Chemical													
8			Other													
10																
	Vanadates															
	Identify your total number of customers for this product category. If none, input 0.															
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Customer Name (in	Country	Common Ownership With Your	Primary End Use of Product	Industry/Sector Represented by	20	15	20	016	2	2017	20	18	2	019	2020 (YTD July)
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2																
3																
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Customer Name (in		Record data in Kg containe Common Ownership	d vanadium. If unable to provide data in Kg contains		20	15	20	016	2	2017	20	018	2	019	2020 (YTD July)
descending order by period	Country Destination	With Your	Primary End Use of Product	Industry/Sector Represented by Customer (NAICS)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)
volume)		Organization?				10.00 (4000)	10.000	10.00 (4000)	1	12.22 (42.22)	10.0	12:22 (4222)		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		12:20 (42:22)
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						Vanadium Sulfates										
		Identify your	total number of customers for this product category	r. If none, input 0.												
		Record data in Kg containe	d vanadium. If unable to provide data in Kg containe	ed vanadium, indicate unit used here:												
Customer Name (in		Common Ownership		1.1.1.16.1.18	20	15	20	016	2	2017	20	18	2	019	2020 (YTD July)
descending order by period volume)	Country Destination	With Your Organization?	Primary End Use of Product	Industry/Sector Represented by Customer (NAICS)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)
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	Vanadium Hydrides, Nitrides, Azides, Silicides, and Borides																
			Identify your	total number of customers for this product category.	. If none, input 0.												
		Re	ecord data in Kg containe	ed vanadium. If unable to provide data in Kg containe	ed vanadium, indicate unit used here:												
	Customer Name (in descending order by period volume)	Country Destination	Common Ownership With Your Organization?	Primary End Use of Product	Industry/Sector Represented by Customer (NAICS)	Volume 20	Value (\$000)	Volume	2016 Value (\$000)	Volume 2	017 Value (\$000)	Volume 20	Value (\$000)	Volume 2	019 Value (\$000)	2020 (Volume	/TD July) Value (\$000)
E.	1 2																
	3 4																
	5																
	7																
	8																
	9																
	10					Vanadium Pe	ntoxide - Up to 99	% Vanadium									
		Re		total number of customers for this product category.													
	Customer Name (in	Country	Common Ownership		Industry/Sector Represented by	20	15		2016	2	017	20	018	2	019	2020 (/TD July)
	descending order by period volume)	Destination	With Your Organization?	Primary End Use of Product	Customer (NAICS)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)
F.	2																
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						High Purity Vana	dium Pentoxide -	99%+ Vanadium									
				total number of customers for this product category.					_								
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	Customer Name (in descending order by period volume)	Country Destination	Common Ownership With Your Organization?	Primary End Use of Product	Industry/Sector Represented by Customer (NAICS)	Volume 20	Value (\$000)	Volume	2016 Value (\$000)	Volume	017 Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	(TD July) Value (\$000)
G.	1 2																
	3 4																
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	7																
	8																
	9																
			l			her Vanadium Oxide	s and Hydroxides	(Excluding Pento	xide)								
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н	volume)		Organization?														
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	10		1		Vanadiu	m-Bearing Feedstoo	ks (Ash, Residues,	Spent Catalysts,	Slag, Etc.)								
			Identify your	total number of customers for this product category.													
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Maria Para Para Para Para Para Para Para						Ferrova	nadium - 40-60% Va	nadium									
Second			Identify your t	total number of customers for this product category	. If none, input 0.												
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A		Destination		Primary End Use of Product		Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)
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10	7																
Variable Milater Alary Variable To be continued for this product category. If some, ipped 0.		+															
Mentify your total number of cotoners for this product category if more, spuid.	10					V-	andium Master Alla										
Record data in Kg contained variable to provide data in Kg contained variabl			Identify your t	total number of customers for this product category	If none input 0	Vd	naulum Master Allo	lys .									
Control Country Control Name																	
Customer Name		F	tecord data in Kg containe	d vanadium. If unable to provide data in Kg containe	ed vanadium, indicate unit used here:												
2	Customer Name		With Your	Primary End Use of Product													
3																	
Solution Country Destination Country Organization? Primary End Use of Product Industry/Sector Represented by Customer (NAICS) Volume Value (5000) Volume Val																	
Country Coun																	
8	6																
10	8																
Vanadium, Wrought and Unwrought (Excluding Master Alloys) Country Destination Country Organization? Primary End Use of Product Customer (NAICS) Customer (9																
Customer Name Value (SOO) Volume Value (SOO) Volum					Vai	nadium, Wrought a	nd Unwrought (Exc	luding Master Allo	oys)								
Customer Name			Identify your t	total number of customers for this product category	. If none, input 0.												
Country Destination With Your Organization? 1		F	tecord data in Kg containe	d vanadium. If unable to provide data in Kg containe	ed vanadium, indicate unit used here:												
Customer Name			Common Ownershin			20	115	2	016	21	017	20	18	2	019	2020	(YTD July)
2			With Your	Primary End Use of Product		Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)	Volume	Value (\$000)
3		 					 										
5	3																
7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5																
8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9							 										
Comments:	8																
Comments:	9	1					1										
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			6. Financials				
Prov	ide the following financial line items for your loca	ation for the la	st five years belo	w.			
Sour	ce of Income Statement Items:						
	orting Schedule:						
	me Statement (Select Line Items)		Reco	ord \$ in Thousand	ls, e.g. \$12,000.00) = survey input o	of \$12
			2015	2016	2017	2018	2019
Α.	Net Sales (and other revenue)						
	1 Defense-Related Sales Percentage						
	2 Non-U.S. Sales Percentage						
В.	Cost of Sales / Cost of Goods Sold						
C.	Depreciation and Amortization						
D.	Total Operating Income (Loss)						
E.	Earnings Before Interest and Taxes						
F.	Net Income						
	ce of Balance Statement Items:						
	orting Schedule:						
	nce Sheet (Select Line Items)		Reco	ord \$ in Thousand	ls, e.g. \$12,000.00) = survey input o	of \$12
			2015	2016	2017	2018	2019
Α.	Cash						
В.	Inventories						
C.	Current Assets						
D.	Total Assets						
E.	Current Liabilities						
F.	Total Liabilities						
G.	Retained Earnings						
Н.	Total Owner's Equity						
Sour	ce of Other Items:						•
Repo	orting Schedule:						
	er Select Items		Reco	ord \$ in Thousand	ls, e.g. \$12,000.00) = survey input o	of \$12
			2015	2016	2017	2018	2019
Α.	Research & Development (R&D) Expenditure						
	National Security/Critical Infrastructure-Relate	ed R&D					
	Percentage (see Definitions tab)						
В.	Capital Expenditure (CapEx)						
	National Security/Critical Infrastructure-Relate	ed CapEx					
	Percentage (see Definitions tab)	·					
C.	Total Security Expenditures						
	1 Cybersecurity Expenditures Percentage						
	2 Physical Security Expenditures Percentage						
	ur organization involved in any R&D work with t	he U.S. Depart	ment of				
	nse?	z.z. z zpart			If yes, ans	wer the following	g questions.
	Program Name	Contra	ct Number				
A.							
В.							
C.							
	Comment:						
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Щ	POSINESS COL	II IDLIVITAL - P	ei 3ection 703(u)	or the Deterise P	TOUUCTION ACL		

2019 Net Sales
None

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			7. Employment							
Red	cord the total number of full time equivalent (FTE) emplo	yees and contractors for the 2015 to 2019 peri	iod for U.S. facilities that produce subject	t products.						
		2015	2016	2017	2018	2019				
А	FTE Employees									
^	FIE CONTRACTORS									
	Production Line FTE Employees or Contractors									
Ide	ntify the key workforce issues your organization has exp	erienced or anticipates in the next five years.								
	Issue	Primary Occupation Affected	Timeframe		Explain					
	Attracting Workers to Location	Engineers	Ongoing, Expected to Continue							
	Employee Turnover	Information Technology Workers	Past Only (Resolved)							
В	Finding Experienced Workers	Production Line workers	Expected In Future							
	Finding Qualified Workers	Scientists	No or Not Applicable							
	Finding U.S. Citizens	resting Operators, QC, & Support								
	Significant Portion of Workforce Retiring	Other								
	Other (specify)	None								
С	For 2019, indicate the percentage of your organization's total operating costs represented by personnel-related expenditures									
D	Describe any significant changes in the recruitment, D hiring and/or retension of human capital as a consequence of volatile vanadium prices.									
Е	If you resumed operations at an idled or shutdown facility, do you reasonably anticipate being able to hire or rehire workers? Provide an estimate of how long it would take to restore requisite personnel levels in the Explain box.		Explain:							
	Comments:									
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Α		te 2015, has your organization directly or indirected to the next tab. If yes, complete sections		8 National Defense S ct product categories for incorporati		r related installations? If no,				
	Fr	om the list of U.S. Government agencies below	, select those whose systems	you supported between 2015 and 20	020 YTD.					
		U.S. Air Force	Yes	U.S. Coast Guard		Department of Energy (including National Labs)				
В		U.S. Army	No	U.S. Intelligence Community (such as CIA, NGA, NRO, NSA)		Other	(Identify Agency)			
		U.S. Marine Corps		Missile Defense Agency (MDA)		Other	(Identify Agency)			
		U.S. Navy		Defense Logistics Agency		Other	(Write-In)			
	In accordance with the header criteria, indicate which product categories you directly or indirectly provide for U.S. defense systems, installations or known U.S. defense end uses.									
		Product	Defense Support?	Percentage of 2019 Sales Attributable to Defense Sales	Primary DOD ACAT/MD/	AP Supported, if known*	Comments			
	1	Vanadium Ores and Concentrates	Direct							
	2	Vanadates	Indirect							
	3	Vanadium Carbides	Both							
	4	Vanadium Sulfates	None							
	5	Vanadium Hydrides, Nitrides, Azides, Silicides, and Borides	Unknown							
С	6	Vanadium Pentoxide - Up to 99% Vanadium								
	7	High Purity Vanadium Pentoxide - 99%+ Vanadium								
	8	Other Vanadium Oxides and Hydroxides (Excluding Pentoxide)								
	9	Vanadium-Bearing Feedstocks (Ash, Residues, Spent Catalysts, Slag, Etc.)								
	10	Ferrovanadium - 40-60% Vanadium								
	11	Ferrovanadium - 80%+ Vanadium								
	12	Vanadium Master Alloys								
	13	Vanadium, Wrought and Unwrought (Excluding Master Alloys)								
*U.S	. De	partment of Defense Acquisition Category (AC	AT) and Major Defense Acquis	sition Program (MDAP)						
				DO Rated	DX Rated					
	1	Since 2018, provide the number of priority rat the Defense Priorities and Allocations System part 700) that you has received by their level	(DPAS) regulation (15 CFR							
D.	D. Since 2018, provide the number of priority rated contracts or orders you have placed with other entities by their level of priority.									
	3	Since 2018, indicate which of your subject profrequently received a priority rated contract of								
		Comments:								
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			9. Critical Infrastructure								
	Describe your organization's support for each Critical Infra	astructure Sector in accordance with the head	der criteria.								
	Definitions of each sector may be found at: https://www.c	dhs gov/cisa/critical-infrastructure-sectorsect	ore								
	Definitions of each sector may be found at. https://www.	uns.gov/cisa/critical-inirastructure-sectorsect	UIS								
	Critical Infrastructure Sector	Sector Support	Primary Product Support	Primary Customer Associated with Sector/Product Support	Explain						
	Chemical Sector	Yes	Vanadium Ores and Concentrates								
	Commercial Facilites Sector	No	Vanadates								
	Communications Sector		Vanadium Carbides								
	Critical Manufacturing Sector		Vanadium Sulfates								
	Dams Sector	Vana	dium Hydrides, Sulfides, Nitrides, Silicides, and	Borides							
Α	Defense Industrial Base Sector Vanadium Pentoxide - Up to 99% Vanadium										
	Emergency Services Sector High Purity Vanadium Pentoxide - 99%+ Vanadium										
	Energy Sector	Other	Vanadium Oxides and Hydroxides (excluding P	entoxide)							
	Financial Services Sector Vanadium-Bearing Feedstocks (Ash, Residues, Spent Catalysts, Slag, Etc.										
	Food and Agriculture Sector										
	Government and Facilities Sector		Ferrovanadium - 80%+ Vanadium								
	Healthcare and Public Health Sector		Vanadium Master Alloys								
	Information Technology Sector	Vanad	ium, Wrought and Unwrought (Excluding Mast	er Alloys)							
	Nuclear Reactors, Materials, and Waste Sector		Other Vanadium-Related								
	Transportation Systems Sector										
	Waste and Wastewater Systems Sector										
	How have current market conditions involving the subject	t product categories affected your ability to m	eet current Critical Infrastructure Sector requi	rements?							
В.											
	Do you recommend any actions by the U.S. Government t	to better facilitate your ability to meet curren	t Critical Infrastructure Sector requirements?								
C.											
	Comments:										
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		ce 2018, by subject product category and in accordance with a also have visibility into other product category imports.	n the header criteria, has	10. Competition and Trade there been a significant change in impo	ort competition? Do not limit your org	anization's response to the categories in which you operate if
		Product Category	Change in Import Competition	Primary Source Country of Import Competition	Impact on Your Organization	Explain
	1	Vanadium Ores and Concentrates	Increase		Positive	
	2	Vanadates	Decrease		Negative	
	3	Vanadium Carbides	No Change		Neutral	
	4	Vanadium Sulfates				
	5	Vanadium Hydrides, Nitrides, Azides, Silicides, and Borides				
A	6	Vanadium Pentoxide - Up to 99% Vanadium				
	8	High Purity Vanadium Pentoxide - 99%+ Vanadium Other Vanadium Oxides and Hydroxides (Excluding Pentoxide)				
	9	Vanadium-Bearing Feedstocks (Ash, Residues, Spent Catalysts, Slag, Etc.) Ferrovanadium - 40-60% Vanadium				
		Ferrovanadium - 80%+ Vanadium				
		Vanadium Master Alloys				
	13	Vanadium, Wrought and Unwrought (Excluding Master Alloys)				
		you anticipate any impact on your business due to future in npetition will likely have on your organization, and explain.	nports of subject product	s into the United States from any count	ry? Indicate your anticipated primary	future source of import competition, the impact this
	COI	Product Category	Primary Future	Source of Import Competition	Primary Impact from Import Competition	Explain
	1	Vanadium Ores and Concentrates			Positive	
	2	Vanadates			Negative	
		Vanadium Carbides			Neutral	
		Vanadium Sulfates Vanadium Hydrides, Nitrides, Azides, Silicides, and				
	5	Borides				
Е		Vanadium Pentoxide - Up to 99% Vanadium High Purity Vanadium Pentoxide - 99%+ Vanadium				
	\ <u>'</u>					
	8	Other Vanadium Oxides and Hydroxides (Excluding Pentoxide)				
	9	Vanadium-Bearing Feedstocks (Ash, Residues, Spent				
	10	Catalysts, Slag, Etc.) Ferrovanadium - 40-60% Vanadium				
		Ferrovanadium - 80%+ Vanadium				
		Vanadium Master Alloys				
	10	Vanadium, Wrought and Unwrought (Excluding Master Alloys)				
	Ide	ntify the primary challenges/issues affecting your competiting the next most important issue/impact, etc.). Explain your		[U.S. and non-U.S.] subject product man	rkets. Rank the leading 5 most signific	cant challenges (1 being the most important issue/impact; 2
		Challenge/Issue	Chal	lenge Experienced?	Rank Top 5	Explain
	1	Aging equipment, facilities, or infrastructure		Yes	nuin rop 3	
	2	Aging workforce		No		
		Counterfeit parts Cyber security				
		Domestic competition Environmental regulations/remediation				
		Export controls/ITAR & EAR				
		Financing/credit availability				
		Foreign competition Government acquisition process				
	11	Government purchasing volatility				
		Government regulatory burden Healthcare				
(Industrial espionage - domestic				
		Industrial espionage - foreign Input availability				
		Intellectual property/patent infringement Labor availability/costs				
		Natural disasters (including disease/quarantine)				
		Obsolescence Pension costs				
	22	Proximity to customers				
		Proximity to suppliers Qualifications/certifications				
	25	Quality of inputs				
		R&D costs Reduction in USG demand				
		Taxes Trade disputes/tariffs				
		Worker/skills retention				
	31 32					
	De	scribe one of the five leading challenges/issues affecting you illenge/issue has affected your competitive position in the m		tive position in the marketplace for subj	ect product categories. Then, describ	e in detail both how long and in what manner this leading
		Challenge/Issue		low long and in what manner has this at	ffected your competitive position in t	he market for subject products? Describe.
C	. 1	(specify)				
	2	How can the U.S. Government aid in the response to/mitigation of this challenge?				
F						
		Comments:				
			DITCINIECC CO	NEIDENTIAL - Per Section 705(d) of the	Detence Production Act	

Previous Page **Next Page** 11. COVID-19 Impacts Identify any impacts or actions resulting from the COVID-19 pandemic at your organization, ranking the three most significant impacts and three most important actions (1 being the most important impact/action; 2 being the next most important impact/action, etc.): Rank Short Term/Long Rank Impacts Experienced -Yes/No-**Actions Taken** Top 3 Term Top 3 Increased cost of materials Reduce workforce Yes Short Term Long Term Inability to access work location No Increase online/remote work capabilities Inability to fulfill contracts Seek government assistance Both Reduced sales Delay or reject new contracts Foreign supplier manufacturing delays Begin to produce pandemic-related products Domestic supplier manufacturing delays Increase use of domestic suppliers Increased demand Reduce use of suppliers located in China Transportation-based disruptions Reduce use of suppliers located outside the U.S. and China Financing difficulties Increase inventories Increase supplier redundancy Labor shortages Other Other (specify) (specify) Other (specify) Other (specify) Identify any USG actions that could have better mitigated/prevented COVID-19 impacts to your organization: Identify any USG actions that will limit future COVID-19-related impacts to your organization: Comments:

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	12. Certification	
The undersigned certifies that the information h	erein supplied in response to this questionnaire is co	omplete and correct to the best of his/her
knowledge. It is a criminal offense to willfully m	ake a false statement or representation to any depa	rtment or agency of the United States Government
as to any matter within its jurisdiction (18 U.S.C.	1001 (1984 & SUPP. 1197)).	
0	on and a short the income it to the original t	22.0ki., d
	ey, save a copy and submit it via email to Vanadium2	32@bis.doc.gov. Be sure to retain your survey for
your records and to facilitate any necessary edit	s or clarifications.	
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 reg	arding this survey assessment.
How many hours did it take to complete this sur	vey?	
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