Safety Data Sheet

STANFORD Advanced Materials

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifi	er	1	:	1	e la compañía de la c	1	1	1	1	1
Product Name	•	Cobalt Bas	sed Alloys							
Synonyms	•	Alloy (X); CO Haynes (X); H (X); RM-(x); S	(X); Cobalt (X); IS(X); L-605; M tar (X); Stellite	CoCrMo; AR M (X); (X); Stood	ECY(X); F MERL (X y (X); Trib	(X); FS)); MM(X alloy® ()	K-414; GR/); Nicralliu x); WI (X);	ADE(X); G m (x); PT(X-(X)	X(X); X); PWA	۹.,
1.2 Relevant identi	fied use	s of the sul	ostance or n	nixture	and use	es adv	ised aga	ainst		
Relevant identified use	e(S) •	Cast ingots a downstream p downstream a	t varying weigh processors who applications.	ts and din remelt th	nensions. e superall	Ingots a loys into	re sold an products	d distribut used withi	ed to in variou	IS
1.3 Details of the su	upplier o	of the safety	y data sheet	· ·		:	·		:	÷.,
Manufacturer	•	Stanford Adv Address : 236 Lake Forest,	anced Materials 661 Birtcher Dr. CA 92630	s ,	,	,		,	,	
		U.S.A.		1.1	111		1.1	111		
Telephone (Ge	neral) •	(949)407-8904								
						:			1	
1.4 Emergency tele	phone i	number								
Manufacturor				·			·		1	÷.,
Manufacturer		(This telephor available 24 h days per weel	he number is ours per day, 7 <.)		,			,	,	
Section 2: Hazarde	dentif	ication								ĺ
EU/EEC According to: Regulation	on (EC) No) 1272/2008 (C	LP)/REACH 1	07/2006	[amended	d by 201	5/830]	н 1 - 1	:	-
2.1 Classification o	of the su	bstance or Skin Sensitiza	mixture ation 1 - H317	·	1	-	1. 	÷		÷.
ja ur ar		Respiratory S Carcinogenici Reproductive Specific Targe Specific Targe	ensitization 1 - ty 2 - H351 Toxicity 2 - H36 et Organ Toxici et Organ Toxici	H334 61fd ty Repeat ty Repeat	ed Exposi ed Exposi	ure 1 - H ure 2 - H	1372 1373	:		
2.2 Label Elements	:	н 1 - 1				÷.			t.	
		DANGER		1		1	1. 			1.
Preparation Date: 24/February/2010 Revision Date: 08/March/2018)		Page 1'of 23	'						



UN GHS Revision 3

According to: UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS): Third Revised Edition

2.1 Cla UN G	assificat HS	tion of t	he sı	Ibstance or mix Skin Sensitization Eye Irritation 2 Respiratory Sensi Carcinogenicity 2 Reproductive Toxi Specific Target Or	ture 1 tization 1 city 2 gan Toxic	ity Repea	ited Expos	sure 1				
2.2 La UN C	bel elen HS	nents					;**					
1:1	<u>.</u>	::. ::.	11				::. ::.	`::		11.	`::	÷.
	141				÷.			1.	14		:.	

Revision Date: 08/March/2018

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1.1

	Hazard s	statements ·	May cause	an allergic skin r	eaction						
	1.00		May cause	allergy or asthma	a sympton	ns or brea	thing dif	ficulties if	inhaled		
			Suspected	of damaging ferti	lity or the	unborn ch	ild.				
-			Causes dar	nage to organs tr	rougn pro	olonged or	repeate	a exposur	е.		
Prec	autionary s	statements				,					
		Prevention •	Obtain spec	cial instructions b	efore use	ns have h	een rea	hand und	erstood		
1	н. 1. т.		Do not brea	the dust or fume	. precautio		centrea			1	
			Wash thoro	ughly after handl	ing. vhon using	a this prov	luct				
	1		Contaminat	ed work clothing	should no	t be allow	ed out c	f the work	place.		•
			Use person	al protective equi	pment as	required.			ection.		
		Baananaa		adequate ventila	ition wear	respirator	y protec	tion. ab air and	koon at ra	ot in o	
		Response •	position cor	nfortable for brea	ifficult, rei thing.		m to fre	sn air and	keep at re	st in a	
			If experience	ing respiratory s	mptoms:	Call a PC	ISON C	ENTER o	r doctor/ph	ysician.	
			Specific tre	atment, see supp	lemental	first aid in	formatio	n. ,			
			Wash conta	minated clothing	before re	USE.	: ico/attor	tion			
			IF IN EYES	: Rinse cautious	y with wat	ter for sev	eral min	utes. Rem	ove conta	ct lense	S,
	1.0	et et e	if present a	nd easy to do. Co	ontinue rin	nsing.	ntion	1.1	1	-	
			IF exposed	or concerned: G	et medical if you fee	l advice/alle	ttention.				
	Stora	ge/Disposal •	Store locke	d up.	ii you icc						
		J	Dispose of internationa	content and/or co I regulations.	ontainer in	accordar	ice with	local, regi	onal, natio	nal, and	/or
2.3 0	ther hazar	ds									
UN C	GHS	•	May form c	ombustible dust	concentra	tions in ai	r.				
			Heating abo	ove the melting p	oint releas	ses metall	ic oxide	s which m	ay cause r	netal fur	me
	1.0		According t	o the Globally Ha	armonized	System f	, rever, r or Class	ification a	nd Labeling	r pain. g (GHS)	, [,] , ,
			this product	is considered ha	azardous				·	,	
United	l States (I	IS)									
Accord	ing to: OSH	A 29 CFR 191	0.1200 HCS			111			: • •		
	0										
2.1 CI	assificatio	on of the su	ibstance o	r mixture							
OSH	A HCS 2012		Skin Sensit	ization 1							
			Eye Irritatio	n 2							
	1		Respiratory	Sensitization 1	1.1			1	1		·
			Reproductiv	re Toxicity 2							
			Specific Ta	get Organ Toxic	ty Repeat	ed Expos	ure 1				
			Hazards No	e Dust It Otherwise Clas	sified - He	alth Haza	rds - Me	tal fume f	ever		
2212	hel eleme	onts				ann maze					
USH	A 103 2012		DANCER								
1		: :					1		1	1	
			•	•							
Preparatio	n Date: 24/Februa	гу/2016									
rzevisión L	ate. Uo/IVIalCII/201			Page 3 of 23	1.1	111		1.1	111		

1.													
	Hazaro	d statem	ents •	May cause	an allero	aic skin r	eaction						
				Causes se May cause Suspected Suspected	rious eye allergy c of causir of damag	irritation or asthmang cance	n a symptor er. lity or the	ns or brea	athing di hild	fficulties if	inhaled		
· . :	1.1	:	1.1	Causes da May form (mage to o	organs th	nrough pro	olonged o	r repeate ir.	ed exposur	те.	· . :	
Prec	autionary	y statem	ents			,							
	Н.	Preve	ntion •	Obtain spe Do not har Do not bre Wash thore	cial instru dle until a athe dust	uctions b all safety or fume ter handl	efore use precautic	e. ons have t	been rea	d and und	erstood.		÷.
	H			Do not eat Contamina Wear prote	, drink or ted work ective glov	smoke v clothing ves/prote	when usin should no ective clot ation wear	g this pro ot be allow hing/eye p respirato	duct; ved out c protectio ry protec	of the work n/face prot	place. tection.	÷.	:-:
		Resp	onse •	IF INHALE	D: If brea	thing is o	difficult, re	move vict	im to fre	sh air and	keep at re	est in a	
				lf experien	mfortable cing resp Wash wit	irator brea iratory sy h plenty	ithing. ymptoms: of water .	Call a PC		ENTER o	r doctor/ph	iysician.	
	÷.			Specific tre Wash cont If skin irrita	eatment, s aminated ition or ra	see supp clothing ish occui	before re s: Get m	first aid ir euse. edical adv	nformatio	n. ntion.		111 - 11	
				if present a lf eye irrita IF exposed Get medica	and easy tion persi or conce al advice/	to do. Co sts: Get erned: G attention	y with wa ontinue rii medical a et medica if you fee	advice/atte advice/atte advice/atte al advice/a el unwell.	ention. Ittention.	iutes. Rem			s,
	Sto	orage/Disp	oosal •	Store locker Dispose of	ed up, content a	and/or co	ontainer ir	n accorda	nce with	local, regi	onal, natio	nal, and	l/or
2.3 Ot	ther haz	ards		internation	arregulat	10113.							
OSH	IA HCS 20	12	•	Heating ab fever by in	ove the r halation.	nelting p The sym	oint relea ptoms are	ses metal shivering	lic oxide , fever,	s which m malaise ar	ay cause i id muscula	metal fu ir pain.	me
1.			1.	Standard),	this prod	uct is co	nsidered	hazardou).1200 - S.	Hazard Co	ommunicat	ion	
Canad	da												
Accord	ling to: Wi	HMIS 201	5										
	: · .		•	11. •			11.			11.			11.
	assifica	tion of t	ne su	bstance (or mixti	ure							
VV HI	VIIS 2015		•	Eye Irritation	on 2 y Sensitiz	zation 1		. : .	1.			1.	
:				Carcinoger Reproducti Specific Ta Health Haz Combustib	nicity 2 ve Toxicil arget Orga zards Not le Dusts	ty 2 an Toxici Otherwi 1	ity Repea se Classif	ted Expos fied 1	sure 1			1.	: · :
2.2 La WHM	abel elen MIS 2015	nents			;	1.1		;			;		:·:
1:1	Π.	::. ::.	`÷:		R (Э.	::		
Ξ.	14		÷.			÷.			÷.			÷.	
	Hazaro	d statem	ents •	May cause	e an allerg	gic skin r	eaction						
Preparatio Revision D	on Date: 24/Feb Date: 08/March	/2018			: Pa	ge 4 of 23		:			:		
						-						-	

												1.	
				Causes se	erious eve	irritatio	n						
				May cause	e allergy o	or asthm	a symptor	ms or brea	thing di	fficulties if	inhaled	1.	
				Suspected	l of damag	ging fert	ility or the	unborn ch	nild.				
				Causes da	amage to c	organs t	hrough pro	olonged or	repeate	ed exposur	e.		
				Heating al	compusition	neltina r	concentra	ses metall	r. ic oxide	s which m	av cause r	netal fu	m
				fever by in	halation.	The sym	ptoms are	e shivering	, fever,	malaise an	d muscula	r pain.	
Preca	autionary	/ statem	ents										
	÷.	Preve	ntion •	Obtain spe	ecial instru	uctions t	pefore use)	1:1				
				Do not ha	ndle until a Athe dust	all safety	/ precautio	ons have b	een rea	d and und	erstood.		
	1.1			Wash thor	oughly aft	ter hand	ling.			1.1		;	
				Do not ea	i, drink or	smoke v	when usin	g this proc	duct.	of the work	nlago		
				Wear prot	active glov	ves/prote	ective clot	hing/eye p	rotectio	n/face prot	ection.		
				In case of	inadequat	te ventila	ation wear	respirator	y protec	tion.			
		Resp	onșe •	IF INHALE	D: Remov	ve perso	n to fresh	air and ke	ep com	fortable for	breathing.		
				IF ON SKI	N: Wash	with plei	nty of wate	er.					
1.1	1	1	1.1	Specific tr	eatment, s	see sup	plemental	first aid in	formatio	on.	1	1.1	
				If skin irrit	ation or ra	ish occu	ing and wa	edical adv	ice/atter	ntion.			
				IF IN EYE	S: Rinse o	cautious	ly with wa	ter for sev	eral mir	nutes. Rem	nove conta	ct lense	es
				If present	and easy i ation persi	to do. C sts: Get	medical a	nsing. advice/atte	ntion.				
				IF expose	d or conce	erned: G	et medica	al advice/a	ttention.				
	01-			Get medic	al advice/a	attentior	n if you fee	el unwell.					
1.1	510	rage/Disp	osal •	Dispose o	ea up f content a	and/or c	ontainer ir	n accordar	ice with	local regi	onal ^{i n} atio	naland	1/c
				internation	al regulati	ions.		laccolaa		looal, logi		nai, and	
.3 Ot	her haz	ards											
ŴHM	IIS 2015		•	In Canada	, the prod	uct men	tioned abo	ove is cons	sidered	hazardous	under the	1.	
				Workplace	Hazardo	us Mate	rials Infor	mation Sy	stem (N	/HMIS).			
										1.1			

3.1 Substances

Material does not meet the criteria of a substance.

3.2 Mixtures

			Comp	osition	
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Cobalt (powder)	CAS:7440-48-4 EC Number:231- 158-0 EU Index:027- 001-00-9	35% TO 65%	Ingestion/Oral-Rat LD50 • 6171 mg/kg	EU CLP: Annex VI, Table 3.1: Resp. Sens. 1, H334; Skin Sens. 1, H317; Aquatic Chronic 1, H410 (M=1) UN GHS Revision 3: Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; Carc. 2 (InhI); STOT RE 2 (Lung / InhI); Aquatic Acute 2; Aquatic Chronic 2 OSHA HCS 2012: Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; Carc. 2 (InhI); STOT RE 2 (Lung / InhI) WHMIS 2015: Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; Carc. 2 (InhI); STOT RE 2 (Lung / InhI)	NDA

Cobalt Based Alloys						
a. 14	CAS: 7440-02-0				Carc. 2, H351 (Inhl); STOT RE 1, H372 (Lungs / Orl/Dermal/Inhl); Aquatic Chronic 3, H412 UN GHS Revision 3: Flam. Sol. 1; Resp. Sens. 1B; Skin Sens. 1A; Carc. 2 (Inhl); STOT RE 2 (Lungs / Orl, Inhl);	£. :
Nickel, massive, ≥ 1 mm	EC Number:231- 111+4'	0% TO 50%	NDA		Aquatic Acute 3; Aquatic Chronic 3 OSHA HCS 2012: Flam. Sol. 1; Comb. Dust; Resp. Sens. 1B; Skin Sens. 1A; Carc. 2 (Inhl); STOT RE 2 (Lungs / Orl, Inhl) WHMIS 2015: Flam. Sol. 1; Comb. Dust; Resp. Sens.	NDA
- 191 - 191	н. н:				1B; Skin Sens. 1A; Carc. 2 (Inhl); STOT RE 2 (Lungs / Orl, Inhl)	141 - 1
Chromium, massive	CAS:7440-47-3 EC Number:231- 157-5	15% TO 40%	NDA		EU CLP: Not Classified UN GHS Revision 3: Not Classified OSHA HCS 2012: Comb. Dust WHMIS 2015: Comb. Dust	NDA :
Molybdenum (powder)	CAS :7439-98-7 EC Number: 231- 107-2	0% TO 30%	NDA		EU CLP: Flam. Sol. 1, H228; Repr. 2, H361 (Orl); Aquatic Chronic 4, H413 UN GHS Revision 3; Flam. Sol. 1; Repr. 2 (Orl); Aquatic Chronic 4 OSHA HCS 2012: Flam. Sol. 1; Comb. Dust; Repr. 2 (Orl)	NDA
					WHMIS 2015: Flam. Sol. 1; Comb. Dust; Repr. 2 (Orl)	
Tungsten, powder	CAS :7440-33-7 EC Number: 231- 143-9	0% TO 25%	NDA	a'	EU CLP: Flam. Sol. 1, H228; Self-heat. 2; Repr. 2, H361fd (Orl); EUH029 UN GHS Revision 3: Flam. Sol. 1; Self-heat. 2; Repr. 2 (Orl) OSHA HCS 2012: Flam. Sol. 1; Self-heat. 2; Repr. 2 (Orl)	NDA
	CAS:7440-25-7 EC	0%		1.1.1	WHMIS 2015: Flam, Sol. 1; Self-heat. 2; Repr. 2 (Orl) EU CLP: Acute Tox. 4, H302 UN GHS Revision 3: Acute Tox. 4 (Orl)	
rantaium	Number:231- 135-5	15%	NDA		OSHA HCS 2012: Acute Tox. 4 (Orl); Comb. Dust WHMIS 2015: Acute Tox. 4 (Orl); Comb. Dust	NDA
Irợn [+]	CAS: 7439-89-6 EC Number: 231- 096-4	0% TO 10%			EU CLP: Acute Tox. 4, H302; Aquatic Chronic 4, H413 UN GHS Revision 3: Acute Tox. 4 (Orl); Aquatic Chronic 4 OSHA HCS 2012: Acute Tox. 4 (Orl) WHMIS 2015: Acute Tox. 4 (Orl)	NDA :
Aluminum powder,	CAS:7429-90-5 EC	0% TO	NDA		EU CLP: Annex VI, Table 3.1: Flam. Sol. 1, H228; Water -react. 2, H261 UN GHS Revision 3: Flam. Sol. 1; Water-react. 2; STOT RE 1 (Lungs / Inhl);	∷
stabilized	072-3	6%		<u></u>	OSHA HCS 2012: Flam: Sol: 1, Water-react. 2, Comb. Dust; STOT RE 1 (Lungs / Inhl) WHMIS 2015: Flam. Sol. 1; Water-react. 2; Comb. Dust; STOT RE 1 (Lungs / Inhl)	141 1
Titanium, massive	CAS: 7440-32-6 EINECS: 231- 142-3	0% TO 5%	NDA	11	EU CLP: Pyr. Sol. 1, H250 UN GHS Revision 3: Pyr. Sol. 1 OSHA HCS 2012: Pyr. Sol. 1; Comb. Dust WHMIS 2015: Pvr. Sol. 1; Comb. Dust	NDA
Silicon	CAS :7440-21-3 EC Number: 231- 130-8	0% TO 5%	Ingestio LD50 • 3	n/Öral-Rat 3160 mg/kg	EU CLP: Flam. Sol. 2, H228 UN GHS Revision 3: Flam. Sol. 2; Acute Tox. 5 (Orl) OSHA HCS 2012: Flam. Sol. 2 WHMIS 2015: Flam. Sol. 2	NDA
Niobium	CAS:7440-03-1 EC Number:231- 113-5	0% TO 3%	NDA		EU CLP: Not Classified UN GHS Revision 3: Not Classified OSHA HCS 2012: Not Classified WHMIS 2015: Not Classified	NDA
					EU CLP: Flam. Sol. 2, H228; Eye Irrit. 2, H319; Repr. 2, H361 (Orl); STOT RE 1 (CNS, Lungs / Inhl)	

Cobalt Bas	ed Alloys	

Manganese (powder)	CAS :7439-96-5 EC Number: 231- 105-1	0% TO 3%	Ingestion/Oral-Rat LD50 • 9 g/kg	UN GHS Revision 3: Flam. Sol. 2; Skin Irrit. 3; Eye Irrit. 2; Repr. 2 (Orl); STOT RE 1 (CNS, Lungs/ Inhl) OSHA HCS 2012: Flam. Sol. 2; Skin Irrit. 3; Eye Irrit. 2; Repr. 2 (Orl); STOT RE 1 (CNS, Lungs/ Inhl); Hazard Not Otherwise Classified - Health Hazard - Metal fume fever	NDA	1.
14 - 44	an ja			WHMIS 2015: Flam. Sol. 2; Skin Irrit. 3; Eye Irrit. 2; Repr. 2 (Orl); STOT RE 1 (CNS, Lungs/ Inhl); Hazard Not Otherwise Classified - Health Hazard - Metal fume fever	14	÷
Carbon (animal or vegetable origin)	CAS :7440-44-0 EC Number :231- 153-3	0% TO 3%	NDA	EU CLP: Not Classified UN GHS Revision 3: Pyr. Sol. 1 OSHA HCS 2012: Pyr. Sol. 1; Comb. Dust WHMIS 2015: Pyr. Sol. 1; Comb. Dust	NDA	
Vanadium	CAS :7440-62-2 EC Number:231- 171-1	0% TO 2%	NDA	EU CLP: Aquatic Chronic 3, H412 UN GHS Revision 3: Aquatic Acute 3; Aquatic Chronic 3 OSHA HCS 2012: Not Classified WHMIS 2015: Not Classified	NDA	
Hafnium	CAS: 7440-58-6 EINECS: 231- 166-4	0% TO 2%	NDA	EU CLP: Eye Irrit. 2 UN GHS Revision 3: Eye Irrit. 2; Skin Irrit. 3 OSHA HCS 2012: Comb. Dust; Eye Irrit. 2 WHMIS 2015: Comb. Dust; Eye Irrit. 2	NDA	

0		10 500	f. II to set	6.11		
See	Section	10 TOT	tuii text	OT H	-statements.	

Section 4 - First Aid Measures

4.1 Description of	of first a	aid n	neasures	1.1		: * *	1.1		; • •	1.1	: · :
Inhalation Skin	H.	•	Move victim to fre oxygen if breathin Wash skin with s	esh air. Give ng is difficu oap and wa	e artificial re lt. If signs/s ater. If skin i	spiration ymptoms rritation	if victin contin occurs:	n is not bre ue, get me Get medie	eathing. A edical atte cal advice	dministe ntion. /attentio	r n. ^{;;,}
Eye Ingestion	· · ·	•	In case of contact least 20 minutes. Rinse mouth. Do attention if symptomic	t with subs If eye irrita not give ar toms occur	tance, imme ation persists aything by m	ediately f s: Get m nouth to	lush eye edical a an unco	es with run dvice/atte nscious po	ning wate ntion. erson. Ge	er for at t medica	al
4.2 Most importa	ant sym	nptoi	ms and effect	s, both a	cute and	delaye	ed				
			Refer to Section	11 - Toxico	logical Inforr	nation.	1.1		: • •	1.1	
4.3 Indication of	any im	med	diate medical a	attention	and spec	cial tre	atmer	it neede	d		
Notes to Physician		· · · •	All treatments she patient. Consider other than this pr	ould be bas ation shoul oduct may	sed on obse d be given to have occurr	rved sig o the po ed.	ns and s ssibility	symptoms that overe	of distres xposure to	s in the o materia	als
Section 5 - Firef	ighting	g Mea	asures				1 	1 1			
5.1 Extinguishin	g medi	ia									
Suitable Extinguish	ing Med	lia •	Use dry powder e	extinguishin	g agent.	: ' '		1 · 1	: * *	1.1	
Unsuitable Extingui Media	shing	•	No data available								
5.2 Special haza	rds aris	sing	from the sub	stance o	r mixture		1.				
Unusual Fire and Ex Hazards	xplosion	•	Metal powder dis Molten metal can Molten metal will	persed in a ignite com react violer	ir may caus bustibles. htly with wat	e fire an ær.	d explos	sion.			

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1.1

Hazardous Combustion No data available Products 5.3 Advice for firefighters Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Section 6 - Accidental Release Measures 6.1 Personal precautions, protective equipment and emergency procedures **Personal Precautions** Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. **Emergency Procedures** ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. Keep unauthorized personnel away. 6.2 Environmental precautions · Avoid run off to waterways and sewers. 6.3 Methods and material for containment and cleaning up Containment/Clean-up Avoid generating dust. Measures Solid ingot material should be picked up and recycled. Where possible allow molten material to solidify naturally. Residue from cutting or grinding should be swept or vacuumed and placed in suitable containers. Use clean nonsparking tools to collect material. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). 6.4 Reference to other sections Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal

Section 7 - Handling and Storage

Considerations.

7.1 Precautions for safe handling

Handling

Under normal conditions, exposure to cast ingots presents few health hazards in itself. Ingots may be heavy. Use proper material handling equipment to reduce the risks of strains and sprains. Do not place any part of the body where it might be struck by or caught between the ingot and another object. Thermal cutting and melting of ingots may produce fumes and dust containing the component elements which may present potentially significant health hazards. Use only with adequate ventilation. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. To avoid possible explosion, ingots need to be clean and dry when loaded into molten metal or preferably loaded into an empty furnace. Nickel can react with carbon monoxide in reducing atmospheres to form nickel carbonyl, an extremely toxic gas. Cobalt causes a dermatitis of the allergic sensitivity type at points in friction. Cobalt toxicity also results in a progressive diffuse, interstitial pneumonia with a non-productive cough, dyspnea on exertion, interstitial fibrosis and cell damage. Other workers have experienced a sensitized respiratory disease characterized by cough, wheezing and shortness of breath where upon removal from the environment, the symptoms subside. Wear appropriate personal protective

equipment, avoid direct contact. Do not breathe dust or fumes. Avoid contact with skin, eyes, and clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Store in a well-ventilated place. Keep container tightly closed. Keep away from incompatible materials.

7.3 Specific end use(s)

• Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

	Exposure Limits/Guidelines										
	Result	ACGIH	Europe	NIOSH	OSHA	United Kingdom					
1 1	STELs	Not established	Not established	3 mg/m3 STEL	Not established	1.5 mg/m3 STEL (calculated)					
Manganese (powder)	TWAs	0.02 mg/m3 TWA (respirable fraction); 0.1 mg/m3 TWA (inhalable fraction)	Not established	1 mg/m3 TWA (fume)	Not established	0.5 mg/m3 TWA (as Mn)					
	Ceilings	Not established	Not established	Not established	5 mg/m3 Ceiling (fume)	Not established					
Tantalum	STELs	Not established	Not established	10 mg/m3 STEL (dust)	Not established	10 mg/m3 STEL					
(7440-25-7)	TWAs	Not established	Not established	5 mg/m3 TWA (dust)	5 mg/m3 TWA	5 mg/m3 TWA					
Aluminum powder, stabilized	STELs	Not established	Not established	Not established	Not established	30 mg/m3 STEL (calculated, inhalable dust); 12 mg/m3 STEL (calculated, respirable dust)					
(7429-90-5)	TWAs	1 mg/m3 TWA (respirable fraction)	Not established	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)	10 mg/m3 TWA (inhalable dust); 4 mg/m3 TWA (respirable dust)					
Nickel, massive, ≥	STELS	Not established	Not established	Not established	Not established	1.5 mg/m3 STĘL (calculated)					
(7440-02-0)	TWAs	1.5 mg/m3 TWA (inhalable fraction)	Not established	0.015 mg/m3 TWA	1 mg/m3 TWA	0.5 mg/m3 TWA					
Silicon	STELS	Not established	Not established	Not established	Not established	30 ppm STEL (calculated, inhalable dust); 12 mg/m3 STEL (calculated, respirable dust)					
(/440-21-3)	TWAs	Not established	Not established	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)	10 mg/m3 TWA (inhalable dust); 4 mg/m3 TWA (respirable dust)					
Tungsten, powder	STELs	10 mg/m3 STEL	Not established	10 mg/m3 STEL	Not established	10 mg/m3 STEL					
(7440-33-7)	TWAs	5 mg/m3 TWA	Not established	5 mg/m3 TWA	Not established	5 mg/m3 TWA					
				0.05 mg/m3 Ceiling	1.1						

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	20000	7 110 70

Vanadium	Ceilings	Not established	Not established	(except Vanadium metal and Vanadium carbide, dust and fume, as V, 15 min) as Vanadium	0.5 mg/m3 Ceiling (respirable dust, as V2O5); 0.1 mg/m3 Ceiling (fume, as V2O5)	Not established
(7440-62-2)	1		1	compounas		
14. D.	STELs	Not established	Not established	3 mg/m3 STEL (listed under Ferrovanadium dust)	Not established	Not established
	TWAs	Not established	Not established	1 mg/m3 TWA (listed under Ferrovanadium dust)	Not established	Not established
Hafnium (7440-58-6)	TWAs	0.5 mg/m3 TWA	Not established	0.5 mg/m3 TWA	0.5 mg/m3 TWA	Not established
Molybdenum (powder) (7439-98-7)	TWAs	10 mg/m3 TWA (inhalable fraction); 3 mg/m3 TWA (respirable fraction)	Not established	Not established	Not established	Not established
	TWAs	0.5 mg/m3 TWA	2 mg/m3 TWA	0.5 mg/m3 TWA	1 mg/m3 TWA	0.5 mg/m3 TWA
Chromium, massive (7440-47-3)	STELs	Not established	Not established	Not established	Not established	1.5 mg/m3 STEL (calculated)
Cobalt (powder)	STELs	Not established	Not established	Not established	Not established	0.3 mg/m3 STEL (calculated)
(7440-48-4)	TWAs	0.02 mg/m3 TWA	Not established	0.05 mg/m3 TWA (dust and fume)	0.1 mg/m3 TWA (dust and fume)	0.1 mg/m3 TWA

8.2 Exposure controls

Engineering Measures/Controls		•	Use a local exhaust when cutting, grinding, welding, or melting. It is recommended that dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion supression system or an oxygen deficient environment. Ensure that dust
4. 14 -			handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment). Use only appropriately classified electrical equipment.
Personal Protective	e Equipm	 Use a local exhaust when cutting, grinding, welding, or melting. It is recommended that dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion supression system or an oxygen-deficient environment. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment). Use only appropriately classified electrical equipment. For limited exposure, use P95 or N95 respirator. For prolonged exposure use an airpurifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA 	
Respiratory		•	For limited exposure, use P95 or N95 respirator. For prolonged exposure use an air- purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA

ан (В.			NIOSH/MS exceeded	HA or Eu	uropean S oms are 6	Standard	EN 149 a ed.	pproved	respirator	if exposur	e limits a	e a are
Eye/Face		•	Wear safet	y goggle	S.							
Skin/Body		•	Wear appro	opriate gl	loves. We	ar long sl	leeves an	d/or prot	ective cov	eralls.		
Environmental Exp Controls	oosure	•	Follow bes engineered spills, atmo	t practice to preve ospheric	e for site i ent releas release a	managem e to the e nd releas	ent and onvironme	disposal nt, incluc erways.	of waste. (ling proced	Controls s lures to pi	hould be revent	3
Key to abbreviations				• : · ·								

ACGIH = American Conference of Governmental Industrial HygieneSTEL = Short Term ExposureNIOSH = National Institute of Occupational Safety and HealthTWA = Time-Weighted AveraOSHA = Occupational Safety and Health AdministrationTWA = Time-Weighted Avera

STEL = Short Term Exposure Limits are based on 15-minute exposures TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Material Description								
Physical Form	Solid	Solid			Appearance/Description			odor.
Color	Metallic gray.		Odor			Odorless		
Odor Threshold	Data lacking							
General Properties								
Boiling Point	Data lacking		Melting Poir	nt/Freezing	g Point	2700 °F(1482.22	222 °C)	
Decomposition Temperature	Data lacking		pН			Data lacking		
Specific Gravity/Relative Density	= 8 Water=1		Water Solu	bility		Negligible < 0.1	%	
Viscosity	Data lacking	1.1	Explosive F	roperties		Data lacking		:
Oxidizing Properties:	Data lacking							
Volatility								
Vapor Pressure	Data lacking		Vapor Den	sity		Data lacking		
Evaporation Rate	Data lacking		Volatiles (V	Vt.)		0 %	: * *	1.1
Volatiles (Vol.)	0 %				*			
Flammability	-					-		
Flash Point	Data lacking		UEL			Data lacking		1
LEL	Data lacking		Autoignition	1		Data lacking		
Flammability (solid, gas)	Data lacking							
Environmental						1		1.
Octanol/Water Partition coefficient	Data lacking							

9.2 Other Information

· · •	No additional physical and chemical parameters noted	1.1	
	No additional physical and one mical parameters noted.		

Section 10:	Stability	and Reactivity	/								
10.1 Reactivi	ty										
		 No dange 	rous reacti	ion knov	vn under o	conditions	of norm	al use.			
10.2 Chemica	al stabilit	ty									
		 Stable un 	der norma	l temper	atures an	d pressure	es.				
10.3 Possibil	ity of ha	zardous react	ions			: • •				1.1	: · :
		 Hazardou 	s polymeri	zation v	vill not occ	cur.					
10.4 Conditio	ons to av	void	11.		11.			11.	11.	11	11.
		 Avoid ger 	erating du	st.							
10.5 Incompa	tible ma	terials									
		 Cast Ingo acids, bas 	t is stable ses, and o	at ordina xidizers.	ary tempe Molten m	rature, ho netal will re	wever, c eact viol	aution sho ently with	ould be tak water.	en with	
10.6 Hazardo	ous deco	mposition pro	oducts								
	; • •	Under no itself. The component	rmal condit rmal cuttin nt element	tions, ex ig and n s and bi	posure to nelting of i reathing th	cast ingo ingots may nose fume	ts prese / produc s may p	nts few he e fumes c resent pot	alth hazai ontaining entially sig	rds in the gnificant	÷.
		•	- ordo					· · ·			

11.1 Information on toxicological effects

		Components
Nickel, massive, ≥ 1 mm (0% TO 50%)	7440 -02- 0	Acute Toxicity: Ingestion/Oral-Rat TDLo • 200 mg/kg; <i>Nutritional and Gross Metabolic:Gross Metabolite</i> <i>Changes:</i> Weight loss or decreased weight gain; <i>Behavioral:</i> Somnolence (general depressed activity); Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 500 mg/kg 5 Day(s)-Intermittent; <i>Lungs, Thorax, or</i> <i>Respiration:</i> Fibrosis, focal (pneumoconiosis); <i>Related to Chronic Data:</i> Death in the Other Multiple Dose data type field; Inhalation-Rabbit TCLo • 1 mg/m ³ 6 Hour(s) 13 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:</i> Other changes; <i>Lungs, Thorax, or Respiration:</i> Changes in lung weight; <i>Blood:</i> Hemorrhage; Inhalation-Rat TCLo • 0.4 mg/m ³ 40 Week(s)-Intermittent; <i>Vascular:</i> Thrombosis distant from injection site; <i>Lungs, Thorax, or</i> <i>Respiration:</i> Other changes; <i>Related to Chronic Data:</i> Death in the Other Multiple Dose data type field; Reproductive: Ingestion/Oral-Rat TDLo • 158 mg/kg (multigenerations); <i>Reproductive Effects:Effects on Embryo or</i> <i>Fetus:</i> Fetotoxicity (except death, e.g., stunted fetus); <i>Reproductive Effects:Effects on Embryo or Fetus:</i> Fetal death; Tumorigen / Carcinogen: Inhalation-Guinea Pig TCLo • 15 mg/m ³ 91 Week(s)-Intermittent; <i>Tumorigenic:</i> Equivocal tumorigenic agent by RTECS criteria; <i>Lungs, Thorax, or Respiration:</i> Tumors; <i>Lungs, Thorax, or</i>
Manganese (powder) (0% TO 3%)	7439 -96- 5	Acute Toxicity: Ingestion/Oral-Rat LD50 • 9 g/kg; Irritation: Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Multi-dose Toxicity: Inhalation-Human TCLo • 0.5 mg/m ³ 39 Week(s)-Intermittent; <i>Brain and Coverings</i> :Other degenerative changes; <i>Peripheral Nerve and Sensation</i> :Sensory change involving peripheral nerve; <i>Behavioral</i> :Irritability; Inhalation-Mouse TCLo • 0.7 mg/m ³ 24 Hour(s) 22 Week(s)-Continuous; <i>Lungs, Thorax, or</i> <i>Respiration</i> :Fibrosis (interstitial); <i>Immunological Including Allergic</i> :Decrease in cellular immune response; Inhalation-Rat TCLo • 0.3 mg/m ³ 5 Hour(s) 26 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration</i> :Fibrosis (interstitial); <i>Immunological Including Allergic</i> :Decrease in cellular immune response; Inhalation/Oral-Mouse TDLo • 322.5 mg/kg (43D male); <i>Reproductive Effects</i> :Paternal <i>Effects</i> :Spermatogenesis; Ingestion/Oral-Rat TDLo • 50 mg/kg (20D post); <i>Reproductive Effects</i> :Specific <i>Developmental Abnormalities</i> :Central nervous system; <i>Reproductive Effects</i> :Effects on Newborn:Biochemical and metabolic; <i>Reproductive Effects</i> :Effects on Newborn:Behavioral; Ingestion/Oral-Rat TDLo • 90 mg/kg (18D post); <i>Reproductive Effects</i> :Effects on Newborn:Growth statistics (e.g., reduced weight gain); <i>Reproductive</i> <i>Effects</i> :Effects on Newborn:Biochemical and metabolic; Reproductive Effects:Con Newborn:Other postnatal measures or effects:
Titanium, massive (0% TO 5%)	7440 -32- 6	Reproductive: Ingestion/Oral-Rat TDLo • 158 mg/kg (multigeneration); Reproductive Effects:Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus) ; Reproductive Effects:Effects on Embryo or Fetus: Fetal death
Cobalt (powder) (35% TO 65%)	7440 -48- 4	Acute Toxicity: Ingestion/Oral-Rat LD50 • 6171 mg/kg; <i>Behavioral</i> :Somnolence (general depressed activity); <i>Behavioral</i> :Ataxia; <i>Gastrointestinal</i> :Hypermotility, diarrhea; Multi-dose Toxicity: Inhalation-Rabbit TCLo • 10 mg/m ³ 2 Hour(s) 56 Day(s)-Intermittent; <i>Behavioral</i> :Food intake (animal); <i>Lungs, Thorax, or Respiration</i> :Emphysema; <i>Liver</i> :Fatty liver degeneration; Inhalation-Rat TCLo • 0.09 mg/m ³ 24 Hour(s) 8 Week(s)-Continuous; <i>Lungs, Thorax, or Respiration</i> :Other changes; <i>Kidney, Ureter, and Bladder</i> :Urine volume decreased; <i>Biochemical</i> :Enzyme inhibition, induction, or change in blood or tissue <i>levels</i> :Dehydrogenases; Inhalation-Rat TCLo • 2 mg/m ³ 4 Day(s)-Intermittent; <i>Lungs, Thorax, or Respiration</i> :Fibrosing alveolitis
Aluminum powder, stabilized (0% TO 6%)	7429 -90- 5	Multi-dose Toxicity: Inhalation-Man TCLo • 4 mg/m ³ 1 Year(s)-Intermittent; <i>Lungs, Thorax, or Respiration</i> :Cough; <i>Lungs, Thorax, or Respiration</i> :Dyspnea; <i>Nutritional and Gross Metabolic:Gross Metabolite Changes</i> :Weight loss or decreased weight gain; Inhalation-Rat TCLo • 206 mg/m ³ 5 Hour(s) 30 Day(s)-Intermittent; <i>Lungs, Thorax, or</i> <i>Respiration</i> :Fibrosis (interstitial); <i>Endocrine</i> :Hypoglycemia; <i>Blood</i> :Changes in serum composition (e.g., TP, bilirubin cholesterol)
Tungsten, powder (0% TO 25%)	7440 -33- 7	Irritation: Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Reproductive: Ingestion/Oral-Rat TDLo • 1160 μg/kg (30W pre/1-20D preg); Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system; Ingestion/Oral-Rat TDLo • 1210 μg/kg (35W pre); Reproductive Effects:Effects on Fertility:Post-implantation mortality; Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system
Tanțalum (0% TO 15%)	7440 -25- 7	Acute Toxicity: Ingestion/Oral-Mouse LD50 • 595 mg/kg
Silicon (0% TO 5%)	7440 -21- 3	Acute Toxicity: Ingestion/Oral-Rat LD50 • 3160 mg/kg; Irritation: Eye-Rabbit • 3 mg • Mild irritation
r	ľ	

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Vanadium (0% TO 2%)	7440 -62- 2	Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 225 mg/kg 15 Day(s)-Continuous; <i>Nutritional and Gross</i> Metabolic:Gross Metabolite Changes:Weight loss or decreased weight gain
Iron (0% TO 10%)	7439 -89- 6	Acute Toxicity: Ingestion/Oral-Rat LD50 • 750 mg/kg; <i>Blood</i> : Changes in serum composition (e.g., TP, bilirubin cholesterol); <i>Biochemical:Enzyme inhibition, induction, or change in blood or tissue</i> <i>levels</i> : Transaminases ; Ingestion/Oral-Child TDLo • 77 mg/kg; <i>Behavioral</i> : Irritability ; <i>Gastrointestinal</i> : Nausea or vomiting ; <i>Blood</i> : Normocytic anemia ; Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 105 mg/kg 5 Week(s)-Continuous; <i>Liver</i> : Tumors ; <i>Tumorigenic</i> : Active as anti-cancer agent ; <i>Tumorigenic</i> : Protects against induction of experimental tumors
Molybdenum (powder) (0% TO 30%)	7439 -98- 7	Mutagen: Cytogenetic analysis • Inhalation-Rat • 19500 μg/m ³ ; Reproductive: Ingestion/Oral-Mouse TDLo • 448 mg/kg (multigenerations); Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); Reproductive Effects:Effects on Embryo or Fetus:Fetal death; Ingestion/Oral-Rat TDLo • 5800 μg/kg (30W pre/1-20D preg); Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system; Ingestion/Oral-Rat TDLo • 6050 μg/kg (35W pre); Reproductive Effects:Effects on Fertility:Pre-implantation mortality; Reproductive Effects:Effects on Fertility:Post-implantation mortality; Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system

GHS Properties				Classification
Acute toxicity				EU/CLP • Data lacking. UN GHS 3 • Data lacking
1. 14				OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Skin corrosion/Irritatior	1	1.1	H	EU/CLP • Data lacking UN GHS 3 • Data lacking OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Serious eye damage/Irr	itation			EU/CLP • Data lacking UN GHS 3 • Eye Irritation 2 OSHA HCS 2012 • Eye Irritation 2 WHMIS 2015 • Eye Irritation 2
Skin sensitization				EU/CLP • Skin Sensitizer 1 UN GHS 3 • Skin Sensitizer 1 OSHA HCS 2012 • Skin Sensitizer 1 WHMIS 2015 • Skin Sensitizer 1
Respiratory sensitizatio	on			EU/CLP • Respiratory Sensitizer 1 UN GHS 3 • Respiratory Sensitizer 1 OSHA HCS 2012 • Respiratory Sensitizer 1 WHMIS 2015 • Respiratory Sensitizer 1
Aspiration Hazard				EU/CLP • Data lacking UN GHS 3 • Data lacking OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Carcinogenicity	1 1 1		:.: :::	EU/CLP • Carcinogenicity 2; Suspected of causing cancer UN GHS 3 • Carcinogenicity 2 OSHA HCS 2012 • Carcinogenicity 2 WHMIS 2015 • Carcinogenicity 2
Germ Cell Mutagenicity	· · ·			EU/CLP • Data lacking UN GHS 3 • Data lacking OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking

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Cobalt Based Alloys							
Toxicity for Reproductio	on .	H	EU/CLP • Toxic to Reproduce UN GHS 3 • Toxic to Reprod OSHA HCS 2012 • Toxic to I WHMIS 2015 • Toxic to Rep	tion 2 uction 2 Reproduction 2 roduction 2	H. 14	11	i.
STOT-SE		ΕĊ	EU/CLP • Data lacking UN GHS 3 • Data lacking OSHA HCS 2012 • Data lack WHMIS 2015 • Data lacking	ing	14 - BC		:-: :
			EU/CLP • Specific Target Or	gan Toxicity Re	epeated Exposu	re 1; Specific T	arget Orgar
STOT-RE	:: :.	14	Toxicity Repeated Exposure UN GHS 3 • Specific Target OSHA HCS 2012 • Specific WHMIS 2015 • Specific Targ	2 Organ Toxicity Target Organ T get Organ Toxic	Repeated Exposion oxicity Repeated ity Repeated Ex	sure 1 1 Exposure 1 posure 1	:
Potential Health Fi	ffects		8				
Inhalation				111		: • •	1.1
Acute (Immediate)	•	Processes	such as cutting, grinding,	crushina. or	impact may re	esult in gene	eration of
		excessive	amounts of airborne dusts	in the workp	ace. Nuisanc	e dust may	affect the
		lungs but r	eactions are typically rever	sible.			
Chronic (Delayed)	•	Following	and prolonged exposure m	ay cause sel	nsitization of t	ne respirato	ry system
4. 14 I	H H.	obstructive respiratory chest X-ra exposure t perforation	e lung disease with wheezin exposure results in reduce y, production of scanty muc to Nickel can cause effects s and asthma have been re	ig, cough, an ed lung functi coid sputum, such as rhir eported in nic	and shortness of and shortness nitis, sinusitis, kel refinery an	f breath. Ch fibrotic char s of breath. nasal septa nd nickel pla	ronic nges on Chronic al ting
		workers.					
Skin							
Acute (Immediate)	•	Exposure Symptoms in human b	to dust may cause mechan include redness, and skin peings.	rash, Conta	. May cause ct allergy to n	skin sensitiz ickel is very	ation. common
Chronic (Delayed)	•	No data av	vailable.				
Eye							
Acute (Immediate)	•	Causes se workplace	rious eye irritation. Excess may reduce visibility and n	ive concentra nay cause ur	ations of nuisa pleasant dep	ance dust in osits in eyes	the s.
Chronic (Delayed)	•	No data av	ailable.	-		-	
Ingestion				: ' '			
Acute (Immediate)	•	Excessive	concentrations of nuisance	e dust in the	workplace ma	ay cause me	chanical
Chronic (Delayed)	•	No data av	ailable.				111
Carcinogenic Effects	•	Repeated	and prolonged exposure to	fumes and c	lust created ir	n processing	this
		product ma	ay cause cancer.				:
-		1	Carcinogenic Effects				
	CAS	1	IARC	1		NIP	

	CAS	NTP											
Nickel, massive, ≥ 1 mm	7440-02-0	Group 2B-Possible Carcinogen	Reasonably Anticipated to be Human Carcinogen										
Cobalt (powder)	7440-48-4	Group 2B-Possible Carcinogen	Not Listed										

Reproductive Effects

Repeated and prolonged exposure to fumes and dust created in processing this product may cause reproductive effects.

11.2 Other information

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• Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

Key to abbreviations

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Cobalt Base	d Alloys									
							 1.			
LD = Letha TC = Toxic TD = Toxic	l Dose Concentration Dose	:: :		11	ł.	14	1.	14	1.	14

Section 12 - Ecological Information

12.1 Toxicity

		Components
Nickel, massive, ≥ 1 mm (0% TO 50%)	7440-02- 0	Aquatic Toxicity-Fish: 96 Hour(s) LC50 Oncorhynchus mykiss (Rainbow Trout) 0.06 mg/L 28 Day(s) NOEC Cyprinus carpio (Common Carp) 0.0035 µg/L Aquatic Toxicity-Crustacea: 7 Day(s) NOEC Americamysis bahia (Opossum Shrimp) 0.213 mg/L Aquatic Toxicity-Algae and Other Aquatic Plant(s): 96 Hour(s) EC50 Pseudokirchneriella subcapitata (Green Algae) 0.233 mg/L
Cobalt (powder) (35% TO 65%)	7440-48- 4	Aquatic Toxicity-Fish: 96 Hour(s) LC50 Pimephales promelas (Fathead Minnow) 3.4 mg/L Aquatic Toxicity-Crustacea: 48 Hour(s) LC50 Daphnia magna (Water Flea) 4.4 mg/L 28 Day(s) NOEC Daphnia magna (Water Flea) 0.0028 mg/L
Vanadium (0% TO 2%)	7440-62- 2	Aquatic Toxicity-Fish: 96 Hour(s) LC50 Pimephales promelas (Fathead Minnow) 1.8 mg/L Aquatic Toxicity-Crustacea: 48 Hour(s) LC50 Daphnia magna (Water Flea) 1.55 mg/L 7 Day(s) NOEC Daphnia magna (Water Flea) 0.5 mg/L
Iron (0% TO 10%)	7439-89- 6	Aquatic Toxicity-Fish: 96 Hour(s) LC50 <i>Mudskipper(Periophthalmus waltoni)</i> 0.00648 mg/L 7 Day(s) NOEC <i>Brown Trout (Salmo trutta)</i> 0.305 mg/L Aquatic Toxicity-Crustacea: 7 Day(s) NOEC Aquatic Sowbug, Isopod (Idotea balthica) 0.5 mg/L
Molybdenum (powder) (0% TO 30%)	7439-98- 7	Aquatic Toxicity-Fish: 96 Hour(s) LC50 <i>Rainbow Trout (Oncorhynchus mykiss)</i> 800 mg/L Aquatic Toxicity-Crustacea: 48 Hour(s) LC50 <i>Daphnia magna (Water Flea)</i> >200 mg/L 28 Day(s) NOEC <i>Daphnia magna (Water Flea)</i> 0.67 mg/L
		Product in ingot form is non-toxic to aquatic and terrestrial organisms

12.2 Persistence and degradability

• The product is persistent and would have low degradability.

12.3 Bioaccumulative potential

• Material data lacking.

12.4 Mobility in Soil

A low mobility would be expected in a landfill situation.

12.5 Results of PBT and vPvB assessment

		11.	• •	No PBT a	and vPvB a	assessm	ent has b	een condu	cted.	11	141	11
12.6 C	Other ad	verse e	ffects									
	· . :		•	No studie	s have be	en found.				· . :		

Section 13 - Disposal Considerations

13.1 Waste treat	tment	meth	ods	: ' '	1.1	1 · 1	:**		: · :	: * *	1.1	1
Product waste		•	Dispose of internationa	content	and/or c tions.	container ir	n accordanc	e with	local, reg	ional, natio	onal, and	d/or
Packaging waste		•	Dispose of international	content	and/or c tions	container ir	n accordanc	e with	local, reg	ional, natio	onal, an	d/or

Section 14 - Transport Information

1	14.1 UN 14.2 UN proper number shipping name		14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards			
DOT	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA			
TDG	Not Applicable Not Regulated /IMDG Not Applicable Not Regulated		Not Applicable	Not Applicable	NDA			
IMO/IMDG			Not Applicable	Not Applicable	NDA			
IATA/ICAO	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA			
14.6 Spec user 14.7 Trans according Marpol ar	ial precautions sport in bulk to Annex II of id the IBC Cod	 for • None specified. • Data lacking. e 		9. 9. 9. 11 9. 19				

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • Acute, Chronic, Pressure(Sudden Release of)

1		1	Inventory	/ •	1	
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
Aluminum powder, stabilized	7429-90-5	Yes	No	Yes	No	Yes
Carbon (animal or vegetable origin)	7440-44-0	Yes	No	Yes	No	Yes
Chromium, massive	7440-47-3	Yes	No	Yes	No	Yes
Cobalt (powder)	7440-48-4	Yes	No	Yes	No	Yes
Hafnium	7440-58-6	Yes	No	Yes	No	Yes
Iron	7439-89-6	Yes	No	Yes	No	Yes
Manganese (powder)	7439-96-5	Yes	No	Yes	No	Yes
Molybdenum (powder)	7439-98-7	Yes	No No	Yes	No	Yes
Nickel, massive, ≥ 1 mm	7440-02-0	Yes	No	Yes	No	Yes
Niobium	7440-03-1	Yes	No	Yes	No	Yes
Silicon	7440-21-3	Yes	No	Yes	No	Yes
Tantalum	7440-25-7	Yes	No	Yes	No	Yes
Titanium, massive	7440-32-6	Yes	No	Yes	No	Yes
Tungsten, powder	7440-33-7	Yes	No	Yes	No	Yes
Vanadium	7440-62-2	Yes	No	Yes	No	Yes

Canada

Labor Canada - WHMIS -	Classificat	tions of S	Substances	5		 					
• Hafnium					1.		7440-58-6	Uncor accord classif	trolled product ing to WHMIS ication criteria	:. :	

Preparation Date: 24/February/2016

		· · · ·	:								
1	.:							1.			1.
									Uncontrolled	d product	
Carbon (animal or vege	table origin)	· [1.1		7440-44-0	according to classificatior	WHMIS 1 criteria	÷.,
Chromium, massive								7440-47-3	Uncontrolled according to	d product WHMIS	
Manganese (nowder)		.: :		: • •	• . :	1.1	; • •	7430 06 5	classification	1 criteria	or)
manganese (powder)								7439-90-5	Uncontroller	d product	u)
Tantalum								7440-25-7	according to	WHMIS	
								7440 40 4	classification	1 criteria	
Cobalt (powder)								7440-48-4	DZA, DZB B6 (powder). Lincont	rolled
Aluminum powder, stal	oilized		·					7429-90-5	product acco	ording to V n criteria	VHMIS
								7400 00 7	Uncontrolled	d product	
woiybaenum (powaer)								/439-98-/	classification	n criteria	
Nickel, massive, ≥ 1 mn	n			: • •			: • •	7440-02-0	D2A, D2B; E	36, D2A (I	Raney
Silicon								7440-21-3	B4		-
Tungsten, powder	::. ·:	1 1 1 1		::. ::.			::. ::.	7440-33-7	Uncontrolled according to	d product WHMIS	· : :
Vanadium								7440-62-2	Not Listed	I CITICITA	
			-	111			1.1		Uncontroller	d product	
Iron								7439-89-6	according to classificatior	WHMIS n criteria	
Titanium, massive								7440-32-6	Not Listed		
Niobium	···			:				7440-03-1	Not Listed		1.1
anada - WHMIS - Ingre	edient Disc	closure L	_ist								
Hafnium	11. Te		1	11.	141	11.	11.	7440-58-6	1 %		
Carbon (animal or vege	table origin)						7440-44-0	Not Listed		
Chromium, massive								7440-47-3	0.1 %		
Manganese (powder)							11	7439-96-5	1%		
								7440-25-7	1 % 0 1 %		
								7440-46-4	U.I %		
Cobalt (powder)	viliand							7400 00 E	1 0/		
Cobalt (powder) Aluminum powder, stal	oilized							7429-90-5	1%		
Cobalt (powder) Aluminum powder, stal Molybdenum (powder)	oilized			;	<u>.</u>		:	7429-90-5 7439-98-7	1 % 1 %	:	:.:
Cobalt (powder) Aluminum powder, stat Molybdenum (powder) Nickel, massive, ≥ 1 mn	bilized				<u>.</u>			7429-90-5 7439-98-7 7440-02-0	1 % 1 % 0.1 %		
Cobalt (powder) Aluminum powder, stat Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon	bilized		d.	:	<u>.</u>	ΒĊ	:	7429-90-5 7439-98-7 7440-02-0 7440-21-3	1 % 1 % 0.1 % Not Listed		:.:
Cobalt (powder) Aluminum powder, stat Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder	pilized n					El El		7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7	1 % 1 % 0.1 % Not Listed 1 %	:	
 Cobalt (powder) Aluminum powder, stał Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium 	pilized n				14 11	EC EL	:" 11.	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2	1 % 1 % 0.1 % Not Listed 1 % 1 %	: ::.	
 Cobalt (powder) Aluminum powder, stał Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron 	pilized n	: :	4 1	:" :	14 91	80 20	:" 11.	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6	1 % 1 % 0.1 % Not Listed 1 % 1 % Not Listed	:"	
Cobalt (powder) Aluminum powder, stał Molybdenum (powder) Nickel, massive, ≥ 1 mm Silicon Tungsten, powder Vanadium Iron Titanium, massive	bilized n							7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6	1 % 1 % 0.1 % Not Listed 1 % 1 % Not Listed Not Listed		
Cobalt (powder) Aluminum powder, stat Molybdenum (powder) Nickel, massive, ≥ 1 mm Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium	bilized n					83 23. 24	#** 13. 13.	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	1 % 1 % 0.1 % Not Listed 1 % Not Listed Not Listed Not Listed	:" 13. 13.	
Cobalt (powder) Aluminum powder, stat Molybdenum (powder) 'Nickel, massive, ≥ 1 mm Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium	bilized				14 141 141 141	83 19. 14	:** 13. 13.*	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	1 % 1 % 0.1 % Not Listed 1 % 1 % Not Listed Not Listed		:.: :: ::
Cobalt (powder) Aluminum powder, stal Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium Niobium nvironment anada - CEPA - Priorit	bilized	ces List					+** 33. 34*	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	1 % 1 % 0.1 % Not Listed 1 % Not Listed Not Listed Not Listed		
Cobalt (powder) Aluminum powder, stal Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium Niobium nvironment anada - CEPA - Priorit	bilized	ces List					+** 13. 13*	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	1 % 1 % 0.1 % Not Listed 1 % Not Listed Not Listed Not Listed		: :- -:- :
Cobalt (powder) Aluminum powder, stat Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium nvironment anada - CEPA - Priorit Hafnium Carbon (animal or vege	bilized n y Substan	ces List			14 14 15 14		:" 3. 3. 	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1 7440-03-1	1 % 1 % 0.1 % Not Listed 1 % 1 % Not Listed Not Listed Not Listed Not Listed	:** 13. 13. 13. 13. 14.	
Cobalt (powder) Aluminum powder, stat Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium Niobium Niobium Niobium Niobium Carbon (animal or vege Chromium, massive	bilized n :y Substan	ces List					+** 35. 34' +**	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-03-1	1 % 1 % 0.1 % Not Listed 1 % 1 % Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	: " ::: ::: :::	: - : - : : - : : - : - :
 Cobalt (powder) Cobalt (powder) Aluminum powder, stat Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium nvironment anada - CEPA - Priorit Hafnium Carbon (animal or veget) Chromium, massive 	bilized n : y Substan :table origin	ces List		:** ::. ::: :::			+** 32. 34 	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-03-1 7440-58-6 7440-58-6 7440-47-3 7439-96-5	1 % 1 % 0.1 % Not Listed 1 % Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	:" ::: ::: :::	: -: -:: -: : -: : -:
 Cobalt (powder) Aluminum powder, stał Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium nvironment anada - CEPA - Priorit Hafnium Carbon (animal or vege Chromium, massive Manganese (powder) 	bilized n :y Substan table origin	ces List		: ::. ::.			+** 33. 34* +**	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-03-1 7440-03-1	1 % 1 % 0.1 % Not Listed 1 % Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	:** 13.1 13.1 	
 Cobalt (powder) Aluminum powder, stał Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium nvironment anada - CEPA - Priorit Hafnium Carbon (animal or vege Chromium, massive Manganese (powder) Tantalum 	bilized n :y Substan	ces List					+** 33. 34* +** 33.	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-03-1 7440-03-1 7440-58-6 7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4	1 % 1 % 0.1 % Not Listed 1 % Not Listed Not Listed	:** ::: ::: :::	
 Cobalt (powder) Aluminum powder, stał Molybdenum (powder) Nickel, massive, ≥ 1 mn Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium nvironment anada - CEPA - Priorit Hafnium Carbon (animal or vege Chromium, massive Manganese (powder) Tantalum Cobalt (powder) 	bilized n : y Substan :table origin	ces List					+** 33. 34* +** 33. 34*	7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-03-1 7440-03-1 7440-58-6 7440-48-6 7440-48-4	1 % 1 % 0.1 % Not Listed 1 % Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	:** 13. 13. 13. 13. 13.	

 Molybdenum (pov 	vder)							7439-98-7	Not Listed		
 Nickel, massive, ≥ 	1 mm ,	:	1.1	1.1	:	1.1	1.1	7440-02-0	Not Listed	1.1	
 Silicon 								7440-21-3	Not Listed		
 Tungsten, powde 	r							7440-33-7	Not Listed		
 Vanadium 								7440-62-2	Not Listed		
• Iron			1.1		1.1			7439-89-6	Not Listed		· . :
Titanium, massive						1.1		7440-32-6	Not Listed		
 Niobium 								7440-03-1	Not Listed		
1.1. I. I. I.			1			1.1.1			1 I I I I I I I I I I I I I I I I I I I		

United States

lanage	ment - Highl	v Hazard				1	1.1	1.1	1	-
		· · · · · · · · · · ·	ous onei	nicais					1.	
						7440-58-6	Not Listed			
gin)						7440-44-0	Not Listed			
						7440-47-3	Not Listed			
1.1	1.1	111	1.1		111	7439-96-5	Not Listed	: * *	1.1	
						7440-25-7	Not Listed			
						7440-48-4	Not Listed			
1:1	11.		111	÷.		7429-90-5	Not Listed			
						7439-98-7	Not Listed			
						7440-02-0	Not Listed			
	1.1		1		1.1	7440-21-3	Not Listed			
						7440-33-7	Not Listed			
						7440-62-2	Not Listed			
						7439-89-6	Not Listed			
1.1		: * *	1.1		111	7440-32-6	Not Listed	: • •		: .
						7440-03-1	Not Listed			
lated C	hemicals			1			1			
						7440-58-6	Not Listed			
gin)						7440-44-0	Not Listed			
	1.1				1.1	7440-47-3	Not Listed	1.1		1.
						7439-96-5	Not Listed			
						7440-25-7	Not Listed			
						7440-48-4	Not Listed			
1.1	1.1		1.1	1.1		7429-90-5	Not Listed	: • •	1.1	
						7439-98-7	Not Listed			
						7440-02-0	Not Listed			
· . ·	1	1		1		7440-21-3	Not Listed	· :		
						7440-33-7	Not Listed			1
						7440-62-2	Not Listed			
	1.1		:	1.1		7439-89-6	Not Listed			· .
	1.1					7440 32 6	Not Listed			
						7440-52-0	NUL LISIEU			
i	gin)	gin)	gin)	gin)	gin) 	gin) 111 121	gin) 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-02-0 7440-02-0 7440-02-1 7440-02-1 7440-02-2 7439-89-6 7440-33-7 7440-62-2 7439-89-6 7440-03-1 7440-03-1 7440-03-1 7440-03-1 7440-03-1 7440-03-1 7440-03-1 7440-03-1 7440-03-1 7440-62-2 7439-96-5 7440-25-7 7440-48-4 7440-25-7 7440-48-4 7440-25-7 7440-48-4 7440-25-7 7440-25-7 7440-48-4 7440-25-7	gin) 7440-44-0 Not Listed 7440-47-3 Not Listed 7439-96-5 Not Listed 7440-48-4 Not Listed 7440-48-4 Not Listed 7440-48-4 Not Listed 7439-98-7 Not Listed 7439-98-7 Not Listed 7440-02-0 Not Listed 7440-02-0 Not Listed 7440-62-2 Not Listed 7440-62-2 Not Listed 7440-33-7 Not Listed 7440-33-1 Not Listed 7440-44-0 Not Listed 7440-47-3 Not Listed 7440-47-3 Not Listed 7440-47-7 Not Listed 7440-48-4 Not Listed 7440-47-7 Not Listed 7440-47-7 Not Listed 7440-48-4 Not Listed 7440-48-4 Not Listed 7440-48-5 Not Listed 7440-48-4 Not Listed 7440-25-7 Not Listed 7440-25-7 Not Listed 7440-21-3 Not Listed 7440-21-3 Not Listed 7440-22- Not Listed 7440-22- Not Listed	gin) 7440-44-0 Not Listed 7440-47-3 Not Listed 7440-25-7 Not Listed 7440-25-7 Not Listed 7440-25-7 Not Listed 7440-25-7 Not Listed 7440-02-0 Not Listed 7440-02-0 Not Listed 7440-02-0 Not Listed 7440-21-3 Not Listed 7440-32-6 Not Listed 7440-32-6 Not Listed 7440-31 Not Listed 7440-31 Not Listed 7440-44-0 Not Listed 7440-47-3 Not Listed	gin) 7440-44-0 Not Listed 7440-47-3 Not Listed 7440-25-7 Not Listed 7440-28-4 Not Listed 7440-28-7 Not Listed 7440-28-7 Not Listed 7439-98-7 Not Listed 7439-98-7 Not Listed 7440-02-0 Not Listed 7440-02-0 Not Listed 7440-62-2 Not Listed 7440-62-2 Not Listed 7440-03-1 Not Listed 7440-03-1 Not Listed 7440-03-1 Not Listed 7440-25-7 Not Listed

Environment							1.1.1	1.1.1		<u> </u>
U.S CAA (Clean Air Act) - 1990 Haz	zardous Air I	Pollutants								
Hafnium						7440-58-6	Not Listed			
Carbon (animal or vegetable origin)	11	1	1.1	1	1	7440-44-0	Not Listed	11	1.1	
Chromium, massive						7440-47-3	Not Listed			
Manganese (powder)						7439-96-5	Not Listed			
• Tantalum	1.1	1.1		1.1	1.1	7440-25-7	Not Listed	1.1	1	1.1
Cobalt (powder)						7440-48-4	Not Listed			

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							7400 00 5	NI / I / I	
Aluminum powder, stat	ollized						7429-90-5	Not Listed	
Molybdenum (powder)					1.1		7439-98-7	Not Listed	
Nickel, massive, ≥ 1 mm	ו						7440-02-0	Not Listed	
Silicon							7440-21-3	Not Listed	
Tungsten, powder							7440-33-7	Not Listed	
Vanadium		: :.:		1.1	1.1		7440-62-2	Not Listed	1.1
Iron				1	1.1		7439-89-6	Not Listed	
Titanium, massive							7440-32-6	Not Listed	
Niobium	·: ·.						7440-03-1	Not Listed	
1 I I I								1 I I I I I I I I I I I I I I I I I I I	
S CERCLA/SARA - I	Hazardous	Substance	es and their R	eportable	Quantities		7440 50 0	Net Listed	
Hatnium	table evicini	X	1.1		1.1		7440-58-6	Not Listed	
Carbon (animal or vege	table origin)					7440-44-0	Not Listed	
								5000 ID final RQ (r	io reporting
								or releases or this	rod if the
							1.1	diameter of the nic	reu ir the
		· · · · ·			1.1.				d is >100
Chromium massive							7440-47-3	um): 2270 kg final	RQ (no
omonium, massive							1 4 4 0 4 1 0	reporting of releas	es of this
		· · · · ·		1.	1.1		1.	hazardous substa	nce is
								required if the dian	neter of the
								pieces of the solid	metal
								released is >100 µ	m)
Manganese (powder)							7439-96-5	Not Listed	
Tantalum							7440-25-7	Not Listed	
Cobalt (nowder)							7440-48-4	Not Listed	
Aluminum nowder stat	ballized	: :.*		1.1	1.1		7420 00 5	Not Listed	1.1
Aluminum powder, stat	JIIIZEU ,	1.1		1	1.1		7429-90-3	Not Listed	
woiybdenum (powder)							1439-96-1		
								100 ID TINAI RQ (no	
		· · · ·		: · ·					rod if the
								diameter of the pic	
Nickel massive > 1 mm							7440-02-0	um): 45.4 kg final F	
	1						1440-02-0	reporting of releas	es of this
								hazardous substa	nce is
								required if the dian	neter of the
	· · · ·	:	: * *	1.1	1.1	: * *	1.1	pieces of the solid	metal
								released is >100 µ	m)
Silicon							7440-21-3	Not Listed	
Tunasten.:powder	· · · ·		· · · · ·		1		7440-33-7	Not Listed	
Vanadium	ii i						7440-62-2	Not Listed	
ron							7430 80 6	Not Listed	
Titanium 'm'assiva							7439-09-0	Not Listed	
ntanium, massive				1.	. 11		7440-32-6	Not Listed	1.
Niobium							7440-03-1	Not Listed	
CERCLA/SARA - I	Radionucli	des and Th	eir Reportabl	e Quantiti	es				
Hafnium			-				7440-58-6	Not Listed	
Carbon (animal or vege	table origin)			1.1		7440-44-0	Not Listed	
Chromium, massive	0						7440-47-3	Not Listed	
Manganese (powder)							7439-96-5	Not Listed	
Tantalum'							7440-25-7	Not Listed	
Cobalt (nowdor)							7110 10 1	Not Listed	
	ilizod						7420 00 5	Not Listed	
numinum powder, stat	niizea						7429-90-5	INOT LISTED	
wolybdenum (powder)							/439-98-7	Not Listed	
Mitchell and a stress of a second	1 I						7440-02-0	Not Listed	

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It Based Alloys											
		11			11			11			
								7440.04.0	No.41 Sector of		
Silicon								7440-21-3	Not Listed		
Fungsten, powder		1.			1.			7440-33-7	Not Listed		1.
/anadium								7440-62-2	Not Listed		
ron								7439-89-6	Not Listed		
Titanium, massive								7440-32-6	Not Listed		
Niobium	: ' '	1.1	1 · 1	:**	1.1	1 · 1	: • •	7440-03-1	Not Listed	: ' '	1.1
	Continu	202 54		andaua Cu	hotonood						
lafnium	Section	JUZ EX		Laruous St	IDStances	EFCRA KU	45	7440-58-6	Not Listed		
arbon (animal or yea	ietable or	iain)			i.			7440-44-0	Not Listed		i.
bromium massive		igiii)						7110 11 8	Not Listed		
								7440-47-5	Not Listed		
langanese (powder)								7439-96-5	Not Listed		
antalum								7440-25-7	Not Listed		
obalt (powder)								7440-48-4	Not Listed		
luminum powder, sta	abilized							7429-90-5	Not Listed		
lolybdenum (powder	.):	1.1	1.1		1.1			7439-98-7	Not Listed		1.1
ickel, massive, ≥ 1 m	m							7440-02-0	Not Listed		
ilicon								7440-21-3	Not Listed		
ungsten nowder								7440-33-7	Not Listed		
angsteri, powder		1.			1.			7440 62 2	Not Listed		1.
								7440-62-2	Not Listed		
on								7439-89-6	Not Listed		
tanium, massive			1.1				11	7440-32-6	Not Listed		
iobium								7440-03-1	Not Listed		
- CERCLA/SARA -	Section	302 Ex	tremely Ha	zardous S	ubstance	s TPQs					
- CERCLA/SARA - afnium	Section	302 Ex	tremely Ha	zardous S	ubstance	s TPQs		7440-58-6	Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg	Section	302 Ex	tremely Ha	zardous S	ubstance	s TPQs	;···	7440-58-6 7440-44-0	Not Listed	1 1 1 1	:.:
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive	Section	302 Ex igin)	tremely Ha	zardous S	ubstance	s TPQs	:	7440-58-6 7440-44-0 7440-47-3	Not Listed Not Listed Not Listed		<u>.</u>
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder)	Section	302 Ex igin)	tremely Ha	zardous S	ubstance	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5	Not Listed Not Listed Not Listed Not Listed		1.1
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder)	Section	302 Ex	tremely Ha	zardous S	ubstance	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7	Not Listed Not Listed Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum	Section	302 Ex igin)	tremely Ha	zardous Si	ubstance	s TPQs	:" 11.	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4	Not Listed Not Listed Not Listed Not Listed Not Listed	:** 11.	
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder)	Section	302 Ex	tremely Ha	zardous Si	ubstance:	s TPQs	ат. Н.	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4	Not Listed Not Listed Not Listed Not Listed Not Listed	:" 11.	
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta	Section jetable or	302 Ex	tremely Ha	zardous Si	ubstance	s TPQs	ат 13. 131	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5	Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder	estion getable or abilized	302 Ex igin)	tremely Ha	zardous Si	ubstance	s TPQs	ат 13. 131	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7	Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	#** 13. 13.	
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m	abilized	302 Ex	tremely Ha	zardous Si	ubstance	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0	Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon	abilized	302 Ex igin)	tremely Ha	zardous Si	ubstance	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3	Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder	Section jetable or abilized	302 Ex igin)	tremely Ha	zardous Si	ubstance	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7	Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder anadium	abilized	302 Ex igin)	tremely Ha	zardous Si	ubstance	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2	Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder anadium	Section jetable or abilized	302 Ex igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6	Not Listed Not Listed	211 13. 13.	
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder anadium on	Section jetable or abilized	302 Ex	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-21-3 7440-62-2 7439-89-6 7440-32 6	Not Listed Not Listed	:" 11. 12.	
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive anganese (powder) antalum obalt (powder) uminum powder, sta olybdenum (powder ickel, massive, ≥ 1 m licon ungsten, powder anadium on tanium, massive obium	abilized	302 Ex igin)	tremely Ha	zardous Si 	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder anadium on itanium, massive iobium	abilized	302 Ex igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder anadium on itanium, massive iobium - CERCLA/SARA - afnium	Section	302 Ex igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-62-2 7439-89-6 7440-32-6 7440-03-1	Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder anadium on itanium, massive iobium - CERCLA/SARA - afnium arbon (animal or veg	Section	302 Ex igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-32-6 7440-58-6 7440-58-6 7440-44-0	Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder ickel, massive, ≥ 1 m ilicon ungsten, powder anadium on itanium, massive iobium - CERCLA/SARA - afnium arbon (animal or veg	Section	302 Ex igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-62-2 7439-89-6 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	Not Listed Not Listed		
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder lickel, massive, ≥ 1 m ilicon ungsten, powder anadium on itanium, massive iobium - CERCLA/SARA - lafnium arbon (animal or veg	Section	302 Ex igin)	tremely Ha	zardous Si	ubstance	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	Not Listed Not Listed	ininimis ion	
- CERCLA/SARA - afnium arbon (animal or veg hromium, massive langanese (powder) antalum obalt (powder) luminum powder, sta lolybdenum (powder) luminum powder, sta lolybdenum (powder) luminum, massive lobium - CERCLA/SARA - lafnium arbon (animal or veg hromium, massive	Section	302 Ex igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-32-1 7440-58-6 7440-44-0 7440-44-0 7440-47-3	Not Listed Not Listed	ninimis	
A - CERCLA/SARA - lafnium carbon (animal or veg chromium, massive Manganese (powder) antalum cobalt (powder) Juminum powder, sta Molybdenum (powder lickel, massive, ≥ 1 m illicon ungsten, powder anadium on itanium, massive liobium - CERCLA/SARA - lafnium carbon (animal or veg chromium, massive Manganese (powder)	Section	302 Ex igin)	tremely Ha	zardous Si 	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-62-2 7439-89-6 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-47-3 7440-47-3 7439-96-5	Not Listed Not Listed	ninimis ion	
A CERCLA/SARA - lafnium arbon (animal or veg hromium, massive langanese (powder) antalum cobalt (powder) luminum powder, sta lolybdenum (powder lickel, massive, ≥ 1 m ilicon ungsten, powder anadium on itanium, massive liobium - CERCLA/SARA - lafnium carbon (animal or veg chromium, massive langanese (powder) antalum	Section	302 Ex igin) 313 - E igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-33-1 7440-58-6 7440-44-0 7440-44-0 7440-47-3 7439-96-5 7440-25-7	Not Listed Not Listed	ninimis ion ninimis ion	
CERCLA/SARA - lafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Numinum powder, sta Molybdenum (powder lickel, massive, ≥ 1 m Silicon Tungsten, powder /anadium Ton Titanium, massive liobium CERCLA/SARA - lafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder)	Section	302 Ex igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-1 7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4	Not Listed Not Listed	ninimis ion ninimis ion	
CERCLA/SARA - lafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) Aluminum powder, sta Molybdenum (powder) lickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium ron Tanaium, massive Nobium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder)	Section	302 Ex igin) 313 - E igin)	tremely Ha	zardous Si	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-1 7440-58-6 7440-3-1 7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4	Not Listed Not Listed 1.0 % de m concentratt Not Listed 0.1 % de m	ninimis ion ninimis ion ninimis	
- CERCLA/SARA - lafnium Carbon (animal or veg Chromium, massive Manganese (powder) antalum Cobalt (powder) Uuminum powder, sta Molybdenum (powder lickel, massive, ≥ 1 m Silicon Ungsten, powder Vanadium Ton Itanium, massive liobium - CERCLA/SARA - lafnium Carbon (animal or veg Chromium, massive Manganese (powder) antalum Cobalt (powder)	Section	302 Ex igin)	tremely Ha	zardous Si 	ubstance:	s TPQs		7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7440-02-0 7440-21-3 7440-21-3 7440-62-2 7439-89-6 7440-33-7 7440-32-6 7440-32-6 7440-32-1 7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5	Not Listed Not Listed 1.0 % de m concentratt 1.0 % de m	ninimis ion ninimis ion ninimis ion ninimis ion (dust o	r fume

1					1.			1.			1.
 Nickel massive ≥ 1 m 	im .							7440-02-0	0.1 % de m	inimis	
						1.1			concentrati	on	
 Silicon 								7440-21-3	Not Listed		
 Tungsten, powder 								7440-33-7	Not Listed		
									1.0 % de m	inimis	
Vanadium	:	. :		:	1.1		: • •	7440-62-2	concentrati contained in	on (exc n an allo	ept when y)
• Iron								7439-89-6	Not Listed		
 Titanium, massive 			1		1.1	1	1	7440-32-6	Not Listed	1	1.1
Niobium								7440-03-1	Not Listed		
J.S CERCLA/SARA -	Section 31	3 - PB	T Chemic	al Listing				1			
Hafnium								7440-58-6	Not Listed		
· Carbon (animal or veg	jetable origir	n)						7440-44-0	Not Listed		
 Chromium, massive 								7440-47-3	Not Listed		
Manganese (powder)								7439-96-5	Not Listed		
Tantalum					1.1			7440-25-7	Not Listed		
Cobalt (powder)								7440-48-4	Not Listed		
Aluminum nowder sta	abilizad							7429-90-5	Not Listed		
• Molybdenum (nowder	101112C0	1	11.		1:1	11.		7430 08 7	Not Listed		111
)							7439-90-7	Not Listed		
• NICKEI, IIIdSSIVE, ≤ 1 III	.111							7440-02-0	Not Listed		
• Silicon		1	1.1			1.1	1.1	7440-21-3	Not Listed	111	
Iungsten, powder								7440-33-7	Not Listed		
Vanadium								7440-62-2	Not Listed		
• Iron								7439-89-6	Not Listed		
 Titanium, massive 								7440-32-6	Not Listed		
Niobium	•					11.		7440-03-1	Not Listed		
Jnited States - Ca	alifornia					1					
Environment											
		0	sinogone I								
U.S California - Prop	osition 65	- Carc	Jinogens i	_ist							
U.S California - Prop • Hafnium	osition 65	- Carc	inogens i	_ist	:	· . :		7440-58-6	Not Listed	1.1	:
 U.S California - Prop Hafnium Carbon (animal or veg 	etable origin	- Car(_ist	1.		::*	7440-58-6 7440-44-0	Not Listed		
 U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive 	jetable origir	- Caro n)		_ist				7440-58-6 7440-44-0 7440-47-3	Not Listed Not Listed Not Listed		
U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder)	position 65	n)		_ist		14	11	7440-58-6 7440-44-0 7440-47-3 7439-96-5	Not Listed Not Listed Not Listed		
 U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum 	position 65	n)		_ist	:.	14		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7	Not Listed Not Listed Not Listed Not Listed		
 U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum 	petable origin	n)		_ist	4. 14	14 Fi		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7	Not Listed Not Listed Not Listed Not Listed Not Listed	7/1/10	02
 U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) 	petable origin	- Car (_ist		14 Hi	31 11	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4	Not Listed Not Listed Not Listed Not Listed carcinogen (powder)	, 7/1/19	92
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, statement 	petable origin	- Car(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		_ist			31 411 11	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5	Not Listed Not Listed Not Listed Not Listed Carcinogen (powder) Not Listed	, 7/1/19	92
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) 	position 65 getable origin abilized	- Carr ; ; ;		-ist	4. 14 14		31 +** 31	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed	, 7/1/19	92
 U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, state Molybdenum (powder) Nickel, massive, ≥ 1 m 	abilized m	- Carr		_ist			97 11 11	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0	Not Listed Not Listed Not Listed Not Listed Carcinogen (powder) Not Listed Not Listed carcinogen (metallic)	i, 7/1/19 i, 70/1/1	92 92 989
J.S California - Prop • Hafnium • Carbon (animal or veg • Chromium, massive • Manganese (powder) • Tantalum • Cobalt (powder) • Aluminum powder, sta • Molybdenum (powder • Nickel, massive, ≥ 1 m • Silicon	position 65 getable origin abilized) m	- Carc		_ist				7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed carcinogen (metallic)	, 7/1/19 , 7/1/19 , 10/1/1	989
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder Nickel, massive, ≥ 1 m Silicon 	abilized	- Carc		_ist			37 477 33. 331	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-02-0 7440-21-3 7440-22 7	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed carcinogen (metallic) Not Listed	, 7/1/19 , 7/1/19 , 10/1/1	92
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder Nickel, massive, ≥ 1 m Silicon Tungsten, powder 	abilized	- Carc		-ist				7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed carcinogen (metallic) Not Listed Not Listed	, 7/1/19 , 7/1/19 , 10/1/1	989
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, state Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium 	abilized	- Carc		_ist				7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed carcinogen (metallic) Not Listed Not Listed Not Listed	, 7/1/19 , 10/1/1	989
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium Iron 	abilized	- Carc		List				7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	, 7/1/19 , 10/1/1	989
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, state Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium Iron Titanium, massive 	abilized	- Carc		List				7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-21-3 7440-62-2 7439-89-6 7440-32-6	Not Listed Not Listed Not Listed Not Listed Carcinogen (powder) Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	, 7/1/19 , 7/1/19 , 10/1/1	989
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium 	abilized	- Carc		_ist				7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	, 7/1/19 , 10/1/1	989
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium 	oosition 65 getable origin abilized) m osition 65	- Carc n)	elopmenta	List				7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-02-0 7440-21-3 7440-62-2 7439-89-6 7440-32-6 7440-32-6	Not Listed Not Listed Not Listed Not Listed Carcinogen (powder) Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	, 7/1/19 , 7/1/19 , 10/1/1	92
 U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium U.S California - Prop Hafnium 	oosition 65 getable origin abilized) m osition 65	- Carc	elopmenta	List				7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-21-3 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-32-6 7440-32-6	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed Not Listed	, 7/1/19 , 7/1/19 , 10/1/1	989
 U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) Aluminum powder, sta Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium U.S California - Prop Hafnium Carbon (animal or veg 	oosition 65 getable origin abilized) m osition 65 getable origin	- Carc n) - Deve n)	elopmenta	List				7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-21-3 7440-62-2 7439-89-6 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-03-1	Not Listed Not Listed Not Listed Not Listed Carcinogen (powder) Not Listed Not Listed	, 7/1/19 , 10/1/1	989
 J.S California - Prop Hafnium Carbon (animal or veg Chromium, massive Manganese (powder) Tantalum Cobalt (powder) Aluminum powder, sta Molybdenum (powder) Aluminum powder, sta Molybdenum (powder) Nickel, massive, ≥ 1 m Silicon Tungsten, powder Vanadium Iron Titanium, massive Niobium U.S California - Prop Hafnium Carbon (animal or veg Chromium, massive 	osition 65 abilized) m osition 65	- Carc n) - Deve 1)	elopmenta	List				7440-58-6 7440-47-3 7439-96-5 7440-25-7 7440-25-7 7440-48-4 7429-90-5 7439-98-7 7440-02-0 7440-21-3 7440-33-7 7440-62-2 7439-89-6 7440-32-6 7440-32-6 7440-03-1	Not Listed Not Listed Not Listed Not Listed carcinogen (powder) Not Listed Not Listed	, 7/1/19 , 7/1/19 , 10/1/1	989

Juan Dascu AllOys	1 1									
							1.	11 A.		
Tantalum							7440-25-7	Not Listed		
Cobalt (powder)	.t	1.1	· . ·		1.1	1.1	7440-48-4	Not Listed	1.1	:
Aluminum powder, stabi	ized						7429-90-5	Not Listed		
• Molybdenum (powder)							7439-98-7	Not Listed		
Nickel, massive, ≥ 1 mm							7440-02-0	Not Listed		
Silicon							7440-21-3	Not Listed		
• Tungsten, powder		11.					7440-33-7	Not Listed		
• Vanadium							7440-62-2	Not Listed		
Iron							7439-89-6	Not Listed		
Titanium, massive							7440-32-6	Not Listed		1.
Niobium							7440-03-1	Not Listed		
S California - Propo	sition 65 - Ma	iximum All	owable Dos	se Levels	(MADL)		1.			1.
Hafnium							7440-58-6	Not Listed		
 Carbon (animal or veget 	able origin)						7440-44-0	Not Listed		
Chromium, massive							7440-47-3	Not Listed		
Manganese (powder)		111			11.		7439-96-5	Not Listed		1.1
Tantalum							7440-25-7	Not Listed		
Cobalt (powder)							7440-48-4	Not Listed		
Aluminum powder, stabi	ized						7429-90-5	Not Listed	1	
Molybdenum (powder)							7439-98-7	Not Listed		
 Nickel, massive, ≥ 1 mm 							7440-02-0	Not Listed		
Silicon							7440-21-3	Not Listed		
Tunasten, powder							7440-33-7	Not Listed		
• Vanadium							7440-62-2	Not Listed		
• Iron							7439-89-6	Not Listed		
Titanium massive	1. j.:		111	1.1		111	7440 32 6	Not Listed	: ' '	1.1
Niohium							7440-32-0	Not Listed		
Nobiam							1 00 00 1	NOT EISTER		
.S California - Propos	ition 65 - No	Significant	Risk Level	s (NSRL)						1:1
 Hafnium 							7440-58-6	Not Listed		
 Carbon (animal or veget 	able origin)						7440-44-0	Not Listed		
Chromium, massive						1.1	7440-47-3	Not Listed	11	1.
Manganese (powder)							7439-96-5	Not Listed		
• Tantalum							7440-25-7	Not Listed		
Cobalt (powder)							7440-48-4	Not Listed		
Aluminum powder, stabi	ized	1.1		1.1	1.1	: * *	7429-90-5	Not Listed	: * *	1.1
Molybdenum (powder)							7439-98-7	Not Listed		
Nickel massive > 1 mm							7440-02-0	Not Listed		
Silicon		1	1	1.1		1	7440-21-3	Not Listed	1	1.1
Tungsten nowder							7440-21-3	Not Listed		
							7440-53-7	Not Listed		
Vanadium		1.1			1.1		7440-02-2			:
Vanadium							7439-69-6	Not Listed		
Vanadium Iron							7440-32-6			
Vanadium Iron Titanium, massive							/440-03-1	Not Listed		
 Vanadium Iron Titanium, massive Niobium 							1.1			· . :
 Vanadium Iron Titanium, massive Niobium .S California - Proposition 	ition 65 - Re	productive	Toxicity - F	emale						
 Vanadium Iron Titanium, massive Niobium S California - Propos Hafnium 	ition 65 - Re	productive	Toxicity - F	emale			7440-58-6	Not Listed		
 Vanadium Iron Titanium, massive Niobium S California - Propos Hafnium Carbon (animal or veget) 	i tion 65 ;- Re	productive	Toxicity - F	emale			7440-58-6 7440-44-0	Not Listed Not Listed		
 Vanadium Iron Titanium, massive Niobium S California - Propose Hafnium Carbon (animal or veget Chromium: massive 	i tion 65 - Re able origin)	productive	Toxicity - F	emale			7440-58-6 7440-44-0 7440-47-3	Not Listed Not Listed Not Listed		
 Vanadium Iron Titanium, massive Niobium S California - Propose Hafnium Carbon (animal or veget Chromium, massive Mangapese (powder) 	i tion 65 - Re able origin)	productive	Toxicity - F	emale			7440-58-6 7440-44-0 7440-47-3 7439-96-5	Not Listed Not Listed Not Listed	::. ::.	
 Vanadium Iron Titanium, massive Niobium S California - Propose Hafnium Carbon (animal or veget Chromium, massive Manganese (powder) Tantalum 	able origin)	productive	Toxicity - F	emale	81 21		7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25 7	Not Listed Not Listed Not Listed Not Listed	11.	
 Vanadium Iron Titanium, massive Niobium I.S California - Propose Hafnium Carbon (animal or veget Chromium, massive Manganese (powder) Tantalum Cobalt (apudar) 	able origin)	productive	Toxicity - F	emale			7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7	Not Listed Not Listed Not Listed Not Listed Not Listed		
 Vanadium Iron Titanium, massive Niobium I.S California - Propos Hafnium Carbon (animal or veget Chromium, massive Manganese (powder) Tantalum Cobalt (powder) 	able origin)	productive	Toxicity - F	emale		31. 31	7440-58-6 7440-44-0 7440-47-3 7439-96-5 7440-25-7 7440-48-4	Not Listed Not Listed Not Listed Not Listed Not Listed		

Preparation Date: 24/February/2016

Revision Date: 08/March/2018

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1.1

obalt Based Alloys												
• Molybdenum (nowder))							7439-98-7	Not Listed			
Nickel massive > 1 mr	m ·							7440-02-0	Not Listed			
 Silicon 								7440-21-3	Not Listed		1.	
• Tungsten powder								7440-33-7	Not Listed			
Vanadium								7440-62-2	Not Listed			
• Iron								7439-89-6	Not Listed			
Titanium. massive	·		11.			11.		7440-32-6	Not Listed			
Niobium								7440-03-1	Not Listed			
	· ·								1			
J.S California - Prop	osition 65	- Rep	roductive	Foxicity - M	ale			i.				
Hafnium								7440-58-6	Not Listed			
Carbon (animal or vege	etable origir	ן)	1.1	1.1		1.1	1.1	7440-44-0	Not Listed	1.1	:	
Chromium, massive								7440-47-3	Not Listed			
• Manganese (powder)								7439-96-5	Not Listed			
Tantalum								7440-25-7	Not Listed			
Cobait (powder)		. :	1.1			1.1	: • •	7440-48-4	Not Listed	: • •	· . :	
Aluminum powder, sta								7429-90-5	Not Listed			
Iviolypdenum (powder))							1439-98-1	NOT LISTED			
 INICKEI, Massive, ≥ 1 mr Silicon 	m, ,							7440-02-0	Not Listed			
								7440-21-3		*		
								7440-33-1				
		1.						7/30 00 6	Not Listed			
• Titanium massive								7440-32-6	Not Listed			
Niohium								7440-02-0	Not Listed			
5.2 Chemical Sa	afety As	ses	sment		_							
		•	No Chemi	cal Safety	Assess	nent has	been ca	rried out.				
		1.		cal Galety	100000						141	
5.3 Other Inform	nation			cal Galety	100000				Η.			
5.3 Other Inform	nation	•		B: This pro	duct cor	tains a cl	hemical	known to th	ne State of C	aliforr	nia to	
5.3 Other Inform	nation	•	WARNING cause car	G: This pro	duct cor	tains a cl	hemical	known to th	ne State of C	aliforr	nia to	
5.3 Other Inform	nation er Infor	mat	WARNINC cause car	B: This pro	duct cor	tains a cl	hemical	known to th	ne State of C	aliforr	nia to	
5.3 Other Inform Section 16 - Othe	nation er Infor	• mat	WARNINC cause car ion	6: This pro		tains a cl	hemical	known to th	ne State of C	aliforr	nia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c	er Infor	mat II tex	WARNING cause car ion tt)	B: This pro		tains a cl	hemical	known to th	ne State of C	aliforr	iia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c	nation er Infor code & ful	mat II tex	WARNINC cause car ion tt) H228 - Fla H221 - Se	B: This pro icer.	duct cor	tains a cl	hemical	known to th	ne State of C	aliforr	nia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c	er Infor	mat II tex	WARNINC cause car ion tt) H228 - Fla H251 - Se H260 - In	ammable s If-heating; contact wi	olid may cat	tains a cl	flammal	known to th	he State of C	aliforr	nia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c	er Infor ode & fu	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H250 - In spontanec	ammable s If-heating; contact wi	olid may cat	tains a cl	flammal	known to th	he State of C	aliforr	iia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c	er Infor code & ful	mat II tex	WARNING cause car ion tt) H228 - Fla H251 - Se H260 - In spontaneo H302 - Ha H361 - Su	ammable s If-heating; contact wi spected of	olid may cat th water allowed	tains a cl ch fire releases	flammal	known to th ble gases w	vhich may igr	aliforr	nia to	
5.3 Other Inform Section 16 - Other Relevant Phrases (c	er Infor	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontaneo H302 - Ha H361 - Su H413 - Ma	ammable s If-heating; contact wi pusly rmful if sw spected of ay cause lo	olid may cat th water allowed f damagi	tains a cl ch fire releases ng fertility	flammal r or the u	known to th ble gases w unborn child to aquatic	he State of C	aliforr	nia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c	er Infor	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H361 - Su H413 - Ma 08/March/	ammable s lif-heating; contact wi busly rmful if sw spected of ay cause lo 2018	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal r or the u l effects	known to th ble gases w unborn child to aquatic	vhich may igr	aliforr	iia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c Revision Date Preparation Date	er Infor code & ful	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H361 - Su H413 - Ma 08/March/ 24/Eebrua	ammable s lf-heating; contact wi pusly rmful if sw spected of ay cause to 2018 rv/2016	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal / or the u	known to th ble gases w unborn child to aquatic	vhich may igr	aliforr	nia to	
5.3 Other Inform Section 16 - Other Relevant Phrases (c Revision Date Preparation Date	er Infor	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H413 - Ma 08/March/ 24/Februa	ammable s lf-heating; contact wi pusly rmful if sw spected of ay cause lo 2018 ry/2016	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal r or the u l effects	known to th ble gases w unborn child to aquatic	he State of C which may igr d. life	aliforr	nia to	
5.3 Other Inform Section 16 - Othe Relevant Phrases (c Revision Date Preparation Date Disclaimer/Statemen iability	er Infor ode & fu	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H413 - Ma 08/March/ 24/Februa The inform made.	ammable s If-heating; contact wi ously rmful if sw spected of ay cause lo 2018 ry/2016 nation here	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal r or the u l effects d faith bu	known to th ble gases w unborn child to aquatic ut no warra	vhich may igr d. life	aliforr nite	nia to	is
5.3 Other Inform Section 16 - Othe Relevant Phrases (c Revision Date Preparation Date Disclaimer/Statemen iability ey to abbreviations	er Infor ode & fu	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H361 - Su H413 - Ma 08/March/ 24/Februa The inform made.	ammable s lif-heating; contact wi busly rmful if sw spected of ay cause lo 2018 ry/2016 hation here	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal / or the u il effects	known to th ble gases w unborn chik to aquatic ut no warra	vhich may igr d. life	aliforr nite	nia to	is
5.3 Other Inform Section 16 - Othe Relevant Phrases (c Revision Date Preparation Date Disclaimer/Statemen iability ey to abbreviations DA = No Data Available	er Infor ode & ful	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H413 - Ma 08/March/ 24/Februa The inform made.	ammable s lf-heating; contact wi ously rmful if sw spected of ay cause lo 2018 ry/2016 hation here	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal r or the u l effects d faith b	known to th ble gases w unborn child to aquatic ut no warra	vhich may igr d. life	aliforr nite	nia to	is
5.3 Other Inform Section 16 - Othe Relevant Phrases (c Revision Date Preparation Date Disclaimer/Statemen iability ey to abbreviations DA= No Data Available	er Infori	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H413 - Ma 08/March/ 24/Februa The inform made.	ammable s lf-heating; contact wi ously rmful if sw spected of ay cause lo 2018 ry/2016 hation here	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal r or the u l effects d faith bu	known to th ble gases w unborn child to aquatic ut no warra	vhich may igr d. life	aliforr nite	mplied,	is
5.3 Other Inform	er Infor ode & ful	mat II tex	WARNING cause car ion tt) H228 - Fla H251 - Se H260 - In spontaneo H302 - Ha H361 - Su H413 - Ma 08/March/ 24/Februa The inform made.	ammable s lf-heating; contact wi pusly rmful if sw spected of ay cause lo 2018 ry/2016 nation here	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility ng harmfu	flammal or the u or the u d faith bu	known to th ble gases w unborn child to aquatic ut no warra	vhich may igr d. life	aliforr nite	nia to	is
5.3 Other Inform Section 16 - Othe Relevant Phrases (c Revision Date Preparation Date Disclaimer/Statemen iability ey to abbreviations DA = No Data Available	er Infor ode & ful	mat II tex	WARNINC cause car ion H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H413 - Ma 08/March/ 24/Februa The inform made.	ammable s if-heating; contact wi pusly rmful if sw spected of ay cause to 2018 ry/2016 hation here	olid may cat th water allowed f damagi ong lastir	tains a cl ch fire releases ng fertility g harmfu	flammal r or the u l effects	known to the ble gases w unborn child to aquatic ut no warra	vhich may igr d. life	aliforr nite	nia to	is
5.3 Other Inform Section 16 - Othe Relevant Phrases (c Revision Date Preparation Date Disclaimer/Statemen iability ey to abbreviations DA = No Data Available	er Infor ode & ful	mat II tex	WARNINC cause car ion tt) H228 - Fla H251 - Se H260 - In spontanec H302 - Ha H361 - Su H413 - Ma 08/March/ 24/Februa The inform made.	ammable s lf-heating; contact wi ously rmful if sw spected of ay cause lo 2018 ry/2016 hation here	olid may cat th water allowed f damagi ong lastir ein is give	tains a cl ch fire reléases ng fertility en in good	flammal r or the u l effects	known to the ble gases w unborn child to aquatic ut no warra	vhich may igr d. life	aliforr nite	mplied,	is