MATERION

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or

Cobalt Tungsten Product

designation of the mixture

Registration number Document number 397

Issue date 15-November-2019

1.3. Details of the supplier of the safety data sheet

Supplier

Synonyms

Company name Materion Advanced Materials Group

None.

Address 42 Mt. Ebo Road South

Brewster, NY 10509

United States

Division

Telephone 1+845.279.0900 e-mail Not available. Not available. **Contact person**

1.4. Emergency telephone

Chemtrec 1+703.527.3887

number

01 **Version number**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Not available. Uses advised against None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Health hazards

Respiratory sensitisation Category 1 Skin sensitisation Category 1 Carcinogenicity Category 2

Specific target organ toxicity - single exposureCategory 3 respiratory tract irritation

Prolonged exposure may cause chronic effects. Not classified for health hazards. However, **Hazard summary**

occupational exposure to the mixture or substance(s) may cause adverse health effects. The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes,

hazardous levels of airborne particulate could be generated.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Cobalt, Tungsten

Hazard pictograms None. Signal word None.

Hazard statements The material as sold in solid form is generally not considered hazardous. However, if the process

involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated. The mixture does not meet the criteria

for classification.

Precautionary statements

Material name: Cobalt Tungsten Product

Prevention Observe good industrial hygiene practices.

Wash hands after handling. Response

Storage Store away from incompatible materials.

Dispose of waste and residues in accordance with local authority requirements. Disposal

Supplemental label

information

100 % of the mixture consists of component(s) of unknown acute oral toxicity. 100 % of the mixture consists of component(s) of unknown acute dermal toxicity. 100 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. EUH208 -Contains Cobalt. May produce an allergic reaction.

For further information, please contact the Product Stewardship Department at +1.800.862.4118.

2.3. Other hazards Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Cobalt	85 - 99,9	7440-48-4 231-158-0	-	027-001-00-9	
Classification:	Skin Sens. 1;H317, Resp	. Sens. 1;H334, ST	OT SE 3;H335, Carc. 2;H351		
Tungsten	0,1 - 15	7440-33-7 231-143-9	-	-	
Classification:	-				

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance. vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to

protect themselves.

4.1. Description of first aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Rinse mouth. Get medical attention if symptoms occur. Ingestion

4.2. Most important

symptoms and effects, both

acute and delayed

Treat symptomatically.

4.3. Indication of any immediate medical attention and special treatment

needed

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

Coughing.

5.1. Extinguishing media

Suitable extinguishing

Powder. Dry sand.

Unsuitable extinguishing

media

media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising

from the substance or

mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Material name: Cobalt Tungsten Product

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Special firefighting procedures

Use water spray to cool unopened containers.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency

Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

personnel

For emergency

Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

responders

6.2. Environmental

Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

6.4. Reference to other

sections

precautions

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

7.2. Conditions for safe

Avoid prolonged exposure. Observe good industrial hygiene practices.

Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

storage, including any incompatibilities 7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OE	. Ordinance (G	iwV), BGBl. II,	no. 184/2001
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Components	Туре	Value	Form
Tungsten (CAS 7440-33-7)	MAK	5 mg/m3	Inhalable fraction.
	STEL	10 mg/m3	Inhalable fraction.
Austria. TRK List, OEL Ordinance Components	e (GwV), BGBl. II, no. 184/2001 Type	Value	Form
Cobalt (CAS 7440-48-4)	STEL	0,4 mg/m3	Inhalable fraction.
	TWA	0,1 mg/m3	Inhalable fraction.
Belgium. Exposure Limit Values. Components	Туре	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	Dust and fume.
Tungsten (CAS 7440-33-7)	STEL	10 mg/m3	
	TWA	5 mg/m3	

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work Components **Type** Value

	- 7 -	
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m3
Tungsten (CAS 7440-33-7)	STEL	10 mg/m3
	TWA	1 ma/m3

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Туре	Value
Cobalt (CAS 7440-48-4)	MAC	0,1 mg/m3
Tungsten (CAS 7440-33-7)	MAC	5 mg/m3
	STEL	3 mg/m3

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as

amended. Components	Туре	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m3	Dust and fume.

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Components	Decree 361 Type	Value	
Cobalt (CAS 7440-48-4)	Ceiling	0,1 mg/m3	
	TWA	0,05 mg/m3	
Denmark. Exposure Limit Values Components	Туре	Value	Form
Cobalt (CAS 7440-48-4)	TLV	0,01 mg/m3	Dust and fume.
Tungsten (CAS 7440-33-7)	TLV	5 mg/m3	Dust.
Estonia. OELs. Occupational Exposu September 2001)	re Limits of Hazardous S	ubstances. (Annex of Regula	ation No. 293 of 18
Components	Туре	Value	
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m3	
Гungsten (CAS 7440-33-7)	TWA	5 mg/m3	
Finland. Workplace Exposure Limits Components	; Туре	Value	
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	
Tungsten (CAS 7440-33-7)	TWA	5 mg/m3	
Greece. OELs (Decree No. 90/1999, Components	as amended) Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m3	Dust and fume.
Hungary. OELs. Joint Decree on Che Components	emical Safety of Workplac Type	ces Value	
Cobalt (CAS 7440-48-4)	STEL	0,4 mg/m3	
	TWA	0,1 mg/m3	
	9 on occupational exposu Type	re limits Value	Form
Components	= = = = = = = = = = = = = = = = = = = =		Form Dust and fume.
Components Cobalt (CAS 7440-48-4)	Туре	Value	
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim	T ype TWA TWA	Value 0,02 mg/m3	Dust and fume.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components	Type TWA TWA	Value 0,02 mg/m3 5 mg/m3	Dust and fume.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4)	Type TWA TWA iits Type	Value 0,02 mg/m3 5 mg/m3 Value	Dust and fume.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4)	Type TWA TWA TWA Type Type TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3	Dust and fume.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits	Type TWA TWA TWA Type Type TWA STEL TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3	Dust and fume.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components	Type TWA TWA TWA Type TWA STEL TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3	Dust and fume. Dust.
Components Cobalt (CAS 7440-48-4) Fungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4) Fungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4)	Type TWA TWA TWA Type TWA STEL TWA Type	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value	Dust and fume. Dust. Form
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure	Type TWA TWA TWA Type TWA STEL TWA Type TWA TYPE TWA TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3	Dust and fume. Dust. Form Respirable fraction
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure Components	Type TWA TWA TWA Type TWA STEL TWA Type TWA Type TWA Type TWA TWA TWA TWA TWA TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3 substances in work enviror	Dust and fume. Dust. Form Respirable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lim Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure Components Cobalt (CAS 7440-48-4) Lithuania. OELs. Limit Values for Cl	Type TWA TWA Tits Type TWA STEL TWA Type TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3 substances in work enviror Value 0,5 mg/m3	Dust and fume. Dust. Form Respirable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lime Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure Components Cobalt (CAS 7440-48-4) Lithuania. OELs. Limit Values for Clemponents	Type TWA TWA Anits Type TWA STEL TWA Type TWA Type TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3 I substances in work enviror Value 0,5 mg/m3 eral Requirements Value	Dust and fume. Dust. Form Respirable fraction.
Iceland. OELs. Regulation 154/1999 Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lime Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure Components Cobalt (CAS 7440-48-4) Lithuania. OELs. Limit Values for Clemponents Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7)	Type TWA TWA TWA Type TWA STEL TWA Type TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3 I substances in work enviror Value 0,5 mg/m3 eral Requirements Value 0,05 mg/m3	Dust and fume. Dust. Form Respirable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lime Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure Components Cobalt (CAS 7440-48-4) Lithuania. OELs. Limit Values for Clemponents Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-48-4) Tungsten (CAS 7440-33-7)	Type TWA TWA Anits Type TWA STEL TWA Type TWA Type TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3 I substances in work enviror Value 0,5 mg/m3 eral Requirements Value	Dust and fume. Dust. Form Respirable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lime Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure Components Cobalt (CAS 7440-48-4) Lithuania. OELs. Limit Values for Clemponents	Type TWA TWA TWA Type TWA STEL TWA Type TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3 I substances in work enviror Value 0,5 mg/m3 eral Requirements Value 0,05 mg/m3	Dust and fume. Dust. Form Respirable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Ireland. Occupational Exposure Lime Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Italy. Occupational Exposure Limits Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Latvia. OELs. Occupational exposure Components Cobalt (CAS 7440-48-4) Lithuania. OELs. Limit Values for Cl Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Netherlands. OELs (binding)	Type TWA TWA Anits Type TWA STEL TWA Type TWA TWA E limit values of chemical Type TWA Hemical Substances, Generative Type TWA TWA TWA TWA TWA	Value 0,02 mg/m3 5 mg/m3 Value 0,1 mg/m3 10 mg/m3 5 mg/m3 Value 0,02 mg/m3 3 mg/m3 I substances in work enviror Value 0,5 mg/m3 eral Requirements Value 0,05 mg/m3 5 mg/m3	Porm Respirable fraction.

Norway. Administrative Norms for Components	Туре	Value	Form
Cobalt (CAS 7440-48-4)	TLV	0,02 mg/m3	Fume.
Tungsten (CAS 7440-33-7)	TLV	5 mg/m3	
Ordinance of the Minister of Labo and intensities of harmful health	factors in the work environmen	nt, Journal of Laws 2014	, item 817
Components	Туре	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	
Tungsten (CAS 7440-33-7)	TWA	5 mg/m3	Inhalable fraction.
Portugal. VLEs. Norm on occupat Components	tional exposure to chemical age Type	nts (NP 1796) Value	
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	
Гungsten (CAS 7440-33-7)	STEL	10 mg/m3	
	TWA	5 mg/m3	
Romania. OELs. Protection of wo	orkers from exposure to chemica Type	al agents at the workpla Value	ce
Cobalt (CAS 7440-48-4)	STEL	0,1 mg/m3	
•	TWA	0,05 mg/m3	
Tungsten (CAS 7440-33-7)	STEL	6 mg/m3	
	TWA	2 mg/m3	
Jiotakia: OEE3: itcgaiatioii ito: 5		or meaning work with t	alemical agents
Components	00/2007 concerning protection Type	Value 0.05 mg/m3	
Components Cobalt (CAS 7440-48-4) Fungsten (CAS 7440-33-7)	Type TWA TWA	0,05 mg/m3 5 mg/m3	
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations condworking (Official Gazette of the	Type TWA TWA cerning protection of workers as	0,05 mg/m3 5 mg/m3	sure to chemicals while Form
Components Cobalt (CAS 7440-48-4) Fungsten (CAS 7440-33-7) Slovenia. OELs. Regulations conc working (Official Gazette of the Components	Type TWA TWA cerning protection of workers agreements agreements.	0,05 mg/m3 5 mg/m3 gainst risks due to expos	
Components Cobalt (CAS 7440-48-4) Fungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concovering (Official Gazette of the Components Cobalt (CAS 7440-48-4)	Type TWA TWA Cerning protection of workers agreement of Slovenia) Type	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value	Form
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concovering (Official Gazette of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Line	Type TWA TWA Cerning protection of workers ag Republic of Slovenia) Type TWA TWA	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value 0,1 mg/m3	Form Inhalable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concurrence working (Official Gazette of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Lincomponents	Type TWA TWA TWA cerning protection of workers ag Republic of Slovenia) Type TWA TWA TWA TWA Type	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value 0,1 mg/m3 5 mg/m3 Value	Form Inhalable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concounting (Official Gazette of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Lincomponents Cobalt (CAS 7440-48-4)	Type TWA TWA Cerning protection of workers as Republic of Slovenia) Type TWA TWA TWA TWA	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value 0,1 mg/m3 5 mg/m3 Value 0,02 mg/m3	Form Inhalable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concurrence of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Lincomponents Cobalt (CAS 7440-48-4)	Type TWA TWA TWA Cerning protection of workers agenerated by the second of the sec	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value 0,1 mg/m3 5 mg/m3 Value	Form Inhalable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concurrence working (Official Gazette of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Lincomponents Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Sweden. OELs. Work Environments	Type TWA TWA Cerning protection of workers agenerated agenerate	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value 0,1 mg/m3 5 mg/m3 Value 0,02 mg/m3 10 mg/m3 5 mg/m3	Form Inhalable fraction. Inhalable fraction.
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concurrence of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Lincomponents Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Sweden. OELs. Work Environments Components	Type TWA TWA Cerning protection of workers agreemed ag	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value 0,1 mg/m3 5 mg/m3 Value 0,02 mg/m3 10 mg/m3 5 mg/m3 5 mg/m3 Exposure Limit Values (A	Form Inhalable fraction. Inhalable fraction. AFS 2015:7)
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concworking (Official Gazette of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Lincomponents Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Sweden. OELs. Work Environments Components Cobalt (CAS 7440-48-4)	Type TWA TWA TWA Cerning protection of workers agenerated agen	0,05 mg/m3 5 mg/m3 gainst risks due to expos Value 0,1 mg/m3 5 mg/m3 Value 0,02 mg/m3 10 mg/m3 5 mg/m3 Exposure Limit Values (A	Form Inhalable fraction. Inhalable fraction. AFS 2015:7) Form
Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Slovenia. OELs. Regulations concworking (Official Gazette of the Components Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Spain. Occupational Exposure Lincomponents Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-33-7) Sweden. OELs. Work Environments Cobalt (CAS 7440-48-4) Tungsten (CAS 7440-48-4) Tungsten (CAS 7440-33-7)	Type TWA TWA TWA Cerning protection of workers agreement of Slovenia) Type TWA TWA TWA TWA STEL TWA STEL TWA Authority (AV), Occupational Type TWA TWA TWA TWA TWA TWA TWA TW	0,05 mg/m3 5 mg/m3 gainst risks due to expose Value 0,1 mg/m3 5 mg/m3 Value 0,02 mg/m3 10 mg/m3 5 mg/m3 Exposure Limit Values (A Value) 0,02 mg/m3	Form Inhalable fraction. Inhalable fraction. AFS 2015:7) Form Inhalable dust.
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Material name: Cobalt Tungsten Product

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Bio

Finland. HTP-arvot, Ap Components	p 2., Biological Limit Value	Values, (BRA/BGV Determinant) , Social Affair Specimen	rs and Ministry of Health Sampling Time
Cobalt (CAS 7440-48-4)	130 nmol/l	Cobalt	Urine	*
* - For sampling details, p	lease see the source do	cument.		
France. Biological indic Components	ators of exposure (II Value	BE) (National Institution Determinant	tute for Resear Specimen	ch and Security (INRS, ND 2065) Sampling Time
Cobalt (CAS 7440-48-4)	15 μg/l	Cobalt	Urine	*
	1 μg/l	Cobalt	Blood	*
\ast - For sampling details, p	lease see the source do	cument.		
		inance Joint Decre	e No. 25/2000	(Annex 2): Permissible limit value
of biological exposure (Components	(effect) indices Value	Determinant	Specimen	Sampling Time
Cobalt (CAS 7440-48-4)	0,03 mg/g	Cobalt	Creatinine in	*
			urine	
	0,058 μmol/mmol	Cobalt	Creatinine in urine	*
* - For sampling details, p				
		ulation no. 355/20	06 concerning	protection of workers exposed to
chemical agents, Annex Components	c 2 Value	Determinant	Specimen	Sampling Time
Cobalt (CAS 7440-48-4)	20,03 μg/g	Cobalt	Creatinine in	*
	"		urine	
	30 μg/l	Cobalt	Urine	*
* - For sampling details, p				
Spain. Biological Limit Components	Values (VLBs), Occup Value	Determinant	imits for Chem Specimen	Sampling Time
Cobalt (CAS 7440-48-4)	15 μg/l	Cobalto	Urine	*
	1 μg/l	Cobalto	Blood	*
* - For sampling details, p	lease see the source do	cument.		
	/m: 1 : 11: 1: 1/	lues in the Workn	ace as per SUV	/A)
Switzerland. BAT-Wert Components	e (Biological Limit Va Value	Determinant	Specimen	Sampling Time
	_	=	Specimen Urine	
Components	Value 30 μg/l	Determinant Cobalt	-	Sampling Time
Cobalt (CAS 7440-48-4)	Value 30 μg/l lease see the source do	Determinant Cobalt	Urine	Sampling Time
Components Cobalt (CAS 7440-48-4) * - For sampling details, prommended monitoring	Value 30 μg/l lease see the source do	Determinant Cobalt cument.	Urine	Sampling Time
Components Cobalt (CAS 7440-48-4) * - For sampling details, prommended monitoring cedures ived no effect levels	Value 30 μg/l lease see the source do Follow standard m	Determinant Cobalt cument.	Urine	Sampling Time
Components Cobalt (CAS 7440-48-4) * - For sampling details, prommended monitoring cedures rived no effect levels IELs) dicted no effect centrations (PNECs)	Value 30 μg/l lease see the source do Follow standard π Not available.	Determinant Cobalt cument.	Urine	Sampling Time
Components Cobalt (CAS 7440-48-4) * - For sampling details, prommended monitoring cedures rived no effect levels IELs) dicted no effect	Value 30 μg/l lease see the source do Follow standard m Not available. Not available. Good general ven applicable, use pri maintain airborne	Cobalt cument. conitoring procedures tilation should be use ocess enclosures, localevels below recomm	Urine d. Ventilation ratal exhaust ventilatended exposure	* * Tes should be matched to conditions. If ation, or other engineering controls to limits. If exposure limits have not been
Components Cobalt (CAS 7440-48-4) * - For sampling details, prommended monitoring cedures ived no effect levels IELs) dicted no effect centrations (PNECs) Exposure controls propriate engineering trols ividual protection meas	Value 30 μg/l lease see the source do Follow standard m Not available. Not available. Good general ven applicable, use pri maintain airborne established, maint ures, such as person	Cobalt Coment. Inonitoring procedures Stilation should be used Docess enclosures, local levels below recommercian airborne levels to all protective equip	d. Ventilation ratal exhaust ventilal ended exposure an acceptable le	* * Tees should be matched to conditions. If ation, or other engineering controls to limits. If exposure limits have not been evel.
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Components Cobalt (CAS 7440-48-4) * - For sampling details, prommended monitoring cedures ived no effect levels IELs) dicted no effect centrations (PNECs) Exposure controls propriate engineering trols ividual protection meas	Value 30 µg/l lease see the source do Follow standard m Not available. Not available. Good general ven applicable, use pri maintain airborne established, maint ures, such as person Personal protectio with the supplier of	Cobalt Coment. Inonitoring procedures custilation should be use becase enclosures, local levels below recommentain airborne levels to al protective equip n equipment should	d. Ventilation ratal exhaust ventilal ended exposure an acceptable lement pe chosen accorditive equipment.	* * Tees should be matched to conditions. If ation, or other engineering controls to limits. If exposure limits have not been evel.
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Respiratory protection

Thermal hazards

- Other

Wear suitable protective clothing.

In case of insufficient ventilation, wear suitable respiratory equipment.

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and

before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to

remove contaminants.

Environmental exposure

controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state Solid. Solid. **Form**

Not available. Colour Not available. Odour **Odour threshold** Not available. pН Not available.

Melting point/freezing point Initial boiling point and

boiling range

1495 °C (2723 °F) estimated 2927 °C (5300,6 °F) estimated

Flash point Not available. **Evaporation rate** Not available. Flammability (solid, gas) Not available. Upper/lower flammability or explosive limits Not available.

Flammability limit - lower

(%)

Flammability limit -

upper (%)

Not available.

0,00001 hPa estimated Vapour pressure

Vapour density Not available. Not available. **Relative density**

Solubility(ies)

Solubility (water) Not available. **Partition coefficient** Not available.

(n-octanol/water)

Not available. **Auto-ignition temperature Decomposition temperature** Not available. **Viscosity** Not available. **Explosive properties** Not explosive. **Oxidising properties** Not oxidising.

9.2. Other information

Density 18,70 g/cm3 estimated

Specific gravity 18,7 estimated

SECTION 10: Stability and reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport 10.1. Reactivity

Material is stable under normal conditions. 10.2. Chemical stability

10.3. Possibility of hazardous

reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with

incompatible materials.

10.5. Incompatible materials Strong oxidising agents. Chlorine. Fluorine.

10.6. Hazardous No hazardous decomposition products are known.

decomposition products

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged inhalation

may be harmful.

Skin contact May cause an allergic skin reaction.

Direct contact with eyes may cause temporary irritation. Eye contact

Ingestion May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of

occupational exposure.

Symptoms Coughing. 11.1. Information on toxicological effects

Acute toxicity Not known.

Skin corrosion/irritation Due to partial or complete lack of data the classification is not possible. Serious eye damage/eye Due to partial or complete lack of data the classification is not possible.

irritation

Respiratory sensitisation Due to partial or complete lack of data the classification is not possible. Skin sensitisation Due to partial or complete lack of data the classification is not possible. Germ cell mutagenicity Due to partial or complete lack of data the classification is not possible.

Risk of cancer cannot be excluded with prolonged exposure. Carcinogenicity

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cobalt (CAS 7440-48-4) 2B Possibly carcinogenic to humans.

Reproductive toxicity Due to partial or complete lack of data the classification is not possible. Due to partial or complete lack of data the classification is not possible. Specific target organ toxicity

- single exposure

Specific target organ toxicity

- repeated exposure

Due to partial or complete lack of data the classification is not possible.

Due to partial or complete lack of data the classification is not possible. **Aspiration hazard**

Mixture versus substance

information

No information available.

Other information May cause allergic respiratory and skin reactions.

SECTION 12: Ecological information

12.1. Toxicity Due to partial or complete lack of data the classification for hazardous to the aquatic environment,

is not possible.

12.2. Persistence and

degradability

No data is available on the degradability of any ingredients in the mixture.

12.3. Bioaccumulative No data available.

potential

Partition coefficient Not available.

n-octanol/water (log Kow)

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and

Not a PBT or vPvB substance or mixture.

vPvB assessment

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation 12.6. Other adverse effects

potential, endocrine disruption, global warming potential) are expected from this component.

12.7. Additional information

Estonia Dangerous substances in groundwater Data

Cobalt (CAS 7440-48-4) Cobalt (Co) 300 ug/l

Cobalt (Co) 5 ug/l

Estonia Dangerous substances in soil Data

Cobalt (CAS 7440-48-4) Cobalt (Co) 20 mg/kg

Cobalt (Co) 300 mg/kg Cobalt (Co) 50 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product

residues. This material and its container must be disposed of in a safe manner (see: Disposal

instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is

emptied. Empty containers should be taken to an approved waste handling site for recycling or

disposal.

EU waste codeThe Waste code should be assigned in discussion between the user, the producer and the waste

disposal company.

DisposalCollect and reclaim or dispose in sealed containers at licensed waste disposal site.

methods/information

Special precautions Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

SECTION 15: Regulatory information

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

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP

Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC)

No 1907/2006, as amended.

National regulations Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as

amended.

15.2. Chemical safety

assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations Not available. References Not available.

Training information

Disclaimer

Follow training instructions when handling this material.

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