# Thermo Fisher SCIENTIFIC

# SAFETY DATA SHEET

Page 1/10 Creation Date 17-May-2018 Revision Date 09-May-2024 Version 4

ALFAA44871

# Sponge Cobalt, A-8B46, promoted with Nickel and Chromium

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明: 海绵体钴, A-8B46, 镍和铬加强

Product Description: Sponge Cobalt, A-8B46, promoted with Nickel and Chromium

Cat No.: 44871

Supplier Avocado Research Chemicals Ltd.

(Part of Thermo Fisher Scientific)

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E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

# **SECTION 2. HAZARD IDENTIFICATION**

Physical StateAppearanceOdorSolid SuspensionNo information availableOdorless

# **Emergency Overview**

In contact with water releases flammable gas. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May cause long lasting harmful effects to aquatic life. Air sensitive.

### Classification of the substance or mixture

Substances/mixtures which, in contact with water, emit flammable gases	Category 2
Respiratory Sensitization	Category 1B
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 2
Chronic aquatic toxicity	Category 4

#### **Label Elements**

Contains Nickel/Aluminium alloy

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## Signal Word

#### Danger

#### **Hazard Statements**

- H261 In contact with water releases flammable gases
- H317 May cause an allergic skin reaction
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H341 Suspected of causing genetic defects
- H350 May cause cancer
- H373 May cause damage to organs through prolonged or repeated exposure
- H413 May cause long lasting harmful effects to aquatic life
- H360 May damage fertility or the unborn child

# **Precautionary Statements**

#### Prevention

- P201 Obtain special instructions before use
- P202 Do not handle until all safety precautions have been read and understood
- P231 + P232 Handle and store contents under inert gas. Protect from moisture
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P272 Contaminated work clothing should not be allowed out of the workplace
- P280 Wear protective gloves
- P284 In case of inadequate ventilation wear respiratory protection

#### Response

P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

- P308 + P313 IF exposed or concerned: Get medical advice/attention
- P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
- P302 + P335 + P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water
- P362 + P364 Take off contaminated clothing and wash it before reuse

### **Storage**

P402 + P404 - Store in a dry place. Store in a closed container

# **Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

### **Physical and Chemical Hazards**

In contact with water releases flammable gas.

#### **Health Hazards**

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

# **Environmental hazards**

May cause long lasting harmful effects to aquatic life. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil.

# Other Hazards

Do not allow evaporation to dryness; Hydrogen gas. This product does not contain any known or suspected endocrine disruptors.

# **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS No	Weight %
Cobalt	7440-48-4	85.5
Nickel	7440-02-0	4
Aluminium	7429-90-5	4

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Molybdenum	7439-98-7	3
Chromium	7440-47-3	3
Iron	7439-89-6	0.5

Note Water Slurry

#### **SECTION 4. FIRST AID MEASURES**

# **General Advice**

If symptoms persist, call a physician.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

#### **Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

#### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

#### Ingestion

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

#### Most important symptoms and effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

#### Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

## **Notes to Physician**

Treat symptomatically.

# **SECTION 5. FIRE-FIGHTING MEASURES**

# **Suitable Extinguishing Media**

approved class D extinguishers. Do not use water or foam.

## Extinguishing media which must not be used for safety reasons

Water.

# **Specific Hazards Arising from the Chemical**

Pyrophoric: Spontaneously flammable in air.

# **Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

# **SECTION 6. ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

#### **Environmental Precautions**

Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

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## Methods for Containment and Clean Up

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

#### **SECTION 7. HANDLING AND STORAGE**

#### Handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

#### Storage

Store under an inert atmosphere. Protect from sunlight and store in well-ventilated place. Keep wetted with water. Keep away from open flames, hot surfaces and sources of ignition.

## Specific Use(s)

Use in laboratories

# **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### **Control Parameters**

Component	China	Taiwan	Thailand	Hong Kong
Cobalt	TWA: 0.05 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup>	TWA: 0.02 mg/m <sup>3</sup>
	STEL: 0.1 mg/m <sup>3</sup>			
Nickel	TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 1.5 mg/m <sup>3</sup>
Aluminium	TWA: 3 mg/m <sup>3</sup>	-	TWA: 15 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>
	_		TWA: 5 mg/m <sup>3</sup>	
Chromium	TWA: 0.05 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>		TWA: 0.5 mg/m <sup>3</sup>

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Cobalt	TWA: 0.02 mg/m <sup>3</sup>	(Vacated) TWA: 0.05	IDLH: 20 mg/m <sup>3</sup>	STEL: 0.3 mg/m <sup>3</sup> 15	
		mg/m³	TWA: 0.05 mg/m <sup>3</sup>	min	
		TWA: 0.1 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup> 8 hr		
				Resp. Sens.	
Nickel	TWA: 1.5 mg/m <sup>3</sup>	(Vacated) TWA: 1	IDLH: 10 mg/m <sup>3</sup>	STEL: 1.5 mg/m <sup>3</sup> 15	
		mg/m³	TWA: 0.015 mg/m <sup>3</sup>	min	
		TWA: 1 mg/m <sup>3</sup>		TWA: 0.5 mg/m <sup>3</sup> 8 hr	
				Skin	
Aluminium	TWA: 1 mg/m <sup>3</sup>	(Vacated) TWA: 15	TWA: 10 mg/m <sup>3</sup>	STEL: 30 mg/m <sup>3</sup> 15	
		mg/m³	TWA: 5 mg/m <sup>3</sup>	min	
		(Vacated) TWA: 5		STEL: 12 mg/m <sup>3</sup> 15	
		mg/m³		min	
		TWA: 15 mg/m <sup>3</sup>		TWA: 10 mg/m <sup>3</sup> 8 hr	
		TWA: 5 mg/m <sup>3</sup>		TWA: 4 mg/m <sup>3</sup> 8 hr	
Molybdenum	TWA: 10 mg/m <sup>3</sup>	(Vacated) TWA: 10	IDLH: 5000 mg/m <sup>3</sup>	STEL: 20 mg/m <sup>3</sup> 15	
	TWA: 3 mg/m <sup>3</sup>	mg/m³		min	
				TWA: 10 mg/m <sup>3</sup> 8 hr	
Chromium	TWA: 0.5 mg/m <sup>3</sup>	(Vacated) TWA: 1	IDLH: 250 mg/m <sup>3</sup>	STEL: 1.5 mg/m <sup>3</sup> 15	TWA: 2 mg/m <sup>3</sup> (8hr)
		mg/m³	TWA: 0.5 mg/m <sup>3</sup>	min	
		TWA: 1 mg/m <sup>3</sup>		TWA: 0.5 mg/m <sup>3</sup> 8 hr	

# <u>Legend</u>

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

#### Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust MDHS42/2 Nickel and inorganic compounds of nickel in air (except nickel carbonyl) Laboratory method using flame

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atomic absorption spectrometry or electrothermal atomic absorption spectrometry MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry MDHS 99 Metals in air by ICP-AES

#### **Exposure Controls**

#### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

#### Personal protective equipment

**Eye Protection** Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Hand Protection Protective gloves

Glove material Natural rubber Nitrile rubber	Breakthrough time See manufacturers recommendations	Glove thickness	<b>EU standard</b> EN 374	Glove comments (minimum requirement)
Neoprene				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

are exceeded or if irritation or other symptoms are experienced **Recommended Filter type:** Particulates filter conforming to EN 143

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure

limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water

system. Local authorities should be advised if significant spillages cannot be contained.

#### **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance** 

Physical State Solid Suspension

**Odor** Odorless

Odor Threshold
pH
No information available
No information available
No data available
No data available
No data available
No data available
No information available

Flash Point No information available Method - No information available

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Solid

Solid

Evaporation Rate Not applicable Solid

Flammability (solid,gas) No information available

Explosion Limits No data available

Vapor Pressure No data available

Vapor Density
Specific Gravity / Density
Not applicable
No data available

Bulk Density
No data available
Water Solubility
Insoluble

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow

Cobalt 5

Autoignition TemperatureNo data availableDecomposition TemperatureNo data availableViscosityNot applicable

Explosive Properties No information available Oxidizing Properties No information available

# **SECTION 10. STABILITY AND REACTIVITY**

**Stability** Air sensitive.

**Hazardous Reactions**Hazardous Polymerization
None under normal processing.
No information available.

Conditions to Avoid None known.

Materials to avoid Acids. Oxidizing agent.

Hazardous Decomposition Products Nickel oxides. Fumes of aluminum or aluminum oxide. Iron oxides. Hydrogen.

# **SECTION 11. TOXICOLOGICAL INFORMATION**

### **Product Information**

# (a) acute toxicity;

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cobalt	LD50 = 6171 mg/kg (Rat)		LC50 < 0.05 mg/L (Rat) 4 h
Nickel	LD50 > 9000 mg/kg (Rat)		LC50 > 10.2 mg/L (Rat) 1 h
Aluminium			LC50 > 0.888 mg/L (Rat) 4 h
Molybdenum		LD50 > 2000 mg/kg (Rat)	LC50 > 5.84 mg/L (Rat) 4 h
Iron	7500 mg/kg (Rat)		

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory Sub Category 1B

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Skin Category 1

No information available

(e) germ cell mutagenicity; Category 2

(f) carcinogenicity; Category 1B

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Cobalt	Carc Cat. 1B		Cat. 2	Group 2A
Nickel			Cat. 1	Group 2B

(g) reproductive toxicity; Category 1B

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 2

Inhalation Route of exposure **Target Organs** Lungs.

(j) aspiration hazard; Not applicable

Solid

delayed

Symptoms / effects, both acute and Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

# **SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity effects** The product contains following substances which are hazardous for the environment.

Contains a substance which is:. Very toxic to aquatic organisms. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water

system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Cobalt	LC50: > 100 mg/L, 96h static (Brachydanio rerio)			
Nickel	LC50: > 100 mg/L, 96h (Brachydanio rerio) LC50: = 1.3 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 10.4 mg/L, 96h static (Cyprinus carpio)	EC50 = 510 μg/L 96h	EC50 = 0.1 mg/L 72h EC50 = 0.18 mg/L 72h	

Persistence and Degradability Product contains heavy metals. Discharge into the environment must be avoided. Special

pre-treatment is necessary

**Persistence** May persist.

Not relevant for inorganic substances. Degradability

Degradation in sewage

Contains substances known to be hazardous to the environment or not degradable in waste treatment plant

water treatment plants.

**Bioaccumulative Potential** Product has a high potential to bioconcentrate

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Component	log Pow	Bioconcentration factor (BCF)
Cobalt	5	No data available
Chromium		1.03 - 1.22

Mobility in soil Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water

solubility Is not likely mobile in the environment due its low water solubility and propensity

to bind to soil particles

Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance This product does not contain any known or suspected substance

# **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste from Residues/Unused

**Products** 

Waste is classified as hazardous. Dispose of in accordance with the European Directives

on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers

retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and

empty container away from heat and sources of ignition.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the

application for which the product was used. Can be landfilled or incinerated, when in

compliance with local regulations.

## **SECTION 14. TRANSPORT INFORMATION**

#### Road and Rail Transport

UN-No UN1378

Proper Shipping Name METAL CATALYST, WETTED

Hazard Class 4.2 Packing Group

IMDG/IMO

UN-No UN1378

Proper Shipping Name METAL CATALYST, WETTED

Hazard Class 4.2 Packing Group II

IATA

UN-No UN1378

Proper Shipping Name METAL CATALYST, WETTED

Hazard Class 4.2 Packing Group

Special Precautions for User No special precautions required

## **SECTION 15. REGULATORY INFORMATION**

# **International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ISHL), Australia (AICS), Korea (KECL).

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Component	The Inventory of Hazardous Chemicals (2015 Edition)		TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Cobalt	-	-	X	Х	231-158-0	Х	X	Х	Х		Х	KE-06060
Nickel	-	-	Х	Х	231-111-4	Х	Х	Х	Х		Х	KE-25818
Aluminium	Х	Х	Х	Х	231-072-3	Х	Х	Х	Х		Х	KE-00881
Molybdenum	-	-	Х	Х	231-107-2	Х	Х	Х	Х		Х	KE-25427
Chromium	-	-	Х	Х	231-157-5	Х	Х	Х	Х		Х	KE-05970
Iron	-	-	Χ	Х	231-096-4	Х	Χ	Х	Х		Х	KE-21059

Water Slurry Note

# **National Regulations**

# **SECTION 16. OTHER INFORMATION**

Prepared By Health, Safety and Environmental Department

**Creation Date** 17-May-2018 **Revision Date** 09-May-2024

New emergency telephone response service provider. **Revision Summary** 

**Training Advice** 

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

# Legend

**CAS** - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances **KECL** - Korean Existing and Evaluated Chemical Substances Substances List **ENCS** - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air **Transport Association** 

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from Shins

ATE - Acute Toxicity Estimate VOC - (Volatile Organic Compound)

# Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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Physical hazards

Health Hazards

Calculation method

Environmental hazards

Calculation method

#### Disclaimer

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**End of Safety Data Sheet**