

ALFAA36769

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

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

产品说明: JM-21 多元素油基标准溶液, Specpure®, 900µg/g
Product Description: JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

Cat No. : 36769

Supplier Avocado Research Chemicals Ltd.
(Part of Thermo Fisher Scientific)
Shore Road, Heysham
Lancashire, LA3 2XY,
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Liquid

Appearance
Amber

Odor
Petroleum distillates

Emergency Overview

The product contains no substances which at their given concentration are considered to be hazardous to health.

Classification of the substance or mixture

Based on available data, the classification criteria are not met

Label Elements

None required

Physical and Chemical Hazards

None identified.

Health Hazards

The product contains no substances which at their given concentration are considered to be hazardous to health.

Environmental hazards

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil. The product is insoluble and floats on water.

Other Hazards

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
White mineral oil	8042-47-5	98.11
Zinc	7440-66-6	0.09
Vanadium	7440-62-2	0.09
Titanium	7440-32-6	0.09
Tin	7440-31-5	0.09
Sodium	7440-23-5	0.09
Silver	7440-22-4	0.09
Silicon	7440-21-3	0.09
Phosphorus	7723-14-0	0.09
Nickel	7440-02-0	0.09
Molybdenum	7439-98-7	0.09
Manganese	7439-96-5	0.09
Magnesium	7439-95-4	0.09
Lead	7439-92-1	0.09
Iron	7439-89-6	0.09
Copper	7440-50-8	0.09
Chromium	7440-47-3	0.09
Calcium	7440-70-2	0.09
Cadmium	7440-43-9	0.09
Boron	7440-42-8	0.09
Barium	7440-39-3	0.09
Aluminum	7429-90-5	0.09

Note

Elements and concentrations in ug/ml are as follows: Ag 900, Al 900, B 900, Ba 900, Ca 900, Cd 900, Cr 900, Cu 900, Fe 900, Mg 900, Mn 900, Mo 900, Na 900, Ni 900, P 900, Pb 900, Si 900, Sn 900, Ti 900, V 900, Zn 900

SECTION 4. FIRST AID MEASURES

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. Get medical attention immediately if symptoms occur.

Inhalation

Remove to fresh air. Get medical attention immediately 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

None reasonably foreseeable.

Self-Protection of the First Aider

No special precautions required.

Notes to Physician

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

Extinguishing media which must not be used for safety reasons

No information available.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

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.

Environmental Precautions

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

Methods for Containment and Clean Up

Sweep up and shovel into suitable 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. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation.

Storage

Keep container tightly closed in a dry and well-ventilated place.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control Parameters**

Component	China	Taiwan	Thailand	Hong Kong
Tin	-	TWA: 2 mg/m ³		TWA: 2 mg/m ³
Silver	-	TWA: 0.01 mg/m ³		TWA: 0.1 mg/m ³
Phosphorus	TWA: 0.05 mg/m ³ STEL: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.02 ppm TWA: 0.1 mg/m ³
Nickel	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1.5 mg/m ³
Manganese	TWA: 0.15 mg/m ³	TWA: 1 mg/m ³		TWA: 0.2 mg/m ³
Lead	TWA: 0.05 mg/m ³ TWA: 0.03 mg/m ³	TWA: 0.05 mg/m ³		TWA: 0.05 mg/m ³
Copper	TWA: 1 mg/m ³ TWA: 0.2 mg/m ³	TWA: 0.2 mg/m ³ TWA: 1 mg/m ³		TWA: 0.2 mg/m ³ TWA: 1 mg/m ³
Chromium	TWA: 0.05 mg/m ³	TWA: 1 mg/m ³		TWA: 0.5 mg/m ³
Cadmium	TWA: 0.01 mg/m ³ STEL: 0.02 mg/m ³	TWA: 0.05 mg/m ³	TWA: 0.005 mg/m ³	TWA: 0.01 mg/m ³ TWA: 0.002 mg/m ³
Barium	TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³	TWA: 0.5 mg/m ³		TWA: 0.5 mg/m ³
Aluminum	TWA: 3 mg/m ³	-	TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³

SAFETY DATA SHEET

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Vanadium		(Vacated) TWA: 0.05 mg/m ³ Ceiling: 0.5 mg/m ³ Ceiling: 0.1 mg/m ³	TWA: 1 mg/m ³ STEL: 3 mg/m ³	-	
Tin	TWA: 2 mg/m ³	(Vacated) TWA: 2 mg/m ³	IDLH: 100 mg/m ³ TWA: 2 mg/m ³	STEL: 4 mg/m ³ 15 min TWA: 2 mg/m ³ 8 hr	
Silver	TWA: 0.1 mg/m ³	(Vacated) TWA: 0.01 mg/m ³ TWA: 0.01 mg/m ³	IDLH: 10 mg/m ³ TWA: 0.01 mg/m ³ TWA: 0.9 µg/m ³	STEL: 0.3 mg/m ³ 15 min TWA: 0.1 mg/m ³ 8 hr	TWA: 0.1 mg/m ³ (8h)
Silicon		(Vacated) TWA: 10 mg/m ³ (Vacated) TWA: 5 mg/m ³ TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³	STEL: 30 ppm 15 min STEL: 12 mg/m ³ 15 min TWA: 10 mg/m ³ 8 hr TWA: 4 mg/m ³ 8 hr	
Phosphorus		(Vacated) TWA: 0.1 mg/m ³		-	
Nickel	TWA: 1.5 mg/m ³	(Vacated) TWA: 1 mg/m ³ TWA: 1 mg/m ³	IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³	STEL: 1.5 mg/m ³ 15 min TWA: 0.5 mg/m ³ 8 hr Skin	
Molybdenum	TWA: 10 mg/m ³ TWA: 3 mg/m ³	(Vacated) TWA: 10 mg/m ³	IDLH: 5000 mg/m ³	STEL: 20 mg/m ³ 15 min TWA: 10 mg/m ³ 8 hr	
Manganese	TWA: 0.02 mg/m ³ TWA: 0.1 mg/m ³	(Vacated) TWA: 1 mg/m ³ Ceiling: 5 mg/m ³ (Vacated) STEL: 3 mg/m ³ (Vacated) Ceiling: 5 mg/m ³	IDLH: 500 mg/m ³ TWA: 1 mg/m ³ STEL: 3 mg/m ³	STEL: 0.6 mg/m ³ 15 min STEL: 0.15 mg/m ³ 15 min TWA: 0.2 mg/m ³ 8 hr TWA: 0.05 mg/m ³ 8 hr	TWA: 0.2 mg/m ³ (8h) TWA: 0.05 mg/m ³ (8h)
Lead	TWA: 0.05 mg/m ³	TWA: 50 µg/m ³	IDLH: 100 mg/m ³ TWA: 0.050 mg/m ³	STEL: 0.45 mg/m ³ 15 min TWA: 0.15 mg/m ³ 8 hr	TWA: 0.15 mg/m ³ (8h)
Copper	TWA: 0.2 mg/m ³	(Vacated) TWA: 0.1 mg/m ³ TWA: 0.1 mg/m ³ TWA: 1 mg/m ³	IDLH: 100 mg/m ³ TWA: 1 mg/m ³ TWA: 0.1 mg/m ³	STEL: 0.6 mg/m ³ 15 min STEL: 2 mg/m ³ 15 min TWA: 1 mg/m ³ 8 hr TWA: 0.2 mg/m ³ 8 hr	
Chromium	TWA: 0.5 mg/m ³	(Vacated) TWA: 1 mg/m ³ TWA: 1 mg/m ³	IDLH: 250 mg/m ³ TWA: 0.5 mg/m ³	STEL: 1.5 mg/m ³ 15 min TWA: 0.5 mg/m ³ 8 hr	TWA: 2 mg/m ³ (8hr)
Cadmium	TWA: 0.01 mg/m ³ TWA: 0.002 mg/m ³	Ceiling: 0.3 mg/m ³ Ceiling: 0.6 mg/m ³ (Vacated) STEL: 0.3 ppm TWA: 5 µg/m ³	IDLH: 9 mg/m ³	STEL: 0.075 mg/m ³ 15 min TWA: 0.025 mg/m ³ 8 hr Carc. metal	TWA: 0.001 mg/m ³ (8h)
Barium	TWA: 0.5 mg/m ³	(Vacated) TWA: 0.5 mg/m ³		-	
Aluminum	TWA: 1 mg/m ³	(Vacated) TWA: 15 mg/m ³ (Vacated) TWA: 5 mg/m ³ TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³	STEL: 30 mg/m ³ 15 min STEL: 12 mg/m ³ 15 min TWA: 10 mg/m ³ 8 hr TWA: 4 mg/m ³ 8 hr	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Monitoring methods

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

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

None under normal use conditions. .

Personal protective equipment

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

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)

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** No protective equipment is needed under normal use conditions.**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: Particle filter**Small scale/Laboratory use** Maintain adequate ventilation**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.**Environmental exposure controls** No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Amber	
Physical State	Liquid	
Odor	Petroleum distillates	
Odor Threshold	No data available	
pH	Not applicable	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	> 315 °C / 599 °F	
Flash Point	> 232 °C / > 449.6 °F	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	0.75 g/cm3	@ 20 °C
Bulk Density	Not applicable	Liquid
Water Solubility	Immiscible	
Solubility in other solvents	No information available	

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

Partition Coefficient (n-octanol/water)

Component	log Pow
White mineral oil	6
Autoignition Temperature	351 °C / 663.8 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

SECTION 10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Hazardous Reactions	None under normal processing.
Hazardous Polymerization	No information available.
Conditions to Avoid	None known.
Materials to avoid	No information available.

Hazardous Decomposition Products Metal oxides. Heavy metal oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information

(a) acute toxicity;
Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
White mineral oil	>5000 mg/kg (Rat)	>3000 mg/kg (Rabbit)	
Zinc	LD50 = 630 mg/kg (Rat)		
Vanadium	LD50 > 2000 mg/kg (Rat)		
Tin	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	LC50 > 4.75 mg/L (Rat) 4 h
Silver	> 2000 mg/kg (Rat)	LD50 > 2000 mg/kg (rat)	LC50 > 5.16 mg/L (Rat) 4 h
Silicon	LD50 = 3160 mg/kg (Rat)		
Phosphorus	>15000 mg/kg (Rat Female)		LC50 = 4.3 mg/L (Rat) 1 h
Nickel	LD50 > 9000 mg/kg (Rat)		LC50 > 10.2 mg/L (Rat) 1 h
Molybdenum		LD50 > 2000 mg/kg (Rat)	LC50 > 5.84 mg/L (Rat) 4 h
Manganese	LD50 = 9 g/kg (Rat)		LC50 > 5.14 mg/L (Rat) 4 h
Magnesium	LD50 = 230 mg/kg (Rat)		
Iron	7500 mg/kg (Rat)		
Copper			LC50 > 5.11 mg/L (Rat) 4 h
Cadmium	LD50 = 2330 mg/kg (Rat)		LC50 = 25 mg/m ³ (Rat) 30 min
Boron	LD50 > 2000 mg/kg (Rat) (OCED 423)		LC50 > 5.08 mg/L (Rat) 4 h
Barium	LD50 = 132 mg/kg (Rat)		

SAFETY DATA SHEET**JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g**

Aluminum			LC50 > 0.888 mg/L (Rat) 4 h
----------	--	--	-------------------------------

(b) skin corrosion/irritation; No data available

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

(d) respiratory or skin sensitization;

Respiratory No data available

Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

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

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

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; No data available

Symptoms / effects, both acute and delayed No information available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

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
White mineral oil	LC50: > 10000 mg/L, 96h (Lepomis macrochirus)			
Zinc	LC50: = 0.41 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 0.59 mg/L, 96h semi-static (Oncorhynchus mykiss) LC50: 2.16 - 3.05 mg/L, 96h flow-through (Pimephales promelas) LC50: 0.211 - 0.269 mg/L, 96h semi-static (Pimephales promelas)	EC50: 0.139 - 0.908 mg/L, 48h Static (Daphnia magna)	EC50: 0.09 - 0.125 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: 0.11 - 0.271 mg/L, 96h static (Pseudokirchneriella subcapitata)	

SAFETY DATA SHEET

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

	LC50: = 2.66 mg/L, 96h static (Pimephales promelas) LC50: = 30 mg/L, 96h (Cyprinus carpio) LC50: = 0.45 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 7.8 mg/L, 96h static (Cyprinus carpio) LC50: = 0.24 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 3.5 mg/L, 96h static (Lepomis macrochirus)			
Silver	LC50: = 0.064 mg/L, 96h static (Lepomis macrochirus) LC50: = 0.0062 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 0.00155 - 0.00293 mg/L, 96h static (Pimephales promelas)	EC50: = 0.00024 mg/L, 48h Static (Daphnia magna)		
Phosphorus	LC50: 33.2 mg/L/96h (Danio rerio)	EC50: 10.5 mg/L/48h		
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	
Manganese	LC50: > 3.6 mg/L, 96h semi-static (Oncorhynchus mykiss)			
Lead	LC50: = 1.32 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 1.17 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 0.44 mg/L, 96h semi-static (Cyprinus carpio)	EC50: = 600 µg/L, 48h (water flea)		
Copper	Onchorhynchys mykiss: LC50=0.15 mg/L 96h Cuprinus carpio: LC50=0.8 mg/L 96h	EC50: = 0.03 mg/L, 48h Static (Daphnia magna)	0.0426-0.0535 mg/L EC50 72 h 0.031-0.054 mg/L EC50 96 h	
Cadmium	LC50: 0.0004 - 0.003 mg/L, 96h (Pimephales promelas) LC50: = 0.016 mg/L, 96h (Oryzias latipes) LC50: = 21.1 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 0.24 mg/L, 96h static (Cyprinus carpio) LC50: = 4.26 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 0.002 mg/L,	EC50: = 0.0244 mg/L, 48h Static (Daphnia magna)		

SAFETY DATA SHEET

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

	96h (Cyprinus carpio) LC50: = 0.006 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 0.003 mg/L, 96h flow-through (Oncorhynchus mykiss)			
Barium	LC50: > 500 mg/L/96h (Cyprinodon variegatus)			

Persistence and Degradability

Persistence
Degradation in sewage
treatment plant

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary
May persist.
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential

Product has a high potential to bioconcentrate

Component	log Pow	Bioconcentration factor (BCF)
White mineral oil	6	No data available
Phosphorus		<200 dimensionless
Chromium		1.03 - 1.22

Mobility in soil

Spillage unlikely to penetrate soil The product is insoluble and floats on water 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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Contaminated Packaging

Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

Not Regulated

IMDG/IMO

Not regulated

IATA

Not regulated

Special Precautions for User

No special precautions required

SAFETY DATA SHEET

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

SECTION 15. REGULATORY INFORMATION

International Inventories

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

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
White mineral oil	-	-	X	X	232-455-8	X	X	X	X	X	X	KE-35412
Zinc	X	X	X	X	231-175-3	X	X	X	X		X	KE-35518
Vanadium	-	-	X	X	231-171-1	X	X	X	X		X	KE-35266
Titanium	X	X	X	X	231-142-3	X	X	X	X		X	KE-33881
Tin	-	-	X	X	231-141-8	X	X	X	X		X	KE-33838
Sodium	X	X	X	X	231-132-9	X	X	X	X	X	X	KE-31338
Silver	-	-	X	X	231-131-3	X	X	X	X		X	KE-31261
Silicon	X	X	X	X	231-130-8	X	X	X	X		X	KE-31029
Phosphorus	X	X	X	X	231-768-7	X	X	X	X		X	KE-28713
Nickel	-	-	X	X	231-111-4	X	X	X	X		X	KE-25818
Molybdenum	-	-	X	X	231-107-2	X	X	X	X		X	KE-25427
Manganese	X	-	X	X	231-105-1	X	X	X	X		X	KE-22999
Magnesium	X	X	X	X	231-104-6	X	X	X	X		X	KE-22673
Lead	-	-	X	X	231-100-4	X	X	X	X		X	KE-21887
Iron	-	-	X	X	231-096-4	X	X	X	X		X	KE-21059
Copper	-	X	X	X	231-159-6	X	X	X	X		X	KE-08896
Chromium	-	-	X	X	231-157-5	X	X	X	X		X	KE-05970
Calcium	X	X	X	X	231-179-5	X	X	X	X		X	KE-04462
Cadmium	X	-	X	X	231-152-8	X	X	X	X		X	KE-04397
Boron	-	-	X	X	231-151-2	X	X	X	X		X	KE-03518
Barium	X	X	X	X	231-149-1	X	X	X	X		X	KE-02022
Aluminum	X	X	X	X	231-072-3	X	X	X	X		X	KE-00881

Note

Elements and concentrations in ug/ml are as follows: Ag 900, Al 900, B 900, Ba 900, Ca 900, Cd 900, Cr 900, Cu 900, Fe 900, Mg 900, Mn 900, Mo 900, Na 900, Ni 900, P 900, Pb 900, Si 900, Sn 900, Ti 900, V 900, Zn 900

National Regulations

Component	Toxic Chemical Substances Control Act
Cadmium 7440-43-9 (0.09)	Class II (95 wt%) Class III (95 wt%) TRQ = 500 kg

SECTION 16. OTHER INFORMATION

Prepared By

Revision Date

Revision Summary

Health, Safety and Environmental Department

08-May-2024

New emergency telephone response service provider.

Training Advice

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

Legend

JM-21 Multi-element Oil Based Standard, Specpure®, 900µg/g

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical 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

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

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic 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 Ships

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

Physical hazards

On basis of test data

Health Hazards

Calculation method

Environmental hazards

Calculation method

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet