

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

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

1.1 Product identifier

Trade name : Multine B12 Selenised Formulation

Other means of identification : Multine B12 Selenised (A011766)

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

Use of the Substance/Mixture : Veterinary product

Recommended restrictions on use : Not applicable

1.3 Details of the supplier of the safety data sheet

Company : MSD
Kilsheelan
Clonmel Tipperary, IE

Telephone : 353-51-601000

E-mail address of person responsible for the SDS : EHSDATASTEWARD@msd.com

1.4 Emergency telephone number

+1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Long-term (chronic) aquatic hazard, Category 3 : H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard statements : H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**

P273 Avoid release to the environment.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024 Date of first issue: 19.09.2023

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Antigen	Not Assigned		>= 20 - < 30
Sodium selenate	13410-01-0 236-501-8 034-002-00-8	Acute Tox. 2; H300 Acute Tox. 2; H330 Skin Irrit. 2; H315 STOT RE 1; H372 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1 Acute toxicity esti- mate Acute oral toxicity: 5 mg/kg	>= 0,1 - < 0,25
Acetatocobalamin	22465-48-1 245-019-7	STOT RE 2; H373 (Kidney, Liver)	>= 0,1 - < 1
Thiomersal	54-64-8 200-210-4 080-004-00-7	Acute Tox. 2; H300 Acute Tox. 2; H330 Acute Tox. 1; H310	>= 0,0025 - < 0,025

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version
4.0

Revision Date:
14.04.2025

SDS Number:
11274292-00005

Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

		<p>Repr. 1B; H360 STOT RE 1; H372 (Central nervous system, Cardio- vascular system, Gastrointestinal tract, Kidney) Aquatic Acute 1; H400 Aquatic Chronic 1; H410</p> <hr/> <p>M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10</p> <hr/> <p>specific concentra- tion limit STOT RE 2; H373 >= 0,1 %</p> <hr/> <p>Acute toxicity esti- mate</p> <p>Acute oral toxicity: 10 mg/kg Acute inhalation toxicity (dust/mist): 0,1 mg/l Acute dermal toxiciti- y: 10 mg/kg</p>
--	--	---

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0	Revision Date: 14.04.2025	SDS Number: 11274292-00005	Date of last issue: 28.09.2024 Date of first issue: 19.09.2023
----------------	------------------------------	-------------------------------	---

In case of skin contact	: Wash with water and soap as a precaution. Get medical attention if symptoms occur.
In case of eye contact	: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
If swallowed	: If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	: Treat symptomatically and supportively.
-----------	---

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical
------------------------------	--

Unsuitable extinguishing media	: None known.
--------------------------------	---------------

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting	: Exposure to combustion products may be a hazard to health.
---------------------------------------	--

Hazardous combustion products	: Carbon oxides Metal oxides Sulphur oxides
-------------------------------	---

5.3 Advice for firefighters

Special protective equipment for firefighters	: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
---	--

Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
--------------------------------	---

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0	Revision Date: 14.04.2025	SDS Number: 11274292-00005	Date of last issue: 28.09.2024 Date of first issue: 19.09.2023
----------------	------------------------------	-------------------------------	---

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

Environmental precautions : Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Avoid inhalation of vapour or mist. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version
4.0

Revision Date:
14.04.2025

SDS Number:
11274292-00005

Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in properly labelled containers. Store in accordance with the particular national regulations.

Advice on common storage : Do not store with the following product types:
Strong oxidizing agents
Gases

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Aluminium potassium sulfate decahydrate	7784-24-9	TWA	2 mg/m ³ (Aluminium)	FOR-2011-12-06-1358
Sodium selenate	13410-01-0	TWA	0,05 mg/m ³ (selenium)	FOR-2011-12-06-1358
Further information: Substances considered to evoke allergies when coming into touch with the eyes or airways or evoking allergies after coming into contact with the skin				
		TWA	20 µg/m ³ (OEB 3)	Internal
		Wipe limit	200 µg/100 cm ²	Internal
Acetatocobalamin	22465-48-1	TWA	10 µg/m ³ (OEB 3)	Internal
		Wipe limit	100 µg/100 cm ²	Internal
Thiomersal	54-64-8	TWA	0,01 mg/m ³ (Mercury)	FOR-2011-12-06-1358
Further information: Substances considered to evoke allergies when coming into touch with the eyes or airways or evoking allergies after coming into contact with the skin, Chemicals that can be absorbed through the skin.				
		STEL	0,03 mg/m ³ (Mercury)	FOR-2011-12-06-1358
Further information: Substances considered to evoke allergies when coming into touch with the eyes or airways or evoking allergies after coming into contact with the skin, Chemicals that can be absorbed through the skin.				

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Thiomersal	54-64-8	Mercury (Mercury): 30 µg/g creatinine (Urine)		AN 361

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
Aluminium potassium sulfate dodecahydrate	Workers	Inhalation	Long-term systemic effects	13,05 mg/m ³
	Consumers	Ingestion	Long-term systemic effects	15,54 mg/kg bw/day
Sodium selenate	Workers	Inhalation	Long-term systemic effects	0,12 mg/m ³
	Workers	Skin contact	Long-term systemic effects	16,73 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0,036 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	10,28 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0,01028 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
Aluminium potassium sulfate dodecahydrate	Fresh water	0,112 mg/l
	Freshwater - intermittent	1,1 mg/l
	Marine water	0,011 mg/l
	Sewage treatment plant	63 mg/l
	Fresh water	6,38 µg/l
Sodium selenate	Freshwater - intermittent	6,38 µg/l
	Marine water	4,09 µg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	19,7 mg/kg dry weight (d.w.)
	Marine sediment	12,6 mg/kg dry weight (d.w.)
	Soil	0,47 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	2,39 mg/kg food

8.2 Exposure controls

Engineering measures

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

Minimize open handling.

Personal protective equipment

Eye/face protection	: Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
Hand protection	
Material	: Chemical-resistant gloves
Remarks	: Consider double gloving.
Skin and body protection	: Work uniform or laboratory coat. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Use appropriate degowning techniques to remove potentially contaminated clothing.
Respiratory protection	: If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection. Equipment should conform to NS EN 143
Filter type	: Particulates type (P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: Aqueous solution
Colour	: No data available
Odour	: No data available
Odour Threshold	: No data available
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: No data available
Flammability (solid, gas)	: Not applicable
Flammability (liquids)	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0	Revision Date: 14.04.2025	SDS Number: 11274292-00005	Date of last issue: 28.09.2024 Date of first issue: 19.09.2023
----------------	------------------------------	-------------------------------	---

Flash point : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
pH : No data available
Viscosity
Viscosity, kinematic : No data available
Solubility(ies)
Water solubility : No data available
Partition coefficient: n-octanol/water : Not applicable
Vapour pressure : No data available
Relative density : No data available
Density : No data available
Relative vapour density : No data available
Particle characteristics
Particle size : Not applicable

9.2 Other information

Explosives : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Evaporation rate : No data available
Molecular weight : No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Can react with strong oxidizing agents.

10.4 Conditions to avoid

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

||| Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

Sodium selenate:

||| Acute oral toxicity : LD50 (Rat): > 5 - 50 mg/kg
Remarks: Based on data from similar materials

||| Acute inhalation toxicity : LC50 (Rat): > 0,052 - 0,51 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acetatocobalamin:

||| Acute oral toxicity : LD50 Oral (Mouse): > 5.000 mg/kg

||| Acute toxicity (other routes of administration) : LD50 (Mouse): > 2.000 mg/kg
Application Route: Intravenous
LDLo (Mouse): 1,4 mg/kg
Application Route: Intraperitoneal

||| LDLo (Mouse): 2,7 mg/kg
Application Route: Intravenous

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

||

Thiomersal:

Acute oral toxicity	: LD50 (Rat): 75 mg/kg
	Acute toxicity estimate: 10 mg/kg Method: Expert judgement Remarks: Based on national or regional regulation.
Acute inhalation toxicity	: Acute toxicity estimate: 0,1 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Expert judgement Remarks: Based on national or regional regulation.
Acute dermal toxicity	: Acute toxicity estimate: 10 mg/kg Method: Expert judgement Remarks: Based on national or regional regulation.

Skin corrosion/irritation

|| Not classified based on available information.

Components:

Sodium selenate:

Species	: reconstructed human epidermis (RhE)
Method	: OECD Test Guideline 431
Species	: reconstructed human epidermis (RhE)
Method	: OECD Test Guideline 439
Result	: Skin irritation

Acetatocobalamin:

|| Remarks : No data available

Serious eye damage/eye irritation

|| Not classified based on available information.

Components:

Sodium selenate:

Species	: Bovine cornea
Method	: OECD Test Guideline 437
Result	: No eye irritation

Acetatocobalamin:

|| Remarks : No data available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version
4.0

Revision Date:
14.04.2025

SDS Number:
11274292-00005

Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

Respiratory or skin sensitisation

Skin sensitisation

||| Not classified based on available information.

Respiratory sensitisation

||| Not classified based on available information.

Components:

Acetatocobalamin:

||| Remarks : No data available

Germ cell mutagenicity

||| Not classified based on available information.

Components:

Sodium selenate:

||| Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Acetatocobalamin:

||| Genotoxicity in vitro : Test Type: Mutagenicity (Escherichia coli - reverse mutation assay)
Result: negative

Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative

Test Type: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative

Thiomersal:

||| Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian spermatogonial chromosome aberration test (in vivo)
Species: Mouse
Application Route: Ingestion
Result: negative

Carcinogenicity

||| Not classified based on available information.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

Components:

Thiomersal:

Species	:	Rat
Exposure time	:	1 Years
Result	:	negative

Reproductive toxicity

Not classified based on available information.

Components:

Sodium selenate:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Mouse Application Route: Ingestion Result: negative Remarks: Based on data from similar materials

Thiomersal:

Effects on foetal development	:	Species: Rat Application Route: Ingestion Result: positive Remarks: Based on data from similar materials
Reproductive toxicity - Assessment	:	Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Components:

Sodium selenate:

Exposure routes	:	Ingestion
Assessment	:	Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

Acetatocobalamin:

Target Organs	:	Kidney, Liver
Assessment	:	May cause damage to organs through prolonged or repeated exposure.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version
4.0

Revision Date:
14.04.2025

SDS Number:
11274292-00005

Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

Thiomersal:

Target Organs	: Central nervous system, Cardio-vascular system, Gastrointestinal tract, Kidney
Assessment	: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Sodium selenate:

Species	: Rat
NOAEL	: 0,4 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks

Acetatocobalamin:

Species	: Dog
LOAEL	: 300 mg/kg
Application Route	: Oral
Number of exposures	: 3 days
Target Organs	: Kidney, Liver
Symptoms	: kidney effects, liver function change
Remarks	: May cause damage to organs.

Species	: Dog
LOAEL	: 75 mg/kg
Application Route	: Intravenous
Number of exposures	: 4 weeks
Target Organs	: Kidney, Liver
Remarks	: May cause damage to organs.

Thiomersal:

Species	: Rat
LOAEL	: >= 0,5 mg/kg
Application Route	: Ingestion
Remarks	: Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

11.2 Information on other hazards

Endocrine disrupting properties

Not classified based on available information.

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0 Revision Date: 14.04.2025 SDS Number: 11274292-00005 Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Experience with human exposure

Components:

Acetatocobalamin:

General Information	: Symptoms: asthenia, Dizziness, Headache, Nausea, sinusitis Remarks: The most common side effects are:
---------------------	--

SECTION 12: Ecological information

12.1 Toxicity

Components:

Sodium selenate:

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): > 1 - 10 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	: ErC50 (Chlamydomonas reinhardtii (green algae)): 245 µg/l Exposure time: 96 h NOEC (Chlamydomonas reinhardtii (green algae)): 197 µg/l Exposure time: 96 h
M-Factor (Acute aquatic toxicity)	: 1
Toxicity to microorganisms	: EC10 (activated sludge): 590 mg/l Exposure time: 3 h Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	: NOEC: > 0,01 - 0,1 mg/l Exposure time: 258 d Species: Lepomis macrochirus (Bluegill sunfish) Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC: > 0,1 - 1 mg/l Exposure time: 28 d Remarks: Based on data from similar materials
M-Factor (Chronic aquatic toxicity)	: 1

Thiomersal:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0	Revision Date: 14.04.2025	SDS Number: 11274292-00005	Date of last issue: 28.09.2024 Date of first issue: 19.09.2023
----------------	------------------------------	-------------------------------	---

Toxicity to fish	:	LC50 (Poecilia reticulata (guppy)): > 0,01 - 0,1 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 0,01 - 0,1 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 0,01 - 0,1 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: > 0,001 - 0,01 mg/l Exposure time: 21 d Species: Daphnia sp. (water flea) Remarks: Based on data from similar materials
M-Factor (Chronic aquatic toxicity)	:	10

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version Revision Date: SDS Number: Date of last issue: 28.09.2024
4.0 14.04.2025 11274292-00005 Date of first issue: 19.09.2023

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	<p>: Dispose of in accordance with local regulations.</p> <p>According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.</p> <p>Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.</p> <p>Do not dispose of waste into sewer.</p>
Contaminated packaging	<p>: Empty containers should be taken to an approved waste handling site for recycling or disposal.</p> <p>If not otherwise specified: Dispose of as unused product.</p>

SECTION 14: Transport information

14.1 UN number or ID number

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.2 UN proper shipping name

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.4 Packing group

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0	Revision Date: 14.04.2025	SDS Number: 11274292-00005	Date of last issue: 28.09.2024 Date of first issue: 19.09.2023
----------------	------------------------------	-------------------------------	---

IATA (Cargo) : Not regulated as a dangerous good

IATA (Passenger) : Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)

: Conditions of restriction for the following entries should be considered:
Number on list 3

Number on list 18: Thiomersal

Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor.

Substance(s) or mixture(s) are listed here according to their appearance in the regulation, irrespective of their use/purpose or the conditions of the restriction. Please refer to the conditions in corresponding Regulation to determine whether an entry is applicable to the placing on the market or not.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

: Not applicable

REACH - List of substances subject to authorisation (Annex XIV)

: Not applicable

Regulation (EU) No 2024/590 on substances that deplete the ozone layer

: Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast)

: Not applicable

Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

: Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Not applicable

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0	Revision Date: 14.04.2025	SDS Number: 11274292-00005	Date of last issue: 28.09.2024 Date of first issue: 19.09.2023
----------------	------------------------------	-------------------------------	---

Other regulations:

Note the Working Environment Act § 4-1 and § 4-2 on requirements for the employer to protect pregnant employees against discomfort and injury as a result of the work situation and the working environment.

The components of this product are reported in the following inventories:

AICS	:	not determined
DSL	:	not determined
IECSC	:	not determined

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information	:	Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.
-------------------	---	--

Full text of H-Statements

H300	:	Fatal if swallowed.
H310	:	Fatal in contact with skin.
H315	:	Causes skin irritation.
H330	:	Fatal if inhaled.
H360	:	May damage fertility or the unborn child.
H372	:	Causes damage to organs through prolonged or repeated exposure.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
STOT RE	:	Specific target organ toxicity - repeated exposure
AN 361	:	Norway. Directive on measures and limit values for physical and chemical factors in the work environment (biological limit values).
FOR-2011-12-06-1358	:	Norway. Occupational Exposure limits
FOR-2011-12-06-1358 /	:	Long term exposure limit
TWA		
FOR-2011-12-06-1358 /	:	Short term exposure limit
STEL		

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version 4.0	Revision Date: 14.04.2025	SDS Number: 11274292-00005	Date of last issue: 28.09.2024 Date of first issue: 19.09.2023
----------------	------------------------------	-------------------------------	---

Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECL - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Classification of the mixture:

Aquatic Chronic 3 H412

Classification procedure:

Calculation method

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



Multine B12 Selenised Formulation

Version
4.0

Revision Date:
14.04.2025

SDS Number:
11274292-00005

Date of last issue: 28.09.2024
Date of first issue: 19.09.2023

NO / EN