according to GB/T 16483 and GB/T 17519



# Vitamin B Formulation

Version Revision Date: SDS Number: Date of last issue: 2022/10/01 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Vitamin B Formulation

## Manufacturer or supplier's details

Company : MSD

Address : 199 Wenhai North Road

HEDA, Hangzhou - Zhejiang Province - CHINA 310018

Telephone : 908-740-4000

Emergency telephone number: 86-571-87268110

E-mail address : EHSDATASTEWARD@msd.com

#### Recommended use of the chemical and restrictions on use

Recommended use : Pharmaceutical

Restrictions on use

Not applicable

### 2. HAZARDS IDENTIFICATION

### **Emergency Overview**

Appearance : liquid

Colour: No data availableOdour: No data available

Not a hazardous substance or mixture.

#### **GHS Classification**

Not a hazardous substance or mixture.

#### **GHS** label elements

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required

### Physical and chemical hazards

Not classified based on available information.

### **Health hazards**

Not classified based on available information.

#### **Environmental hazards**

Not classified based on available information.

### Other hazards which do not result in classification

None known.

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Date of last issue: 2022/10/01 Version Revision Date: SDS Number: 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
nicotinamide	98-92-0	>= 1 -< 10
Pyridoxine hydrochloride	58-56-0	>= 1 -< 10
Thiamine hydrochloride	67-03-8	>= 1 -< 10

#### 4. FIRST AID MEASURES

If inhaled If inhaled, remove to fresh air.

Get medical attention if symptoms occur.

: Wash with water and soap as a precaution. In case of skin contact

Get medical attention if symptoms occur.

Flush eyes with water as a precaution. In case of eye contact

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.

Most important symptoms

and effects, both acute and

delayed

Protection of first-aiders

None known.

No special precautions are necessary for first aid responders.

Treat symptomatically and supportively. Notes to physician

## 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray

> Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

Specific hazards during fire-

fighting

Hazardous combustion prod-

ucts

Exposure to combustion products may be a hazard to health.

Carbon oxides Nitrogen oxides (NOx)

Chlorine compounds Oxides of phosphorus

Metal oxides

Specific extinguishing meth-

ods

Use extinguishing measures that are appropriate to local cir-

cumstances 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.

Special protective equipment :

for firefighters

Wear self-contained breathing apparatus for firefighting if nec-

Use personal protective equipment.

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Date of last issue: 2022/10/01 Version Revision Date: SDS Number: 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

#### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec: : tive equipment and emer-

gency procedures

Follow safe handling advice (see section 7) and personal pro-

tective equipment recommendations (see section 8).

Avoid release to the environment. **Environmental precautions** 

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.

Methods and materials for containment and 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 absor-

bent.

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 deter-

mine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.

### 7. HANDLING AND STORAGE

Handling

Technical measures See Engineering measures under EXPOSURE

CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation

Use only with adequate ventilation.

Handle in accordance with good industrial hygiene and safety Advice on safe handling

practice, based on the results of the workplace exposure as-

sessment

Take care to prevent spills, waste and minimize release to the

environment.

Avoidance of contact : Oxidizing agents

**Storage** 

Conditions for safe storage Keep in properly labelled containers.

Store in accordance with the particular national regulations.

Materials to avoid Do not store with the following product types:

Strong oxidizing agents

Packaging material Unsuitable material: None known.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type	Control parame-	Basis

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 2022/10/01

 3.6
 2023/04/04
 292430-00017
 Date of first issue: 2015/10/02

		(Form of exposure)	ters / Permissible concentration	
Pyridoxine hydrochloride	58-56-0	TWA	OEB 3 (>= 10 < 100 μg/m3)	Internal
Thiamine hydrochloride	67-03-8	TWA	OEB 1 (>= 1000 μg/m3)	Internal

**Engineering measures** : Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or expo-

sure assessment demonstrates exposures outside the rec-

ommended guidelines, use respiratory protection.

Filter type : Particulates type

Eye/face protection : Wear the following personal protective equipment:

Safety glasses

Skin and body protection

Hand protection

Skin should be washed after contact.

Remarks : Wash hands before breaks and at the end of workday.

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

eye flushing systems and safety showers close to the work-

ing place.

When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : No data available

Odour : No data available

Odour Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Initial boiling point and boiling

range

No data available

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : No data available

Upper explosion limit / Upper

flammability limit

No data available

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Version Revision Date: SDS Number: Date of last issue: 2022/10/01 Date of first issue: 2015/10/02 3.6 2023/04/04 292430-00017

Lower explosion limit / Lower :

flammability limit

No data available

No data available Vapour pressure

Relative vapour density No data available

Relative density No data available

Density No data available

Solubility(ies)

Water solubility No data available

Partition coefficient: n-

octanol/water

No data available

No data available Auto-ignition temperature

Decomposition temperature No data available

Viscosity

Viscosity, dynamic No data available

Viscosity, kinematic No data available

Not explosive Explosive properties

Oxidizing properties The substance or mixture is not classified as oxidizing.

Molecular weight No data available

Particle size No data available

# 10. STABILITY AND REACTIVITY

Reactivity Not classified as a reactivity hazard. Chemical stability Stable under normal conditions. Possibility of hazardous reac-

tions

Can react with strong oxidizing agents.

Conditions to avoid None known. Incompatible materials Oxidizing agents

Hazardous decomposition No hazardous decomposition products are known.

products

### 11. TOXICOLOGICAL INFORMATION

Exposure routes Inhalation

> Skin contact Ingestion Eye contact

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Version Revision Date: SDS Number: Date of last issue: 2022/10/01 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

### **Acute toxicity**

Not classified based on available information.

**Product:** 

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg

Method: Calculation method

**Components:** 

nicotinamide:

Acute oral toxicity : LD50 (Rat): > 2,500 mg/kg

Method: OECD Test Guideline 423

Assessment: The substance or mixture has no acute oral tox-

icity

Acute inhalation toxicity : LC50 (Rat): > 3.8 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 436

Assessment: The substance or mixture has no acute inhala-

tion toxicity

Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Method: OECD Test Guideline 402

Assessment: The substance or mixture has no acute dermal

toxicity

Pyridoxine hydrochloride:

Acute oral toxicity : LD50 (Rat): 4,000 mg/kg

Thiamine hydrochloride:

Acute oral toxicity : LD50 (Rat): 3,710 mg/kg

Target Organs: Central nervous system, Lungs

LD50 (Mouse): 8,224 mg/kg

Skin corrosion/irritation

Not classified based on available information.

**Components:** 

nicotinamide:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

Pyridoxine hydrochloride:

Species : Rabbit

Result : No skin irritation

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Version Revision Date: SDS Number: Date of last issue: 2022/10/01 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

## Serious eye damage/eye irritation

Not classified based on available information.

## **Components:**

#### nicotinamide:

Species : Rabbit

Result : Irritation to eyes, reversing within 7 days

Method : OECD Test Guideline 405

## Pyridoxine hydrochloride:

Species : Rabbit

Result : No eye irritation

### Respiratory or skin sensitisation

### Skin sensitisation

Not classified based on available information.

# Respiratory sensitisation

Not classified based on available information.

### **Components:**

### nicotinamide:

Test Type : Maximisation Test Exposure routes : Skin contact Species : Guinea pig

Method : OECD Test Guideline 406

Result : negative

## Pyridoxine hydrochloride:

Test Type : Maximisation Test Exposure routes : Skin contact Species : Guinea pig

Method : OECD Test Guideline 406

Result : negative

## Germ cell mutagenicity

Not classified based on available information.

### **Components:**

### nicotinamide:

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

Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: Intraperitoneal injection

Method: OECD Test Guideline 474

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Version Revision Date: SDS Number: Date of last issue: 2022/10/01 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

Result: negative

Pyridoxine hydrochloride:

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

Result: negative

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

**Components:** 

nicotinamide:

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Rabbit

Application Route: Ingestion

Method: OECD Test Guideline 414

Result: negative

Pyridoxine hydrochloride:

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Rat

Application Route: Ingestion

Result: negative

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

**Components:** 

nicotinamide:

Species : Rat

NOAEL : 215 mg/kg Application Route : Ingestion Exposure time : 28 Days

Method : OECD Test Guideline 407

**Aspiration toxicity** 

Not classified based on available information.

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Version Revision Date: SDS Number: Date of last issue: 2022/10/01 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

#### 12. ECOLOGICAL INFORMATION

### **Ecotoxicity**

### Components:

nicotinamide:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 1,000 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 1,000 mg/l

Exposure time: 24 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC50 (Desmodesmus subspicatus (green algae)): > 1,000

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 560 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Pseudomonas putida): 4,235 mg/l

Exposure time: 18 h

Method: OECD Test Guideline 209

Pyridoxine hydrochloride:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 100 mg/l

Exposure time: 48 h

### Persistence and degradability

#### **Components:**

nicotinamide:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 95 % Exposure time: 28 d

Method: OECD Test Guideline 301E

Pyridoxine hydrochloride:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 94 % Exposure time: 28 d

Method: OECD Test Guideline 301E

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Version SDS Number: Date of last issue: 2022/10/01 Revision Date: 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

### Bioaccumulative potential

### **Components:**

nicotinamide:

Partition coefficient: n-

octanol/water

log Pow: -0.38

Pyridoxine hydrochloride:

Partition coefficient: n-

octanol/water

log Pow: 4.32

Mobility in soil

No data available

Other adverse effects

No data available

#### 13. DISPOSAL CONSIDERATIONS

**Disposal methods** 

Waste from residues Dispose of in accordance with local regulations.

Do not dispose of waste into sewer.

Contaminated packaging Empty containers should be taken to an approved waste han-

dling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

#### 14. TRANSPORT INFORMATION

## **International Regulations**

**UNRTDG** 

**UN** number Not applicable Not applicable Proper shipping name Not applicable Class Subsidiary risk Not applicable Not applicable Packing group Not applicable Labels

IATA-DGR

UN/ID No. Not applicable Not applicable Proper shipping name Class Not applicable Not applicable Subsidiary risk Not applicable Packing group Labels Not applicable Packing instruction (cargo Not applicable

aircraft)

Packing instruction (passen-

Not applicable

ger aircraft)

**IMDG-Code** 

**UN** number Not applicable Proper shipping name Not applicable Class Not applicable

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

Version SDS Number: Date of last issue: 2022/10/01 Revision Date: 3.6 2023/04/04 292430-00017 Date of first issue: 2015/10/02

Subsidiary risk Not applicable Packing group Not applicable Labels Not applicable **EmS Code** Not applicable Not applicable Marine pollutant

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

**National Regulations** 

GB 6944/12268

UN number Not applicable Not applicable Proper shipping name Class Not applicable Subsidiary risk Not applicable Packing group Not applicable Not applicable Labels

Special precautions for user

Not applicable

### 15. REGULATORY INFORMATION

#### **National regulatory information**

Law on the Prevention and Control of Occupational Diseases

# Yangtze River Protection Law

This product does not contain any dangerous chemicals prohibited for inland river transport.

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

AICS not determined

DSL not determined

**IECSC** not determined

## **16. OTHER INFORMATION**

**Revision Date** : 2023/04/04

**Further information** 

Sheet

compile the Safety Data

Sources of key data used to : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

cy, http://echa.europa.eu/

Date format : yyyy/mm/dd

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -

according to GB/T 16483 and GB/T 17519



## Vitamin B Formulation

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 2022/10/01

 3.6
 2023/04/04
 292430-00017
 Date of first issue: 2015/10/02

Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; KECI - 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

### **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 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.

CN / EN