

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Thiamine Hydrochloride

0413038

Version 2.2

Revision Date 30.09.2013

Print Date 23.06.2014

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Thiamine Hydrochloride
Substance name : 3-[(4-Amino-2-methyl-5-pyrimidinyl)-methyl]-5-(2-hydroxy-ethyl)-4-methylthiazolium chloride hydrochloride
CAS-No. : 67-03-8

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

Use of the Substance/Mixture : Additive for animal nutrition to be used in feed, For the fortification of foods, Ingredient for pharmaceutical products

1.3 Details of the supplier of the safety data sheet

Company : DSM Nutritional Products (UK) Ltd.
Heanor Gate
αGB061EI0017
Delves Road
GB-DE75 7SG Heanor
Telephone : +441773536500
Telefax : +441773536600
E-mail address : sds.nutritionalproducts@dsm.com
Responsible/issuing person

1.4 Emergency telephone number

+441773536623 / +41628662314

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

Classification (67/548/EEC, 1999/45/EC)

Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.3 Other hazards

Risk of dust explosion.

3. Composition/information on ingredients

Synonyms : Vitamin B1
Brief description of the product : Substance
Molecular formula : C12-H17-N4-O-S .Cl-H .Cl

3.1 Substances

Remarks : No hazardous ingredients

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**Thiamine Hydrochloride****0413038**

Version 2.2

Revision Date 30.09.2013

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Further ingredients

Chemical Name	CAS-No. EC-No. Registration number	Classification	GHS Classification	Concentration [%]
thiamine hydrochloride	67-03-8 200-641-8			>= 98,5

4. First aid measures**4.1 Description of first aid measures**

- General advice : No hazards which require special first aid measures.
- If inhaled : Move to fresh air.
If symptoms persist, call a physician.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
- In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : No specific symptoms known.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.

5. Firefighting measures**5.1 Extinguishing media**

- Suitable extinguishing media : Water
Foam

5.2 Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Formation of corrosive gases by combustion.

5.3 Advice for firefighters

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Thiamine Hydrochloride

0413038

Version 2.2

Revision Date 30.09.2013

Print Date 23.06.2014

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Consider dust explosion hazard.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.
Avoid dust formation.

6.2 Environmental precautions

Try to prevent the material from entering drains or water courses.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8.
Advice on protection against fire and explosion : Avoid dust formation.
Provide appropriate exhaust ventilation at places where dust is formed.
Take precautionary measures against static discharges.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Protect against light.
Protect from humidity.
: Keep container tightly closed and dry.
Advice on common storage : No special restrictions on storage with other products.
Storage temperature : < 25 °C

7.3 Specific end use(s)

Specific use(s) : not applicable

8. Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value (Form of exposure)	Control parameters	Update	Basis
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SAFETY DATA SHEET

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Thiamine Hydrochloride

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Version 2.2

Revision Date 30.09.2013

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thiamine hydrochloride	67-03-8	TWA	3 mg/m ³		DSM Internal Limit
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8.2 Exposure controls

Personal protective equipment

- Respiratory protection : No personal respiratory protective equipment normally required.
In case of high dust concentration use a dust mask applicable to local conditions.
- Hand protection : Glove material: for example nitrile rubber
- Eye protection : Safety glasses
- Skin and body protection : Lightweight protective clothing
- Hygiene measures : General industrial hygiene practice.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : powder
- Colour : white - off-white
- Odour : slight, characteristic
- Odour Threshold : No information available.
- pH : 2,7 - 3,3 (2,5%)
- Melting point/range : 248 - 250 °C
with decomposition
- Boiling point/boiling range : not determined
- Flash point : not applicable
- Flammability (solid, gas) : Not classified as flammable as defined by the transport regulations.
- Relative vapour density : not applicable
- Density : not determined
- Water solubility : ca. 1 000 g/l
- Solubility in other solvents : Glycerol: ca.56 g/l
Ethanol 95%: ca.10 g/l
Ethanol: ca.3 g/l
Methanol: moderately soluble
Diethylether: practically insoluble
Hexane: practically insoluble
Acetone: practically insoluble
- Partition coefficient: n-octanol/water : log Pow -3,93 (calculated (citation from literature))
- Auto-ignition temperature : No self ignition observed in the Greuer oven at temperatures

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Thiamine Hydrochloride

0413038

Version 2.2

Revision Date 30.09.2013

Print Date 23.06.2014

- below melting point.
- Thermal decomposition : Decomposes on heating.
Potential for exothermic hazard
Heating can release hazardous gases.
- Explosive properties : no data available
- Oxidizing properties : no data available

9.2 Other information

- Combustibility index for deposited dust : 3 (22 °C)
- : 4 (100 °C)
- Dust explosion class : St(H)1 (Product sample, Median value of the tested sample 0,05 mm, Loss on drying 2,9 %; The value was determined in the modified Hartmann tube.)
- Minimum ignition energy : 30 - 100 mJ (Median value of the tested sample 0,05 mm, Loss on drying 2,9 %)
The Minimum ignition energy (MIE) of a dust/air mix depends on the particle size the water content and the temperature of the dust. The finer and the dryer the dust the lower the MIE.
- : General remark: The indicated dust explosion characteristics are only valid for this product and are sensitive to the sample's parameters.
- Powder volume resistivity : 4,5E+10 Ohmm (Product sample , Loss on drying 2,9 %)
The material can accumulate static charge and can therefore cause electrical ignition.
- Minimum ignition temperature of a dust/air mix : ≥ 400 °C (Median value of the tested sample 0,05 mm) determined in the BAM oven
- Molecular weight : 337,28 g/mol
- Bulk density : ca. 0,4 g/cm³
- Further information : hygroscopic

10. Stability and reactivity

10.1 Reactivity

No hazards to be specially mentioned.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Dust may form explosive mixture in air.

10.4 Conditions to avoid

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Thiamine Hydrochloride

0413038

Version 2.2

Revision Date 30.09.2013

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Heat.

10.5 Incompatible materials

Bases

Strong oxidizing agents

10.6 Hazardous decomposition products

Hydrogen chloride gas

nitrogen oxides (NO_x)

Sulphur oxides

11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity : LD50 (rat): 3 710 mg/kg
: LD50 (mouse): 8 224 mg/kg

Skin corrosion/irritation : May irritate skin.

Serious eye damage/eye irritation : May irritate eyes.

Respiratory or skin sensitisation : no data available

Germ cell mutagenicity

Genotoxicity in vitro : not mutagenic (Various test systems)

Carcinogenicity : No indication for carcinogenicity known.

Reproductive toxicity : This information is not available.

Teratogenicity : not teratogenic
embryotoxic
(several species)

STOT - single exposure : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure : This information is not available.

Aspiration toxicity : No aspiration toxicity classification

Experience with human exposure : Cases of anaphylactic shock after parenteral application of Thiamin have been recorded.
: RDA (Recommended Daily Allowance) ca. 1,2 mg

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**Thiamine Hydrochloride****0413038**

Version 2.2

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12. Ecological information**12.1 Toxicity**

- Toxicity to fish : Oncorhynchus mykiss (rainbow trout)
LC50 (96 h) > 100 mg/l
(OECD Test Guideline 203)
- Toxicity to daphnia and other aquatic invertebrates : Daphnia magna (Water flea)
EC50 (48 h) > 100 mg/l
(OECD Test Guideline 202)
: EC0 (48 h) 58 mg/l
- Toxicity to algae : Desmodesmus subspicatus (green algae)
EbC50 (72 h) > 100 mg/l
(OECD Test Guideline 201)
- Toxicity to bacteria : activated sludge
(7 d) 1 000 mg/l
No inhibition was observed under the biodegradation test conditions.
(OECD Test Guideline 302B)

12.2 Persistence and degradability

- Biodegradability : Well inherently biodegradable.
74 % (7 d)
(OECD Test Guideline 302B)

12.3 Bioaccumulative potential

- Partition coefficient: n-octanol/water : log Pow -3,93 (calculated (citation from literature))

12.4 Mobility in soil

- Distribution among environmental compartments : no data available

12.5 Results of PBT and vPvB assessment

- Assessment : The substance does not fulfill the PBT criteria., The substance does not fulfill the vPvB criteria.

12.6 Other adverse effects

- Additional ecological information : There is no data available for this product.

13. Disposal considerations**13.1 Waste treatment methods**

- Product : Offer surplus and non-recyclable solutions to a licensed disposal company.
- Contaminated packaging : Empty containers should be taken to an approved waste

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Thiamine Hydrochloride

0413038

Version 2.2

Revision Date 30.09.2013

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handling site for recycling or disposal.

14. Transport information

14.1 UN number

ADR

Not dangerous goods

RID

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

14.2 Proper shipping name

ADR

Not dangerous goods

RID

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

14.3 Transport hazard class

ADR

Not dangerous goods

RID

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

14.4 Packing group

ADR

Not dangerous goods

RID

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

14.5 Environmental hazards

ADR

Not dangerous goods

RID

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

14.6 Special precautions for user

Not classified as dangerous in the meaning of transport regulations.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Thiamine Hydrochloride

0413038

Version 2.2

Revision Date 30.09.2013

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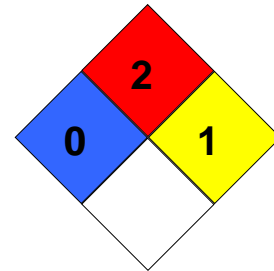
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

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

NFPA Classification : Health hazard: 0
Fire Hazard: 2
Reactivity Hazard: 1



15.2 Chemical Safety Assessment

not applicable

16. Other information

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.

Abbreviations: 67/548/EEC= Dangerous Substances Directive. 1999/45/EC= Dangerous Preparations Directive. Regulation (EC) No. 1272/2008= Regulation on classification, labelling and packaging of substances and mixtures. DNEL= Derived No-Effect Level. PNEC= Predicted No-Effect Concentration. NFPA= National Fire Protection Association (USA). IATA= International Air Transport Association. IMDG= International Maritime Dangerous Goods. RID= International Rule for Transport of Dangerous Substances by Railway; ADR= European Agreement concerning the International Carriage of Dangerous Goods by Road. TWA= Time Weighted Average. STEL= Short term exposure limit.