



JOSTCOTE® Microencapsulated Zinc Sulfate Monohydrate 50%

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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Version: 3.0

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : JOSTCOTE® Microencapsulated Zinc Sulfate Monohydrate 50%
CAS-No. : 7446-19-7
Formula : $ZnSO_4 \cdot H_2O$

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Nutrient; Dietary Supplement

1.3. Supplier

Manufacturer

Jost Chemical Co.
8150 Lackland Rd.
Saint Louis, Missouri 63114
T 314-428-4300 - F 314-428-4366
sds@jostchemical.com - www.jostchemical.com

1.4. Emergency telephone number

Emergency number : For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
United States and Canada: 1-800-424-9300 / +1 703-527-3887
Global: +1 703-741-5970

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (oral) Category 4 H302 Harmful if swallowed
Serious eye damage/eye irritation Category 1 H318 Causes serious eye damage

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H302 - Harmful if swallowed
H318 - Causes serious eye damage

Precautionary statements (GHS-US) :

P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves, eye protection.
P301+P312 - If swallowed: Call a doctor if you feel unwell
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a doctor
P330 - Rinse mouth.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

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2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Zinc Sulfate Monohydrate	(CAS-No.) 7446-19-7	51	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

- First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
- First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
- First-aid measures after skin contact : Rinse with water. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.
- First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.
- First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects (acute and delayed)

- Potential Adverse human health effects and symptoms : Harmful if swallowed. Causes serious eye damage.
- Symptoms/effects after inhalation : Coughing. Dry/sore throat. Respiratory difficulties.
- Symptoms/effects after skin contact : No effects known.
- Symptoms/effects after eye contact : Corrosion of the eye tissue. Visual disturbances.
- Symptoms/effects after ingestion : AFTER INGESTION OF HIGH QUANTITIES: Gastrointestinal complaints. Nausea. Vomiting. Abdominal pain. Blood in stool. Decreased renal function. Change in the hemogramme/blood composition. Weakening of the immune system.
- Chronic symptoms : No effects known.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : Adapt extinguishing media to the environment for surrounding fires.

5.2. Specific hazards arising from the chemical

- Fire hazard : DIRECT FIRE HAZARD: Non combustible.
- Explosion hazard : DIRECT EXPLOSION HAZARD: No direct explosion hazard.
- Reactivity : Reacts violently with (strong) bases.

5.3. Special protective equipment and precautions for fire-fighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighborhood close doors and windows.
- Firefighting instructions : Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Safety glasses. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighborhood close doors and windows.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray.
- Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain.
- Hygiene measures : Observe strict hygiene. Keep container tightly closed. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a clean, dry warehouse in the original unopened containers.
- Incompatible products : Oxidizing agent. Strong acids. Strong bases.
- Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: (strong) bases. water/moisture.
- Storage area : Store at ambient temperature. Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing, watertight, dry, correctly labelled, meet the legal requirements. Secure fragile packagings in solid containers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Zinc Sulfate Monohydrate (7446-19-7)

Not applicable

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Dust production: dust mask with filter type P2. Safety glasses. Gloves. In case of dust production: protective goggles.

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Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. PVC

Hand protection:

Gloves

Eye protection:

Safety glasses. In case of dust production: protective goggles

Skin and body protection:

Protective clothing

Respiratory protection:

Dust production: dust mask with filter type P2

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid. Powder.
Color	: White
Odor	: Odorless
Odor threshold	: No data available
pH	: 3.7 - 4.07 (Literature, 20 °C)
Melting point	: > 229 °C (1 atm)
Freezing point	: Not applicable
Boiling point	: Not applicable
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not flammable
Vapor pressure	: Not applicable
Vapor pressure at 50 °C	: No data available
Relative vapor density at 20 °C	: Not applicable
Relative density	: 3.35 (22 °C)
Specific gravity / density	: 3350 kg/m ³ (22 °C)
Molecular mass	: 179.47 g/mol
Solubility	: Soluble in water. Water: Solubility in water of component(s) of the mixture : • : 35 g/100ml
Log Pow	: Not applicable (inorganic substance)
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 229 °C (EU Method A.1: Melting/freezing point)
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available.
Oxidizing properties	: No data available.

9.2. Other information

VOC content	: Not applicable (inorganic)
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Other properties : Hygroscopic.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with (strong) bases.

10.2. Chemical stability

Hygroscopic.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Oral: Harmful if swallowed.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

JOSTCOTE® Microencapsulated Zinc Sulfate Monohydrate 50% (7446-19-7)	
LD50 oral rat	1710 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male, Experimental value)
ATE US (oral)	500 mg/kg body weight
Zinc Sulfate Monohydrate (7446-19-7)	
LD50 oral rat	1710 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male, Experimental value)
LD50 dermal rat	> 2000 mg/kg
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met)
pH: 3.7 - 4.07 (Literature, 20 °C)

Serious eye damage/irritation : Causes serious eye damage.
pH: 3.7 - 4.07 (Literature, 20 °C)

Respiratory or skin sensitization : Not classified (Lack of data)

Germ cell mutagenicity : Not classified (Lack of data)

Carcinogenicity : Not classified (Lack of data)

Reproductive toxicity : Not classified (Lack of data)

Specific target organ toxicity – single exposure : Not classified (Lack of data)

Specific target organ toxicity – repeated exposure : Not classified (Lack of data)

Aspiration hazard : Not classified
(Not applicable)

Viscosity, kinematic : No data available

Likely routes of exposure : Skin and eye contact.

Potential Adverse human health effects and symptoms : Harmful if swallowed. Causes serious eye damage.

Symptoms/effects after inhalation : Coughing. Dry/sore throat. Respiratory difficulties.

Symptoms/effects after skin contact : No effects known.

Symptoms/effects after eye contact : Corrosion of the eye tissue. Visual disturbances.

Symptoms/effects after ingestion : AFTER INGESTION OF HIGH QUANTITIES: Gastrointestinal complaints. Nausea. Vomiting. Abdominal pain. Blood in stool. Decreased renal function. Change in the hemogramme/blood composition. Weakening of the immune system.

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Chronic symptoms : No effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment.
Ecology - air : Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water : Toxic to crustacea. Very toxic to fishes. Inhibition of activated sludge. Toxic to algae. May cause eutrophication at very low concentration. pH shift.

JOSTCOTE® Microencapsulated Zinc Sulfate Monohydrate 50% (7446-19-7)	
LC50 fish 1	0.33 - 0.78 mg/l (96 h, Pimephales promelas, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	1.13 mg/l (48 h, Ceriodaphnia dubia, Literature study)
Zinc Sulfate Monohydrate (7446-19-7)	
LC50 fish 1	0.33 - 0.78 mg/l (96 h, Pimephales promelas, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	1.13 mg/l (48 h, Ceriodaphnia dubia, Literature study)

12.2. Persistence and degradability

JOSTCOTE® Microencapsulated Zinc Sulfate Monohydrate 50% (7446-19-7)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable (inorganic)
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
Zinc Sulfate Monohydrate (7446-19-7)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable (inorganic)
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

12.3. Bioaccumulative potential

JOSTCOTE® Microencapsulated Zinc Sulfate Monohydrate 50% (7446-19-7)	
BCF other aquatic organisms 1	38 - 28960 (28 day(s), Palaemon elegans, Semi-static system, Salt water, Read-across, Fresh weight)
Log Pow	Not applicable (inorganic substance)
Log Kow	Not applicable (inorganic substance)
Bioaccumulative potential	Bioaccumable.
Zinc Sulfate Monohydrate (7446-19-7)	
BCF other aquatic organisms 1	38 - 28960 (28 day(s), Palaemon elegans, Semi-static system, Salt water, Read-across, Fresh weight)
Log Pow	Not applicable (inorganic substance)
Log Kow	Not applicable (inorganic substance)
Bioaccumulative potential	Bioaccumable.

12.4. Mobility in soil

JOSTCOTE® Microencapsulated Zinc Sulfate Monohydrate 50% (7446-19-7)	
Mobility in soil	No additional information available
Ecology - soil	No (test)data on mobility of the substance available.
Zinc Sulfate Monohydrate (7446-19-7)	
Mobility in soil	No additional information available
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Disposal methods

- Regional legislation (waste) : LWCA (the Netherlands): KGA category 05.
- Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
- Product/Packaging disposal recommendations : Do not discharge into drains or the environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized dump (Class I). Precipitate/make insoluble.
- Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

- Proper Shipping Name (DOT) : Not regulated for transport
- Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

- Transport document description (IMDG) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Sulfate Monohydrate), 9, III, MARINE POLLUTANT
- UN-No. (IMDG) : 3077
- Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- Class (IMDG) : 9 - Miscellaneous dangerous substances and articles
- Packing group (IMDG) : III - substances presenting low danger
- EmS-No. (1) : F-A
- EmS-No. (2) : S-F

Air transport

- Transport document description (IATA) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Sulfate Monohydrate), 9, III
- UN-No. (IATA) : 3077
- Proper Shipping Name (IATA) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- Class (IATA) : 9 - Miscellaneous Dangerous Goods
- Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Zinc Sulfate Monohydrate	CAS-No. 7446-19-7	51%
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Zinc Sulfate Monohydrate (7446-19-7)

SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

15.2. International regulations

CANADA

No additional information available

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EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Component	State or local regulations
Zinc Sulfate Monohydrate(7446-19-7)	

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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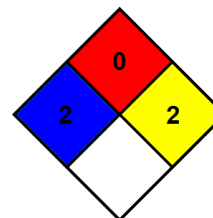
Full text of H-phrases:

H302	Harmful if swallowed
H318	Causes serious eye damage

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.



Hazard Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

SDS US (HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product