

SECTION 1: Identification

1.1. Identification

Product form : Mixture

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

No additional information available

1.3. Details of the supplier of the safety data sheet

Alltech Crop Science
3031 Catnip Hill Road
Nicholasville, 40356 - USA
T 859-885-9613 - F 859-887-6736
RegulatoryACS@alltech.com

1.4. Emergency telephone number

Emergency number : 1-800-424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Serious eye damage/eye irritation Category 1

Causes serious eye damage

Specific target organ toxicity (repeated exposure) Category 2

May cause damage to organs through prolonged or repeated exposure (Inhalation)

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS05

GHS08

Signal word (GHS-US) :

Danger

Contains :

Zinc sulfate; Manganese sulfate, monohydrate

Hazard statements (GHS-US) :

Causes serious eye damage

May cause damage to organs through prolonged or repeated exposure (Inhalation)

Precautionary statements (GHS-US) :

Do not breathe vapors, spray

Wear protective gloves, face protection

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Immediately call a doctor, a POISON CENTER

Get medical advice/attention if you feel unwell

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

No additional information available

2.4. Unknown acute toxicity (GHS US)

2 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Oral)

2 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal)

2 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Vapours))

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

Name	Product identifier	%	GHS-US classification
Manganese sulfate, monohydrate	(CAS No) 10034-96-5	5 - 10	STOT RE 2, H373 Aquatic Chronic 2, H411
Zinc sulfate	(CAS No) 7733-02-0	5 - 10	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
SACCHAROMYCES CEREVISIAE EXTRACT	(CAS No) 84604-16-0	5 - 10	Not classified
boric acid	(CAS No) 10043-35-3	2.5 - 5	Not classified
YUCCA SCHIDIGERA STEM EXTRACT	(CAS No) 223749-05-1	1 - 2.5	Not classified
Sodium benzoate	(CAS No) 532-32-1	0.5 - 1	Acute Tox. 4 (Dermal), H312
Potassium sorbate	(CAS No) 24634-61-5	0.1 - 0.5	Not classified
LACTOBACILLUS EXTRACT FILTRATE			Not classified

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

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

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 8 : Exposure-controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium sorbate (24634-61-5)

Not applicable

Zinc sulfate (7733-02-0)

Not applicable

boric acid (10043-35-3)

Not applicable

Manganese sulfate, monohydrate (10034-96-5)

Not applicable

LACTOBACILLUS EXTRACT FILTRATE

Not applicable

SACCHAROMYCES CEREVISIAE EXTRACT (84604-16-0)

Not applicable

Sodium benzoate (532-32-1)

Not applicable

YUCCA SCHIDIGERA STEM EXTRACT (223749-05-1)

Not applicable

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Hand protection : Protective gloves.
Eye protection : Safety glasses.
Skin and body protection : Wear suitable protective clothing.
Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Color : Mixture contains one or more component(s) which have the following colour(s):
Colourless to white Rose
Odor : There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure.
Mixture contains one or more component(s) which have the following odour(s):
Mild odour Odourless
Odor threshold : No data available
pH : No data available
Melting point : Not applicable
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Flammability (solid, gas) : No data available
Explosion limits : No data available
Explosive properties : No data available
Oxidizing properties : No data available

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Solubility	: Water: Solubility in water of component(s) of the mixture : • : 58 g/100ml • : > 54 g/100ml • : 100 g/100ml • : 56 g/100ml
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

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

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Potassium sorbate (24634-61-5)	
LD50 oral rat	4340 mg/kg (Rat)
LD50 dermal rat	7940 mg/kg (Rat)
ATE US (oral)	4340.000 mg/kg body weight
ATE US (dermal)	7940.000 mg/kg body weight

Zinc sulfate (7733-02-0)	
LD50 oral rat	1000 - 2000 mg/kg (Rat)
ATE US (oral)	1000.000 mg/kg body weight

LACTOBACILLUS EXTRACT FILTRATE	
LD50 oral rat	> 5000 ml/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (ppm)	2.05 ppm

Sodium benzoate (532-32-1)	
LD50 oral rat	> 2700 mg/kg (Rat)
LD50 dermal rat	> 7940 mg/kg (Rat)
LD50 dermal rabbit	2000 mg/kg (Rabbit)
ATE US (dermal)	2000.000 mg/kg body weight

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Causes serious eye damage.

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

LACTOBACILLUS EXTRACT FILTRATE	
IARC group	4 - Probably Not Carcinogenic

YUCCA SCHIDIGERA STEM EXTRACT (223749-05-1)	
IARC group	4 - Probably Not Carcinogenic

Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified

Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure (Inhalation).

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Zinc sulfate (7733-02-0)	
EC50 Daphnia 1	280 µg/l (LC50; Other; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
Threshold limit algae 1	136 µg/l (IC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum; Static system; Fresh water; Experimental value)
Threshold limit algae 2	24 µg/l (NOEC; OECD 201: Alga, Growth Inhibition Test; 3 days; Selenastrum capricornutum; Static system; Fresh water; Experimental value)

Manganese sulfate, monohydrate (10034-96-5)	
EC50 Daphnia 1	8.28 mg/l (EC50; 48 h)
LC50 fish 2	33.8 mg/l (LC50; 96 h)

Sodium benzoate (532-32-1)	
LC50 fish 1	> 100 mg/l (LC50; 96 h; Pimephales promelas)
EC50 Daphnia 1	< 650 mg/l (EC50; 48 h)
EC50 Daphnia 2	> 100 mg/l (EC50; 48 h)

12.2. Persistence and degradability

Potassium sorbate (24634-61-5)	
Persistence and degradability	Biodegradability in water: no data available.

Zinc sulfate (7733-02-0)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

Manganese sulfate, monohydrate (10034-96-5)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

Sodium benzoate (532-32-1)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

Potassium sorbate (24634-61-5)	
Bioaccumulative potential	No bioaccumulation data available.

Zinc sulfate (7733-02-0)	
BCF fish 1	59 - 242 (BCF)
Bioaccumulative potential	Bioaccumable.

Sodium benzoate (532-32-1)	
Log Pow	0.84
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

No additional information available

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3082 Environmentally hazardous substances, liquid, n.o.s. (contains zinc sulfae and manganese sulfate), 9, III

UN-No.(DOT) : UN3082

Proper Shipping Name (DOT) : Environmentally hazardous substances, liquid, n.o.s. (contains zinc sulfae and manganese sulfate)

Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



Packing group (DOT) : III - Minor Danger

DOT Packaging Non Bulk (49 CFR 173.xxx) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 241

DOT Symbols : G - Identifies PSN requiring a technical name

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

- DOT Special Provisions (49 CFR 172.102) : 8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies
146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination
173 - An appropriate generic entry may be used for this material
335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s.," UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging
IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672)
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling
TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP
- DOT Packaging Exceptions (49 CFR 173.xxx) : 155
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : No limit
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : No limit
- DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel
- Emergency Response Guide (ERG) Number : 171
- Other information : No supplementary information available.

TDG

No additional information available

Transport by sea

- UN-No. (IMDG) : 3082
- Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
- Class (IMDG) : 9 - Miscellaneous dangerous compounds
- Packing group (IMDG) : III - substances presenting low danger
- Limited quantities (IMDG) : Shipping information on LIQUI-PLEX Zn + Mn +B. Per the IMDG code: (2.10.2.7) environmentally hazardous substances of 5L or less in a container is shipped as a non-hazardous material and will not be labeled or packaged as hazardous. The transport of marine pollutants is not subject to any other provisions of the IMDG code relevant to marine pollutants (no marking, labelling or documentation required) provided: The net mass or net quantity per single packaging or inner packaging of combination packagings does not exceed 5 kg for solids and 5 L for liquids; The packagings meet the general provisions of paragraphs 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 of the IMDG code (strong rigid packaging). In the case of marine pollutants also meeting the criteria for inclusion in another hazard class all provisions of the IMDG code relevant to any additional hazards continue to apply.
This means that: UN 3077 Environmentally hazardous substances solid n.o.s. in quantities of less than 5 kg per single packaging or inner packaging of combination packaging; and • UN 3082 Environmentally hazardous substances liquid, n.o.s. in quantities of less than 5 L per single packaging or inner packaging of combination packaging can be shipped as not subject to the provisions of the IMDG code. For marine pollutants, which also have other hazards, no marine pollutant mark is required on the packages or on the container in which they are packed. but all other provisions of the IMDG code continue to apply. Because of this change, containers with dangerous goods in limited quantities which are also marine pollutants do not need to bear the Marine Pollutant mark.

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

Air transport

UN-No. (IATA)	: 3082
Proper Shipping Name (IATA)	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Class (IATA)	: 9 - Miscellaneous Dangerous Goods
Packing group (IATA)	: III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Potassium sorbate (24634-61-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Zinc sulfate (7733-02-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 313 (Specific toxic chemical listings)

CERCLA RQ 1000 lb

boric acid (10043-35-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Manganese sulfate, monohydrate (10034-96-5)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

LACTOBACILLUS EXTRACT FILTRATE

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

SACCHAROMYCES CEREVISIAE EXTRACT (84604-16-0)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Sodium benzoate (532-32-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

YUCCA SCHIDIGERA STEM EXTRACT (223749-05-1)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

Zinc sulfate (7733-02-0)

U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

LIQUI-PLEX Zn + Mn + B

Safety Data Sheet

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

Full text of H-phrases:

H302	Harmful if swallowed
H312	Harmful in contact with skin
H318	Causes serious eye damage
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
H411	Toxic to aquatic life with long lasting effects

SDS US (GHS 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