

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : FERTILEADER ALPHA
 Product code : FELPHAUSA

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Agriculture
 Fertilizer
 Recommended use : Fertilizers

1.3. Supplier

Distributor

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

Manufacturer

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number	Comment
Americas	3E		+1-760-476-3962 (Access code : 333021)	(24/7)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Corrosive to metals Category 1 H290 May be corrosive to metals
 Acute toxicity (oral) Category 4 H302 Harmful if swallowed
 Skin corrosion/irritation Category 1 H314 Causes severe skin burns and eye damage
 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) :

H290 - May be corrosive to metals
 H302 - Harmful if swallowed
 H314 - Causes severe skin burns and eye damage
 H318 - Causes serious eye damage

Precautionary statements (GHS US) :

P260 - Do not breathe spray, vapors.
 P280 - Wear protective clothing, eye protection, face protection, protective gloves.
 P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 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, a POISON CENTER.
 P390 - Absorb spillage to prevent material-damage.

2.3. Other hazards which do not result in classification

No additional information available

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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
Orthoboric acid ethanalamine salt (1:1)	(CAS-No.) 68586-07-2	> 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319
Phosphoric acid 75%	(CAS-No.) 7664-38-2	> 20	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 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 : Prompt treatment is essential to minimize damage. Call a poison center/doctor/physician if you feel unwell.
- First-aid measures after inhalation : Take victim to fresh air, in a quiet place in an half laying position and urgently take medical advice.
- First-aid measures after skin contact : For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Do not remove clothing if it sticks to the skin. Get immediate medical advice/attention. Wash contaminated clothing before reuse.
- First-aid measures after eye contact : Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms. If possible show him this sheet. Failing this, show him the packaging or label.
- First-aid measures after ingestion : If swallowed, seek medical advice immediately and show this container or label. Never give anything by mouth to an unconscious person. Unconscious: maintain adequate airway and respiration. Place the affected person in the recovery position. Rinse mouth out with water. Do not induce vomiting.

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

Symptoms/effects : (see section(s) : 2.1/2.3).

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 : water, carbon dioxide (CO₂), powder and foam. Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : None known.

5.2. Specific hazards arising from the chemical

- Fire hazard : Combustible liquid.
- Reactivity in case of fire : Corrosive vapors.

5.3. Special protective equipment and precautions for fire-fighters

- Firefighting instructions : Control the vapors with a water spray. Contain the extinguishing fluids by bunding.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Complete protective clothing. EN 469. Self-contained breathing apparatus.
- Other information : Do not allow run-off from fire fighting to enter drains or water courses. Relevant water authorities should be notified of any large spillage to water course or drain.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Absorb spillage to prevent material-damage. No flames, no sparks. Eliminate all sources of ignition. Evacuate area.

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6.1.1. For non-emergency personnel

- Protective equipment : Wear recommended personal protective equipment.
- Emergency procedures : Do not get in eyes, on skin, or on clothing. Do not breathe vapors. Evacuate unnecessary personnel. Mark the danger area. Ventilate spillage area. Keep upwind. Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. acid-resistant protective clothing. Protective gloves. Breathing apparatus. Safety glasses. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Ventilate area. Stop leak if safe to do so. Dike and contain spill.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Pump up the product into a suitably labeled spare container. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.
- 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". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : May be corrosive to metals.
- Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Use personal protective equipment as required.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : The floor of the depot should be impermeable and designed to form a water-tight basin. Comply with applicable regulations.
- Storage conditions : Store closed containers with closure in upper position. Keep out of reach of children. Store in original container. Store in dry, cool, well-ventilated area. Store in a closed container. Store locked up.
- Incompatible products : Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.
- Incompatible materials : Metals.
- Storage temperature : ≥ 32 °F
- Heat-ignition : Keep away from open flames, hot surfaces and sources of ignition.
- Information on mixed storage : Keep away from food, drink and animal feeding stuffs.
- Storage area : Store away from heat. Store in a well-ventilated place.
- Special rules on packaging : Keep only in original container. Store in a closed container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Phosphoric acid 75% (7664-38-2)		
ACGIH	Local name	Phosphoric acid
ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³
ACGIH	ACGIH STEL (mg/m ³)	3 mg/m ³
ACGIH	Remark (ACGIH)	TLV® Basis: URT, eye, & skin irr
ACGIH	Regulatory reference	ACGIH 2020
OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
OSHA	OSHA PEL (STEL) (mg/m ³)	3 mg/m ³
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

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Phosphoric acid 75% (7664-38-2)		
IDLH	US IDLH (mg/m ³)	1000 mg/m ³
NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³
NIOSH	NIOSH REL (STEL) (mg/m ³)	3 mg/m ³
Orthoboric acid ethanolamine salt (1:1) (68586-07-2)		
Not applicable		

8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
Environmental exposure controls	: Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Assure that emissions are compliant with all applicable air pollution control regulations. Comply with applicable regulations.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Since the product consists of several substances, the durability of the glove material cannot be estimated and needs to be tested before use

Type	Material	Permeation	Thickness (mm)	Permeation
Reusable gloves	butyl rubber, Neoprene rubber (HNBR)	6 (> 480 minutes)		

Eye protection:

Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product

Type	Use	Characteristics
Safety glasses, Face shield	Droplet	With side shields

Skin and body protection:

Skin protection appropriate to the conditions of use should be provided

Type
Chemical resistant apron
Boots

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Device	Filter type	Condition
Reusable half mask, Full face mask	ABEK-P3	Vapour protection, Mist formation

Personal protective equipment symbol(s):



Other information:

See Heading 7 : 7.1. Precautions for safe handling.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: dark brown
Odor	: slight ammonia
Odor threshold	: No data available

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pH	: 7 - 8.6
Melting point	: No data available
Freezing point	: < 32 °F
Boiling point	: > 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 1.3 kg/l
Solubility	: Water: completely soluble
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable Not applicable
Explosive properties	: Product is not explosive.
Oxidizing properties	: Non oxidizing material according to EC criteria.

9.2. Other information

Additional information : May be corrosive to metals

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : toxic and corrosive vapors. Phosphorus oxides. Released gases may accelerate the burning of other combustible materials.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Reacts violently with : Strong bases (Exothermic reaction), Reducing agents (Hazardous reactions), Sodium hypochlorite (release of irritant gases/vapors).

10.4. Conditions to avoid

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

10.5. Incompatible materials

Strong acids. Strong bases. metals. halogens (F, Cl, Br, I). Hydrogen peroxide. Organic materials. Explosives. Fluorine (F). Alkalis and caustic products. Nitrates. Amines. Hydrazine. Esters. phenols and halogenated phenols. CRESOLS, LIQUID. CRESOLS, SOLID. alkaline salts. nitromethane. Aldehydes. Ketones. glycol. Cyanides. acetic acid. Oxidation agents. Reducing agents. Chlorates. Combustible materials. Ethanol. Sodium hypochlorite.

10.6. Hazardous decomposition products

Phosphorus oxides. Carbon oxides (CO, CO₂). Corrosive vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

ATE US (oral)	1286.875 mg/kg body weight
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

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Phosphoric acid 75% (7664-38-2)	
LD50 oral rat	> 300 mg/kg (OECD 423 method)
ATE US (oral)	301 mg/kg body weight
Additional information	Safety Data Sheet Supplier

Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: 7 - 8.6
Serious eye damage/irritation	: Causes serious eye damage. pH: 7 - 8.6
Respiratory or skin sensitization	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

FERTILEADER ALPHA	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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FERTILEADER ALPHA	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Phosphoric acid 75% (7664-38-2)	
NOAEL (oral,rat,90 days)	250 mg/kg bodyweight/day (OECD 422 method)

Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Viscosity, kinematic	: No data available
Symptoms/effects	: (see section(s) : 2.1/2.3).

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation. The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. Do not allow into drains or water courses.
Ecology - water	: Do not allow large quantities, as are, to spread into the environment. Do not discharge into drains or rivers.

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Phosphoric acid 75% (7664-38-2)	
LC50 fish 1	3 - 3.25 mg/l <i>Lepomis macrochirus</i>
EC50 <i>Daphnia</i> 1	> 100 mg/l (OECD 202 method)
ErC50 (algae)	> 100 mg/l <i>Desmodesmus subspicatus</i> , 72 Hours - (OECD 201 method)
NOEC chronic algae	100 mg/l <i>Desmodesmus subspicatus</i> , 72 Hours - (OECD 201 method)

12.2. Persistence and degradability

FERTILEADER ALPHA	
Persistence and degradability	Not established.

Phosphoric acid 75% (7664-38-2)	
Persistence and degradability	Not established. Not relevant.

12.3. Bioaccumulative potential

FERTILEADER ALPHA	
Bioaccumulative potential	Not established.

Phosphoric acid 75% (7664-38-2)	
Log Pow	No data available
Log Kow	No data available
Bioaccumulative potential	Not relevant.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects : May cause eutrophication at very low concentration.

Other information : No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Discharging into rivers and drains is forbidden.
Additional information	: Do not re-use empty containers.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description	: UN1760 Corrosive liquids, n.o.s. (2-aminoethanol, ethanolamine ; Phosphoric acid 75%), 8, III
UN-No.(DOT)	: UN1760
Proper Shipping Name (DOT)	: Corrosive liquids, n.o.s. 2-aminoethanol, ethanolamine ; Phosphoric acid 75%
Class (DOT)	: 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT)	: III - Minor Danger
Hazard labels (DOT)	: 8 - Corrosive



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

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DOT Special Provisions (49 CFR 172.102)	: 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). T7 - 4 178.274(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. TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, 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)	: 154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"
Other information	: No supplementary information available.

Transportation of Dangerous Goods

Transport document description	: 1760 (2-aminoethanol, ethanolamine ; Phosphoric acid 75%), 8, III
UN-No. (TDG)	: 1760
TDG Primary Hazard Classes	: 8 - Class 8 - Corrosives
Packing group	: III - Minor Danger

Transport by sea

Transport document description (IMDG)	: UN 1760 (2-aminoethanol, ethanolamine ; Phosphoric acid 75%), 8, III
UN-No. (IMDG)	: 1760
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: III - substances presenting low danger
Limited quantities (IMDG)	: 5 L
EmS-No. (1)	: F-A
EmS-No. (2)	: S-B

Air transport

Transport document description (IATA)	: UN 1760 (2-aminoethanol, ethanolamine ; Phosphoric acid 75%), 8, III
UN-No. (IATA)	: 1760
Class (IATA)	: 8 - Corrosives
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

Phosphoric acid 75% (7664-38-2)	
CERCLA RQ	5000 lb

15.2. International regulations

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CANADA

Phosphoric acid 75% (7664-38-2)

Listed on the Canadian DSL (Domestic Substances List)

Orthoboric acid ethanolamine salt (1:1) (68586-07-2)

Listed on the Canadian DSL (Domestic Substances List)

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

SECTION 16: Other information

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

Revision date : 06/15/2020

Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-phrases:

H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation

Abbreviations and acronyms:

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ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
LC50	Median lethal concentration
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
NOAEL	No-Observed Adverse Effect Level
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative
DMEL	Derived Minimal Effect level
EC50	Median effective concentration
SDS	Safety Data Sheet
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
STP	Sewage treatment plant

NFPA health hazard

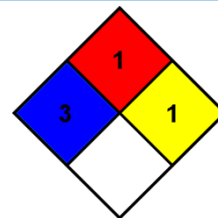
: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity

: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection

: r,G
r - Synthetic apron
G - Safety glasses, Gloves, Vapor respirator

Indication of changes:

Section	Changed item	Change	Comments
	Other information	Modified	
	Reason for no classification	Modified	
	ATE US (gases)	Added	
	ATE US (oral)	Modified	
	Hazard pictograms (GHS US)	Modified	
	Supersedes	Modified	
	Revision date	Modified	
	Reason for no classification	Modified	
	Additional information	Added	
	Reason for no classification	Added	

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	Reason for no classification	Added	
	Limited quantities (IMDG)	Added	
	ATE US (dermal)	Added	
	Precautionary statements (GHS US)	Modified	
	Hazard statements (GHS US)	Modified	
	Display additional SDS US addresses	Added	
	Display TSCA summary in 15.1	Added	
	NFPA health hazard	Modified	
	Personal protection	Modified	
	Health	Modified	
	Proper Shipping Name - Addition (DOT)	Added	
1	Recommended use	Added	
1	Use of the substance/mixture	Added	
2.1	GHS-US classification	Modified	
3	Composition/Information on ingredients	Modified	
4	First-aid measures after ingestion	Modified	
4	First-aid measures general	Modified	
5.2	Reactivity in case of fire	Added	
5.2	Fire hazard	Added	
6	Protective equipment	Added	
7.1	Additional hazards when processed	Added	
7.2	Heat-ignition	Added	
7.2	Storage temperature	Modified	
7.2	Storage conditions	Modified	
7.2	Incompatible materials	Added	
8.1	Additional information	Removed	
8.2	Hand protection	Modified	
8.2	Respiratory protection	Modified	
9	pH	Modified	
9	Additional information	Added	
9	Explosive limits (vol %)	Added	
9	Explosive limits (g/m ³)	Added	
9	Freezing point	Added	
9	Explosive properties	Modified	
9	Color	Modified	
10	Conditions to avoid	Modified	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
12.1	Ecology - general	Modified	
13	Ecology - waste materials	Removed	
13	Additional information	Modified	
13	Waste disposal recommendations	Modified	
13	Sewage disposal recommendations	Removed	
13	Waste treatment methods	Modified	
13	Regional legislation (waste)	Modified	
16	Abbreviations and acronyms	Modified	

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.

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : FERTILEADER AXIS
 Product code : FLAXUSA

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Agriculture

1.3. Supplier

Manufacturer

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number	Comment
Americas	3E		+1-760-476-3962 (Access code : 333021)	(24/7)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Corrosive to metals Category 1 H290 May be corrosive to metals
 Acute toxicity (oral) Category 4 H302 Harmful if swallowed
 Skin corrosion/irritation Category 1 H314 Causes severe skin burns and eye damage
 Serious eye damage/eye irritation Category 1 H318 Causes serious eye damage
 Specific target organ toxicity (repeated exposure) Category 2 H373 May cause damage to organs (brain) through prolonged or repeated exposure (Inhalation)

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) :

H290 - May be corrosive to metals
 H302 - Harmful if swallowed
 H314 - Causes severe skin burns and eye damage
 H318 - Causes serious eye damage
 H373 - May cause damage to organs (brain) through prolonged or repeated exposure (Inhalation)

Precautionary statements (GHS US) :

P260 - Do not breathe spray, vapors.
 P280 - Wear protective clothing, eye protection, face protection, protective gloves.
 P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 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, a POISON CENTER.

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P390 - Absorb spillage to prevent material-damage.

2.3. Other hazards which do not result in classification

No additional information available

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
Phosphoric acid 75%	(CAS-No.) 7664-38-2	10 - 40	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Eye Dam. 1, H318
Zinc oxide	(CAS-No.) 1314-13-2	> 5	Not classified
Nitric acid, manganese(2+) salt (2:1)	(CAS-No.) 10377-66-9	> 5	Ox. Liq. 2, H272 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 STOT RE 2, H373 Aquatic Chronic 3, H412

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	: Prompt treatment is essential to minimize damage. Get medical advice/attention if you feel unwell.
First-aid measures after inhalation	: Take victim to fresh air, in a quiet place in an half laying position and urgently take medical advice.
First-aid measures after skin contact	: For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Do not remove clothing if it sticks to the skin. Get immediate medical advice/attention. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms. If possible show him this sheet. Failing this, show him the packaging or label.
First-aid measures after ingestion	: If swallowed, seek medical advice immediately and show this container or label. Never give anything by mouth to an unconscious person. Unconscious: maintain adequate airway and respiration. Place the affected person in the recovery position. Rinse mouth out with water. Do not induce vomiting.

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

Symptoms/effects	: (see section(s) : 2.1/2.3).
Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns. May cause nausea, vomiting, sore throat, stomach-ache and eventually a perforation of the intestine.

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	: water, carbon dioxide (CO ₂), powder and foam. Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: None known.

5.2. Specific hazards arising from the chemical

Fire hazard	: Not flammable. Released gases may accelerate the burning of other combustible materials.
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5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Control the vapors with a water spray.
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- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Complete protective clothing. EN 469. Self-contained breathing apparatus.
- Other information : Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Absorb spillage to prevent material-damage. No flames, no sparks. Eliminate all sources of ignition. Evacuate area.

6.1.1. For non-emergency personnel

- Protective equipment : Wear recommended personal protective equipment.
- Emergency procedures : Do not get in eyes, on skin, or on clothing. Do not breathe vapors. Evacuate unnecessary personnel. Mark the danger area. Ventilate spillage area. Keep upwind. Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. acid-resistant protective clothing. Protective gloves. Breathing apparatus. Safety glasses. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Ventilate area. Stop leak if safe to do so. Dike and contain spill.

6.2. Environmental precautions

- Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Pump up the product into a suitably labeled spare container. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.
- 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". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : May be corrosive to metals.
- Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Use personal protective equipment as required. Avoid contact with skin, eyes and clothing. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : The floor of the depot should be impermeable and designed to form a water-tight basin. Store on an acid resistant underground. Comply with applicable regulations.
- Storage conditions : Store closed containers with closure in upper position. Protect from sunlight. Store in a well-ventilated place. Store locked up. Keep out of reach of children.
- Incompatible products : Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.
- Incompatible materials : Metals.
- Storage temperature : ≥ 32 °F Store away from freezing (avoid freezing during storage)
- Heat-ignition : Keep away from open flames, hot surfaces and sources of ignition.
- Information on mixed storage : Keep away from food, drink and animal feeding stuffs.
- Storage area : Store away from heat. Store in a well-ventilated place.
- Special rules on packaging : Keep only in original container. Store in a closed container.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)		
ACGIH	ACGIH TWA (mg/m ³)	8h 0.02 mg/m ³ respirable
ACGIH	ACGIH STEL (mg/m ³)	8h 0.02 mg/m ³ respirable
ACGIH	ACGIH Ceiling (mg/m ³)	0.02 mg/m ³ respirable
OSHA	OSHA PEL (TWA) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (STEL) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (Ceiling) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (TWA) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (STEL) (mg/m ³)	>10h 3 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (ceiling) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds
Zinc oxide (1314-13-2)		
ACGIH	Local name	Zinc oxide
ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³ (R - Respirable particulate matter)
ACGIH	ACGIH STEL (mg/m ³)	10 mg/m ³ (R - Respirable particulate matter)
ACGIH	Remark (ACGIH)	TLV® Basis: Metal fume fever
ACGIH	Regulatory reference	ACGIH 2019
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³ (Respirable fraction) 5 mg/m ³ (Fume) 15 mg/m ³ (Total dust)
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
NIOSH	NIOSH REL (TWA) (mg/m ³)	5 dust
NIOSH	NIOSH REL (ceiling) (mg/m ³)	15 mg/m ³ dust
Phosphoric acid 75% (7664-38-2)		
ACGIH	Local name	Phosphoric acid
ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³
ACGIH	ACGIH STEL (mg/m ³)	3 mg/m ³
ACGIH	Remark (ACGIH)	TLV® Basis: URT, eye, & skin irr
ACGIH	Regulatory reference	ACGIH 2020
OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
OSHA	OSHA PEL (STEL) (mg/m ³)	3 mg/m ³
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
IDLH	US IDLH (mg/m ³)	1000 mg/m ³
NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³
NIOSH	NIOSH REL (STEL) (mg/m ³)	3 mg/m ³

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Local exhaust and general ventilation must be adequate to meet exposure standards.

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Environmental exposure controls : Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Assure that emissions are compliant with all applicable air pollution control regulations. Comply with applicable regulations.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Since the product consists of several substances, the durability of the glove material cannot be estimated and needs to be tested before use

Type	Material	Permeation	Thickness (mm)	Permeation
Reusable gloves	butyl rubber, Neoprene rubber (HNBR)	6 (> 480 minutes)		

Eye protection:

Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product

Type	Use	Characteristics
Safety glasses, Face shield	Droplet	With side shields

Skin and body protection:

Skin protection appropriate to the conditions of use should be provided

Type
Chemical resistant apron
Boots

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Device	Filter type	Condition
Reusable half mask, Full face mask	ABEK-P3	Vapour protection, Mist formation

Personal protective equipment symbol(s):



Other information:

See Heading 7 : 7.1. Precautions for safe handling.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: brown
Odor	: characteristic
Odor threshold	: Not applicable
pH	: 1
Melting point	: No data available
Freezing point	: < 32 °F
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
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available

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Specific gravity / density	: 11.77 lb/gal
Solubility	: Water: Miscible in all proportions
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: Product is not explosive.
Oxidizing properties	: Non oxidizing material according to EC criteria.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : toxic and corrosive vapors. nitro-compounds. Phosphorus oxides. Released gases may accelerate the burning of other combustible materials.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Reacts violently with : Strong bases (Exothermic reaction), Reducing agents (Hazardous reactions), Sodium hypochlorite (release of irritant gases/vapors).

10.4. Conditions to avoid

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

10.5. Incompatible materials

Strong acids. Strong bases. metals. halogens (F, Cl, Br, I). Hydrogen peroxide. Organic materials. Explosives. Fluorine (F). Alkalis and caustic products. Nitrates. Amines. Hydrazine. Esters. phenols and halogenated phenols. CRESOLS, LIQUID. CRESOLS, SOLID. alkaline salts. nitromethane. Aldehydes. Ketones. glycol. Cyanides. acetic acid. Oxidation agents. Reducing agents. Chlorates. Combustible materials. Ethanol. Sodium hypochlorite.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire: See Heading 5. Nitrogen oxides. Carbon oxides (CO, CO₂). Metal oxides. Phosphorus oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

ATE US (oral)	1173.158 mg/kg body weight
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)

LD50 oral rat	> 300 mg/kg (OECD 420 method)
ATE US (oral)	500 mg/kg body weight

Zinc oxide (1314-13-2)

LD50 oral rat	> 5000 mg/kg (OECD 401 method)
LC50 inhalation rat (mg/l)	> 5700 mg/m ³ (OECD 403 method)

Phosphoric acid 75% (7664-38-2)

LD50 oral rat	> 300 mg/kg (OECD 423 method)
ATE US (oral)	500 mg/kg body weight
Additional information	Safety Data Sheet Supplier

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Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: 1
Serious eye damage/irritation	: Causes serious eye damage. pH: 1
Respiratory or skin sensitization	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

FERTILEADER AXIS

Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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STOT-repeated exposure	: May cause damage to organs (brain) through prolonged or repeated exposure (Inhalation). (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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FERTILEADER AXIS

Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
------------------------	---

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)

STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
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Phosphoric acid 75% (7664-38-2)

NOAEL (oral,rat,90 days)	250 mg/kg bodyweight/day (OECD 422 method)
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Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Viscosity, kinematic	: No data available
Symptoms/effects	: (see section(s) : 2.1/2.3).
Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns. May cause nausea, vomiting, sore throat, stomach-ache and eventually a perforation of the intestine.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Toxic to aquatic life. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation. Do not allow into drains or water courses.
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Ecology - water : Toxic to aquatic life with long lasting effects.

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
LC50 fish 1	47.2 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 Daphnia 1	> 100 mg/l (OECD 202 method)
NOEC (chronic)	4Mo 0.6 mg/l Oncorhynchus mykiss (Rainbow trout)
NOEC chronic fish	2.25 mg/l Oncorhynchus mykiss
Zinc oxide (1314-13-2)	
LC50 fish 1	1.1 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 other aquatic organisms 1	0.17 mg/l algae
NOEC (chronic)	0.017 mg/l algae
Phosphoric acid 75% (7664-38-2)	
LC50 fish 1	3 - 3.25 mg/l Lepomis macrochirus
EC50 Daphnia 1	> 100 mg/l (OECD 202 method)
ErC50 (algae)	> 100 mg/l Desmodesmus subspicatus, 72 Hours - (OECD 201 method)
NOEC chronic algae	100 mg/l Desmodesmus subspicatus, 72 Hours - (OECD 201 method)

12.2. Persistence and degradability

FERTILEADER AXIS	
Persistence and degradability	Not established.
Zinc oxide (1314-13-2)	
Persistence and degradability	Not established.
Phosphoric acid 75% (7664-38-2)	
Persistence and degradability	Not established. Not relevant.

12.3. Bioaccumulative potential

FERTILEADER AXIS	
Bioaccumulative potential	Not established.
Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
Bioaccumulative potential	Bioaccumulation unlikely.
Zinc oxide (1314-13-2)	
Log Pow	2.2
Bioaccumulative potential	Low bioaccumulation potential.
Phosphoric acid 75% (7664-38-2)	
Log Pow	No data available
Log Kow	No data available
Bioaccumulative potential	Not relevant.

12.4. Mobility in soil

Zinc oxide (1314-13-2)	
Log Koc	2.2 (Published data)
Ecology - soil	Material nearly insoluble in water.

12.5. Other adverse effects

Other adverse effects : May cause eutrophication at very low concentration.

Other information : No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Discharging into rivers and drains is forbidden.
Additional information	: Do not re-use empty containers.

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SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description	: UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric acid 75% ; Nitric acid, manganese(2+) salt (2:1)), 8, III
UN-No.(DOT)	: UN3264
Proper Shipping Name (DOT)	: Corrosive liquid, acidic, inorganic, n.o.s. Phosphoric acid 75% ; Nitric acid, manganese(2+) salt (2:1)
Class (DOT)	: 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT)	: III - Minor Danger
Hazard labels (DOT)	: 8 - Corrosive



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
DOT Special Provisions (49 CFR 172.102)	: 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). T7 - 4 178.274(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. TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, 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)	: 154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"
Other information	: No supplementary information available.

Transportation of Dangerous Goods

Transport document description	: 3264, 8, III
UN-No. (TDG)	: 3264
TDG Primary Hazard Classes	: 8 - Class 8 - Corrosives
Packing group	: III - Minor Danger

Transport by sea

Transport document description (IMDG)	: UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric acid 75% ; Manganese nitrate), 8, III, MARINE POLLUTANT
UN-No. (IMDG)	: 3264
Proper Shipping Name (IMDG)	: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: III - substances presenting low danger
Limited quantities (IMDG)	: 5 L
EmS-No. (1)	: F-A

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EmS-No. (2) : S-B

Air transport

Transport document description (IATA) : UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric acid 75% ; Nitric acid, manganese(2+) salt (2:1)), 8, III
UN-No. (IATA) : 3264
Proper Shipping Name (IATA) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Class (IATA) : 8 - Corrosives
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

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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Phosphoric acid 75% (7664-38-2)

CERCLA RQ	5000 lb
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15.2. International regulations

CANADA

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)

Listed on the Canadian DSL (Domestic Substances List)

Zinc oxide (1314-13-2)

Listed on the Canadian DSL (Domestic Substances List)

Phosphoric acid 75% (7664-38-2)

Listed on the Canadian DSL (Domestic Substances List)

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

SECTION 16: Other information

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

Revision date : 06/15/2020

Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

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Full text of H-phrases:

H272	May intensify fire; oxidizer
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H373	May cause damage to organs through prolonged or repeated exposure
H412	Harmful to aquatic life with long lasting effects

Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
LC50	Median lethal concentration
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
EC50	Median effective concentration
SDS	Safety Data Sheet
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
NOAEL	No-Observed Adverse Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
STP	Sewage treatment plant
vPvB	Very Persistent and Very Bioaccumulative
DMEL	Derived Minimal Effect level
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOEC	No-Observed Effect Concentration

NFPA health hazard

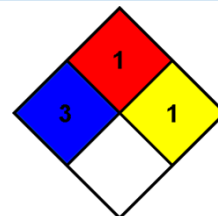
: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity

: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection

: D,u
 D - Face shield and eye protection, Gloves, Synthetic apron
 u - Vapor respirator

Indication of changes:

Section	Changed item	Change	Comments
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	Revision date	Modified	
	Reason for no classification	Modified	
	Reason for no classification	Modified	
	Other information	Modified	
	Precautionary statements (GHS US)	Added	
	Hazard statements (GHS US)	Added	
	ATE US (oral)	Added	
	Signal word (GHS US)	Added	
	Hazard pictograms (GHS US)	Added	
	Supersedes	Modified	
	NFPA reactivity	Modified	
	NFPA health hazard	Modified	
	Personal protection	Modified	
	Physical	Modified	
	Health	Modified	
	Proper Shipping Name - Addition (DOT)	Added	
	Additional information	Added	
	Additional information	Added	
	Reason for no classification	Added	
	Reason for no classification	Added	
2.1	GHS-US classification	Modified	
3	Composition/Information on ingredients	Modified	
4	First-aid measures after ingestion	Modified	
4	Symptoms/effects	Added	
6	Protective equipment	Added	
7.2	Storage temperature	Modified	
8.1	Additional information	Removed	
8.2	Respiratory protection	Modified	
8.2	Hand protection	Modified	
8.2	Eye protection	Modified	
8.2	Skin and body protection	Modified	
9	Color	Modified	
9	Specific gravity / density	Added	
9	Freezing point	Modified	
9	Explosive properties	Modified	
10	Hazardous decomposition products	Added	
10	Conditions to avoid	Modified	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
13	Regional legislation (waste)	Added	
13	Sewage disposal recommendations	Removed	
13	Ecology - waste materials	Removed	
13	Waste disposal recommendations	Added	
13	Additional information	Modified	
13	Waste treatment methods	Modified	
16	Abbreviations and acronyms	Modified	

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.

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : FERTILEADER COPPER
 Product code : FLCOPPER

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Agriculture
 Fertilizer
 Recommended use : Fertilizers

1.3. Supplier

Manufacturer

Timac Agro USA, INC. Inc.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607, PENNSYLVANIA
 USA
 T 1-800-545-5474
info-fds@roullier.com

1.4. Emergency telephone number

Country/Area	Organization/Company	Address	Emergency number	Comment
Americas	3E		+1-760-476-3962 (Access code : 333021)	(24/7)
USA	USA POISON CONTROL CENTER (24h/7d)		1-800-222-1222	

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 1A	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335	May cause respiratory irritation
Specific target organ toxicity (repeated exposure) Category 2	H373	May cause damage to organs through prolonged or repeated exposure

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

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Hazard statements (GHS US)	: H314 - Causes severe skin burns and eye damage H318 - Causes serious eye damage H335 - May cause respiratory irritation H373 - May cause damage to organs through prolonged or repeated exposure
Precautionary statements (GHS US)	: P260 - Do not breathe spray, vapors. P280 - Wear face shield, protective clothing, protective gloves. P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting. P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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, a POISON CENTER.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
Nitric acid, copper(2+) salt (2:1)		CAS-No.: 3251-23-8	30 – 35	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 2, H411

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	: Prompt treatment is essential to minimize damage.
First-aid measures after inhalation	: Take victim to fresh air, in a quiet place in an half laying position and urgently take medical advice. Respiratory problems: consult a doctor/medical service. If possible show him this sheet. Failing this, show him the packaging or label.
First-aid measures after skin contact	: For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Do not remove clothing if it sticks to the skin. Get immediate medical advice/attention. Wash contaminated clothing before reuse. If possible show him this sheet. Failing this, show him the packaging or label.
First-aid measures after eye contact	: Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms. If possible show him this sheet. Failing this, show him the packaging or label.

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First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Unconscious: maintain adequate airway and respiration. Place the affected person in the recovery position. Seek medical advice (show the label where possible).

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

Symptoms/effects : see section(s) : 2.1/2.3).

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 : water, carbon dioxide (CO₂), powder and foam. Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : Not flammable.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Thermal decomposition generates : fume, toxic and corrosive vapors. Carbon oxides (CO, CO₂).

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Control the vapors with a water spray. Use water spray or fog for cooling exposed containers. Prevent fire-fighting water from entering environment. Contain the extinguishing fluids by bunding.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Complete protective clothing. EN 469. Self-contained breathing apparatus.

Other information : Only qualified personnel equipped with suitable protective equipment may intervene. Relevant water authorities should be notified of any large spillage to water course or drain.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Absorb spillage to prevent material-damage. Remove ignition sources. Evacuate area.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate and limit access. Mark the danger area. Do not touch or walk on the spilled product. Avoid contact with skin, eyes and clothing. Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

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

Emergency procedures : Ventilate area. Stop leak if safe to do so. Dike and contain spill.

6.2. Environmental precautions

Prevent liquid from entering sewers, watercourses, underground or low areas. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Absorb spilled material with sand or earth.

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Methods for cleaning up : Pump up the product into a suitably labeled spare container. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.

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". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Use personal protective equipment as required. Avoid contact with skin, eyes and clothing. Do not handle until all safety precautions have been read and understood. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Separate working clothes from town clothes. Launder separately. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : The floor of the depot should be impermeable and designed to form a water-tight basin. Store on an acid resistant underground. Comply with applicable regulations.

Storage conditions : Protect from sunlight. Store in a well-ventilated place. Store closed containers with closure in upper position. Store locked up. Keep out of reach of children.

Incompatible products : Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.

Storage temperature : 0 – 30 °C Store at ambient temperature. Protect from freezing.

Heat-ignition : Keep away from open flames, hot surfaces and sources of ignition.

Information on mixed storage : Keep away from food, drink and animal feeding stuffs.

Special rules on packaging : Keep only in original container. Store in a closed container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Copper, as Cu
ACGIH OEL TWA	0.2 mg/m ³ (Fume) 1 mg/m ³ (Dusts and mists)
Remark (ACGIH)	TLV® Basis: Irr; GI; metal fume fever
Regulatory reference	ACGIH 2024
USA - OSHA - Occupational Exposure Limits	
Local name	Copper
OSHA PEL TWA	0.1 mg/m ³ (Fume (as Cu)) 1 mg/m ³ (Dusts and mists (as Cu))
OSHA PEL STEL	1 mg/m ³ Copper (dusts and mists), as Cu
OSHA PEL (Ceiling)	8h 1 mg/m ³ Copper (dusts and mists), as Cu

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Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
USA - IDLH - Occupational Exposure Limits	
IDLH	100 mg/m ³ Copper (Cu)
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL (TWA)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH REL (STEL)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH REL (Ceiling)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu

8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station. Local exhaust and general ventilation must be adequate to meet exposure standards.
Environmental exposure controls	: Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Assure that emissions are compliant with all applicable air pollution control regulations. Comply with applicable regulations.

8.3. Individual protection measures/Personal protective equipment

Hand protection:				
Since the product consists of several substances, the durability of the glove material cannot be estimated and needs to be tested before use				
Type	Material	Permeation	Thickness (mm)	Penetration
Reusable gloves, Disposable gloves	butyl rubber, Fluoroelastomer (FKM), Viton® II, Silver Shield®	3 (> 60 minutes)		
Eye protection:				
Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product				
Type	Field of application		Characteristics	
Safety glasses, Face shield	Droplet		With side shields	
Skin and body protection:				
Skin protection appropriate to the conditions of use should be provided				
Type				
Chemical resistant apron				
Boots				
Respiratory protection:				
In case of insufficient ventilation, wear suitable respiratory equipment				

Personal protective equipment symbol(s):



Other information:

See Heading 7 : 7.1. Precautions for safe handling.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Black
Odor	: characteristic
Odor threshold	: No data available
pH	: 0.9 (0.5 – 1.5)
Melting point	: No data available
Freezing point	: < -1 °C
Boiling point	: > 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density	: 11.8 lb/gal
Solubility	: Water: Miscible in all proportions
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: 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 use and storage conditions as recommended in section 7.

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

Nitrites. Chlorates. Strong bases. oxidizing agents (peroxides, chromates, dichromates). Nitrates. Sodium hypochlorite. Calcium hypochlorite. Copper and its alloys.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire: See Heading 5.

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

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Additional data	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LD50 oral rat	794 mg/kg body weight
ATE US (oral)	794 mg/kg body weight

Skin corrosion/irritation : Causes severe skin burns.
pH: 0.9 (0.5 – 1.5)

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
pH	2 – 5

Serious eye damage/irritation : Causes serious eye damage.
pH: 0.9 (0.5 – 1.5)

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
pH	2 – 5

Respiratory or skin sensitization	: Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
STOT-single exposure	: May cause respiratory irritation.

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LOAEL (oral,rat,90 days)	2000 mg/kg bodyweight/day
NOAEL (oral,rat,90 days)	1000 mg/kg bodyweight/day EU Method B.26
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure.

Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)
Viscosity, kinematic	: No data available
Symptoms/effects	: see section(s) : 2.1/2.3).
Other information	: Mixture does not contain substance (s) classified as PBT or vPvB in concentrations above 0,1%.

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SECTION 12: Ecological information

12.1. Toxicity

- Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms. Toxic to aquatic life. Do not allow uncontrolled discharge of product into the environment. Do not allow into drains or water courses.
- Ecology - water : Very toxic to aquatic life with long lasting effects.

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LC50 - Fish [1]	0.0348 (0.0384 – 0.2256) mg/l Pimephales promelas
LC50 - Other aquatic organisms [2]	10d 0.05 ml/l Cu ²⁺
NOEC (chronic)	14d 0.032 mg/l Fucus vesiculosus

12.2. Persistence and degradability

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Persistence and degradability	Rapidly degradable

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Persistence and degradability	Not established, Not relevant.

12.3. Bioaccumulative potential

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Bioaccumulative potential	Not established. Not relevant.

12.4. Mobility in soil

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Ecology - soil	Product adsorbs onto the soil.

12.5. Other adverse effects

- Other adverse effects : May cause eutrophication at very low concentration.
- Other information : No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

- Regional waste regulation : Disposal must be done according to official regulations.
- Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
- Product/Packaging disposal recommendations : Discharging into rivers and drains is forbidden.
- Additional information : Do not re-use empty containers.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

- DOT NA No : UN3264
- UN-No. (TDG) : UN3264

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UN-No. (IMDG) : 3264
UN-No. (IATA) : 3264

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Corrosive liquid, acidic, inorganic, n.o.s.
Proper Shipping Name (TDG) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Proper Shipping Name (IMDG) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Proper Shipping Name (IATA) : Corrosive liquid, acidic, inorganic, n.o.s.

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 8
Hazard labels (DOT) : 8



TDG

Transport hazard class(es) (TDG) : 8
Hazard labels (TDG) : 8



IMDG

Transport hazard class(es) (IMDG) : 8
Hazard labels (IMDG) : 8



IATA

Transport hazard class(es) (IATA) : 8
Hazard labels (IATA) : 8



14.4. Packing group

Packing group (DOT) : III
Packing group (TDG) : III
Packing group (IMDG) : III
Packing group (IATA) : III

14.5. Environmental hazards

Marine pollutant : Yes (IMDG only)



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Other information : No supplementary information available.

14.6. Special precautions for user

Special transport precautions : Prevent entry to sewers and public waters

DOT

UN-No.(DOT) : UN3264
DOT Special Provisions (49 CFR 172.102) : 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).
T7 - 4 178.274(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.
TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, 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) : 154
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L
DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters",53 - Stow "separated from" alkaline compounds,58 - Stow "separated from" cyanides

TDG

UN-No. (TDG) : UN3264
TDG Special Provisions : 16 - (1) The technical name of at least one of the most dangerous substances that predominantly contributes to the hazard or hazards posed by the dangerous goods must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(ii)(A) of Part 3 (Documentation). The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4 (Dangerous Goods Safety Marks).
(2) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical name:
(a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S.;
(b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S.;
(c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S.;
(d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.; or
(e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S.
(3) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a small means of containment:
(a) UN2814, INFECTIOUS SUBSTANCE, AFFECTING HUMANS; or
(b) UN2900, INFECTIOUS SUBSTANCE, AFFECTING ANIMALS.
Explosive Limit and Limited Quantity Index : 5 L
Excepted quantities (TDG) : E1
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 5 L
Emergency Response Guide (ERG) Number : 154

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IMDG

Special provision (IMDG)	: 223, 274
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P001, LP01
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1, TP28
EmS-No. (Fire)	: F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	: S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW2
Segregation (IMDG)	: SGG1, SG36, SG49
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

IATA

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y841
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 852
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 856
CAO max net quantity (IATA)	: 60L
Special provision (IATA)	: A3, A803
ERG code (IATA)	: 8L

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

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Nitric acid, copper(2+) salt (2:1) (3251-23-8)

Subject to reporting requirements of United States SARA Section 313

CERCLA RQ	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

15.2. International regulations

CANADA

Nitric acid, copper(2+) salt (2:1) (3251-23-8)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

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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

SECTION 16: Other information

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

Revision date

: 4/8/2024

Data sources

: Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplie.

Full text of H-phrases	
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
LC50	Median lethal concentration
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
EC50	Median effective concentration
IATA	International Air Transport Association
LD50	Median lethal dose
NOAEL	No-Observed Adverse Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
vPvB	Very Persistent and Very Bioaccumulative

NFPA health hazard

: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

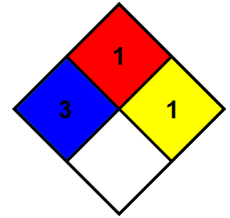
: 1 - Materials that must be preheated before ignition can occur.

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NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



Hazard Rating Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Indication of changes:			
Section	Changed item	Change	Comments
	Supersedes	Added	No additional information available
	Revision date	Added	No additional information available
	Other information	Modified	No additional information available
	ATE US (oral)	Removed	No additional information available
	NFPA health hazard	Modified	No additional information available
	Flammability	Modified	No additional information available
	Health	Modified	No additional information available
	Segregation (IMDG)	Added	No additional information available
	Properties and observations (IMDG)	Added	No additional information available
	CAO packing instructions (IATA)	Added	No additional information available
	Stowage and handling (IMDG)	Added	No additional information available
	Special provision (IATA)	Added	No additional information available
	PCA max net quantity (IATA)	Added	No additional information available
	PCA Excepted quantities (IATA)	Added	No additional information available
	ERG code (IATA)	Added	No additional information available
	Excepted quantities (TDG)	Added	No additional information available
	Hazard labels (TDG)	Added	No additional information available
	TDG Special Provisions	Added	No additional information available
	Proper Shipping Name (Transportation of Dangerous Goods)	Added	No additional information available
	Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	Added	No additional information available
	Explosive Limit and Limited Quantity Index	Added	No additional information available
	UN-No. (TDG)	Added	No additional information available
	Emergency Response Guide (ERG) Number	Added	No additional information available

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	DOT Vessel Stowage Other	Modified	No additional information available
	Special provision (IMDG)	Modified	No additional information available
	Proper Shipping Name (IMDG)	Modified	No additional information available
	Proper Shipping Name (IATA)	Modified	No additional information available
	PCA limited quantity max net quantity (IATA)	Modified	No additional information available
	CAO max net quantity (IATA)	Modified	No additional information available
1	Name	Modified	No additional information available
3	Composition/Information on ingredients	Modified	No additional information available
4	First-aid measures after skin contact	Modified	No additional information available
4	First-aid measures after inhalation	Modified	No additional information available
4	First-aid measures after ingestion	Modified	No additional information available
4	Symptoms/effects after skin contact	Removed	No additional information available
4	Symptoms/effects after eye contact	Removed	No additional information available
4	First-aid measures general	Modified	No additional information available
5.1	Unsuitable extinguishing media	Modified	No additional information available
5.2	Hazardous decomposition products in case of fire	Modified	No additional information available
5.2	Explosion hazard	Added	No additional information available
5.2	Fire hazard	Modified	No additional information available
5.3	Firefighting instructions	Modified	No additional information available
5.3	Other information	Modified	No additional information available
6	For containment	Modified	No additional information available
6	General measures	Modified	No additional information available
6	Environmental precautions	Modified	No additional information available
6	Protective equipment	Modified	No additional information available
6	Emergency procedures	Modified	No additional information available
7.1	Precautions for safe handling	Modified	No additional information available
7.1	Hygiene measures	Modified	No additional information available
7.2	Storage conditions	Modified	No additional information available
7.2	Storage temperature	Modified	No additional information available
8.1	Additional information	Removed	No additional information available
8.2	Respiratory protection	Modified	No additional information available
8.2	Skin and body protection	Modified	No additional information available
8.2	Eye protection	Modified	No additional information available
8.2	Hand protection	Modified	No additional information available
10	Incompatible materials	Modified	No additional information available
10	Chemical stability	Modified	No additional information available
10	Possibility of hazardous reactions	Modified	No additional information available

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10	Conditions to avoid	Modified	No additional information available
11	Additional information	Added	No additional information available
11	Additional information	Added	No additional information available
11	Other information	Added	No additional information available
11	Additional information	Removed	No additional information available
11	Additional information	Removed	No additional information available
12.1	Ecology - general	Modified	No additional information available
12.2	Persistence and degradability	Removed	No additional information available
12.3	Bioaccumulative potential	Removed	No additional information available
13	Regional waste regulation	Added	No additional information available
13	Sewage disposal recommendations	Removed	No additional information available
13	Additional information	Modified	No additional information available
13	Waste disposal recommendations	Added	No additional information available
13	Ecology - waste materials	Removed	No additional information available
13	Waste treatment methods	Modified	No additional information available
15	Regulatory reference	Added	No additional information available

Safety Data Sheet (SDS), USA

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.

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Name : FERTILEADER ELITE
 Product code : FLELUSA

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

Use of the substance/mixture : Fertilizers

1.3. Details of the supplier of the safety data sheet

TIMAC Agro USA, INC
 P.O. Box 888 - Route 724 & I-176
 READING, - USA
 T 1-800-545-5474
info-fds@roullier.com

1.4. Emergency telephone number

Country	Official advisory body	Address	Emergency number	Comment
	USA POISON CONTROL CENTER (24h/7d)		1-800-222-1222	
Europe/Middle-East/Africa	3E		+1-760-476-3961 (Access code : 333021)	(24/7)
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	0870 243 2241	

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 4 (Oral) H302 -
 Skin Irrit. 2 H315 -
 Eye Irrit. 2A H319 -
 STOT SE 3 H335 -

Full text of H-statements: see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS07

Signal word (GHS-US) : Warning
 Hazard statements (GHS-US) : H302 - Harmful if swallowed
 H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H335 - May cause respiratory irritation
 Precautionary statements (GHS-US) : P280 - Wear face shield, protective clothing, protective gloves
 P312 - Call a doctor, a POISON CENTER if you feel unwell
 P332+P313 - If skin irritation occurs: Get medical advice/attention
 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

Other hazards not contributing to the classification : May cause eutrophication at very low concentration.

2.4. Unknown acute toxicity (GHS US)

Not applicable

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SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Calcium nitrate trihydrate	(CAS No) 15842-29-2	40 - 50	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
potassium nitrate	(CAS No) 7757-79-1	1 - 4	Ox. Sol. 3, H272
Disodium Octoborate Tetrahydrate	(CAS No) 12280-03-4	< 1.5	Repr. 1B, H360

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Prompt treatment is essential to minimize damage. Get medical advice and attention if you feel unwell.
- First-aid measures after inhalation : Take victim to fresh air, in a quiet place in an half laying position and urgently take medical advice.
- First-aid measures after skin contact : Wash skin with plenty of water and soap. Seek medical attention if irritation develops.
- First-aid measures after eye contact : Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, consult an eye specialist. If possible show him this sheet. Failing this, show him the packaging or label.
- First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Unconscious: maintain adequate airway and respiration and Place the affected person in the recovery position. Do not induce vomiting. Get medical advice/attention if you feel unwell.

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

- Symptoms/injuries : (see section(s) : 2.1/2.3).

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, carbon dioxide (CO₂), powder and foam. Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

- Reactivity : No study has been carried out for the moment on this mixture.

5.3. Advice for firefighters

- Precautionary measures fire : Ensure adequate ventilation, especially in confined areas. Keep away from combustible material.
- Firefighting instructions : Eliminate all ignition sources if safe to do so. All fire-fighting personnel must wear safety suits.
- Protection during firefighting : Do not enter or remain in the danger zone without protection clothing. Wearing autonomous, insulating breathing equipment is recommended when entering the danger zone.
- Other information : Avoid pouring fire water down the drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid contact with skin and eyes. Where contact with eyes or skin is likely, wear suitable protection. Refer to protective measures listed in Sections 7 and 8.

6.1.1. For non-emergency personnel

- Emergency procedures : Remove ignition sources. Do not get in eyes, on skin, or on clothing.

6.1.2. For emergency responders

- Emergency procedures : Ventilate area. Remove all incompatible materials as quickly as possible: Stop leak without risks if possible.

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6.2. Environmental precautions

Do not allow into drains or water courses.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Recuperate the compound in an appropriate container for evacuation and disposal. Clean contaminated surfaces with an excess of water.

Other information : Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

6.4. Reference to other sections

SECTION 8. SECTION 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Ensure adequate ventilation.

Precautions for safe handling : Avoid contact with skin and eyes. Where contact with eyes or skin is likely, wear suitable protection. Concerning personal protective equipment to use, see item 8.

Hygiene measures : Always wash hands and face immediately after handling this product, and once again before leaving the workplace. If on skin, take off contaminated clothing. Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : In its original packaging, in a ventilated place, in an area resistant to corrosion, away from frost, at temperatures below 40°C, away from foodstuffs and reactive materials.

Incompatible products : ferrous metal. Aluminium and its alloys. (risk of corrosion). Reducing agents. Refer to section 10 on incompatible materials.

Incompatible materials : Oxidizing materials. combustible materials. Flammable materials. Refer to section 10 on incompatible materials.

Heat and ignition sources : Keep away from sources of ignition - No smoking.

Storage area : Keep out of frost. Remove ignition sources. Store in a dry area. Store in a well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Disodium Octoborate Tetrahydrate (12280-03-4)		
ACGIH	ACGIH TWA (mg/m ³)	8H 2 mg/m ³
ACGIH	ACGIH STEL (mg/m ³)	15Min 6 mg/m ³
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³

Additional information : No study has been carried out for the moment on this mixture.

8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation.

Personal protective equipment : Gloves. Safety glasses. Mist formation: aerosol mask with filter type P2.



Materials for protective clothing : Wear suitable protective clothing.

Hand protection : butyl rubber gloves. Latex gloves.

Eye protection : Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product. (according to standard EN 166).

Skin and body protection : Use chemically protective clothing.

Respiratory protection : No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation. In case of vapour formation use adequate respirator. Dust / anti-aerosol filter type P2 (according to standard EN 143). Wear a disposable half-mask dust filter in accordance with standard EN149.

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Other information : Handle in accordance with good industrial hygiene and safety practice. Always wash hands and face immediately after handling this product, and once again before leaving the workplace. If on skin, take off contaminated clothing. Do not drink, eat or smoke in the workplace.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Colour : dark brown
Odour : characteristic
Odour threshold : Not applicable
pH : 3.5
Melting point : No data available
Freezing point : < -1 °C
Boiling point : > 100 °C
Flash point : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Flammability (solid, gas) : No data available
Explosive limits : Not applicable
Explosive properties : No data available
Oxidising properties : May cause or intensify fire; oxidizer.
Vapour pressure : No data available
Relative density : No data available
Relative vapour density at 20 °C : No data available
Density : 1.46 kg/l
Solubility : Water: Miscible in all proportions
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

No study has been carried out for the moment on this mixture.

10.2. Chemical stability

Stable under normal conditions of use.

10.3. Possibility of hazardous reactions

May react violently with reducing agents. Reacts violently with (strong) oxidizers.

10.4. Conditions to avoid

Freezing. High temperature.

10.5. Incompatible materials

Aluminium and its alloys. Keep away from reducing agents. Combustible materials. Oxidizing materials.

10.6. Hazardous decomposition products

No study has been carried out for the moment on this mixture. By thermal decomposition, product may emit oxides of sulfur, phosphorus oxides (eg P2O5), corrosive and toxic, ammonia.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

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FERTILEADER ELITE	
ATE US (oral)	1103.753 mg/kg bodyweight
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

potassium nitrate (7757-79-1)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 527 mg/m ³

Disodium Octoborate Tetrahydrate (12280-03-4)	
LD50 oral rat	2550 (≥ 0) mg/kg bodyweight (OECD 401 method)
LD50 dermal rabbit	> 2000 mg/kg bodyweight (OECD 402 method)
LC50 inhalation rat (mg/l)	> 2 mg/l (OECD 403 method)
ATE US (oral)	2550.000 mg/kg bodyweight
Additional information	Safety Data Sheet Supplier

Calcium nitrate trihydrate (15842-29-2)	
LD50 oral rat	500 mg/kg OECD 423
LD50 dermal rat	> 2000 mg/kg OECD 402
ATE US (oral)	500.000 mg/kg bodyweight

Skin corrosion/irritation	: Causes skin irritation. pH: 3.5
Serious eye damage/irritation	: Causes serious eye irritation. pH: 3.5
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)

FERTILEADER ELITE	
IARC group	The principal components are not included in the I.A.R.C. list of carcinogenic substances.

Disodium Octoborate Tetrahydrate (12280-03-4)	
NOAEL (chronic, oral, animal/male, 2 years)	1150 mg/kg bodyweight
Additional information	(OECD 451 method)

Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation. Contains a toxic to reproduction component (H360FD) at a concentration below the threshold for classifying the mixture.)No study has been carried out for the moment on this mixture.
Specific target organ toxicity (single exposure)	: May cause respiratory irritation.

FERTILEADER ELITE	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Specific target organ toxicity (repeated exposure)	: Not classified (Based on available data, the classification criteria are not met)
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FERTILEADER ELITE	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Disodium Octoborate Tetrahydrate (12280-03-4)	
NOAEL (oral, rat, 90 days)	118 mg/kg bodyweight/day
Additional information	(OECD 452 method)

Calcium nitrate trihydrate (15842-29-2)	
NOAEL (subacute, oral, animal/male, 28 days)	> 1000 mg/kg bodyweight rat

Aspiration hazard : Not classified
(Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No study has been carried out for the moment on this mixture. May cause eutrophication at very low concentration. Based on available data, the classification criteria are not met. Do not allow to enter drains or water courses.

Ecology - water : Do not allow into drains or water courses.

potassium nitrate (7757-79-1)	
LC50 fish 1	1378 mg/l <i>Poecilia reticulata</i>
EC50 Daphnia 1	490 mg/l

Disodium Octoborate Tetrahydrate (12280-03-4)	
LC50 fish 1	80 mg/l <i>Pimephales promelas</i>
LC50 fish 2	627 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout)
NOEC (chronic)	5.7 mg/l <i>Daphnia magna</i> (NF EN ISO 6341)
NOEC chronic fish	17 mg/l <i>Carassius auratus</i> (goldfish)
NOEC chronic algae	28 mg/l <i>Selenastrum capricornutum</i>

Calcium nitrate trihydrate (15842-29-2)	
LC50 fish 1	48H 447 mg/l aqua (freshwater)
EC50 Daphnia 1	48H > 100 mg/l OECD 202
Additional ecotoxicological information	Data sources : Safety Data Sheet Manufacturer.

12.2. Persistence and degradability

FERTILEADER ELITE	
Persistence and degradability	Main components of the mixture have a good degradation. No study has been carried out for the moment on this mixture.

Calcium nitrate trihydrate (15842-29-2)	
Persistence and degradability	Not applicable (inorganic substance).

12.3. Bioaccumulative potential

FERTILEADER ELITE	
Bioaccumulative potential	No study has been carried out for the moment on this mixture.

Calcium nitrate trihydrate (15842-29-2)	
Log Pow	< 1
Bioaccumulative potential	Data sources : Safety Data Sheet Manufacturer.

12.4. Mobility in soil

FERTILEADER ELITE	
Ecology - soil	No study has been carried out for the moment on this mixture.

Calcium nitrate trihydrate (15842-29-2)	
Log Koc	< 1
Ecology - soil	Soluble in water.

FERTILEADER ELITE

Safety Data Sheet

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

12.5. Other adverse effects

- Other adverse effects : Nitrates are responsible for the proliferation of algae in water, thus limiting or suppressing the development of other aquatic species (eutrophisation).
- Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste treatment methods : Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
- Sewage disposal recommendations : If spilled : see chapter 6.
- Additional information : Remove to an authorized waste treatment plant.
- Ecology - waste materials : Do not allow into drains or water courses.

SECTION 14: Transport information

Department of Transportation (DOT)

- In accordance with DOT
Not regulated for transport

TDG

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

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:

Disodium Octoborate Tetrahydrate	CAS No 12280-03-4	< 1.5%
Calcium nitrate trihydrate	CAS No 15842-29-2	40 - 50%

FERTILEADER ELITE

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

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

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

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

FERTILEADER ELITE

Safety Data Sheet

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

SECTION 16: Other information

- Indication of changes : This sheet was updated (refer to the date at the top of this page). Modified. Composition/information on ingredients. Exposure controls/personal protection. Toxicological information. Firefighting measures. First aid measures.
- Revision date : 07/07/2016
- Other information : according to Regulation (EC) No. 1907/2006 (REACH). Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Ox. Sol. 3	Oxidising Solids, Category 3
Repr. 1B	Reproductive toxicity, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H272	May intensify fire; oxidiser
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H360	May damage fertility or the unborn child

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

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : FERTILEADER GOLD
 Product code : FLGOLDUSA

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Fertilisers
 Recommended use : Fertilizers

1.3. Supplier

Distributor

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

Manufacturer

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number	Comment
Americas	3E		+1-760-476-3962 (Access code : 333021)	(24/7)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 2 H315 Causes skin irritation
 Serious eye damage/eye irritation Category 2 H319 Causes serious eye irritation
 Reproductive toxicity Category 1B H360 May damage fertility or the unborn child

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) :

H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H360 - May damage fertility or the unborn child

Precautionary statements (GHS US) :

P280 - Wear protective clothing, eye protection, face protection, protective gloves.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P201 - Obtain special instructions before use.
 P308+P313 - If exposed or concerned: Get medical advice/attention.
 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

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

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SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
Boric acid (H3BO3), compd. with 2-aminoethanol	(CAS-No.) 26038-87-9	> 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Repr. 1B, H360

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 : Prompt treatment is essential to minimize damage. If exposed: Seek medical attention immediately.
- First-aid measures after inhalation : Take victim to fresh air, in a quiet place in an half laying position and urgently take medical advice. Respiratory problems: consult a doctor/medical service.
- First-aid measures after skin contact : For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Do not remove clothing if it sticks to the skin. Get immediate medical advice/attention. Wash contaminated clothing before reuse.
- First-aid measures after eye contact : Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms. If possible show him this sheet. Failing this, show him the packaging or label.
- First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Unconscious: maintain adequate airway and respiration. Place the affected person in the recovery position. Immediately call a poison center or doctor/physician.

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

- Symptoms/effects : (see section(s) : 2.1/2.3).
- Chronic symptoms : May damage the unborn child. May damage fertility.

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 : Water spray.

5.2. Specific hazards arising from the chemical

- Fire hazard : Non oxidizing material according to EC criteria.
- Explosion hazard : Not explosive.

5.3. Special protective equipment and precautions for fire-fighters

- Firefighting instructions : Control the vapors with a water spray.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Complete protective clothing. EN 469. Self-contained breathing apparatus.
- Other information : Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Remove ignition sources. Evacuate area.

6.1.1. For non-emergency personnel

- Protective equipment : Wear recommended personal protective equipment.
- Emergency procedures : Do not get in eyes, on skin, or on clothing. Do not breathe vapors. Evacuate unnecessary personnel. Mark the danger area. Ventilate spillage area. Keep upwind. Only qualified personnel equipped with suitable protective equipment may intervene.

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".
- Emergency procedures : Ventilate area. Stop leak if safe to do so. Dike and contain spill.

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6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Pump up the product into a suitably labeled spare container. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.
- 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". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Use personal protective equipment as required. Avoid contact with skin, eyes and clothing. Do not handle until all safety precautions have been read and understood. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
- Handling temperature : 32 °F
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Separate working clothes from town clothes. Launder separately. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : The floor of the depot should be impermeable and designed to form a water-tight basin. Store on an acid resistant underground. Comply with applicable regulations.
- Storage conditions : Protect from sunlight. Store in a well-ventilated place. Store closed containers with closure in upper position. Store locked up. Keep out of reach of children.
- Incompatible products : Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.
- Storage temperature : ≥ 32 °F Store at ambient temperature. Protect from freezing.
- Heat-ignition : Keep away from open flames, hot surfaces and sources of ignition.
- Information on mixed storage : Keep away from food, drink and animal feeding stuffs.
- Special rules on packaging : Keep only in original container. Store in a closed container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Boric acid (H3BO3), compd. with 2-aminoethanol (26038-87-9)

Not applicable

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station. Local exhaust and general ventilation must be adequate to meet exposure standards.
- Environmental exposure controls : Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Assure that emissions are compliant with all applicable air pollution control regulations. Comply with applicable regulations.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Since the product consists of several substances, the durability of the glove material cannot be estimated and needs to be tested before use

Type	Material	Permeation	Thickness (mm)	Permeation
Reusable gloves, Disposable gloves	butyl rubber, Fluoroelastomer (FKM), Viton® II, Silver Shield®	3 (> 60 minutes)		

Eye protection:

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Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product

Type	Use	Characteristics
Safety glasses, Face shield	Droplet	With side shields

Skin and body protection:

Skin protection appropriate to the conditions of use should be provided

Type
Chemical resistant apron
Boots

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Device	Filter type	Condition
Reusable half mask, Full face mask	ABEK-P3	Vapour protection, Mist formation

Personal protective equipment symbol(s):



Other information:

See Heading 7 : 7.1. Precautions for safe handling.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: dark brown
Odor	: characteristic
Odor threshold	: No data available
pH	: 8 - 9
Melting point	: No data available
Freezing point	: < 32 °F
Boiling point	: > 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 10,26 lb/gal
Solubility	: Water: Miscible in all proportions
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: Product is not explosive.
Oxidizing properties	: Non oxidizing material according to EC criteria.

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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

The product is stable at normal handling and storage 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

metals. Reducing agents. Sawdust. Organic materials. Strong bases. Sodium hypochlorite. Oxidation agents.

10.6. Hazardous decomposition products

Nitrogen oxides. Corrosive vapors. Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Skin corrosion/irritation	: Causes skin irritation. pH: 8 - 9
Serious eye damage/irritation	: Causes serious eye irritation. pH: 8 - 9
Respiratory or skin sensitization	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Reproductive toxicity	: May damage fertility or the unborn child.
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

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Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Aspiration hazard : Not classified
(Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)

Viscosity, kinematic : No data available

Symptoms/effects : (see section(s) : 2.1/2.3).

Chronic symptoms : May damage the unborn child. May damage fertility.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation. Do not allow uncontrolled discharge of product into the environment.

Ecology - water : Do not allow large quantities, as are, to spread into the environment. Do not discharge into drains or rivers.

12.2. Persistence and degradability

FERTILEADER GOLD

Persistence and degradability	Not established.
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12.3. Bioaccumulative potential

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Bioaccumulative potential	Not established.
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Discharging into rivers and drains is forbidden.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Not regulated

Transport by sea

Not regulated

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Air transport

Not regulated

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

15.2. International regulations

CANADA

Boric acid (H3BO3), compd. with 2-aminoethanol (26038-87-9)

Listed on the Canadian DSL (Domestic Substances List)

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

SECTION 16: Other information

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

Revision date : 06/17/2020

Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-phrases:

H315	Causes skin irritation
H319	Causes serious eye irritation
H360	May damage fertility or the unborn child

Abbreviations and acronyms:

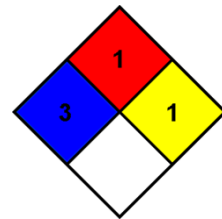
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ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
LC50	Median lethal concentration
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
NOAEL	No-Observed Adverse Effect Level
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
STP	Sewage treatment plant
EC50	Median effective concentration
SDS	Safety Data Sheet

- NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
- NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.
- NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



- Hazard Rating
- Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
- Flammability : 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)
- Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.
- Personal protection : o,p,r
o - Face shield and eye protection
p - Gloves
r - Synthetic apron

Indication of changes:

Section	Changed item	Change	Comments
	Other information	Modified	
	Other adverse effects	Removed	
	Reason for no classification	Modified	
	Reason for no classification	Modified	
	Reason for no classification	Modified	
	Revision date	Modified	
	Supersedes	Modified	
	Hazard statements (GHS US)	Added	
	Hazard pictograms (GHS US)	Added	
	Signal word (GHS US)	Added	

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	Precautionary statements (GHS US)	Added	
	Reason for no classification	Added	
	Reason for no classification	Added	
	Reason for no classification	Modified	
	Additional information	Added	
	Additional information	Added	
	Health	Modified	
	NFPA health hazard	Modified	
	Display TSCA summary in 15.1	Added	
	Display additional SDS US addresses	Added	
1	Use of the substance/mixture	Added	
1	Name	Modified	
2.1	GHS-US classification	Added	
3	Composition/Information on ingredients	Modified	
4	Other medical advice or treatment	Modified	
4	First-aid measures after eye contact	Modified	
4	First-aid measures after ingestion	Modified	
4	First-aid measures after inhalation	Modified	
4	First-aid measures after skin contact	Modified	
4	First-aid measures general	Added	
4	Chronic symptoms	Added	
5.2	Explosion hazard	Added	
5.2	Fire hazard	Added	
6	Protective equipment	Added	
7.1	Hygiene measures	Modified	
7.1	Precautions for safe handling	Modified	
7.1	Handling temperature	Added	
7.2	Technical measures	Modified	
7.2	Storage conditions	Modified	
7.2	Storage temperature	Modified	
8.1	Additional information	Removed	
8.2	Eye protection	Modified	
8.2	Respiratory protection	Modified	
8.2	Hand protection	Modified	
8.2	Skin and body protection	Added	
9	Color	Modified	
9	Explosive properties	Modified	
9	Specific gravity / density	Added	
9	pH	Modified	
9	Freezing point	Modified	
10	Conditions to avoid	Modified	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
13	Waste treatment methods	Modified	
13	Regional legislation (waste)	Added	
13	Sewage disposal recommendations	Removed	
13	Additional information	Removed	
13	Waste disposal recommendations	Added	

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13	Ecology - waste materials	Removed	
16	Abbreviations and acronyms	Modified	

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.

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Name : FERTILEADER KALEO
 Product code : FLKALEOUSA

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

Manufacturer

TIMAC Agro USA, INC
 P.O. Box 888 - Route 724 & I-176
 READING, - USA
 T 1-800-545-5474
info-fds@roullier.com

1.4. Emergency telephone number

Emergency number : USA POISON CONTROL : 1-800-222-1222

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Serious eye damage/eye irritation, Category 2A H319
 Reproductive toxicity, Category 2 H361

Full text of H statements : see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS07

GHS08

Signal word (GHS-US) : Warning
 Hazard statements (GHS-US) : H319 - Causes serious eye irritation
 H361 - Suspected of damaging fertility or the unborn child
 Precautionary statements (GHS-US) : P280 - Wear face shield, protective clothing, protective gloves
 P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P337+P313 - If eye irritation persists: Get medical advice/attention

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

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Name	Product identifier	%	GHS-US classification
Urea	(CAS No) 57-13-6	5 - 10	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4)	(CAS No) 64-02-8	1.3 - 1.5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318
Boric acid (H3BO3)	(CAS No) 10043-35-3	0.1 - 1	Repr. 2, H361
Manganese nitrate / Nitric acid, manganese(2+) salt (2:1)	(CAS No) 10377-66-9	0.1 - 0.5	Ox. Liq. 2, H272 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 STOT RE 2, H373 Aquatic Chronic 3, H412
Zinc nitrate / Nitric acid, zinc salt (2:1)	(CAS No) 7779-88-6	0.1 - 0.5	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1)	(CAS No) 3251-23-8	<= 0.1	Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Sodium molybdate	(CAS No) 10102-40-6	< 0.1	Acute Tox. 4 (Inhalation), H332

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 : Get medical advice/attention if you feel unwell. Prompt treatment is essential to minimize damage.
- First-aid measures after inhalation : IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice and attention if you feel unwell.
- First-aid measures after skin contact : Wash with water and soap as a precaution. If case of redness or irritation, call a doctor.
- First-aid measures after eye contact : Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist if an irritation appears. If possible show him this sheet. Failing this, show him the packaging or label.
- First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting without medical advice. If swallowed, seek medical advice immediately and show this container or label.

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

- Symptoms/injuries : (see section(s) : 2.1/2.3).

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, carbon dioxide (CO₂), powder and foam. Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Not combustible.

5.3. Advice for firefighters

- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Use a self-contained breathing apparatus and also a protective suit.
- Other information : Do not allow run-off from fire-fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid contact with eyes. Concerning personal protective equipment to use, see section 8.

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6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Emergency procedures : Stop leak without risks if possible. Dike and contain spill.

6.2. Environmental precautions

Prevent soil and water pollution.

6.3. Methods and material for containment and cleaning up

For containment : Mix with an inert absorbent (mineral absorbent, sand or earth; do not use sawdust).
Methods for cleaning up : Collect all waste in suitable and labelled containers and dispose according to local legislation.
Clean contaminated surfaces with an excess of water.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with eyes. Concerning personal protective equipment to use, see item 8.
Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. If on skin, take off contaminated clothing. Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep out of reach of children.
Storage conditions : Store closed containers with closure in upper position. Storage temperature : Protect from freezing; Store in well ventilated area below : 40°C.
Incompatible products : Reducing agents.
Incompatible materials : Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.
Prohibitions on mixed storage : Keep away from food, drink and animal feeding stuffs.
Storage area : Store in dry, cool, well-ventilated area.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Manganese nitrate / Nitric acid, manganese(2+) salt (2:1) (10377-66-9)		
ACGIH	ACGIH TWA (mg/m ³)	8h 0.02 mg/m ³ respirable
ACGIH	ACGIH STEL (mg/m ³)	8h 0.02 mg/m ³ respirable
ACGIH	ACGIH Ceiling (mg/m ³)	0.02 mg/m ³ respirable
OSHA	OSHA PEL (TWA) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (STEL) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (Ceiling) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (TWA) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (STEL) (mg/m ³)	>10h 3 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (ceiling) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds

Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)

Not applicable

Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)

Not applicable

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Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)		
ACGIH	ACGIH TWA (mg/m ³)	8h 1 mg/m ³ Copper (dusts and mists), as Cu
ACGIH	ACGIH STEL (mg/m ³)	8h 1 mg/m ³ Copper (dusts and mists), as Cu
ACGIH	ACGIH Ceiling (mg/m ³)	8h 1 mg/m ³ Copper (dusts and mists), as Cu
OSHA	OSHA PEL (TWA) (mg/m ³)	8h 1 mg/m ³ Copper (dusts and mists), as Cu
OSHA	OSHA PEL (STEL) (mg/m ³)	1 mg/m ³ Copper (dusts and mists), as Cu
OSHA	OSHA PEL (Ceiling) (mg/m ³)	8h 1 mg/m ³ Copper (dusts and mists), as Cu
IDLH	US IDLH (mg/m ³)	100 mg/m ³ Copper (Cu)
NIOSH	NIOSH REL (TWA) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH	NIOSH REL (STEL) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH	NIOSH REL (ceiling) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
Boric acid (H3BO3) (10043-35-3)		
ACGIH	ACGIH TWA (mg/m ³)	8h 2 mg/m ³ borate compounds
ACGIH	ACGIH STEL (mg/m ³)	15 min 6 mg/m ³ borate compounds
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³ inhalable and respirable dust
Urea (57-13-6)		
ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ - Inhalation
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³ Respirable fraction
Sodium molybdate (10102-40-6)		
Not applicable		

Additional information : No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

8.2. Exposure controls

Personal protective equipment

: Safety glasses. Gloves.



Hand protection

: butyl rubber gloves. nitrile rubber gloves.

Eye protection

: Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product.

Skin and body protection

: When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection must be worn.

Respiratory protection

: No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation. In case of vapour formation use adequate respirator. Dust / anti-aerosol filter type P2 (according to standard EN 143).

Environmental exposure controls

: Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.

Other information

: See Heading 6 : Accidental release measures. See Heading 7 : 7.1. Precautions for safe handling.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Black
Odour	: characteristic
Odour threshold	: Not applicable
pH	: 6.5
Melting point	: No data available

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Freezing point	: ≤ -1 °C
Boiling point	: > 100 °C
Flash point	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.234 kg/m ³
Solubility	: Water: Miscible in all proportions
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: Not applicable
Explosive properties	: No data available
Oxidising properties	: Non oxidizing material according to EC criteria.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Reacts violently with : Reducing agents.

10.4. Conditions to avoid

Gel. Moisture. Heat.

10.5. Incompatible materials

Reducing agents.

10.6. Hazardous decomposition products

Nitrogen oxides. In case of fire: See Heading 5.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified
(Based on available data, the classification criteria are not met)

FERTILEADER KALEO	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Manganese nitrate / Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
LD50 oral rat	> 300 mg/kg (OECD 420 method)
ATE US (oral)	500.000 mg/kg bodyweight
Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
LD50 oral rat	1780 - 2000 mg/kg (OECD 403 method)
LC50 inhalation rat (mg/l)	4h 1000 - 5000 mg/m ³ (OECD 403 method)
ATE US (oral)	1780.000 mg/kg bodyweight
ATE US (dust,mist)	1.500 mg/l/4h

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Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)	
LD50 oral rat	1000 - 2000 mg/kg OECD 423
LD50 dermal rabbit	> 2000 mg/kg (OECD 402 method)
LC50 inhalation rat (mg/l)	10 min 2000 ml/m ³
ATE US (oral)	1000.000 mg/kg bodyweight
Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LD50 oral rat	794 mg/kg bodyweight ANHYDROUS FORM
ATE US (oral)	500.000 mg/kg bodyweight
Boric acid (H3BO3) (10043-35-3)	
LD50 oral rat	3765 mg/kg bodyweight (OECD 401 method)
LD50 dermal rat	> 2000 mg/kg bodyweight EPA-FIFRA
LC50 inhalation rat (mg/l)	2.12 mg/m ³ (OECD 403 method)
Additional information	Safety Data Sheet Supplier
Urea (57-13-6)	
LD50 oral rat	> 2000 mg/kg
Sodium molybdate (10102-40-6)	
LD50 oral rat	2733 - 6556 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	1.93 mg/l/4h
ATE US (gases)	4500.000 ppmv/4h
ATE US (vapours)	11.000 mg/l/4h
ATE US (dust,mist)	1.500 mg/l/4h

Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) pH: 6.5
Serious eye damage/irritation	: Causes serious eye irritation. (No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) pH: 6.5
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)

FERTILEADER KALEO	
IARC group	The principal components are not included in the I.A.R.C. list of carcinogenic substances

Reproductive toxicity	: Suspected of damaging fertility or the unborn child. (No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Specific target organ toxicity (single exposure)	: Not classified (Based on available data, the classification criteria are not met)

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FERTILEADER KALEO	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Specific target organ toxicity (repeated exposure) : Not classified
(Based on available data, the classification criteria are not met)

FERTILEADER KALEO	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LOAEL (oral, rat, 90 days)	2000 mg/kg bodyweight/day
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight/day EU Method B.26

Urea (57-13-6)	
NOAEL (oral, rat, 90 days)	2250 mg/kg bodyweight/day

Aspiration hazard : Not classified
(Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)

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. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation.

Ecology - water : Harmful to aquatic life with long lasting effects.

Manganese nitrate / Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
LC50 fish 1	OECD 203 96h 14.5 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 Daphnia 1	48h > 100 mg/l OECD 202
EC50 Daphnia 2	21d 5.7 mg/l Mn2+
NOEC (chronic)	4Mo 0.6 mg/l Oncorhynchus mykiss (Rainbow trout)

Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
LC50 fish 1	Lepomis macrochirus 96h > 100 mg/l EPA - OPP 72-1
LC50 other aquatic organisms 1	500 mg/l Leuciscus idus (golden orfe)
EC50 Daphnia 1	48h > 100 mg/l DIN 38412
EC50 other aquatic organisms 1	72h > 100 mg/l algae
NOEC chronic fish	35d 36.9 mg/l OCDE 210
NOEC chronic crustacea	21d 25 mg/l OCDE 211

Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)	
LC50 fish 1	780 µg/l Pimephales promelas
EC50 Daphnia 1	259 µg/l (OECD 202 method)
EC50 Daphnia 2	131 µg/l (OECD 202 method)
NOEC chronic fish	8 Mo 0.078 mg/l Pimephales promelas

Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LC50 fish 1	48h 0.0348 mg/l Cyprinus carpio
LC50 other aquatic organisms 2	10d 0.05 ml/l Cu2+
NOEC (chronic)	14d 0.032 mg/l Fucus vesiculosus
NOEC chronic fish	Pimephales promelas 0.032 mg/l mortality
NOEC chronic algae	Cu 0.138 mg/l

Boric acid (H3BO3) (10043-35-3)	
LC50 fish 1	Boron - 96h 74 mg/l Limanda limanda

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Boric acid (H3BO3) (10043-35-3)	
LC50 other aquatic organisms 1	Boron - 48h 45 - 83 ml/l aquatic invertebrates
NOEC (acute)	10d 10 mg/l <i>Chlorella pyrenoidosa</i>
Additional ecotoxicological information	Safety Data Sheet Supplier

Urea (57-13-6)	
LC50 fish 1	> 9100 mg/l <i>Barilius barna</i>
EC50 Daphnia 1	> 10000 mg/l

Sodium molybdate (10102-40-6)	
LC50 fish 1	577 mg/l <i>Pimephales promelas</i>
EC50 Daphnia 1	203.2 mg/l
ErC50 (algae)	289.2 - 369.6 mg/l <i>Pseudokirchneriella subcapitata</i>
NOEC (acute)	43 - 241.5 mg/l

12.2. Persistence and degradability

FERTILEADER KALEO	
Persistence and degradability	Main components of the mixture have a good degradation.

Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
Persistence and degradability	No readily biodegradable.
Biochemical oxygen demand (BOD)	5g 0.02 g O ₂ /g substance
ThOD	0.515 g O ₂ /g substance

Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)	
Persistence and degradability	Not applicable (inorganic substance).

Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Persistence and degradability	Not applicable (inorganic substance). Safety Data Sheet Supplier.

Boric acid (H3BO3) (10043-35-3)	
Persistence and degradability	Not biodegradable.

Urea (57-13-6)	
Biodegradation	Readily biodegradable

12.3. Bioaccumulative potential

FERTILEADER KALEO	
Bioaccumulative potential	No study has been carried out for the moment on this mixture.

Manganese nitrate / Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
Bioaccumulative potential	Bioaccumulation unlikely.

Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
Bioconcentration factor (BCF REACH)	28d 1.8
Log Kow	-13

Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)	
Bioaccumulative potential	No data / information available.

Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Bioaccumulative potential	Low bioaccumulation potential. Safety Data Sheet Supplier.

Boric acid (H3BO3) (10043-35-3)	
Log Pow	-0.757
Bioaccumulative potential	Low bioaccumulation potential.

Urea (57-13-6)	
Log Pow	-1.73 (20°C)
Bioaccumulative potential	Low bioaccumulation potential.

12.4. Mobility in soil

Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
Ecology - soil	Not specifically applicable.

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Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)	
Ecology - soil	Very mobile.
Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Ecology - soil	Material highly soluble in water.
Boric acid (H3BO3) (10043-35-3)	
Ecology - soil	Very mobile.
Urea (57-13-6)	
Log Koc	-1.43 - -1.19

12.5. Other adverse effects

Other adverse effects	: May cause eutrophication at very low concentration.
Effect on the global warming	: No known effects from this product.
GWPMix comment	: No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Dispose of in accordance with relevant local regulations.
Waste treatment methods	: Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Remove to an authorized waste treatment plant.
Waste disposal recommendations	: Refer to manufacturer or supplier for information on recovery or recycling.
Ecology - waste materials	: Do not allow into drains or water courses.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not applicable

TDG

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

FERTILEADER KALEO

SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
-------------------------------------	---------------------------------

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:

Sodium molybdate	CAS No 10102-40-6	< 0.1%
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Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Nitrate de zinc	CAS No 7779-88-6	0.1 - 0.5%
Nitrate de cuivre	CAS No 3251-23-8	<= 0.1%

Manganese nitrate / Nitric acid, manganese(2+) salt (2:1) (10377-66-9)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)

CERCLA RQ	1000 lb
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Copper(II) nitrate / Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
CERCLA RQ	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

Sodium molybdate (10102-40-6)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

No additional information available

Tetrasodium ethylene diamine tetraacetate / Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Zinc nitrate / Nitric acid, zinc salt (2:1) (7779-88-6)	
WHMIS Classification	Class C - Oxidizing Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Boric acid (H3BO3) (10043-35-3)	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

EU-Regulations

No additional information available

National regulations

FERTILEADER KALEO	
Ensure all national/local regulations are observed	

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

SECTION 16: Other information

Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-statements:

H272	May intensify fire; oxidiser
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H361	Suspected of damaging fertility or the unborn child
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
H412	Harmful to aquatic life with long lasting effects

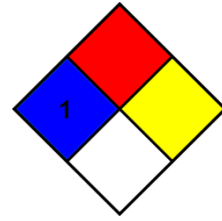
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NFPA health hazard

: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.



HMIS III Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

* - Chronic (long-term) health effects may result from repeated overexposure

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

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : FERTILEADER MAGICAL
 Product code : FLMAGUSA

1.2. Recommended use and restrictions on use

Recommended use : Fertilizers

1.3. Supplier

Distributor

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

Manufacturer

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number	Comment
Americas	3E		+1-760-476-3962 (Access code : 333021)	(24/7)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Serious eye damage/eye irritation Category 2A H319 Causes serious eye irritation

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) : Warning

Hazard statements (GHS US) : H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P280 - Wear face shield, protective clothing, protective gloves.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards which do not result in classification

No additional information available

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
Calcium chloride, dihydrate	(CAS-No.) 10035-04-8	> 20	Eye Irrit. 2A, H319

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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	: Prompt treatment is essential to minimize damage. Get medical advice/attention if you feel unwell.
First-aid measures after inhalation	: Move to fresh air in case of accidental inhalation. Seek medical attention if ill effect develops.
First-aid measures after skin contact	: After contact with skin, wash immediately with plenty of water. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, consult an eye specialist. If possible show him this sheet. Failing this, show him the packaging or label.
First-aid measures after ingestion	: Give water to drink if victim completely conscious/alert. Get medical advice/attention if you feel unwell.

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

Symptoms/effects : (see section(s) : 2.1/2.3).

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	: water, carbon dioxide (CO ₂), powder and foam. Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: None known.

5.2. Specific hazards arising from the chemical

Fire hazard	: Not flammable.
Explosion hazard	: Not explosive.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Complete protective clothing. EN 469. Self-contained breathing apparatus.
Other information	: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Evacuate area.

6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Do not get in eyes, on skin, or on clothing. Do not breathe vapors. Evacuate unnecessary personnel. Mark the danger area. Ventilate spillage area. Keep upwind. Only qualified personnel equipped with suitable protective equipment may intervene.

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".
Emergency procedures	: Ventilate area. Stop leak if safe to do so. Dike and contain spill.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up	: Pump up the product into a suitably labeled spare container. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.
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". For further information refer to section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Use personal protective equipment as required. Do not handle until all safety precautions have been read and understood.
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : The floor of the depot should be impermeable and designed to form a water-tight basin. Comply with applicable regulations.
- Storage conditions : Protect from sunlight. Store in a well-ventilated place. Store closed containers with closure in upper position. Keep out of reach of children.
- Incompatible products : Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.
- Storage temperature : > 32 °F
- Heat-ignition : Keep away from open flames, hot surfaces and sources of ignition.
- Information on mixed storage : Keep away from food, drink and animal feeding stuffs.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Calcium chloride, dihydrate (10035-04-8)

Not applicable

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station. Local exhaust and general ventilation must be adequate to meet exposure standards.
- Environmental exposure controls : Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Assure that emissions are compliant with all applicable air pollution control regulations. Comply with applicable regulations.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses.

Materials for protective clothing:

Wear suitable protective clothing

Hand protection:

Butyl-rubber protective gloves. Protective gloves made of latex

Type	Material	Permeation	Thickness (mm)	Permeation
Disposable gloves, Reusable gloves	butyl rubber, Latex	6 (> 480 minutes)		

Eye protection:

Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product. EN 166

Type	Use	Characteristics
Safety goggles	Droplet	With side shields

Skin and body protection:

Use chemically protective clothing

Respiratory protection:

No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation. Where excessive vapor may result, wear approved mask

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Device	Filter type	Condition
Disposable half mask, Reusable half mask	Type P2	Protection for Liquid particles, Vapour protection

Personal protective equipment symbol(s):



Other information:

See Heading 7 : 7.1. Precautions for safe handling.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Black
Odor	: characteristic
Odor threshold	: Not applicable
pH	: 5 - 7
Melting point	: No data available
Freezing point	: < 32 °F
Boiling point	: > 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 11,4 lb/gal
Solubility	: Water: Miscible in all proportions
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: Product is not explosive.
Oxidizing properties	: Non oxidizing material according to EC criteria.

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 use and storage conditions as recommended in section 7.

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).

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10.5. Incompatible materials

Reducing agents.

10.6. Hazardous decomposition products

calcium oxide. Carbon oxides (CO, CO₂). nitro-compounds.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Calcium chloride, dihydrate (10035-04-8)

LD50 oral rat	2301 mg/kg
LD50 dermal rabbit	5000 mg/kg
LC50 inhalation rat (mg/l)	No data available
ATE US (oral)	2301 mg/kg body weight
ATE US (dermal)	5000 mg/kg body weight

Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation pH: 5 - 7
Serious eye damage/irritation	: Causes serious eye irritation. (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation pH: 5 - 7
Respiratory or skin sensitization	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

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Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Viscosity, kinematic	: No data available
Symptoms/effects	: (see section(s) : 2.1/2.3).

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation.
Ecology - water	: Do not allow large quantities, as are, to spread into the environment. Do not discharge into drains or rivers.

Calcium chloride, dihydrate (10035-04-8)	
LC50 fish 1	4630 mg/l (Pimephales promelas)
EC50 Daphnia 1	2400 mg/l

12.2. Persistence and degradability

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Persistence and degradability	Not established.

Calcium chloride, dihydrate (10035-04-8)	
Biodegradation	Not applicable

12.3. Bioaccumulative potential

FERTILEADER MAGICAL	
Bioaccumulative potential	Not established.

Calcium chloride, dihydrate (10035-04-8)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects	: May cause eutrophication at very low concentration. May cause pH changes in aqueous ecological systems.
Other information	: No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Discharging into rivers and drains is forbidden.
Additional information	: Do not re-use empty containers.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Not regulated

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Transport by sea

Not regulated

Air transport

Not regulated

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

15.2. International regulations

CANADA

Calcium chloride, dihydrate (10035-04-8)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

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Ensure all national/local regulations are observed

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

SECTION 16: Other information

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

Revision date : 06/17/2020

Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-phrases:

H319	Causes serious eye irritation
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Abbreviations and acronyms:

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ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
LC50	Median lethal concentration
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
ATE	Acute Toxicity Estimate
SDS	Safety Data Sheet
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
STP	Sewage treatment plant
vPvB	Very Persistent and Very Bioaccumulative

NFPA health hazard

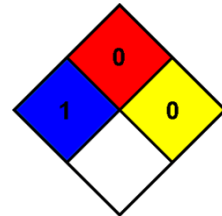
: 1 - Materials that, under emergency conditions, can cause significant irritation.

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

: 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

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.

Personal protection

: B
B - Safety glasses, Gloves

Indication of changes:

Section	Changed item	Change	Comments
	NFPA reactivity	Added	
	NFPA fire hazard	Added	
	Personal protection	Added	
	Physical	Added	
	Flammability	Added	
	Additional information	Added	
	Additional information	Added	
	Reason for no classification	Modified	
	Reason for no classification	Added	
	Reason for no classification	Added	
	Reason for no classification	Modified	
	Reason for no classification	Modified	
	Supersedes	Added	
	Revision date	Added	
	Reason for no classification	Modified	
	Reason for no classification	Modified	

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	Reason for no classification	Modified	
	Other information	Modified	
	Other adverse effects	Modified	
3	Composition/Information on ingredients	Modified	
4	Symptoms/effects after inhalation	Modified	
4	Symptoms/effects after ingestion	Removed	
4	First-aid measures after eye contact	Modified	
4	First-aid measures after skin contact	Modified	
5.1	Unsuitable extinguishing media	Modified	
5.2	Explosion hazard	Added	
5.2	Fire hazard	Modified	
5.3	Other information	Modified	
5.3	Protection during firefighting	Modified	
6	Protective equipment	Added	
6	Other information	Added	
6	Methods for cleaning up	Modified	
6	For containment	Modified	
6	Environmental precautions	Added	
6	Protective equipment	Added	
6	Emergency procedures	Added	
6	Emergency procedures	Added	
6	General measures	Modified	
6	Reference to other sections (8, 13)	Modified	
7.1	Hygiene measures	Modified	
7.1	Precautions for safe handling	Added	
7.2	Heat-ignition	Added	
7.2	Technical measures	Modified	
7.2	Storage conditions	Added	
7.2	Storage temperature	Added	
7.2	Prohibitions on mixed storage	Modified	
7.2	Incompatible products	Modified	
7.2	Storage area	Removed	
7.2	Incompatible materials	Removed	
7.2	Special rules on packaging	Added	
8.1	Additional information	Removed	
8.2	Respiratory protection	Modified	
8.2	Hand protection	Modified	
8.2	Eye protection	Modified	
8.2	Appropriate engineering controls	Added	
8.2	Environmental exposure controls	Added	
8.2	Other information	Modified	
9	Specific gravity / density	Added	
9	Explosive properties	Added	
9	pH	Modified	
9	Freezing point	Modified	
10	Possibility of hazardous reactions	Added	
10	Reactivity	Added	
10	Incompatible materials	Added	
10	Chemical stability	Added	
10	Hazardous decomposition products	Added	
10	Conditions to avoid	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	

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11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
12.1	Ecology - general	Modified	
12.1	Ecology - water	Modified	
12.2	Persistence and degradability	Modified	
12.3	Bioaccumulative potential	Modified	
12.4	Ecology - soil	Removed	
13	Ecology - waste materials	Removed	
13	Waste disposal recommendations	Added	
13	Additional information	Modified	
13	Regional legislation (waste)	Added	
13	Waste treatment methods	Modified	
14	Other information	Removed	
16	Abbreviations and acronyms	Added	

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.

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : FERTILEADER TONIC
 Product code : FLTONUSA

1.2. Recommended use and restrictions on use

Recommended use : Fertilizers

1.3. Supplier

Distributor

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

Manufacturer

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number	Comment
Americas	3E		+1-760-476-3962 (Access code : 333021)	(24/7)

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
 Skin corrosion/irritation Category 1 H314 Causes severe skin burns and eye damage
 Serious eye damage/eye irritation Category 1 H318 Causes serious eye damage
 Specific target organ toxicity (repeated exposure) Category 2 H373 May cause damage to organs (brain) through prolonged or repeated exposure (Inhalation)

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
 H314 - Causes severe skin burns and eye damage
 H318 - Causes serious eye damage
 H373 - May cause damage to organs (brain) through prolonged or repeated exposure (Inhalation)

Precautionary statements (GHS US) :

P260 - Do not breathe spray, vapors.
 P280 - Wear protective clothing, eye protection, face protection, protective gloves.
 P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 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, a POISON CENTER.
 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

No additional information available

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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
Nitric acid, manganese(2+) salt (2:1)	(CAS-No.) 10377-66-9	> 10	Ox. Liq. 2, H272 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 STOT RE 2, H373 Aquatic Chronic 3, H412
Nitric acid, copper(2+) salt (2:1)	(CAS-No.) 3251-23-8	>10 <20	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Nitric acid (Pure substance)	(CAS-No.) 7697-37-2	< 0,5	Ox. Liq. 2, H272 Met. Corr. 1, H290 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1A, H314 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	: Prompt treatment is essential to minimize damage. Get medical advice/attention if you feel unwell.
First-aid measures after inhalation	: Move to fresh air in case of accidental inhalation. Get immediate medical advice/attention.
First-aid measures after skin contact	: For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Get immediate medical advice/attention.
First-aid measures after eye contact	: Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms. If possible show him this sheet. Failing this, show him the packaging or label.
First-aid measures after ingestion	: If swallowed, rinse mouth with water (only if the person is conscious). Unconscious: maintain adequate airway and respiration. Place the affected person in the recovery position. Immediately call a poison center or doctor/physician. Do not induce vomiting.

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

Symptoms/effects	: (see section(s) : 2.1/2.3).
Symptoms/effects after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation.
Symptoms/effects after skin contact	: Causes severe burns.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Harmful if swallowed.

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	: water, carbon dioxide (CO ₂), powder and foam. Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: None known.

5.2. Specific hazards arising from the chemical

Fire hazard	: Not flammable.
Explosion hazard	: Not explosive.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Control the vapors with a water spray. Contain the extinguishing fluids by bunding.
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Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Complete protective clothing. EN 469. Self-contained breathing apparatus.
Other information	: Do not allow run-off from fire fighting to enter drains or water courses. Relevant water authorities should be notified of any large spillage to water course or drain.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Do not handle until all safety precautions have been read and understood. Remove ignition sources. Isolate from fire, if possible, without unnecessary risk.
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6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Do not get in eyes, on skin, or on clothing. Do not breathe vapors. Evacuate unnecessary personnel. Mark the danger area. Ventilate spillage area. Keep upwind. Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. Wear recommended personal protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Ventilate area. Stop leak if safe to do so. Dike and contain spill.

6.2. Environmental precautions

Prevent liquid from entering sewers, watercourses, underground or low areas. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up	: Pump up the product into a suitably labeled spare container. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.
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". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Use personal protective equipment as required. Avoid contact with skin, eyes and clothing. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
Handling temperature	: > 32 °F
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: The floor of the depot should be impermeable and designed to form a water-tight basin. Store on an acid resistant underground. Comply with applicable regulations.
Storage conditions	: Store closed containers with closure in upper position. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Store in dry, cool, well-ventilated area. Protect from sunlight. Store locked up. Keep out of reach of children.
Incompatible products	: Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.
Storage temperature	: > 32 °F Store away from freezing (avoid freezing during storage)
Heat-ignition	: Keep away from open flames, hot surfaces and sources of ignition.
Information on mixed storage	: Keep away from food, drink and animal feeding stuffs.
Storage area	: Store away from heat. Store in a well-ventilated place.
Special rules on packaging	: Keep only in original container. Store in a closed container.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nitric acid, copper(2+) salt (2:1) (3251-23-8)		
ACGIH	Local name	Copper, as Cu
ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³ (Fume) 1 mg/m ³ (Dusts and mists)
ACGIH	Remark (ACGIH)	TLV® Basis: Irr; GI; metal fume fever
ACGIH	Regulatory reference	ACGIH 2020
OSHA	OSHA PEL (TWA) (mg/m ³)	0.1 mg/m ³ (Fume (as Cu)) 1 mg/m ³ (Dusts and mists (as Cu))
OSHA	OSHA PEL (STEL) (mg/m ³)	1 mg/m ³ Copper (dusts and mists), as Cu
OSHA	OSHA PEL (Ceiling) (mg/m ³)	8h 1 mg/m ³ Copper (dusts and mists), as Cu
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
IDLH	US IDLH (mg/m ³)	100 mg/m ³ Copper (Cu)
NIOSH	NIOSH REL (TWA) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH	NIOSH REL (STEL) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH	NIOSH REL (ceiling) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
Nitric acid (Pure substance) (7697-37-2)		
ACGIH	Local name	Nitric acid
ACGIH	ACGIH TWA (ppm)	2 ppm
ACGIH	ACGIH STEL (ppm)	4 ppm
ACGIH	Remark (ACGIH)	TLV® Basis: URT & eye irr; dental erosion
ACGIH	Regulatory reference	ACGIH 2019
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³
OSHA	OSHA PEL (TWA) (ppm)	2 ppm
OSHA	OSHA PEL (STEL) (ppm)	4
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
NIOSH	NIOSH REL (TWA) (ppm)	2 ppm
NIOSH	NIOSH REL (STEL) (ppm)	4 ppm
Nitric acid, manganese(2+) salt (2:1) (10377-66-9)		
ACGIH	ACGIH TWA (mg/m ³)	8h 0.02 mg/m ³ respirable
ACGIH	ACGIH STEL (mg/m ³)	8h 0.02 mg/m ³ respirable
ACGIH	ACGIH Ceiling (mg/m ³)	0.02 mg/m ³ respirable
OSHA	OSHA PEL (TWA) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (STEL) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (Ceiling) (mg/m ³)	8h 0.2 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (TWA) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (STEL) (mg/m ³)	>10h 3 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (ceiling) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds

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8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station. Local exhaust and general ventilation must be adequate to meet exposure standards.
- Environmental exposure controls : Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Assure that emissions are compliant with all applicable air pollution control regulations. Comply with applicable regulations.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses. Insufficient ventilation: wear respiratory protection.

Hand protection:

Chemical resistant gloves (according to European standard NF EN 374 or equivalent). Butyl-rubber protective gloves. nitrile rubber gloves

Type	Material	Permeation	Thickness (mm)	Permeation
Reusable gloves	Polyvinylchloride (PVC), Natural rubber, butyl rubber, Nitrile rubber (NBR)			

Eye protection:

Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product. Use eye protection to EN 166, designed to protect against liquid splashes

Type	Use	Characteristics
Combined eye and respiratory protection	Droplet	With side shields

Skin and body protection:

When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection must be worn. Acid resistant clothing

Type
Acid resistant clothing
Chemical resistant apron
Boots

Respiratory protection:

Where excessive vapor may result, wear approved mask

Device	Filter type	Condition
Full face mask	ABEK-P3	Gas protection

Personal protective equipment symbol(s):



Other information:

See Heading 7 : 7.1. Precautions for safe handling.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Color : dark green
- Odor : Odorless
- Odor threshold : Not applicable

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pH	: 0.5 - 1.5
Melting point	: No data available
Freezing point	: < 32 °F
Boiling point	: > 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 11.9 lb/gal
Solubility	: Water: Miscible in all proportions
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: Product is not explosive.
Oxidizing properties	: Non oxidizing material according to EC criteria.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with : Strong bases (Exothermic reaction), Reducing agents (Hazardous reactions), Sodium hypochlorite (release of irritant gases/vapors).

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Reacts violently with : Reducing agents. Strong bases. Oxidation agents. Sodium hypochlorite.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Reducing agents. Strong bases. metals.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. nitro-compounds. Carbon oxides (CO, CO₂). Metal oxides. Corrosive vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

ATE US (oral)	1273.015 mg/kg body weight
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LD50 oral rat	794 mg/kg body weight
ATE US (oral)	500 mg/kg body weight

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Nitric acid (Pure substance) (7697-37-2)	
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
LD50 oral rat	> 300 mg/kg (OECD 420 method)
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: 0.5 - 1.5
Serious eye damage/irritation	: Causes serious eye damage. pH: 0.5 - 1.5
Respiratory or skin sensitization	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

FERTILEADER TONIC	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure	: May cause damage to organs (brain) through prolonged or repeated exposure (Inhalation). No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
------------------------	--

FERTILEADER TONIC	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LOAEL (oral,rat,90 days)	2000 mg/kg bodyweight/day
NOAEL (oral,rat,90 days)	1000 mg/kg bodyweight/day EU Method B.26
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure.

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Viscosity, kinematic	: No data available

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Symptoms/effects	: (see section(s) : 2.1/2.3).
Symptoms/effects after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation.
Symptoms/effects after skin contact	: Causes severe burns.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Toxic to aquatic life. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation. Do not allow uncontrolled discharge of product into the environment. Do not allow into drains or water courses.
Ecology - water	: Toxic to aquatic life with long lasting effects.

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LC50 fish 1	0.0348 (0.0384 - 0.2256) mg/l Pimephales promelas
LC50 other aquatic organisms 2	10d 0.05 ml/l Cu2+
NOEC (chronic)	14d 0.032 mg/l Fucus vesiculosus

Nitric acid (Pure substance) (7697-37-2)	
LC50 fish 1	1559 mg/l

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
LC50 fish 1	47.2 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 Daphnia 1	> 100 mg/l (OECD 202 method)
NOEC (chronic)	4Mo 0.6 mg/l Oncorhynchus mykiss (Rainbow trout)
NOEC chronic fish	2.25 mg/l Oncorhynchus mykiss

12.2. Persistence and degradability

FERTILEADER TONIC	
Persistence and degradability	Not established.

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Persistence and degradability	Not established. Not relevant.

12.3. Bioaccumulative potential

FERTILEADER TONIC	
Bioaccumulative potential	Not established.

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Bioaccumulative potential	Not established. Not relevant.

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
Bioaccumulative potential	Bioaccumulation unlikely.

12.4. Mobility in soil

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Ecology - soil	Product adsorbs onto the soil.

12.5. Other adverse effects

Other adverse effects	: May cause eutrophication at very low concentration.
Effect on the global warming	None known

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.

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Product/Packaging disposal recommendations : Discharging into rivers and drains is forbidden.
Additional information : Do not re-use empty containers.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1760 Corrosive liquids, n.o.s. (Nitric acid, manganese(2+) salt (2:1) ; Nitric acid, copper(2+) salt (2:1)), 8, II
UN-No.(DOT) : UN1760
Proper Shipping Name (DOT) : Corrosive liquids, n.o.s.
Nitric acid, manganese(2+) salt (2:1) ; Nitric acid, copper(2+) salt (2:1)
Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT) : II - Medium Danger
Hazard labels (DOT) : 8 - Corrosive



DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Special Provisions (49 CFR 172.102) : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). 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.
T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, 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) : 154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"
Emergency Response Guide (ERG) Number : 154
Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport document description : UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., 8, III
UN-No. (TDG) : UN3264
Proper Shipping Name (Transportation of Dangerous Goods) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
TDG Primary Hazard Classes : 8 - Class 8 - Corrosives

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Packing group	: III - Minor Danger
TDG Special Provisions	: 16 - (1) The technical name of at least one of the most dangerous substances that predominantly contributes to the hazard or hazards posed by the dangerous goods must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(ii)(A) of Part 3 (Documentation). The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4 (Dangerous Goods Safety Marks). (2) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical name: (a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; (b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; (c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; (d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or (e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. (3) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a small means of containment: (a) UN2814, INFECTIOUS SUBSTANCE, AFFECTING HUMANS; or (b) UN2900, INFECTIOUS SUBSTANCE, AFFECTING ANIMALS.
Explosive Limit and Limited Quantity Index	: 5 L
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: 5 L

Transport by sea

Transport document description (IMDG)	: UN 1760 CORROSIVE LIQUID, N.O.S. (Manganese nitrate ; Copper(II) nitrate), 8, II
UN-No. (IMDG)	: 1760
Proper Shipping Name (IMDG)	: CORROSIVE LIQUID, N.O.S.
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: II - substances presenting medium danger
EmS-No. (1)	: F-A
EmS-No. (2)	: S-B

Air transport

Transport document description (IATA)	: UN 1760 Corrosive liquid, n.o.s. (Nitric acid, manganese(2+) salt (2:1) ; Nitric acid, copper(2+) salt (2:1)), 8, II
UN-No. (IATA)	: 1760
Proper Shipping Name (IATA)	: Corrosive liquid, n.o.s.
Class (IATA)	: 8 - Corrosives
Packing group (IATA)	: II - Medium 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

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Nitric acid, copper(2+) salt (2:1)	CAS-No. 3251-23-8	>10 <20%
Nitric acid (Pure substance)	CAS-No. 7697-37-2	< 0,5%

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
CERCLA RQ	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

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Nitric acid (Pure substance) (7697-37-2)	
CERCLA RQ	1000 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	1000 lb
Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Listed on the Canadian DSL (Domestic Substances List)	
Nitric acid (Pure substance) (7697-37-2)	
Listed on the Canadian DSL (Domestic Substances List)	
Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
Listed on the Canadian DSL (Domestic Substances List)	

EU-Regulations

No additional information available

National regulations

FERTILEADER TONIC	
Ensure all national/local regulations are observed	

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

SECTION 16: Other information

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

Revision date : 05/27/2020
Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-phrases:

H272	May intensify fire; oxidizer
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled
H335	May cause respiratory irritation
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Abbreviations and acronyms:

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ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
LC50	Median lethal concentration
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
ATE	Acute Toxicity Estimate
SDS	Safety Data Sheet
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
STP	Sewage treatment plant
vPvB	Very Persistent and Very Bioaccumulative

NFPA health hazard

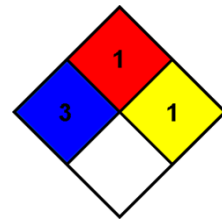
: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity

: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
* - Chronic (long-term) health effects may result from repeated overexposure

Flammability

: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical

: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection

: C,u
C - Safety glasses, Gloves, Synthetic apron
u - Vapor respirator

Indication of changes:

Section	Changed item	Change	Comments
	Reason for no classification	Modified	
	Reason for no classification	Modified	
	Revision date	Added	
	Supersedes	Added	
	Proper Shipping Name (IATA)	Modified	
	Proper Shipping Name (IMDG)	Modified	
	Proper Shipping Name (DOT)	Modified	
	UN-No.(DOT)	Modified	
	DOT NA No	Modified	
	Packing group (DOT)	Modified	

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	Proper Shipping Name - Addition (DOT)	Added	
	DOT Packaging Bulk (49 CFR 173.xxx)	Modified	
	DOT Packaging Non Bulk (49 CFR 173.xxx)	Modified	
	DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	Modified	
	DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	Modified	
	DOT Special Provisions (49 CFR 172.102)	Modified	
	DOT Vessel Stowage Location	Modified	
	NFPA health hazard	Modified	
	Flammability	Added	
	Physical	Added	
	Effect on the global warming	Added	
	Display California Proposition 65 summary in 15.3	Added	
	Display SARA 313 summary in 15.1	Added	
	Additional information	Added	
	Reason for no classification	Added	
	Reason for no classification	Added	
	Additional information	Added	
	ATE US (oral)	Modified	
	Display additional SDS US addresses	Added	
	Issue date	Modified	
3	Composition/Information on ingredients	Modified	
4	First-aid measures after inhalation	Modified	
4	First-aid measures after ingestion	Modified	
4	Other medical advice or treatment	Modified	
4	Symptoms/effects after eye contact	Added	
4	Symptoms/effects after ingestion	Added	
4	Symptoms/effects after inhalation	Added	
4	Symptoms/effects after skin contact	Added	
5.1	Unsuitable extinguishing media	Modified	
5.2	Fire hazard	Modified	
5.3	Protection during firefighting	Modified	
5.3	Firefighting instructions	Modified	
5.3	Other information	Modified	
6	Reference to other sections (8, 13)	Modified	
6	Emergency procedures	Modified	
6	Emergency procedures	Modified	
6	For containment	Modified	
6	Methods for cleaning up	Modified	
6	Other information	Added	
6	General measures	Modified	
6	Environmental precautions	Added	
6	Protective equipment	Added	
6	Protective equipment	Added	
7.1	Hygiene measures	Modified	
7.1	Precautions for safe handling	Modified	

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7.2	Prohibitions on mixed storage	Modified	
7.2	Special rules on packaging	Modified	
7.2	Storage temperature	Modified	
7.2	Technical measures	Modified	
7.2	Heat-ignition	Modified	
7.2	Incompatible products	Modified	
7.2	Storage conditions	Modified	
7.2	Storage area	Modified	
8.1	Additional information	Removed	
8.2	Environmental exposure controls	Modified	
8.2	Appropriate engineering controls	Modified	
8.2	Hand protection	Modified	
8.2	Respiratory protection	Modified	
8.2	Skin and body protection	Modified	
9	Odor	Modified	
9	Specific gravity / density	Added	
9	pH	Modified	
9	Oxidizing properties	Added	
10	Possibility of hazardous reactions	Modified	
10	Conditions to avoid	Modified	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	
12.1	Ecology - general	Modified	
12.2	Persistence and degradability	Modified	
12.3	Bioaccumulative potential	Modified	
12.4	Ecology - soil	Removed	
13	Regional legislation (waste)	Modified	
13	Waste treatment methods	Modified	
13	Waste disposal recommendations	Modified	
13	Ecology - waste materials	Removed	
13	Additional information	Added	
13	Sewage disposal recommendations	Modified	
14	UN-No. (IMDG)	Modified	
14	UN-No. (IATA)	Modified	
14	Packing group (IATA)	Modified	
14	Packing group (IMDG)	Modified	
16	Abbreviations and acronyms	Added	

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.

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : FERTILEADER VITAL
 Product code : FLVITALUSA

1.2. Recommended use and restrictions on use

Recommended use : Fertilizers

1.3. Supplier

Manufacturer

Timac Agro USA, INC.
 Route 724 & I-176
 P.O. Box 888
 Reading, PA 19607 - USA
 T 1-800-545-5474

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number	Comment
Americas	3E		+1-760-476-3962 (Access code : 333021)	(24/7)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 2 H315 Causes skin irritation
 Serious eye damage/eye irritation Category 1 H318 Causes serious eye damage
 Reproductive toxicity Category 2 H361 Suspected of damaging fertility or the unborn child

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) :

H315 - Causes skin irritation
 H318 - Causes serious eye damage
 H361 - Suspected of damaging fertility or the unborn child

Precautionary statements (GHS US) :

P202 - Do not handle until all safety precautions have been read and understood.
 P280 - Wear protective clothing, eye protection, face protection, protective gloves.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308+P313 - If exposed or concerned: Get medical advice/attention.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

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3.2. Mixtures

Name	Product identifier	%	GHS US classification
Phosphoric acid	(CAS-No.) 7664-38-2	3 - 5	Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Eye Dam. 1, H318
Glycine, N,N'-1,2-ethanediyldis[N-(carboxymethyl)-, sodium salt (1:4)	(CAS-No.) 64-02-8	1 - 3	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318
Nitric acid, copper(2+) salt (2:1)	(CAS-No.) 3251-23-8	< 0,1	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Nitric acid, manganese(2+) salt (2:1)	(CAS-No.) 10377-66-9	< 0,5	Ox. Liq. 2, H272 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 STOT RE 2, H373 Aquatic Chronic 3, H412
Ferrous (III) chloride / Iron chloride (FeCl ₃)	(CAS-No.) 7705-08-0	< 0,1	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Eye Dam. 1, H318
boric acid	(CAS-No.) 10043-35-3	< 0,3	Repr. 2, H361

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 : Prompt treatment is essential to minimize damage. Get medical advice/attention if you feel unwell.
- First-aid measures after inhalation : Take victim to fresh air, in a quiet place in an half laying position and urgently take medical advice. Respiratory problems: consult a doctor/medical service.
- First-aid measures after skin contact : After contact with skin, wash immediately and thoroughly with plenty of water. If skin irritation occurs: Get medical advice/attention.
- First-aid measures after eye contact : Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms. If possible show him this sheet. Failing this, show him the packaging or label.
- First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Unconscious: maintain adequate airway and respiration. Place the affected person in the recovery position. Immediately call a poison center or doctor/physician.

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

- Symptoms/effects : (see section(s) : 2.1/2.3).

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 : water, carbon dioxide (CO₂), powder and foam.

5.2. Specific hazards arising from the chemical

- Fire hazard : Not flammable. Released gases may accelerate the burning of other combustible materials. Non oxidizing material according to EC criteria.
- Explosion hazard : Not explosive.
- Reactivity in case of fire : Corrosive vapors.

5.3. Special protective equipment and precautions for fire-fighters

- Firefighting instructions : Eliminate all ignition sources if safe to do so.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Complete protective clothing. EN 469. Self-contained breathing apparatus.
- Other information : Do not allow run-off from fire fighting to enter drains or water courses.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : No flames, no sparks. Eliminate all sources of ignition. Evacuate area.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Do not get in eyes, on skin, or on clothing. Do not breathe vapors. Evacuate unnecessary personnel. Mark the danger area. Ventilate spillage area. Keep upwind. Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment : Wear recommended personal protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area. Stop leak if safe to do so. Dike and contain spill.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up : Pump up the product into a suitably labeled spare container. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.

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". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Use personal protective equipment as required. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Handling temperature : ≥ 32 °F

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : The floor of the depot should be impermeable and designed to form a water-tight basin. Comply with applicable regulations.

Storage conditions : Protect from sunlight. Store in a well-ventilated place. Store closed containers with closure in upper position. Store locked up. Keep out of reach of children.

Incompatible products : Refer to the detailed list of incompatible materials in section 10 Stability/Reactivity.

Storage temperature : 32 °F Store away from freezing (avoid freezing during storage)

Heat-ignition : Keep away from open flames, hot surfaces and sources of ignition.

Information on mixed storage : Keep away from food, drink and animal feeding stuffs.

Storage area : Store away from heat. Store in a well-ventilated place.

Special rules on packaging : Keep only in original container. Store in a closed container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

boric acid (10043-35-3)		
ACGIH	Local name	Boric acid
ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³ (I - Inhalable particulate matter)
ACGIH	ACGIH STEL (mg/m ³)	6 mg/m ³ (I - Inhalable particulate matter)
ACGIH	Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)

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boric acid (10043-35-3)		
ACGIH	Regulatory reference	ACGIH 2020
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³ inhalable and respirable dust
Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)		
Not applicable		
Nitric acid, copper(2+) salt (2:1) (3251-23-8)		
ACGIH	Local name	Copper, as Cu
ACGIH	ACGIH TWA (mg/m ³)	0,2 mg/m ³ (Fume) 1 mg/m ³ (Dusts and mists)
ACGIH	Remark (ACGIH)	TLV® Basis: Irr; GI; metal fume fever
ACGIH	Regulatory reference	ACGIH 2020
OSHA	OSHA PEL (TWA) (mg/m ³)	0,1 mg/m ³ (Fume (as Cu)) 1 mg/m ³ (Dusts and mists (as Cu))
OSHA	OSHA PEL (STEL) (mg/m ³)	1 mg/m ³ Copper (dusts and mists), as Cu
OSHA	OSHA PEL (Ceiling) (mg/m ³)	8h 1 mg/m ³ Copper (dusts and mists), as Cu
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
IDLH	US IDLH (mg/m ³)	100 mg/m ³ Copper (Cu)
NIOSH	NIOSH REL (TWA) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH	NIOSH REL (STEL) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
NIOSH	NIOSH REL (ceiling) (mg/m ³)	<10h 1 mg/m ³ Copper (dusts and mists), as Cu
Ferrous (III) chloride / Iron chloride (FeCl3) (7705-08-0)		
ACGIH	ACGIH TWA (mg/m ³)	Fe 1 mg/m ³
NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³
Nitric acid, manganese(2+) salt (2:1) (10377-66-9)		
ACGIH	ACGIH TWA (mg/m ³)	8h 0,02 mg/m ³ respirable
ACGIH	ACGIH STEL (mg/m ³)	8h 0,02 mg/m ³ respirable
ACGIH	ACGIH Ceiling (mg/m ³)	0,02 mg/m ³ respirable
OSHA	OSHA PEL (TWA) (mg/m ³)	8h 0,2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (STEL) (mg/m ³)	8h 0,2 mg/m ³ Manganese and its inorganic compounds
OSHA	OSHA PEL (Ceiling) (mg/m ³)	8h 0,2 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (TWA) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (STEL) (mg/m ³)	>10h 3 mg/m ³ Manganese and its inorganic compounds
NIOSH	NIOSH REL (ceiling) (mg/m ³)	>10h 1 mg/m ³ Manganese and its inorganic compounds
Phosphoric acid (7664-38-2)		
ACGIH	Local name	Phosphoric acid
ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³
ACGIH	ACGIH STEL (mg/m ³)	3 mg/m ³
ACGIH	Remark (ACGIH)	TLV® Basis: URT, eye, & skin irr
ACGIH	Regulatory reference	ACGIH 2020
OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
OSHA	OSHA PEL (STEL) (mg/m ³)	3 mg/m ³
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

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Phosphoric acid (7664-38-2)		
IDLH	US IDLH (mg/m ³)	1000 mg/m ³
NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³
NIOSH	NIOSH REL (STEL) (mg/m ³)	3 mg/m ³

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station. Local exhaust and general ventilation must be adequate to meet exposure standards.
- Environmental exposure controls : Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems. Assure that emissions are compliant with all applicable air pollution control regulations. Comply with applicable regulations.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses. Mist formation: aerosol mask with filter type P2.

Hand protection:

Chemical resistant gloves (according to European standard NF EN 374 or equivalent), butyl rubber. Protective gloves made of latex

Type	Material	Permeation	Thickness (mm)	Permeation
Disposable gloves, Reusable gloves	butyl rubber, Latex			

Eye protection:

Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product. EN 166

Type	Use	Characteristics
Safety glasses		With side shields

Skin and body protection:

Use chemically protective clothing

Respiratory protection:

No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation. Where excessive vapor may result, wear approved mask

Device	Filter type	Condition
Aerosol mask	Type P2	Protection for Liquid particles

Personal protective equipment symbol(s):



Other information:

See Heading 7 : 7.1. Precautions for safe handling.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Color : Black
- Odor : characteristic
- Odor threshold : Not applicable
- pH : 5,4 (5,3 - 5,5)
- Melting point : No data available

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Freezing point	: < 32 °F
Boiling point	: > 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 9,8 lb/gal
Solubility	: Water: Miscible in all proportions
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable Not applicable Lower explosive limit (LEL): Not applicable Upper explosive limit (UEL): Not applicable
Explosive properties	: Product is not explosive.
Oxidizing properties	: Non oxidizing material according to EC criteria.

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

The product is stable at normal handling and storage 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). Heat.

10.5. Incompatible materials

Nitric acid. Strong acids. copper. Bases. Nitrates. calcium hypochlorite. Sodium hypochlorite. Reducing agents. Strong bases. Oxidation agents. Oxidizing materials. Alkalis.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : nitro-compounds. Nitrogen oxides. Carbon oxides (CO, CO₂). Metal oxides. Phosphorus oxides. Potassium oxides. Corrosive vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Additional information	: No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

ATE US (oral)	6198,409 mg/kg body weight
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

boric acid (10043-35-3)

LD50 oral rat	> 2000 mg/kg (OECD 401 method)
LD50 dermal rabbit	> 2000 mg/kg FIFRA (40 CFR 163)

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boric acid (10043-35-3)	
Additional information	Safety Data Sheet Supplier
Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
LD50 oral rat	1780 - 2000 mg/kg (OECD 403 method)
LC50 inhalation rat (mg/l)	4h 1000 - 5000 mg/m ³ (OECD 403 method)
ATE US (oral)	1780 mg/kg body weight
ATE US (dust, mist)	1,5 mg/l/4h
Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LD50 oral rat	794 mg/kg body weight
ATE US (oral)	500 mg/kg body weight
Ferrous (III) chloride / Iron chloride (FeCl3) (7705-08-0)	
LD50 oral rat	500 mg/kg (OECD 423 method)
LD50 dermal rat	> 2000 mg/kg (OECD 402 method)
ATE US (oral)	500 mg/kg body weight
Additional information	Safety Data Sheet Supplier
Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
LD50 oral rat	> 300 mg/kg (OECD 420 method)
ATE US (oral)	500 mg/kg body weight
Phosphoric acid (7664-38-2)	
LD50 oral rat	> 300 mg/kg (OECD 423 method)
ATE US (oral)	500 mg/kg body weight
Additional information	Safety Data Sheet Supplier
Skin corrosion/irritation	: Causes skin irritation. (No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation) pH: 5,4 (5,3 - 5,5)
Serious eye damage/irritation	: Causes serious eye damage. (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation pH: 5,4 (5,3 - 5,5)
Respiratory or skin sensitization	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Reproductive toxicity	: Suspected of damaging fertility or the unborn child. (No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met) No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
FERTILEADER VITAL	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
LOAEC (inhalation,rat,dust/mist/fume)	30 mg/m ³ air (OECD 412 method)
Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
STOT-single exposure	May cause respiratory irritation.

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Ferrous (III) chloride / Iron chloride (FeCl₃) (7705-08-0)	
NOAEL (oral,rat)	20 mg/kg body weight (OECD 422 method)

STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)
No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LOAEL (oral,rat,90 days)	2000 mg/kg bodyweight/day
NOAEL (oral,rat,90 days)	1000 mg/kg bodyweight/day EU Method B.26
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure.

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Phosphoric acid (7664-38-2)	
NOAEL (oral,rat,90 days)	250 mg/kg bodyweight/day (OECD 422 method)

Aspiration hazard : Not classified
(Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)

Viscosity, kinematic : No data available

Symptoms/effects : (see section(s) : 2.1/2.3).

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation. Do not allow uncontrolled discharge of product into the environment. Do not allow into drains or water courses.

Ecology - water : Do not allow large quantities, as are, to spread into the environment. Do not discharge into drains or rivers.

boric acid (10043-35-3)	
LC50 other aquatic organisms 1	Boron - 48h 45 - 83 ml/l aquatic invertebrates
NOEC (acute)	10d 10 mg/l Chlorella pyrenoidosa
Additional ecotox information	Data sources : Safety Data Sheet Supplier

Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
LC50 fish 1	> 100 mg/l Lepomis macrochiru - EPA - OPP 72-1
LC50 other aquatic organisms 1	500 mg/l Leuciscus idus (golden orfe)
EC50 Daphnia 1	> 100 mg/l DIN 38412
EC50 other aquatic organisms 1	> 100 mg/l algae, 72 Hours
NOEC chronic fish	36,9 mg/l 35 days - (OECD 210 method)
NOEC chronic crustacea	25 mg/l 21 days - (OECD 210 method)

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
LC50 fish 1	0,0348 (0,0384 - 0,2256) mg/l Pimephales promelas
LC50 other aquatic organisms 2	10d 0,05 ml/l Cu ²⁺
NOEC (chronic)	14d 0,032 mg/l Fucus vesiculosus

Ferrous (III) chloride / Iron chloride (FeCl₃) (7705-08-0)	
LC50 fish 1	96h 20 mg/l Lepomis macrochirus
EC50 Daphnia 1	48h 9,6 mg/l (OECD 202 method)

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
LC50 fish 1	47,2 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 Daphnia 1	> 100 mg/l (OECD 202 method)
NOEC (chronic)	4Mo 0,6 mg/l Oncorhynchus mykiss (Rainbow trout)
NOEC chronic fish	2,25 mg/l Oncorhynchus mykiss

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Phosphoric acid (7664-38-2)	
LC50 fish 1	3 - 3,25 mg/l <i>Lepomis macrochirus</i>
EC50 <i>Daphnia</i> 1	> 100 mg/l (OECD 202 method)
ErC50 (algae)	> 100 mg/l <i>Desmodesmus subspicatus</i> , 72 Hours - (OECD 201 method)
NOEC chronic algae	100 mg/l <i>Desmodesmus subspicatus</i> , 72 Hours - (OECD 201 method)

12.2. Persistence and degradability

FERTILEADER VITAL	
Persistence and degradability	Not established.

boric acid (10043-35-3)	
Persistence and degradability	Not biodegradable.

Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
Persistence and degradability	Not readily biodegradable.
Biochemical oxygen demand (BOD)	5g 0,02 g O ₂ /g substance
ThOD	0,515 g O ₂ /g substance

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Persistence and degradability	Not established. Not relevant.

Ferrous (III) chloride / Iron chloride (FeCl₃) (7705-08-0)	
Persistence and degradability	Not established.

Phosphoric acid (7664-38-2)	
Persistence and degradability	Not established. Not relevant.

12.3. Bioaccumulative potential

FERTILEADER VITAL	
Bioaccumulative potential	Not established.

boric acid (10043-35-3)	
Log Pow	-0,757
Bioaccumulative potential	Low bioaccumulation potential.

Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)	
Bioconcentration factor (BCF REACH)	28d 1,8
Log Pow	5,01
Log Kow	-13

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Bioaccumulative potential	Not established. Not relevant.

Ferrous (III) chloride / Iron chloride (FeCl₃) (7705-08-0)	
Bioaccumulative potential	Not established.

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)	
Bioaccumulative potential	Bioaccumulation unlikely.

Phosphoric acid (7664-38-2)	
Log Pow	No data available
Log Kow	No data available
Bioaccumulative potential	Not relevant.

12.4. Mobility in soil

boric acid (10043-35-3)	
Ecology - soil	Very mobile.

Nitric acid, copper(2+) salt (2:1) (3251-23-8)	
Ecology - soil	Product adsorbs onto the soil.

Ferrous (III) chloride / Iron chloride (FeCl₃) (7705-08-0)	
Ecology - soil	No additional information available.

12.5. Other adverse effects

Other adverse effects : May cause eutrophication at very low concentration.

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Other information : No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Discharging into rivers and drains is forbidden. Dispose in a safe manner in accordance with local/national regulations.
Additional information : Do not re-use empty containers.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

FERTILEADER VITAL

SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
-------------------------------------	---------------------------------

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

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Nitric acid, copper(2+) salt (2:1)	CAS-No. 3251-23-8	< 0,1%
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Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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Nitric acid, copper(2+) salt (2:1) (3251-23-8)

CERCLA RQ	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

Ferrous (III) chloride / Iron chloride (FeCl3) (7705-08-0)

CERCLA RQ	1000 lb
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Nitric acid, manganese(2+) salt (2:1) (10377-66-9)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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Phosphoric acid (7664-38-2)

CERCLA RQ	5000 lb
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15.2. International regulations

CANADA

boric acid (10043-35-3)

Listed on the Canadian DSL (Domestic Substances List)

Glycine, N,N'-1,2-ethanediyibis[N-(carboxymethyl)-, sodium salt (1:4) (64-02-8)

Listed on the Canadian DSL (Domestic Substances List)

Nitric acid, copper(2+) salt (2:1) (3251-23-8)

Listed on the Canadian DSL (Domestic Substances List)

Ferrous (III) chloride / Iron chloride (FeCl₃) (7705-08-0)

Listed on the Canadian DSL (Domestic Substances List)

Nitric acid, manganese(2+) salt (2:1) (10377-66-9)

Listed on the Canadian DSL (Domestic Substances List)

Phosphoric acid (7664-38-2)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

FERTILEADER VITAL

Ensure all national/local regulations are observed

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

SECTION 16: Other information

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

Revision date : 02/25/2020

Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-phrases:

H272	May intensify fire; oxidizer
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H332	Harmful if inhaled
H335	May cause respiratory irritation
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Abbreviations and acronyms:

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ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
LC50	Median lethal concentration
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
ATE	Acute Toxicity Estimate
SDS	Safety Data Sheet
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
STP	Sewage treatment plant
vPvB	Very Persistent and Very Bioaccumulative

NFPA health hazard

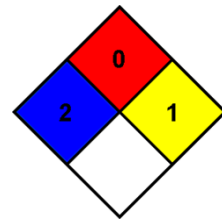
: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

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

: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



Hazard Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

* - Chronic (long-term) health effects may result from repeated overexposure

Flammability

: 0 Minimal Hazard - Materials that will not burn

Physical

: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection

: B,u

B - Safety glasses, Gloves

u - Vapor respirator

Indication of changes:

Section	Changed item	Change	Comments
	Other information	Modified	
	Other adverse effects	Modified	
	Personal protection	Added	
	NFPA health hazard	Modified	
	Health	Modified	
	ATE US (oral)	Added	
	Signal word (GHS US)	Modified	
	Hazard pictograms (GHS US)	Modified	
	Precautionary statements (GHS US)	Modified	
	Hazard statements (GHS US)	Modified	
	Supersedes	Added	

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	Revision date	Added	
	Reason for no classification	Modified	
	Reason for no classification	Modified	
	Reason for no classification	Modified	
2.1	GHS-US classification	Modified	
3	Composition/Information on ingredients	Modified	
4	First-aid measures general	Modified	
4	First-aid measures after eye contact	Modified	
4	First-aid measures after inhalation	Modified	
4	Chronic symptoms	Added	
4	Symptoms/effects after skin contact	Added	
4	Symptoms/effects after eye contact	Added	
5.1	Suitable extinguishing media	Modified	
5.2	Fire hazard	Modified	
5.3	Firefighting instructions	Added	
5.3	Other information	Modified	
5.3	Protection during firefighting	Modified	
6	Other information	Modified	
6	Methods for cleaning up	Modified	
6	For containment	Modified	
6	Emergency procedures	Modified	
6	Emergency procedures	Modified	
6	General measures	Modified	
6	Reference to other sections (8, 13)	Modified	
6	Protective equipment	Added	
6	Protective equipment	Added	
6	Environmental precautions	Added	
7.1	Hygiene measures	Modified	
7.1	Precautions for safe handling	Added	
7.1	Additional hazards when processed	Added	
7.2	Incompatible products	Modified	
7.2	Incompatible materials	Removed	
7.2	Heat-ignition	Added	
7.2	Technical measures	Modified	
7.2	Storage temperature	Added	
7.2	Special rules on packaging	Modified	
7.2	Storage area	Modified	
7.2	Storage conditions	Modified	
8.1	Additional information	Removed	
8.2	Respiratory protection	Modified	
8.2	Hand protection	Modified	
8.2	Eye protection	Modified	
8.2	Appropriate engineering controls	Added	
8.2	Environmental exposure controls	Added	
8.2	Other information	Modified	
9	Explosive properties	Added	
9	pH	Modified	
9	Specific gravity / density	Added	
10	Conditions to avoid	Modified	
10	Incompatible materials	Modified	
10	Reactivity	Modified	
11	Additional information	Added	
11	Additional information	Added	
11	Additional information	Added	

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11	Additional information	Added	
12.2	Persistence and degradability	Modified	
12.3	Bioaccumulative potential	Modified	
13	Ecology - waste materials	Removed	
13	Waste disposal recommendations	Added	
13	Additional information	Modified	
13	Regional legislation (waste)	Added	
13	Waste treatment methods	Modified	
13	Sewage disposal recommendations	Added	
16	Abbreviations and acronyms	Added	

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.

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Name : FERTILEADER VITI
 Product code : FLVITIUSA

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

Recommended use : Fertilizers

1.3. Details of the supplier of the safety data sheet

TIMAC Agro USA, INC
 P.O. Box 888 - Route 724 & I-176
 READING, - USA
 T 1-800-545-5474
info-fds@roullier.com

1.4. Emergency telephone number

Emergency number : USA POISON CONTROL : 1-800-222-1222

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Reproductive toxicity, H361
 Category 2

Full text of H statements : see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS08

Signal word (GHS-US) : Warning
 Hazard statements (GHS-US) : H361 - Suspected of damaging fertility or the unborn child
 Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
 P202 - Do not handle until all safety precautions have been read and understood
 P280 - Wear face shield, protective clothing, protective gloves
 P308+P313 - If exposed or concerned: Get medical advice/attention
 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

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Boric acid (H3BO3)	(CAS No) 10043-35-3	0.1 - 10	Repr. 2, H361

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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 : Get medical advice/attention if you feel unwell. Prompt treatment is essential to minimize damage.
- First-aid measures after inhalation : IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice and attention if you feel unwell.
- First-aid measures after skin contact : Wash with water and soap as a precaution. If case of redness or irritation, call a doctor.
- First-aid measures after eye contact : Wash immediately with plenty water (during 20 minutes), also under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist if an irritation appears. If possible show him this sheet. Failing this, show him the packaging or label.
- First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting without medical advice. If swallowed, seek medical advice immediately and show this container or label.

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

- Symptoms/injuries : (see section(s) : 2.1/2.3).

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 (CO₂).

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Non oxidizing material according to EC criteria.
- Reactivity : On burning: release of (highly) toxic gases/vapours, nitro-compounds, Phosphate. Released gases may accelerate the burning of other combustible materials. Carbon dioxide.

5.3. Advice for firefighters

- Protection during firefighting : Do not enter or remain in the danger zone without protection clothing. Wearing autonomous, insulating breathing equipment is recommended when entering the danger zone.
- Other information : Avoid pouring fire water down the drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Refer to protective measures listed in Sections 7 and 8. Avoid contact with skin, eyes and clothing.

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Emergency procedures : Stop leak without risks if possible. Dike and contain spill.

6.2. Environmental precautions

Do not allow to enter drains or water courses.

6.3. Methods and material for containment and cleaning up

- For containment : Mix with an inert absorbent (mineral absorbent, sand or earth; do not use sawdust).
- Methods for cleaning up : Collect waste, store it in polythene containers before having it treated by an approved company. Clean contaminated surfaces with an excess of water.
- Other information : Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid contact with eyes. Concerning personal protective equipment to use, see item 8.

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Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. If on skin, take off contaminated clothing. Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep out of reach of children.
Storage conditions : In its original packaging, in a ventilated place, in an area resistant to corrosion, away from frost, at temperatures below 40°C, away from foodstuffs and reactive materials. Store closed containers with closure in upper position.
Incompatible products : Reducing agents.
Prohibitions on mixed storage : Keep away from food, drink and animal feeding stuffs.
Storage area : Keep out of frost. Store in dry, cool, well-ventilated area. Store away from heat/moisture.
Special rules on packaging : Store in original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Boric acid (H3BO3) (10043-35-3)		
ACGIH	ACGIH TWA (mg/m ³)	8h 2 mg/m ³ borate compounds
ACGIH	ACGIH STEL (mg/m ³)	15 min 6 mg/m ³ borate compounds
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³ inhalable and respirable dust

Additional information : No study has been carried out for the moment on this mixture

8.2. Exposure controls

Personal protective equipment : Gloves. Safety glasses.



Hand protection : butyl rubber gloves. Latex gloves. (according to standard EN 374).
Eye protection : Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product. (according to standard EN 166).
Skin and body protection : Use chemically protective clothing.
Respiratory protection : No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation. Where excessive vapour may result, wear approved mask. Dust / anti-aerosol filter type P2 (according to standard EN 143).
Other information : Handle in accordance with good industrial hygiene and safety practice. Always wash hands and face immediately after handling this product, and once again before leaving the workplace. If on skin, take off contaminated clothing. Do not drink, eat or smoke in the workplace.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Colour : dark brown
Odour : odourless
Odour threshold : Not applicable
pH : 7.5
Melting point : No data available
Freezing point : ≤ -1 °C
Boiling point : > 100 °C
Flash point : No data available
Relative evaporation rate (butylacetate=1) : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available

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Relative density	: No data available
Density	: 1.282 kg/l
Solubility	: Water: Miscible in all proportions
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: Not applicable
Explosive properties	: No data available
Oxidising properties	: Non oxidizing material according to EC criteria.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of (highly) toxic gases/vapours, nitro-compounds, Phosphate. Released gases may accelerate the burning of other combustible materials. Carbon dioxide.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Gel. Heat. Water, humidity. Avoid ignition sources.

10.5. Incompatible materials

None to our knowledge.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire: See Heading 5.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified
(Based on available data, the classification criteria are not met)

FERTILEADER VITI	
Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Boric acid (H3BO3) (10043-35-3)	
LD50 oral rat	3765 mg/kg bodyweight (OECD 401 method)
LD50 dermal rat	> 2000 mg/kg bodyweight EPA-FIFRA
LC50 inhalation rat (mg/l)	2.12 mg/m ³ (OECD 403 method)
Additional information	Safety Data Sheet Supplier

Skin corrosion/irritation : Not classified
(Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
pH: 7.5

Serious eye damage/irritation : Not classified
(Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
pH: 7.5

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Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
Reproductive toxicity	: Suspected of damaging fertility or the unborn child. (No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
Specific target organ toxicity (single exposure)	: Not classified (Based on available data, the classification criteria are not met)

FERTILEADER VITI

Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Specific target organ toxicity (repeated exposure)	: Not classified (Based on available data, the classification criteria are not met)
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FERTILEADER VITI

Additional information	No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation
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Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation)
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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Based on available data, the classification criteria are not met. No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation.
Ecology - water	: Harmful to aquatic life with long lasting effects.

Boric acid (H3BO3) (10043-35-3)

LC50 fish 1	Boron - 96h 74 mg/l Limanda limanda
LC50 other aquatic organisms 1	Boron - 48h 45 - 83 ml/l aquatic invertebrates
NOEC (acute)	10d 10 mg/l Chlorella pyrenoidosa
Additional ecotoxicological information	Safety Data Sheet Supplier

12.2. Persistence and degradability

FERTILEADER VITI

Persistence and degradability	No study has been carried out for the moment on this mixture.
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Boric acid (H3BO3) (10043-35-3)

Persistence and degradability	Not biodegradable.
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12.3. Bioaccumulative potential

FERTILEADER VITI

Bioaccumulative potential	No study has been carried out for the moment on this mixture.
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Boric acid (H3BO3) (10043-35-3)	
Log Pow	-0.757
Bioaccumulative potential	Low bioaccumulation potential.

12.4. Mobility in soil

FERTILEADER VITI	
Ecology - soil	The main components of the mixture are completely soluble in water.

Boric acid (H3BO3) (10043-35-3)	
Ecology - soil	Very mobile.

12.5. Other adverse effects

Effect on the global warming : No known effects from this product.
GWPmix comment : No known effects from this product.
Other information : No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Additional information : Remove to an authorized waste treatment plant.
Ecology - waste materials : Do not allow into drains or water courses.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT
Not applicable

TDG

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

FERTILEADER VITI	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

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

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

Boric acid (H3BO3) (10043-35-3)	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

EU-Regulations

No additional information available

National regulations

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Ensure all national/local regulations are observed

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

SECTION 16: Other information

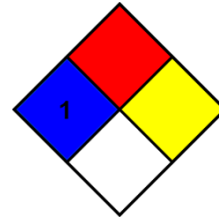
Data sources : Section 1.2, 8.1, 11 & 12 are based on components' Chemical Safety Report and/or datas from components' supplier.

Full text of H-statements:

H361

Suspected of damaging fertility or the unborn child

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.



HMIS III Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

* - Chronic (long-term) health effects may result from repeated overexposure

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