

SAFETY DATA SHEET



VYTEGRIS FOLIAR EXTRA

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| Version | Revision Date: | SDS Number: | Date of last issue: - |
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SECTION 1: Identification of the hazardous chemical and of the supplier

Product identifier

Product name : VYTEGRIS FOLIAR EXTRA

Recommended use of the chemical and restrictions on use

Recommended use : A fertilizer with micronutrients for use in agriculture

Restrictions on use : Use as recommended by the label.

Manufacturer or supplier's details

Principal Supplier : FMC United (Pvt) Ltd
99 E-1 Ghalib Road
Gulberg III
54000 Lahore
Pakistan
SDS-Info@fmc.com

Local registrant : FMC Chemicals (Malaysia) Sdn Bhd
Level 16, 1 Sentral, Jalan Stesen Sentral 5,
Kuala Lumpur Sentral
50470, Kuala Lumpur, Malaysia
Phone No: +60320929423
Fax No: +603-2092 9201

Emergency telephone : For leak, fire, spill or accident emergencies, call:
CHEMTREC (Asia-Pacific Regional Number): +65 3163 8374

Medical emergency:
All other countries: +1 651 / 632-6793 (Collect)
1 703 / 741-5970 (CHEMTREC - International)

SECTION 2: Hazards identification

Classification of the hazardous chemical

Oxidizing liquids : Category 3

Corrosive to Metals : Category 1

Acute toxicity (Oral) : Category 4

Skin corrosion/irritation : Category 1

Serious eye damage/eye irritation : Category 1

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Carcinogenicity : Category 2

Hazardous to the aquatic environment - chronic hazard : Category 3

Label elements

Hazard pictograms :



Signal Word : DANGER

Hazard Statements : H272 May intensify fire; oxidizer.
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H351 Suspected of causing cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat.
P220 Keep/Store away from clothing/ combustible materials.
P221 Take any precaution to avoid mixing with combustibles.
P234 Keep only in original container.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281 Use personal protective equipment as required.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.

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P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P390 Absorb spillage to prevent material damage.

Storage:

P405 Store locked up.

P406 Store in corrosive resistant container with a resistant inner liner.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

None known.

SECTION 3: Composition and information of the ingredients of the hazardous chemical

Substance / Mixture : Mixture

Components

| Chemical name | CAS-No. | Concentration (% w/w) |
|-----------------------------|------------|-----------------------|
| phosphoric acid | 7664-38-2 | ≥ 10 -< 25 |
| magnesium nitrate | 10377-60-3 | ≥ 5 -< 10 |
| potassium hydroxide | 1310-58-3 | ≥ 3 -< 5 |
| trisodium nitrilotriacetate | 5064-31-3 | ≥ 1 -< 3 |
| Citric acid, monohydrate | 5949-29-1 | ≥ 1 -< 3 |
| manganese dinitrate | 10377-66-9 | ≥ 0.25 -< 1 |

SECTION 4: First aid measures

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : Move to fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Take off all contaminated clothing immediately.
Wash contaminated clothing before re-use.
Wash off immediately with plenty of water for at least 15 minutes.
Get medical attention if irritation develops and persists.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.

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- Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed.
Causes serious eye damage.
Suspected of causing cancer.
Causes severe burns.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
Avoid inhalation, ingestion and contact with skin and eyes.
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- Notes to physician : Treat symptomatically.

SECTION 5: Firefighting measures**Extinguishing media**

- Suitable extinguishing media : Dry chemical, CO₂, water spray or regular foam.
- Unsuitable extinguishing media : Do not spread spilled material with high-pressure water streams.

Physicochemical hazards arising from the chemical

- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Ammonia
Fire may produce irritating, corrosive and/or toxic gases.
Carbon oxides
Sulfur oxides

Special protective equipment and precautions for fire-fighters

- Special protective equipment for fire-fighters : Firefighters should wear protective clothing and self-contained breathing apparatus.
- Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.

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Use a water spray to cool fully closed containers.

Hazchem Code : 2R

SECTION 6: Accidental release measures

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
If it can be safely done, stop the leak.
Do not touch or walk through the spilled material.
Never return spills in original containers for re-use.
Mark the contaminated area with signs and prevent access to unauthorized personnel.
Only qualified personnel equipped with suitable protective equipment may intervene.
For disposal considerations see section 13.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Neutralize with chalk, alkali solution or ammonia.
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage

Handling

Precautions for safe handling

- Advice on protection against fire and explosion : Keep away from combustible material.
- Advice on safe handling : Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

Storage

Conditions for safe storage, including any incompatibilities

- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and

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kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Do not store near acids.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8: Exposure controls and personal protection

Control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---------------------|------------|-------------------------------------|--|--------|
| phosphoric acid | 7664-38-2 | TWA | 1 mg/m ³ | MY PEL |
| | | STEL | 3 mg/m ³ | ACGIH |
| potassium hydroxide | 1310-58-3 | CEIL | 2 mg/m ³ | MY PEL |
| | | C | 2 mg/m ³ | ACGIH |
| manganese dinitrate | 10377-66-9 | TWA | 0.2 mg/m ³ (Manganese) | MY PEL |
| | | TWA (Inhalable particulate matter) | 0.1 mg/m ³ (Manganese) | ACGIH |
| | | TWA (Respirable particulate matter) | 0.02 mg/m ³ (Manganese) | ACGIH |

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hand protection
Material : Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Respiratory protection : No personal respiratory protective equipment normally required.

Hygiene measures : When using do not eat or drink.
When using do not smoke.

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Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

| | |
|--|---------------------------------------|
| Physical state | : liquid |
| Color | : No data available |
| Odor | : No data available |
| Odor Threshold | : No data available |
| pH | : 1.50 - 2.50 Concentration: 100 % |
| Melting point/freezing point | : No data available |
| Initial boiling point and boiling range | : No data available |
| Flash point | : No data available |
| Upper explosion limit / Upper flammability limit | : No data available |
| Lower explosion limit / Lower flammability limit | : No data available |
| Vapor pressure | : No data available |
| Relative vapor density | : No data available |
| Relative density | : 1.226 - 1.265 |
| Density | : No data available |
| Bulk density | : No data available |
| Solubility(ies) | |
| Water solubility | : soluble |
| Solubility in other solvents | : No data available |
| Partition coefficient: n-octanol/water | : No data available |
| Autoignition temperature | : No data available |
| Decomposition temperature | : No data available |

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| | | |
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| Viscosity | | |
| Viscosity, dynamic | : | No data available |
| Viscosity, kinematic | : | No data available |
| Explosive properties | : | No data available |
| Oxidizing properties | : | No data available |
| Particle size | : | No data available |

SECTION 10: Stability and reactivity

| | | |
|------------------------------------|---|---|
| Reactivity | : | No decomposition if stored and applied as directed. |
| Chemical stability | : | No decomposition if stored and applied as directed. |
| Possibility of hazardous reactions | : | No decomposition if stored and applied as directed. |
| Conditions to avoid | : | Avoid extreme temperatures. Heat, flames and sparks. |
| Hazardous decomposition products | : | No data available |

SECTION 11: Toxicological information

Information on likely routes of exposure : None known.

Acute toxicity

Harmful if swallowed.

Product:

| | | |
|---------------------------|---|---|
| Acute oral toxicity | : | LD50 Oral: > 2,000 mg/kg Method: Calculation method Remarks: Based on data from similar materials |
| Acute inhalation toxicity | : | LC0: > 20 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method Remarks: Based on data from similar materials |
| Acute dermal toxicity | : | Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method |

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Components:

phosphoric acid:

Acute oral toxicity : LD50 (Rat, female): 2,600 mg/kg
Method: OECD Test Guideline 423

magnesium nitrate:

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 423

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402

potassium hydroxide:

Acute oral toxicity : LD50 (Rat, male): 333 mg/kg

trisodium nitrilotriacetate:

Acute oral toxicity : LD50 (Rat, female): 1,470 mg/kg

Acute inhalation toxicity : LC0 (Rat, male): 2.307 mg/l
Exposure time: 4 d
Test atmosphere: dust/mist
Remarks: no mortality

Acute dermal toxicity : LD0 (Rabbit, male and female): 2,000 mg/kg
Remarks: no mortality

Citric acid, monohydrate:

Acute oral toxicity : LD50 Oral (Mouse, male and female): 5,400 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 Dermal (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

manganese dinitrate:

Acute oral toxicity : LD50 Oral (Rat, female): > 300 mg/kg
Method: OECD Test Guideline 420

Skin corrosion/irritation

Causes severe burns.

Product:

Assessment : Irritating to skin.
Result : Severe skin irritation

Components:

phosphoric acid:

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Species : Rabbit
Assessment : Corrosive
Result : Corrosive after 3 minutes to 1 hour of exposure

magnesium nitrate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Remarks : Based on data from similar materials

potassium hydroxide:

Species : reconstructed human epidermis (RhE)
Method : OECD Test Guideline 431
Result : Corrosive

trisodium nitrilotriacetate:

Species : Rabbit
Method : Draize Test
Result : No skin irritation

Citric acid, monohydrate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

manganese dinitrate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Corrosive after 1 to 4 hours of exposure

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Assessment : Risk of serious damage to eyes.
Remarks : Information given is based on data obtained from similar product.

Remarks : May cause irreversible eye damage.

Components:

phosphoric acid:

Result : Irreversible effects on the eye
Remarks : Based on skin corrosivity

magnesium nitrate:

Species : Rabbit
Result : Eye irritation

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Method : OECD Test Guideline 405

potassium hydroxide:

Species : Rabbit
Result : Corrosive
Method : OECD Test Guideline 405

trisodium nitrilotriacetate:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days
Method : OECD Test Guideline 405

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Citric acid, monohydrate:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days
Method : OECD Test Guideline 405

manganese dinitrate:

Species : Bovine cornea
Result : Irreversible effects on the eye

Respiratory or skin sensitization

Skin sensitization

Based on available data, the classification criteria are not met.

Respiratory sensitization

Based on available data, the classification criteria are not met.

Product:

Assessment : Not a skin sensitizer.
Remarks : Based on data from similar materials

Components:

magnesium nitrate:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Method : OECD Test Guideline 429
Result : Does not cause skin sensitization.

potassium hydroxide:

Test Type : Intracutaneous test
Species : Guinea pig
Result : Not a skin sensitizer.

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trisodium nitrilotriacetate:

| | |
|-----------|--------------------------------------|
| Test Type | : Buehler Test |
| Species | : Guinea pig |
| Method | : OECD Test Guideline 406 |
| Result | : Does not cause skin sensitization. |

manganese dinitrate:

| | |
|-----------|--------------------------------------|
| Test Type | : Local lymph node assay (LLNA) |
| Species | : Mouse |
| Method | : OECD Test Guideline 429 |
| Result | : Does not cause skin sensitization. |

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Components:**phosphoric acid:**

| | |
|-----------------------|---|
| Genotoxicity in vitro | : Test Type: reverse mutation assay Method: OECD Test Guideline 471 Result: negative |
| | Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative |

magnesium nitrate:

| | |
|-----------------------|---|
| Genotoxicity in vitro | : Test Type: reverse mutation assay Method: OECD Test Guideline 471 Result: negative |
| | Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative Remarks: Based on data from similar materials |
| | Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative Remarks: Based on data from similar materials |

| | |
|-------------------------------------|---|
| Germ cell mutagenicity - Assessment | : In vitro tests did not show mutagenic effects |
|-------------------------------------|---|

potassium hydroxide:

| | |
|-----------------------|--|
| Genotoxicity in vitro | : Test Type: Ames test Result: negative |
|-----------------------|--|

trisodium nitrilotriacetate:

| | |
|-----------------------|---|
| Genotoxicity in vitro | : Test Type: reverse mutation assay Result: negative |
|-----------------------|---|

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Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Test Type: Cytogenetic assay
Species: Mouse (male)
Application Route: Oral
Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Citric acid, monohydrate:

Genotoxicity in vitro : Test Type: Micronucleus test
Method: OECD Test Guideline 487
Result: positive

Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: chromosome aberration assay
Species: Rat (male)
Application Route: Oral
Method: OECD Test Guideline 475
Result: negative

Test Type: Rodent Dominant Lethal Assay
Species: Rat (male and female)
Application Route: Oral
Method: Regulation (EC) No. 440/2008, Annex, B.22
Result: negative

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

manganese dinitrate:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

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Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (female)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Suspected of causing cancer.

Components:**trisodium nitrilotriacetate:**

Species : Rat, male and female
Application Route : Oral
Exposure time : 104 weeks
Dose : 0, 9, 92, 921 mg/kg/d
 : 9 mg/kg bw/day
LOAEL : 92 mg/kg bw/day
Result : positive

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Citric acid, monohydrate:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

manganese dinitrate:

Species : Rat, male
Application Route : Oral
Exposure time : 103 weeks
Dose : 60, 200, 615 mg/kg body weight
 : 615 mg/kg body weight
Result : negative

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

Reproductive toxicity

Based on available data, the classification criteria are not met.

Components:**phosphoric acid:**

Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Ingestion
General Toxicity Parent: NOAEL: 500 mg/kg body weight
General Toxicity F1: NOAEL: 500 mg/kg body weight

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Method: OECD Test Guideline 422

Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Mouse
Application Route: Ingestion
General Toxicity Maternal: NOAEL: 370 mg/kg body weight
Developmental Toxicity: NOAEL: 370 mg/kg body weight
Result: negative
Remarks: Based on data from similar materials

magnesium nitrate:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 0, 250, 750, and 1,500 milligram per kilogram
Duration of Single Treatment: 28 d
General Toxicity Parent: NOAEL: > 1,500 mg/kg body weight
Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Species: Rat
Application Route: Oral
Dose: 0, 250, 750, and 1,500 milligram per kilogram
Duration of Single Treatment: 28 d
General Toxicity Maternal: NOAEL: > 1,500 mg/kg body weight
Developmental Toxicity: NOAEL: > 1,500 mg/kg body weight
Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

trisodium nitrilotriacetate:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 90 and 450 mg/kg bw/day
General Toxicity Parent: LOAEL: 450 mg/kg body weight
Result: negative

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Oral
Dose: 90 and 450 mg/kg bw/day
General Toxicity Maternal: LOAEL: 450 mg/kg bw/day
Developmental Toxicity: NOAEL: 450 mg/kg bw/day
Result: negative

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

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Citric acid, monohydrate:

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Mouse
Application Route: Oral
Dose: 0, 2.41, 11.2, 52.0, 241 mg/k
Duration of Single Treatment: 6 - 15 d
Teratogenicity: NOAEL: > 241 mg/kg body weight

Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Oral
Dose: 0, 2.95, 13.7, 63.6, 295 mg/k
Duration of Single Treatment: 6 - 15 d
Teratogenicity: NOAEL: > 295 mg/kg body weight

Test Type: reproductive and developmental toxicity study
Species: Rabbit
Application Route: Oral
Dose: 0, 4.25, 19.75, 91.70, 425 mg
Duration of Single Treatment: 6 - 15 d
Teratogenicity: NOAEL: > 425 mg/kg body weight

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

manganese dinitrate:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: inhalation (dust/mist/fume)
Dose: 0, 5, 10, 20 µg/L
General Toxicity Parent: NOEC: 0.020 mg/l
General Toxicity F1: NOAEC: 0.020 mg/l
Method: OECD Test Guideline 416
Result: negative

Effects on fetal development : Species: Rat
Application Route: inhalation (dust/mist/fume)
General Toxicity Maternal: NOAEL: 0.005 mg/L
Embryo-fetal toxicity.: NOAEL: 0.015 mg/L
Method: OECD Test Guideline 414

STOT-single exposure

Based on available data, the classification criteria are not met.

Components:**trisodium nitrilotriacetate:**

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

STOT-repeated exposure

Based on available data, the classification criteria are not met.

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Components:**magnesium nitrate:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Citric acid, monohydrate:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

manganese dinitrate:

Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Repeated dose toxicity**Components:****phosphoric acid:**

Species : Rat, male and female
NOAEL : 250 mg/kg
Application Route : Oral - gavage
Exposure time : 42 - 54 d
Method : OECD Test Guideline 422

magnesium nitrate:

Species : Rat, male and female
NOAEL : > 1,500 mg/kg
Application Route : Oral
Exposure time : 28d
Dose : 0, 250, 750, 1,500 mg/kg/day
Method : OECD Test Guideline 422
Remarks : Based on data from similar materials

trisodium nitrilotriacetate:

Species : Rat, male
NOAEL : 9 mg/kg bw/day
Application Route : Oral - feed
Exposure time : 28 d
Dose : 0, 9 mg/kg ppm

Species : Rat, male and female
LOAEC : 0.342 mg/l
Application Route : Inhalation
Test atmosphere : dust/mist
Exposure time : 28 d
Dose : 0.0102, 0.2131, 0.3422 mg/l

Species : Rabbit
NOAEL : 50 mg/kg bw/day
Application Route : Dermal
Exposure time : 28 or 91 d

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Dose : 0, 50 mg/kg

Citric acid, monohydrate:

Species : Rat
NOAEL : 4,000 mg/kg
LOAEL : 8,000 mg/kg
Application Route : Oral
Exposure time : 10d
Dose : 2, 4, 8, 16 g/kg bw/day

Species : Mouse
NOAEL : 1,000 mg/kg
LOAEL : 2,000 mg/kg
Application Route : Oral
Exposure time : 10d
Dose : 1, 2, 4, 8 g/kg bw/day

manganese dinitrate:

Species : Rat, male
NOAEL : 1700 mg/kg bw/day
Application Route : Oral
Exposure time : 13weeks
Dose : 110 to 1700 mg/kg

Species : Rat, male and female
NOAEL : 20 µg/L air
Application Route : inhalation (dust/mist/fume)
Dose : 5, 10, 20 µg/L air
Method : OPPTS 870.3800

Aspiration toxicity

Based on available data, the classification criteria are not met.

Further information

Product:

Remarks : No data available

SECTION 12: Ecological information

Ecotoxicity

Product:

Toxicity to fish : Remarks: No data is available on the product itself.

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data is available on the product itself.

Toxicity to algae/aquatic plants : Remarks: No data is available on the product itself.

Toxicity to microorganisms : Remarks: No data available

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Components:**phosphoric acid:**

- Toxicity to fish : LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 3 - 3.25 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (*Desmodesmus subspicatus* (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- NOEC (*Desmodesmus subspicatus* (green algae)): 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

magnesium nitrate:

- Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials
- LC50 (*Poecilia reticulata* (guppy)): 1,378 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials
- LC50 (*Cyprinus carpio* (Carp)): 95 - 102 mg/l
Exposure time: 48 h
Test Type: semi-static test
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 39 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials
- Toxicity to algae/aquatic plants : EC50 (diatoms): > 1,700 mg/l
Exposure time: 10 d
Test Type: static test
Remarks: Based on data from similar materials
- Toxicity to fish (Chronic toxicity) : NOEC (*Pimephales promelas* (fathead minnow)): 58 mg/l
Exposure time: 30 d
Test Type: flow-through test
Remarks: Based on data from similar materials
- NOEC (*Pimephales promelas* (fathead minnow)): 157 mg/l

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Exposure time: 32 d
Test Type: flow-through test
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

trisodium nitrilotriacetate:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 114 mg/l
Exposure time: 96 h
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Gammarus fasciatus (freshwater shrimp)): 98 mg/l
Exposure time: 96 h
Test Type: flow-through test

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 91.5 mg/l
Exposure time: 72 h
Method: EU Method C3

NOEC (Desmodesmus subspicatus (green algae)): 1.43 mg/l
Exposure time: 72 h
Method: EU Method C3

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 54 mg/l
Exposure time: 229 d
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Gammarus fasciatus (freshwater shrimp)): 9.3 mg/l
Exposure time: 147 d
Test Type: flow-through test

Toxicity to microorganisms : (Protozoa): > 400 mg/l
Exposure time: 48 h
Test Type: Growth inhibition

Citric acid, monohydrate:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 440 mg/l
Test Type: static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1,535 mg/l
Exposure time: 24 h
Test Type: static test

Toxicity to algae/aquatic plants : NOEC (Scenedesmus quadricauda (Green algae)): 425 mg/l
Exposure time: 8 d
Test Type: static test

Toxicity to microorganisms : NOEC (Pseudomonas putida): > 10,000 mg/l
Exposure time: 16 h
Test Type: Cell multiplication inhibition test

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NOEC (Protozoa): 325 mg/l
Exposure time: 72 h

Toxicity to terrestrial organisms : NOEC (Birds): > 4 mg/kg
Exposure time: 14 d

LD50 (Birds): > 4 mg/kg
Exposure time: 14 d

manganese dinitrate:

Toxicity to fish : LC50 (Fish): 55.26 - 67.71 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : LOEC (Lemna minor (duckweed)): 64.94 mg/l
Exposure time: 7 d
Method: OECD Test Guideline 221
Remarks: Based on data from similar materials

EC10 (Lemna minor (duckweed)): 23.37 mg/l
Exposure time: 7 d
Method: OECD Test Guideline 221
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : see user defined free text (Oncorhynchus mykiss (rainbow trout)): 2.9 mg/l
Exposure time: 28 d
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.02 mg/l
Exposure time: 20 d
Test Type: static test

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to microorganisms : NOEC (activated sludge): 560 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Persistence and degradability

Components:

phosphoric acid:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

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trisodium nitrilotriacetate:

Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 14 d
Method: OECD Test Guideline 301E

Citric acid, monohydrate:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301B

Result: Readily biodegradable.
Method: OECD Test Guideline 301E

Result: Inherently biodegradable.
Method: OECD Test Guideline 302B

Bioaccumulative potential

Components:

trisodium nitrilotriacetate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: -13.2 (25 °C)
Method: QSAR

Citric acid, monohydrate:

Bioaccumulation : Bioconcentration factor (BCF): 3.2
Method: QSAR

Partition coefficient: n-octanol/water : log Pow: -1.55

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

Components:

phosphoric acid:

Additional ecological information : Harmful effects on aquatic organisms also due to pH shift.

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SECTION 13: Disposal information

Disposal methods

- Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

International Regulations

UNRTDG

- UN number : UN 1805
Proper shipping name : PHOSPHORIC ACID, SOLUTION
Class : 8
Packing group : III
Labels : 8
Environmentally hazardous : no

IATA-DGR

- UN/ID No. : UN 1805
Proper shipping name : Phosphoric acid, solution
Class : 8
Packing group : III
Labels : Corrosive
Packing instruction (cargo aircraft) : 856
Packing instruction (passenger aircraft) : 852

IMDG-Code

- UN number : UN 1805
Proper shipping name : PHOSPHORIC ACID SOLUTION

Class : 8
Packing group : III
Labels : 8
EmS Code : F-A, S-B
Marine pollutant : no

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

Not applicable for product as supplied.

- Hazchem Code : 2R

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Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15: Regulatory information

Safety, health, and environmental regulations specific for the hazardous chemical

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.

Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.

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

| | |
|-------|---|
| TCSI | : Not in compliance with the inventory |
| TSCA | : Product contains substance(s) not listed on TSCA inventory. |
| AIIC | : Not in compliance with the inventory |
| DSL | : This product contains the following components that are not on the Canadian DSL nor NDSL. JETT 200 |
| ENCS | : Not in compliance with the inventory |
| ISHL | : Not in compliance with the inventory |
| KECI | : Not in compliance with the inventory |
| PICCS | : Not in compliance with the inventory |
| IECSC | : Not in compliance with the inventory |
| NZIoC | : Not in compliance with the inventory |
| TECI | : Not in compliance with the inventory |

SECTION 16: Other information

| | |
|---------------|--------------|
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| Date format | : dd.mm.yyyy |

Full text of other abbreviations

| | |
|--------|---|
| ACGIH | : USA. ACGIH Threshold Limit Values (TLV) |
| MY PEL | : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000. |

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| | | |
|---------------|---|---|
| ACGIH / TWA | : | 8-hour, time-weighted average |
| ACGIH / STEL | : | Short-term exposure limit |
| ACGIH / C | : | Ceiling limit |
| MY PEL / TWA | : | Eight-hour time-weighted average airborne concentration |
| MY PEL / CEIL | : | Ceiling limit airborne concentration |

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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