SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Iron 13% EDTA

MANUFACTURER / DISTRIBUTOR: TerraLink Horticulture Inc.
ADDRESS: 464 Riverside Road, Abbotsford, BC. Canada V2S 7M1
PHONE: 604-864-9044
24 HOUR CEDA EMERGENCY PHONE: 604-540-4100
CHEMICAL SPILLS: 800-663-3456
PRODUCT USE: Fertilizer
PREPARED BY: Regulatory Affairs
REVISION DATE: March 24, 2011.

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>REPORTABLE \ INGREDIENT(S)</th>
<th>CAS NO.</th>
<th>EXPOSURE LIMITS</th>
<th>% VOL/WT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylenediaminetetraacetic acid, ferric sodium complex, trihydrate, approx. 100%</td>
<td>15708-41-5</td>
<td>OSHA PEL-TWA</td>
<td>4 mg/m³</td>
</tr>
</tbody>
</table>

Not classified as hazardous according to the EEC Dangerous Substance Directive and Dangerous Preparation Directive.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION: KEEP OUT OF REACH OF CHILDREN

ROUTES OF ENTRY: Inhalation, Skin, Eye and Ingestion

ACUTE HEALTH EFFECTS

EYES: Solid particles are likely irritating as “foreign objects”. Some tearing, blinking and mild temporary pain may occur as the solid material is rinsed from the eye(s) by tears.

SKIN: Dusts and mists are not expected to be irritating based on pH

INGESTION: Ingestion in very large amounts may cause nausea and vomiting. Ingestion is not a typical route of occupational exposure.

INHALATION: The dusts and mists (from solutions) may be irritating to nose and throat. High concentrations of dust may cause coughing and mild, temporary irritation.

CHRONIC HEALTH HAZARDS: In general, long-term exposures to high concentrations of dust may cause increased mucous flow in the nose and respiratory system airways. This condition usually disappears after exposure stops. Controversy exists as to the role exposure to dust has in the development of chronic bronchitis. Other factors such as smoking and general air pollution are more important, but dust exposure may also contribute.

CARCINOGENICITY: Blend not considered to be carcinogenic.

SECTION 4: FIRST AID MEASURES

EYES: Rinse thoroughly with plenty of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if irritation develops.

SKIN: No special measures required.

INGESTION: No special measures required.

INHALATION: Dust may be irritating to the respiratory tract and cause symptoms of bronchitis. Move to fresh air. If symptoms persist, seek medical advice.
SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: waterspray, foam, Carbon dioxide, dry chemical powder

SPECIAL FIRE FIGHTING PROCEDURES: Use self-contained respiratory equipment

UNUSUAL FIRE AND EXPLOSION HAZARDS: In case of fire and/or explosion, do not breathe fumes.

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrous gases may be produced.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Restrict access to area until completion of clean-up. Provide adequate personal protective equipment (Section 8) and ensure clean-up is conducted by trained personnel only. Ventilate area. Remove any reactive chemicals from the area. Collect as much as possible in a clean container for (preferable) reuse or disposal. Flush remainder with water.

SECTION 6 NOTES: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Avoid dust generation. In certain conditions, the product may form an explosive dust-air mixture. Store in cool dry place away from children, feed and food products, and seed. Protect from humidity. Keep container tightly closed and dry.

OTHER PRECAUTIONS: May be toxic to fish and other aquatic organisms. Do not contaminate water supplies by handling and storage of product. Drift or runoff may adversely affect aquatic invertebrates and non-target plants.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING / VENTILATION CONTROLS: Use local exhaust ventilation to control dust or mist. Supply sufficient replacement air to make up for air removed by exhaust system, process of personnel enclosure and control of process conditions.

RESPIRATORY PROTECTION: For operations where the exposure limit may be exceeded, a NIOSH/MSHA approved high efficiency particulate respirator is recommended.

EYE PROTECTION: Dust or splash-proof chemical safety goggles or face shield.

SKIN PROTECTION: Rubber or Nitrile gloves, long sleeve shirt and pants or coveralls, boots and/or other resistant protective clothing. Have a safety eyewash fountain readily available in the work area.

Dust (general)
Time Weighted Average (TWA) 10 mg/m³ inhalable dust.
Time Weighted Average (TWA) 4 mg/m³ respirable dust.

DNEL Source of key data: IUCLID 5 datasheet:
Worker DNEL inhalation, acute local (mg/m3) / Worker DNEL inhalation acute systemic (mg/m3) : 74 ;
Worker DNEL long term inhalation dust aerosol systemic (mg/m3) : 2 ;
Worker DNEL long term dermal systemic (mg/kg bw/day) : 4200 ;
General population DNEL long term inhalation systemic (mg/m3) : 0.5 ;
General population DNEL long term dermal systemic (mg/kg bw/day) : 2100 ;
General population DNEL long term oral systemic (mg/kg bw/day) : 0.42

PNEC Source of key data: IUCLID 5 datasheet:
PNEC fresh water (mg/l) : 3.1 ;
PNEC marine water (mg/l) : 0.31 ;
PNEC intermittent release (mg/l) : 1.09 ;
PNEC Sewage Treatment Plant (mg/l) : 64 ;

Environmental risk management measures
For specific Identified Uses: see the relevant Exposure Scenarios in the annexes.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Yellow-green powder
ODOR: Odourless
PHYSICAL STATE: Solid

pH AS SUPPLIED: 4.5-5.5 (1% solution)
pH (Other): NA
BOILING POINT: NA
MELTING/FREEZING POINT: Decomposes prior to melting
VAPOR PRESSURE (mmHg): NA
VAPOR DENSITY (AIR = 1): NA
SPECIFIC GRAVITY (H2O = 1): NA
EVAPORATION RATE: NA
BASIS (1): NA
SOLUBILITY IN WATER: approx. 90 g/L
PERCENT SOLIDS BY WEIGHT: NA
PERCENT VOLATILE: NA
VOLATILE ORGANIC COMPOUNDS (VOC): NA
WITH WATER: NA LBS/GAL
WITHOUT WATER: NA LBS/GAL
MOLECULAR WEIGHT: NA
VISCOSITY: NA

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Normally stable

CONDITIONS TO AVOID (STABILITY): Reaction with strong oxidising agents. Product layer on hot surface might cause glowing or autoignition.

INCOMPATIBILITY (MATERIAL(S) TO AVOID): None known

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Emits toxic fumes under fire conditions (nitrous gases (NOx)).

HAZARDOUS POLYMERIZATION: NA

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Ethylenediaminetetraacetic acid, ferric-sodium complex
Acute toxicity
Oral LD50:
: rat: LD50 >2000 mg/kg bw (no mortality at highest dose level 2000 mg/kg) (Method: OECD 423, GLP)
Dermal LD50:
: rat: >2000 mg/kg (no mortality at: Highest dose level: 2000 mg/kg) (OECD 402, GLP)
Inhalation LC50:
rat: 4-h-LC50 >2.75 mg/L (OECD 403, GLP)

Summary of toxicological information
The substance is a solid with low toxicity. No local or systemic effects were observed in acute studies. It is not irritaing to skin and irritating to the eyes. The substance is not sensitising. Data obtained via oral application 31/61 days showed no test item / dose response related toxicological effects observed; 11.2 mg Fe per kg bw corresponds with 421/56 x 11.2 = >84 mg per kg bw. EDTA-FeNa.3H2O is not mutagenic, data on carcinogenicity is not available. There is no data for EDTA-FeNa.3H2O on reproductive toxicity. Based on studies with other EDTA compounds EDTA-FeNa.3H2O is not classified for reproductive toxicity. EDTA compounds are not reproductive toxicants when fed with a nutrient sufficient diet or minimal diets supplemented with Zn.

Germ cell mutagenicity
Based on available data, the classification criteria are not met.
STOT - single exposure
conclusive but not sufficient for classification.
STOT - repeated exposure
Aspiration hazard
Based on available data, the classification criteria are not met (solid).

Irritation
Skin
Rabbit: Non-irritating. 0.5g, 4-hours, semi-occlusive (OECD 404, GLP)

Eye
Rabbit: Non-irritating. 0.1g, (OECD 405, GLP)

Respiratory
Based on available data, the classification criteria are not met. (In an acute inhalative toxicity test in rats no adverse effects were observed on the respiratory tract, which would justify a classification as an irritant to the respiratory tract.)

Sensitization
Skin: mouse: Not sensitizing (Method: OECD 429, GLP)
Respiratory: Due to the lack of skin sensitizing potential it is unlikely that this substance is a respiratory sensitizer.

Genotoxicity
Source of key data: IUCLID datasheet: in vitro: Ames: Negative, OECD 471, not GLP. WP2 Mutoxitest: Negative, no guideline followed, not GLP. MN, micronucleus test: positive with metabolic activation. OECD 487, GLP. Mouse lymphoma test: ambiguous. OECD 476, not GLP. Discussion: EDTA-FeNa gave negative results in three in vitro mutagenicity studies, viz. the Ames test, the WP2 Mutoxite, and the micronucleus test following exposure for 4 h (with and without S9 mix) but gave positive results (aneugenicity) following exposure for 20 h (without S9 -mix). The latter was most probably explained by induction of Zn deficiency. The ambiguous results in the mouse lymphoma test were ascribed to cytotoxicity. Overall, it was concluded that classification for genotoxicity is not warranted.

Chronic toxicity / Carcinogenicity
Oral: Source of key data: IUCLID datasheet: NOAEL is > 84 mg/kg bw/day for rats after 31/61 days of exposure via the food. Methods similar to OECD 407/408. No test item / dose response related toxicological effects observed; 11.2 mg Fe per kg bw corresponds with 421/56 x 11.2 = 84 mg EDTA-FeNa.3H2O per kg bw. No data on GLP.

Inhalation: no data available

Reproductive toxicity: Source of key data: IUCLID datasheet: cross reading: EDTA-MnNa2 Rat
Fertility/Development:
NOAEL maternal toxicity: 500 mg/kg/day. Signs: water consumption, urinary sodium concentration, kidneys weight and histopathology, decreased sperm motility.
NOAEL: developmental toxicity: 500 mg/kg/day. Signs: decreased number of females with live born pups, decreased number of (live) pups, increased postimplantation loss (Method: OECD 422, GLP) Discussion: It was concluded that with regard to EDTA-compounds, that the mechanism by which EDTA induced developmental toxicity at high levels of EDTA was the binding of zinc by EDTA resulting in zinc deficiency during embryonic development (Heimbach et al., 2000; RAR, 2004). With regard to EDTA-MnNa2, binding of Zn will even be less. However, at a very high level of 1500 mg/kg bw EDTA-MnNa2 was developmental toxic, most probably due to the effect of manganese as other manganese compounds had also shown developmental effects. Such changes were not seen with the zinc chelate of EDTA (RAR, 2004) and are therefore also not expected for iron i.e. EDTa-Fe(NH4)2H4O. In contrast, Fe-shortage in dams (fed with 7.5 mg Fe per kg diet instead of 50 mg Fe per kg diet) resulted in greater pup mortality, smaller pup size, and pups with larger hearts, and with smaller kidneys and spleens. EDTA compounds are not reproductive toxicants when fed with a nutrient sufficient diet or minimal diets supplemented with Zn.

Other toxicological information
Chronic toxicity (dermal): No data available.

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:
Ethylenediaminetetraacetic acid, ferric-sodium complex

Ecotoxicity
Ecotoxicological information
Source of key data: IUCLID datasheet: The hazard assessment of EDTA-FeNa.3H2O reveals neither a need to classify the substance as dangerous to the environment, nor is it a PBT or vPvB substance. The substance is expected to have a low potential for adsorption based on its ionic structure under environmental relevant pH conditions and its low log Kow, the low log Kow also indicates that the substance will not be bioaccumulative. There are no further indications that the substance may be hazardous to the environment.

fish
Source of key data: Acute toxicity Oncorhynchus mykiss, freshwater, static: 96h-LC50 > 100 mg/l (OECD 203); Read-across CaNa2-EDTA: Chronic toxicity Danio rerio, freshwater, flow-through: 35d-NOEC > 28.9 mg/l (as EDTA-FeNa.3H2O) (OECD 210)

daphnia
Acute toxicity, Daphnia magna 100,9 mg/L (OECD 202, water), NOEC after 21 days is 25 mg/L (EEC Guideline XI/681/86, Draft 4)

algae
Pseudokirchneriella subcapitata, freshwater: 72h-EC50 > 69.9 mg/l, 72h-NOEC = 69.9 mg/l (OECD 201)

bacteria
NOEC of 840 mg/L (OECD 209 test)

Mobility in soil
Fate
Degradation Abiotic
Read across Fe(III)-EDTA: Photodegradable: Half-life = 20 days (EU RAR); Expected to be resistant to hydrolysis
Degradation Biotic
EDTA (acid form) and its salts are not readily biodegradable according to OECD criteria, for justification for read-across see IUCLID 5, Chapter 13. It was shown that under special conditions like adaptation or slightly alkaline pH, which is realistic under environmental surface water conditions, the biodegradability of EDTA is considerably enhanced. Therefore it can be concluded that EDTA is ultimately biodegradable under such environmental conditions.
Bioaccumulation
Bioaccumulation testing is not required, as the substance has a low potential for bioaccumulation (log Kow < 3). Read across EDTA-Na4: 28-day BCF study in fish (Lepomis macrochirus): BCF between 1 and 2 (Bishop & Maki, 1980)
Other information
n.a.
Source of key data: IUCLID datasheet: In accordance with column 2 of REACH (Regulation 1907/2006/EC) Annex IX, bioaccumulation testing is not necessary as the substance has a low potential for bioaccumulation (the log Kow is <3). The estimated log Koc values are less than the threshold value of 3, indicating no adsorbing potential.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of according to local, provincial and federal government requirements.
RCRA HAZARD CLASS: NA

SECTION 14: TRANSPORT INFORMATION

CANADIAN TDG DESCRIPTION (Road and Rail): Not regulated for transport by Road/Rail in Canada. Contact manufacturer for updates to transport information.

SECTION 15: REGULATORY INFORMATION

WHMIS HAZARD CLASS: Not regulated.

SECTION 15 NOTES: This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

ADDITIONAL INFORMATION:
Abbreviations used throughout the MSDS are: NA = Not available
                                              NAb = Not available for blend
                                              NAp = Not applicable
                                              N/E = None established

Company references utilized in preparation of the MSDS.

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