Nichino America, Inc.
ET®X Herbicide/Defoliant
Safety Data Sheet

1. IDENTIFICATION

Product Name: ETX Herbicide/Defoliant
General Use: Herbicide
Product Description: Emulsifiable Concentrate
EPA Reg. No.: 71711-41

Manufacturer
Main Headquarters: Nihon Nohyaku Co., Ltd., Kyobashi OM Building, 19-8 Kyobashi 1-chome, Chuo-ku, Tokyo 104-8386 JAPAN

US Connection: Nichino America, Inc.
4550 New Linden Hill Rd., Suite 501
Wilmington, DE 19808
Phone: 302-636-9001
Fax: 302-636-9122

Emergency and Health and Safety Inquiries: **(800) 348-5832 (24-hours)**
In case of fire or spills: **(800) 424-9300 (24-hours)**
In case of international shipments: **(703) 527-3887 (24-hours)**

2. HAZARD(S) IDENTIFICATION

Classified according to OSHA 29 CFR 1910.1200 HCS
Classification:

Acute Toxicity (Oral)	Category 4
Skin Irritation	Category 2
Eye Irritation	Category 1
Acute Toxicity (Inhalation):	Category 4
Carcinogenicity	Category 2
Reproductive Toxicity	Category 1B
Specific Target Organ Toxicity Single Exposure	Category 3

Signal Word: **DANGER**

Hazard Statements:

Harmful if swallowed
Harmful if inhaled
Causes skin irritation
Causes serious eye damage
Suspected of causing cancer
May damage fertility or the unborn child
May cause respiratory irritation

Precautionary Statements:

Prevention:

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use only outdoors or in a well-ventilated area.
Obtain special instructions before use.
Keep away from heat, sparks, open flames and/or hot surfaces. No smoking.
Do not breathe mists, vapors, and/or spray.
Do not get in eyes, on skin, or on clothing.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
Wear respiratory protection.
Contaminated work clothing must not be allowed out of the workplace.

Response:

In case of fire: Use appropriate media for extinction.
If ON SKIN: Wash with plenty of water.
Specific treatment, see supplemental first aid information.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
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 control center or doctor/physician.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.
If INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
If exposed or concerned: Get medical advice/attention.

Storage:

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal:

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Percentage
Pyraflufen-ethyl CAS Name: Acetic acid, [2-chloro-5-[4-chloro-5-(difluoromethoxy)-1-methyl-1*H*-pyrazol-3-yl]-4 -fluorophenoxy]-, ethyl ester	129630-19-9	4.0%
Calcium dodecylbenzenesulfonate	26264-06-2	1 - 10
N-methyl-2-pyrrolidone	872-50-4	15 – 25%
Solvent naphtha (Petroleum), Heavy Aromatic	64742-94-5	30 – 40%
*Other ingredients		21 - 50%

*Specific chemical identity and percentage of composition withheld as a trade secret

4. FIRST AID MEASURES

Eye Contact — Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin Contact — Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Ingestion	Call poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
Inhalation	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.
Most important symptoms and effects, both acute and delayed:	Refer to Section 11 – Toxicology Information.
Note to Physician:	May pose an aspiration pneumonia hazard. Contains petroleum distillates. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media:	Water, foam, carbon dioxide, or dry powder.
Unsuitable extinguishing media:	No information available.
Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products):	Combustion or thermal decomposition will evolve toxic oxides of carbon and nitrogen (HCl, HF, CO_2, CO, NO_x).
Special protective equipment and precautions for fire-fighters:	Firefighters should wear full protective clothing and self-contained breathing apparatus. Spray containers with water to keep cool. Avoid runoff from extinguishing media such as water, foam, and dry chemicals into ponds, rivers, and lakes due to danger of toxicity to aquatic organisms.

6. ACCIDENTAL RELEASE MEASURES

General and Disposal: Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the effects of the spill. Ensure that the disposal is in compliance with federal or local disposal regulations (see Section 13). Notify the appropriate authorities immediately (see Section 15 for any applicable Reportable Quantity (RQ)). Report to authorities if water enters watercourse or sewer.

Land Spill or Leak:
Liquid spills on the floor or other impervious surfaces should be contained or diked and then absorbed with sawdust, sand, bentonite, or other absorbent clay. Collect contaminated absorbent, and place it in a properly labeled metal drum with lid. Thoroughly scrub the floor or other impervious surface with a strong industrial type detergent and rinse with water.

Liquid spills that soak into the ground should be dug up and placed in metal drums. When a large spill or leakage is found, wear protective clothing and respirator to avoid exposure.

Avoid contaminated absorbents or water flow into ponds, rivers, and lakes, due to the danger of acute toxicity to aquatic organisms.

7. HANDLING AND STORAGE

Handling Precautions:

- Open container with care.
- Use adequate ventilation.
- Avoid handling near an open flame or heat source or ignition source.
- Do not contaminate water by cleaning of equipment or disposal of waste.
- Avoid contact with skin, eyes, or clothing.
- Do not eat, drink, smoke, or chew gum or tobacco while handling this product and until hands and face are thoroughly washed with soap and water.
- Do not use the toilet before thoroughly washing hands.
- Remove contaminated clothing immediately and wash thoroughly before reuse.

Storage Precautions:

- Do not contaminate water, food, or feed.
- Store in original container and keep closed.
- Store in a cool, dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls
(Local exhaust): Ventilation may be necessary under certain confined conditions. If practical, use ventilation at the sources of air contamination. Control airborne contaminants below the exposure guidelines (see below for any applicable OSHA / ACGIH exposure limits).

Personal Protective Equipment (PPE):

Eye/Face Protection: Wear protective eyewear when there is significant potential for eye contact.

Skin Protection: Wear long-sleeved shirt and long pants, socks and shoes, and chemical-resistant gloves (such as nitrile or butyl) to prevent skin contact. Wash contaminated skin promptly with soap and water. Launder contaminated clothing and protective equipment.

Respiratory Protection: Ensure good ventilation. Avoid breathing mist. If ventilation is inadequate, use approved respiratory protection equipment when airborne exposure limits are exceeded.

Exposure Limits: None

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber, clear liquid
Physical state:	Liquid
Odor:	Oil/gasoline-like odor
Odor threshold	No information available
pH:	4.32 (as a 1% w/w solution)
Melting point/freezing point	Data not available
Initial boiling point and boiling range	Data not available
Flash point	>100ºC
Evaporation rate	No data
Flammability (solid, gas)	Data not available
Upper/Lower flammability or explosive limits	Not explosive
Vapor pressure	1.04×10^{-6} Pa at 25°C (technical grade active ingredient)
Vapor density	No data available
Relative density	1.005 g/cm^3 at 20°C

Solubility(ies) in water	Data not available *TGAI:* Water solubility 0.0706 mg/L (20°C)
Partition coefficient (n-octanol/water)	No data available on ETX *TGAI: log Pow = 3.49*
Auto ignition temperature	None observed up to 100°C
Decomposition temperature	No data available
Viscosity, kinematic	8.558 cSt at 20°C and 4.969 cSt at 40°C.

TGAI = Technical Grade Active Ingredient

10. STABILITY AND REACTIVITY

Reactivity:	Non-reactive.
Chemical stability:	Stable under normal conditions
Possibility of hazardous reactions:	None known.
Conditions to avoid:	Combustion.
Incompatible materials:	None known.
Hazardous decomposition products:	Combustion or thermal decomposition will evolve toxic oxides of carbon and nitrogen (CO_2, CO, NO_x).

11. TOXICOLOGICAL INFORMATION

The following data were developed using ETX:

Acute Studies:

Oral LD_{50} (rat):	Female: 1,750 mg/kg
Dermal LD_{50} (rat):	>2,000 mg/kg
Inhalation LC_{50} (rat):	>2.13 mg/L (4 hrs)
Eye irritation (rabbit):	Corrosive/severe irritant
Skin irritation (rabbit):	Moderately irritating
Skin sensitization (guinea pig):	Non-sensitizing

Aspiration Hazard - If swallowed, may be aspirated and cause lung damage.

The following data were developed using pyraflufen-ethyl technical:

Subchronic and Chronic Effects:

A 90-day rat feeding study was conducted at dose levels up to 15,000 ppm pyraflufen-ethyl. Liver and kidney effects were observed at the highest dose. The no observed effect level (NOEL) in this study was considered to be 1,000 ppm (~90 mg/kg body weight/day). In a 90-day oral toxicity study in dogs, pyraflufen-ethyl was administered at dose levels up to 1,000 mg/kg body weight/day. No effects in body weight or organ weight, clinical chemistry, hematology, histopathology, or gross pathology were observed. In long term studies, no effects were observed in dogs exposed for one year to a maximum dose of 1,000 mg/kg body weight/day. In a two year rat chronic study, liver and kidney effects were observed at 2,000 ppm. The NOEL was 400 ppm (~20mg/kg body weight/day).

Cancer Effects:

Pyraflufen ethyl was tested in lifetime studies in rats and mice. There was no evidence of carcinogenicity in the rat at doses as high as 10,000 ppm (~470 mg/kg body weight/day). In the mouse study, the incidence of hepatocellular adenomas was increased in mice receiving 5,000 ppm (~ 524 - 547 mg/kg body weight/day), a dose level considered to be in excess of a MTD (maximum tolerated dose). Based on the combined incidence of male mouse hepatocellular adenomas, carcinomas, and/or hepatoblastomas, the EPA has classified pyraflufen-ethyl as “Likely to be Carcinogenic to Humans”. The EPA classification of pyraflufen-ethyl represents potential hazard without consideration of exposure information. The active ingredient pyraflufen-ethyl is not classified as a carcinogen by NTP, OSHA, or IARC.

Teratogenicity (Birth Defects):

There is no evidence of developmental toxicity.

Reproductive Effects:

There is no evidence of reproductive toxicity.

Neurotoxicity:

There is no evidence of neurotoxicity after oral exposure in acute or subchronic studies.

Immunotoxicity:

Suppression of the humoral immune response was measured in male rats exposed to 12,000 ppm of pyraflufen-ethyl (equivalent to ~ 943 mg/kg body weight/day) in a 28-day feeding study, the same dose at which systemic toxicity was evident. No humoral immune suppression was observed in female rats at any dose level.

Mutagenicity (Genetic Effects):
There is no evidence of mutagenicity nor genotoxicity.

Toxicity of other components:

Solvent naphtha (petroleum), heavy aromatic
If swallowed, may be aspirated and cause lung damage.

N-methyl-2-pyrrolidone
Clear evidence of adverse effects on sexual function and fertility, and/or development, based on animal experiments.

12. ECOLOGICAL INFORMATION

Ecological data were developed using pyraflufen-ethyl technical.

Environmental Precautions:
This product is toxic to fish and aquatic invertebrates. This product may contaminate water through drift of spray in wind or via runoff events. Use care when applying in areas adjacent to any body of water. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate. Do not apply when weather conditions favor drift from treated areas.

13. DISPOSAL CONSIDERATIONS

General Disposal:
Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Any disposal practice must be in compliance with all federal, state/provincial, and local laws and regulations. State (provincial) and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Chemical additions, processing, storage or otherwise altering this material may make the waste disposal information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material.

Refer to appropriate federal (RCRA: 40 CFR.261), state/provincial, or local requirements for proper classification information. For regulatory information on the ingredient components, see Section 15.

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, pesticide spray, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal:
Nonrefillable plastic container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

DOT:	Not regulated.
IATA:	UN 3082, Environmentally hazardous substance, liquid, n.o.s., (pyraflufen-ethyl), Class 9, PG III.
IMDG:	UN 3082, Environmentally hazardous substance, liquid, n.o.s, (pyraflufen-ethyl), Class 9, PG III, Marine Pollutant, EmS: F-A, S-F.

ETX Herbicide/Defoliant is not regulated for transport unless shipped by water or air.

15. REGULATORY INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on

the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

DANGER
Corrosive. Causes irreversible eye damage.
Harmful if swallowed or absorbed through skin.

U.S. Federal Regulatory Information:
EPA Registration Number: 71711-41
TSCA Inventory: Registered pesticide; exempt from TSCA

SARA Title III Notification and Information:
Section 302 (EHS) Ingredients:
Section 304 (EHS)
or CERCLA Ingredients (RQ):

Name	**CAS #**	**Final Reportable Quantity**
Calcium dodecylbenzenesulfonate	26264-06-2	1000 lbs

Section 313 Ingredients:
N-Methyl-2-pyrrolidone (CAS No. 872-50-4)

U.S. State Regulatory Information:

U.S. State Right-to-Know (RTK) Ingredients:
Solvent Naphtha (Petroleum), Heavy Aromatic (CAS No. 64742-94-5)

California Proposition 65 List:

- California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.
  - N-Methyl-2-pyrrolidone (CAS No. 872-50-4) - CA DEVELOPMENTAL

16. OTHER INFORMATION

HMIS® Hazard Rating:
Health: 3*
Flammability: 2
Physical Hazard.: 0
*indicates both acute and chronic health hazard

NFPA Hazard Rating:

Health:	3
Flammability:	2
Instability:	0
Specific Hazard:	None

Prepared by: Regulatory Affairs
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Disclaimer of Expressed and Implied Warranties:

This information is provided in good faith but without express or implied warranty. Buyer assumes all responsibility for safety and use not in accordance with FIFRA label instructions.