

BARRICADE® 4FL Herbicide

Date: 6/5/2015
 Replaces: 10/17/2014

1. PRODUCT IDENTIFICATION

Product identifier on label: **BARRICADE® 4FL Herbicide**

Product No.: A12333D

Use: Herbicide

Manufacturer: Syngenta Crop Protection, LLC
 Post Office Box 18300
 Greensboro NC 27419

Manufacturer Phone: 1-800-334-9481

Emergency Phone: 1-800-888-8372

2. HAZARDS IDENTIFICATION

Classifications: Skin Sensitizer: Category 1B
 Carcinogenicity: Category 2
 Specific Target Organ Toxicity: Repeated Category 2
 Specific Target Organ Toxicity: Drowsiness Category 3

Signal Word (OSHA): Warning

Hazard Statements: May cause an allergic skin reaction
 May cause drowsiness or dizziness
 Suspected of causing cancer
 May cause damage to organs through prolonged or repeated exposure

Hazard Symbols:



Precautionary Statements: Use only outdoors or in a well-ventilated area.
 If inhaled: Remove person to fresh air and keep comfortable for breathing.
 Call a poison center, doctor or Syngenta if you feel unwell.
 Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Do not breathe mist, vapors, spray.
 Contaminated work clothing must not be allowed out of the workplace.
 Wear protective gloves, protective clothing, eye protection.
 If on skin: Wash with plenty of soap and water.
 If skin irritation or rash occurs: Get medical advice.
 If exposed or concerned: Get medical advice/attention.
 See Section 4 First Aid Measures.

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Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents and container in accordance with local regulations.

Other Hazard Statements: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Concentration
1,2-Propanediol	Propylene Glycol	57-55-6	Trade Secret
Attapulgite Clay	Attapulgite Clay	12174-11-7	Trade Secret
Other ingredients	Other ingredients	Trade Secret	59.3%
N3, N3-Di-n-propyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine	Prodiamine	29091-21-2	40.7%

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

Have the product container, label or Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

Ingestion: If swallowed: Call Syngenta (800-888-8372), a 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 after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: 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 Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Most important symptoms/effects:

Allergic skin reaction

Drowsiness or dizziness

Indication of immediate medical attention and special treatment needed:

There is no specific antidote if this product is ingested.

Treat symptomatically.

Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use dry chemical, foam or CO2 extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

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Special protective equipment and precautions for firefighters:

Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:

Follow exposure controls/personal protection outlined in Section 8.

Methods and materials for containment and cleaning up:

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Precautions for safe handling:

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Conditions for safe storage, including any incompatibilities:

Store locked up.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Occupational Exposure Limits:

Chemical Name	OSHA PEL	ACGIH TLV	Other	Source
Propylene Glycol	Not Established	Not Established	10 mg/m ³ TWA	AIHA
Attapulgate Clay	Not Established	Not Established	Not Established	Not Applicable
Other ingredients	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Prodiamine	Not Established	Not Established	5 mg/m ³ TWA	Syngenta

Appropriate engineering controls:

Use effective engineering controls to comply with occupational exposure limits (if applicable).

Individual protection measures:

Ingestion:

Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact:

Where eye contact is likely, use chemical splash goggles.

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Skin Contact:

Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.

Inhalation:

A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH certified respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow liquid

Odor: Weak odor of ammonia

Odor Threshold: Not Available

pH: 8 - 10 (1% suspension in water)

Melting point/freezing point: Not Applicable

Initial boiling point and boiling range: Not Available

Flash Point (Test Method): > 212°F

Flammable Limits (% in Air): Not Available

Flammability: Not Applicable

Vapor Pressure: Prodiamine <math>5.6 \times 10^{-6}</math> mmHg @ 68°F (20°C)

Vapor Density: Not Available

Relative Density: 1.17 g/cm³ @ 68°F ; 9.76 lb/gal @ 68°F

Solubility (ies): Prodiamine 0.013 ppm @ 77°F (25°C)

Partition coefficient: n-octanol/water: Not Available

Autoignition Temperature: Not Available

Decomposition Temperature: Not Available

Viscosity: Not Available

Other: None

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical stability: Stable under normal use and storage conditions.

Possibility of hazardous reactions: Will not occur.

Conditions to Avoid: Thermal, mechanical and electrical ignition sources.

Incompatible materials: None known.

Hazardous Decomposition Products: None known.

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11. TOXICOLOGICAL INFORMATION

Health effects information

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Drowsiness or dizziness

Delayed, immediate and chronic effects of exposure: Possible carcinogenicity, Allergic skin reaction, Drowsiness or dizziness

Numerical measures of toxicity (acute toxicity/irritation studies (finished product))

Ingestion:	Oral (LD50 Rat) :	> 5000 mg/kg body weight
Dermal:	Dermal (LD50 Rat) :	> 5000 mg/kg body weight
Inhalation:	Inhalation (LC50 Rat) :	> 2.55 mg/l air - 4 hours
Eye Contact:	Minimally Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Sensitizing (Guinea Pig)	

Reproductive/Developmental Effects

Prodiamine: Fetal toxicity at high dose levels (rats); developmental and maternal toxicity observed at 1g/kg/day. These were congenital anomalies occurring in test and control animals that are not considered to be treatment related.

Chronic/Subchronic Toxicity Studies

Prodiamine: Liver (alteration and enlargement) and thyroid effects (hormone imbalances) at high dose levels (rats); decreased body weight gains.

Carcinogenicity

Prodiamine: Possible human carcinogen based on limited animal evidence in the absence of human data. Information is insufficient for classification.

Chemical Name	NTP/IARC/OSHA Carcinogen
1,2-Propanediol	No
Attapulgate Clay	IARC 2B
Other ingredients	No
N3, N3-Di-n-propyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine	No

Other Toxicity Information

None

Toxicity of Other Components

Attapulgate Clay

Prolonged or repeated inhalation of dust may cause a disabling, progressive pulmonary fibrosis. Inhalation hazard may not exist in the liquid form. May cause eye irritation.

Other ingredients

Not Applicable

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Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target OrgansActive Ingredients

Prodiamine: Liver, thyroid

Inert Ingredients

Attapulgite Clay: Lung, eye

Other ingredients: Not Applicable

Propylene Glycol: CNS, kidney, liver

12. ECOLOGICAL INFORMATION**Eco-Acute Toxicity**

Prodiamine:

Fish (Bluegill Sunfish) 96-hour LC50 > 552 ppb

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 > 83 ppb

Bird (Bobwhite Quail) 14-day LD50 > 2250 mg/kg

Environmental Fate

Prodiamine:

The information presented here is for the active ingredient, prodiamine.

Does not bioaccumulate. Persistent in soil. Stable in water. Immobile in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS**Disposal:**

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION**DOT Classification**

Ground Transport - NAFTA

Not regulated

Comments

Water Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Prodiamine), Marine Pollutant

Hazard Class: Class 9

Identification Number: UN 3082

Packing Group: PG III

Air Transport

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Prodiamine)

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Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

15. REGULATORY INFORMATION

Pesticide Registration:

This chemical is a pesticide product registered by the 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, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Caution: May be harmful if swallowed, absorbed through skin, or inhaled. Avoid breathing vapor. Avoid contact with skin, eyes, or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

EPA Registration Number(s):
100-1139

EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard

Section 313 Toxic Chemicals: None

CERCLA/SARA 304 Reportable Quantity (RQ):
None

RCRA Hazardous Waste Classification (40 CFR 261):
Not Applicable

TSCA Status:
Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 2
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 2
Flammability: 1
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme
*	Chronic

Syngenta Hazard Category: D,S

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 10/1/2001
Revision Date: 6/5/2015 Replaces: 10/17/2014
Section(s) Revised: 2, 4, 11, 16

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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **ESCALADE 2 HERBICIDE**
EPA Reg. No.: 228-442
Product Type: Herbicide
Company Name: Nufarm Americas Inc.
 11901 S. Austin Avenue
 Alsip, IL 60803
 1-800-345-3330
Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
 Call CHEMTREC Day or Night: 1-800-424-9300
 For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION

HEALTH HAZARDS:

Eye irritation	Category 2A
Skin irritation	Category 2
Acute toxicity, oral	Category 4
Specific target organ toxicity – Repeated exposure	Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute	Category 1
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SIGNAL WORD:

WARNING

HAZARD STATEMENTS:

Causes serious eye irritation. Harmful if swallowed. May cause damage to organs (liver, kidneys) through prolonged or repeated exposure. Very toxic to aquatic life.



PRECAUTIONARY STATEMENTS

Wash hands and exposed skin thoroughly after handling. Wear chemical resistant gloves. Wear face shield, chemical goggles or shielded safety glasses. Do not eat, drink or smoke when using this product. Do not breathe mist/vapors/spray.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if safe to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of water. Specific treatment: See **Section 4** First Aid and product label instructions. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

IF SWALLOWED: Call a poison center or doctor if you feel unwell. Rinse mouth.

Get medical advice/attention if you feel unwell.

Avoid unintended release to the environment. Collect spillage

Dispose of contents/container in accordance with state and federal regulations. See **Section 13** and product label for disposal instructions.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Dimethylamine Salt of 2,4-Dichlorophenoxyacetic Acid	2008-39-1	38.3 – 40.7
1-Methylheptyl Ester of Fluroxypyr	81406-37-3	5.6 – 6.2
Dicamba (3,6-Dichloro-o-Anisic Acid)	1918-00-9	3.9 – 4.3
Solvent Naphtha (Petroleum), Heavy Aromatic	64742-94-5	5.9 – 6.5
Other Ingredients:	Trade Secret	Trade Secret

Synonyms: Mixture of 2,4-D DMA, Fluroxypyr MHE, and Dicamba

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. 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.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Most Important symptoms/effects: Eye exposure may cause moderate irritation. Skin exposure may cause irritation.

Indication of Immediate medical attention and special treatment if needed: There is no specific antidote if this product is ingested. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire or cool containers, dike to prevent runoff contamination of municipal sewers and waterways.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride and oxides of carbon and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

HANDLING:

Do not get in eyes or on clothing. Avoid contact with skin. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin,

SAFETY DATA SHEET

ESCALADE 2 HERBICIDE

wash immediately with soap and water. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE:

Always use original container to store pesticides in a secured warehouse or storage building. Store at temperatures above 25° F. Protect from freezing. If allowed to freeze, remix well before using. This does not alter the product. Containers should be opened in well-ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not store near open containers of fertilizer, seed or other pesticides. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear face shield, goggles or safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear long-sleeved shirt, long pants, shoes, socks and chemical-resistant gloves. When mixing or loading, cleaning up spills or equipment or otherwise expose to the concentrate also wear a chemical-resistant apron. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
DMA Salt of 2,4-D	10*	NE	10*	NE	mg/m ³
Fluroxypyr	NE	NE	NE	NE	
Dicamba	NE	NE	NE	NE	
Solvent Naphtha (Petroleum), Heavy Aromatic**	NE	NE	NE	NE	
Other Ingredients	NE	NE	NE	NE	

*Based on adopted limit for 2,4-D

NE = Not Established

** Manufacturer recommended limit of 100 mg/m³ total hydrocarbon vapor.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber colored liquid
Odor:	Mild amine odor
Odor threshold:	No data available
pH:	5.5 - 8
Melting point/freezing point:	25° F (-4° C)
Initial boiling point and boiling range	No data available
Flash point:	>230° F (>110° C) Setflash
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.169 @ 25° C
Solubility(ies):	Soluble
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	51.6 cPs @ 25° C

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical Stability: This material is stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Will not occur.

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride and oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Eye contact, Skin contact

Symptoms of Exposure:

Eye Contact: Causes substantial but temporary eye damage. Vapors and mist may cause irritation.

Skin Contact: Slightly toxic and moderately irritating based on toxicity studies. Overexposure by skin absorption may cause symptoms similar to those for ingestion.

Ingestion: Slightly toxic if ingested based on toxicity studies. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness and central nervous system depression.

Inhalation: Low inhalation toxicity based on toxicity studies.

Delayed, immediate and chronic effects of exposure: Eye irritation

Toxicological Data:

Data from laboratory studies conducted on a similar, but not identical, formulation:

Oral: Rat LD₅₀: 1,750 mg/kg (female) (estimated based on mortalities for doses tested)

Dermal: Rat LD₅₀: >2,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.07 mg/L

Eye Irritation: Rabbit: Moderately irritating

Skin Irritation: Rabbit: Moderately irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure may cause effects to liver, kidneys, blood chemistry, testes and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses for prolonged periods.

Carcinogenicity / Chronic Health Effects: Various animal cancer tests have shown no reliably positive association between 2,4-D exposure and cancer. Epidemiology studies on herbicide use have been both positive and negative with the majority being negative. The U.S. EPA has given 2,4-D and dicamba a Class D classification (not classifiable as to human carcinogenicity). Fluroxypyr did not cause cancer in laboratory animals.

Reproductive Toxicity: No impairment of reproductive function attributable to 2,4-D have been noted in laboratory animal studies. In animal studies, fluroxypyr has been shown not to interfere with reproduction. Dicamba did not interfere with fertility in reproduction studies in laboratory animals.

Developmental Toxicity: Studies in laboratory animals with 2,4-D have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals. Fluroxypyr did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects in the mother. Animal tests with dicamba have not demonstrated developmental effects.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that 2,4-D is not mutagenic. Animal tests with fluroxypyr and dicamba did not demonstrate mutagenic effects.

Assessment Carcinogenicity:

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Chlorophenoxy Herbicides	No	2B	No	No
Dicamba	No	No	No	No
Fluroxypyr	No	No	No	No
Solvent Naphtha (Petroleum), Heavy Aromatic	No	No	No	No
Other Ingredients	No	No	No	No

12. ECOLOGICAL INFORMATION

Ecotoxicity:**Data on 2,4-D, Dimethylamine Salt:**

96-hour LC ₅₀ Bluegill:	524 mg/l	Bobwhite Quail Oral LD ₅₀ :	500 mg/kg
96-hour LC ₅₀ Rainbow Trout:	250 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>5,620 ppm
48-hour EC ₅₀ Daphnia:	184 mg/l		

Data on Fluroxypyr 1-Methylheptyl Ester:

Fluroxypyr 1-Methylheptyl Ester is highly toxic to aquatic invertebrates on an acute basis (LC₅₀ or EC₅₀ is between 0.1 and 1 mg/L). Concentrations for fish were not determined because they exceed water solubility. Fluroxypyr 1-Methylheptyl Ester is highly insoluble in water. Fluroxypyr 1-Methylheptyl Ester is practically non-toxic to birds on an acute and dietary basis (LD₅₀ >2,000 mg/kg and LC₅₀ >5,000 ppm).

Data on Dicamba:

96-hour LC ₅₀ Bluegill:	135 mg/l	Bobwhite Quail 8-day Dietary LC ₅₀ :	>10,000 ppm
96-hour LC ₅₀ Rainbow Trout:	135 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>10,000 ppm
48-hour EC ₅₀ Daphnia:	110 mg/l		

Environmental Fate:

In laboratory and field studies, 2,4-D DMA salt rapidly dissociated to parent acid in the environment. The typical half-life of the resultant 2,4-D acid ranged from a few days to a few weeks.

In laboratory and field studies, Fluroxypyr 1-Methylheptyl Ester rapidly de-esterified to parent acid in the environment. The typical soil half-life for fluroxypyr (acid and ester) ranged from one to four weeks. Microbial metabolism is the primary degradation mechanism in soil. The typical aquatic half-life ranged from 4 to 14 days.

Dicamba poorly binds to soil particles, is potentially mobile in the soil and highly soluble in water. Aerobic soil metabolism is the main degradative process for dicamba with a typical half-life of 2 weeks. Degradation is slower when low soil moisture limits microbe populations. In water, microbial degradation is the main route of dicamba dissipation. Aquatic hydrolysis, volatilization, adsorption to sediments, and bioconcentration are not expected to be significant.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Pesticide wastes are toxic. If container is damaged or if pesticide has leaked, contain all spillage. Absorb and clean up all spilled material with granules or sand. Place in a closed, labeled container for proper disposal. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law and may contaminate groundwater. 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 Handling and Disposal:

Nonrefillable Containers 5 Gallons or Less: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) 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 1/4 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 or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Nonrefillable containers larger than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. If recycling or recondition are not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty

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ESCALADE 2 HERBICIDE

the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gallons: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Refillable Container: Refill this container with pesticide only. Do not reuse this container for any other purpose. Close all openings and replace all caps. Contact Nufarm's Customer Service Department at 1-800-345-3330 to arrange for return of the empty refillable container.

For Residential Use:

Container Handling: If empty - Do not reuse this container. Place in trash or offer for recycling if available. **If partly filled** - If product cannot be used as directed, call your local solid waste agency for disposal instructions. Never place unused product down any indoor (including toilet) or outdoor (including sewer) drain.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this SDS.

DOT

<30 gallons per completed package

Non Regulated

≥ 30 and < 119 gallons per complete package

UN 3082, Environmentally hazardous substance, liquid, n.o.s., (2,4-D Salt), 9, III, RQ

≥ 119 gallons per complete package

UN 3082, Environmentally hazardous substance, liquid, n.o.s., (2,4-D Salt), 9, III, RQ, Marine Pollutant

IMDG

UN 3082, Environmentally hazardous substance, liquid, n.o.s., (2,4-D Salt), 9, III, Marine Pollutant

IATA

Non regulated

15. REGULATORY INFORMATION

EPA FIFRA 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.

WARNING. Causes substantial but temporary eye injury. Harmful if swallowed or absorbed through the skin. Do not get in eyes or on clothing. Avoid contact with skin.

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370.66):

Immediate and Delayed

Section 313 Toxic Chemical(s):

Dicamba (CAS No. 1918-00-9), 3.9 -4.3% by weight in product

Reportable Quantity (RQ) under U.S. CERCLA:

Dicamba (CAS No. 1918-00-9) 1,000 pounds

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RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed.

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 2 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

Date of Issue: June 11, 2015

Supersedes: February 6, 2015

Escalade 2 is a registered trademark of Nufarm Americas Inc.

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19-0-5 Nutrite Professional Turf Fertilizer
with 0.29%Barricade

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1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY UNDERTAKING

1.1 Product identifier

Product name 19-0-5 Nutrite Professional Turf Fertilizer with 0.29%Barricade

1.2 Relevant use of the product

Applications Herbicide/Fertilizer combo

1.3 Manufacturer, Importer or Responsible Party

Name FERTI TECHNOLOGIES
Address 560, Chemin Rhéaume, C.P 129
J0L 2J0
Saint-Michel, Québec, Canada
Telephone 450 454-7521
Contact email reg@fertitechno.com

1.4 Emergency phone number

Telephone USA National Capital Poison Center: 1 800 222 1222

2. HAZARDS IDENTIFICATION

2.1. The hazard classification of the chemical according to HCS 2012 (US-GHS)

Skin Irrit. 3	H316
Skin sens. Cat 1	H317
Eye Irrit. 2B	H320
STOT SE 3	H335
Carc. 1	H350
STOT RE 1	H372

2.2. Danger symbols



2.3. Signal word

Danger

2.4. Hazard statements

H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction
H320 Causes eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer
H372 May cause damage to organs (lungs) through prolonged or repeated exposure if inhaled.

2.5. Precautionary statements

Prevention
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.

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Response	<p>P264 Wash hands thoroughly after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.</p> <p>P330 Rinse mouth.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P314 Get medical advice/attention if you feel unwell.</p>
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container according to local regulations.
2.6. Description of any hazards not otherwise classified	Not applicable.
2.7. % ingredient(s) with unknown acute toxicity	Not applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name		CAS-Nr.	Concentration %
Calcium carbonate	Limestone 80-99%	1317-65-3	C = 48.7.0 %
	Quartz (SiO ₂) (<1%)	14808-60-7	
Urea	Carbamide, Carbonyldiamide, Carbamidic Acid) (97.5% - 99.7%)	57-13-6	C = 41.3%
	Alkalinity as ammonia (150 ppm max)		
	Methylenediurea (0 % - 2.5 %)	13547-17-6	
	Biuret (0% -1.5%)	108-19-0	
Potash	Potassium chloride (95 % - 99.5 %)	7447-40-7	C = 8.0%
	Sodium chloride (0.3 % - 3.7 %)	7647-14-5	
	Calcium, magnesium and sulfates chlorides	Various	
Oil Dri	Montmorillonite (90% - 93%)	1302-78-9	C = 1.0 %
	Quartz (7% - 10%)	14808-60-7	
Barricade Herbicide	Prodiamine (65%)	29091-21-2	C = 0.45 %
	Inert ingredients*	1332-58-7	
Mineral oil		8042-47-5	C = 0.55 %

*The specific chemical identities and/or actual concentrations or actual concentration ranges for one or more listed components are being withheld as trade secrets under the US regulation 29 CFR 1910.1200(i).
Note: The balance of the ingredients are not classified as hazardous or are below the concentration limit to be classified as hazardous, under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

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4. FIRST AID MEASURES

4.1 First Aid measures after Inhalation

Following inhalation Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided by a qualified operator. Get medical attention if irritation develops and persists.

4.2 First Aid measures after Skin exposure

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

4.3 First Aid measures after Eye exposure

Following eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if irritation develops and persists.

4.4 First Aid measures after Ingestion

Following ingestion Induce vomiting, but only if victim is fully conscious. Never give anything by mouth to an unconscious person. Drink 1 or 2 glasses of water. Do not give milk or alcoholic beverages. Call a physician.

4.5 Most important symptoms and effects, both acute and delayed

INHALATION	Respiratory irritation.
SKIN	Skin irritation, redness,
EYES	Serious eye irritation including, scratching of the cornea, and tearing
INGESTION	If a large quantity has been ingested: Abdominal pain. Diarrhea. Nausea. Vomiting. May cause drowsiness and loss of coordination.

4.6 Indication of any immediate medical attention and special treatment needed

Notes to physician: Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable:

Use extinguishing agent suitable for type of surrounding fire. Avoid excessive water to minimize runoff. Prevent firefighter water from entering the environment.

Small fires: Water spray, foam, dry chemical or CO₂

Large fires: Water spray, fog or foam.

Unsuitable: Not applicable.

5.2 Special hazards arising from chemical or mixture during the fire

Container may rupture on heating. Cool closed containers exposed to fire with water spray. Do not allow run-off from firefighting to enter drains or water courses. Explosive reactions with oxidizing agents such as potassium chlorate and/or peroxides. In case of fire hazardous decomposition products may be produced such as:

- Sulphur oxides
- Ammonia
- Carbon monoxide
- Carbon dioxide (CO₂)

5.3 Special Protective Precautions or equipment for firefighters

In the event of fire and/or explosion do not breathe fumes. In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit.

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6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment** Wear personal protective equipment.
- 6.2 Emergency procedures** Unprotected persons must be kept away.
Evacuate personnel to safe areas.
Provide adequate ventilation.
Avoid dust formation.
Avoid breathing dust.
Avoid contact with skin, eyes and clothing.
- 6.3 Methods and materials used for containment** Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
Do not let product enter drains.
- 6.4 Clean-up procedures** Use mechanical handling equipment.
Clean contaminated surface thoroughly.
Pick up and arrange disposal without creating dust.
Use a suitable vacuum cleaner.

7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling** Handle with care.
Wear personal protective equipment.
Use only in well-ventilated areas.
Avoid dust formation.
Provide exhaust ventilation if dust is formed.
Dust must be extracted directly at the point of origin.
Avoid breathing dust.
Avoid contact with skin, eyes and clothing.
- 7.2 Conditions for safe storage** Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers should be protected against falling down.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Store away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ACGIH-Threshold Limit Value (TLV)

Exposure limit values of the components: Respirable crystalline silica dust: ACGIH TLV[®] = 0,025 mg/m³
Calcium carbonate: ACGIH TLV[®] = 10 mg/m³
Toluene: ACGIH TLV[®] = 20 ppm

8.2 OSHA-Permissible Exposure Limit (PEL)

Exposure limit values of the components:

Component / CAS	TLV, 8H (OSHA, PEL)
	mg/m ³
Quartz (SiO ₂) CAS N°: 14808-60-7	Total dust: 10 mg/m ³ / %SiO ₂ +2 (OSHA Z-3) Respirable: 5 mg/m ³ / %SiO ₂ +2 (OSHA Z-3)
Limestone CAS N°: 1317-65-3	Total dust: 15 mg/m ³ (OSHA Z-1) Respirable: 5 mg/m ³ (OSHA Z-1)

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Particulates Not Otherwise Regulated (PNOR) :	Total dust: 15 mg/m ³ (OSHA Z-1) Respirable: 5 mg/m ³ (OSHA Z-1)
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8.3 Any other exposure limit used or recommended by chemical manufacturer

Non applicable

8.4 Engineering Controls

Provide exhaust ventilation if dust is formed. Dust must be extracted directly at the point of origin. Apply technical measures to comply with the occupational exposure limits.

8.5 Personal Protective Equipment

Hand protection: Gloves

Gloves must be inspected prior to use. Replace when worn.

Eye protection: Do not wear contact lenses.

Wear as appropriate: Safety glasses with side-shields

Body protection: Long sleeved clothing

Respiratory protection: A NIOSH approved air purifying respirator with a type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator use.

Hygiene measures: Wash hands before breaks and at the end of workday. Remove and wash contaminated clothing before re-use. Keep working clothes separately.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information of basic physical and chemical properties

Appearance (physical state, colour, etc.)	Multicolored granules, solid
Odour	Odourless
Odour threshold	Not applicable
pH	No data available
Melting point/freezing point;	No data available
Boiling point	Not applicable
Boiling Range	Not applicable
Flash point	No data available
Evaporation rate	Not applicable
Flammability	Not flammable

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Upper/lower flammability or explosive limits	No data available
Oxidising properties	No data available
Vapour pressure	Not applicable
Vapour density	No data available
Density	69.7 lbs./ft ³
Solubility in water	Partially soluble
Other Solvents	No data available
Partition coefficient (n-octanol/water)	No data available
Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Not applicable

10. STABILITY AND REACTIVITY

10.1 Reactivity	Not reactive under normal storage and handling condition
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	Hazardous polymerization does not occur.
10.4 Conditions to avoid	Keep at temperatures below 5374 °F (190 °C)
10.5 Incompatible materials	Strong oxidizing agents, Chlorates and Hypochlorites
10.6 Hazardous decomposition products	During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

11. TOXICOLOGICAL INFORMATION

11.1 Measures of Toxicity

Acute toxicity:

Ingredients:

Urea:

Acute toxicity: LD50 Oral (Rat): 8471 mg/kg

Calcium carbonate:

Acute toxicity: LC50 Oral (Rat): >5000 mg/kg

Limestone:

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Acute toxicity: LD50 Oral (Rat): >5000 mg/kg

N-(n-butyl)-thiophosphoric triamide
Acute toxicity: LD50 Oral (Rat): > 2823 mg/kg

Skin corrosion/irritation: May irritate skin through mechanical abrasion

Serious eye damage/irritation: May cause serious eye irritation

Respiratory or skin sensitisation: No data available

11.2 Listed in IARC or considered carcinogen by NTP or OSHA Quartz (SiO₂)
CAS N°: 14808-60-7
Group 1 (IARC), Volume 68, 100C

Prodiamine: Benign thyroid tumors (rat). None observed (mouse).

TARGET ORGANS: Prodiamine: Prolonged or repeated overexposure may cause liver and thyroid effects.

11.3 Further information This product contains prismatic tremolite (e.g., cleavage fragments) as an impurity. Sufficient exposure to respirable prismatic tremolite dust may cause serious lung problems.

12. ECOLOGICAL INFORMATION

12.1 Toxicity May be toxic to aquatic life. In sufficient quantity may deplete oxygen required by aquatic life. May cause eutrophication of ponds and lakes.

Prodiamine:

Toxicity to fish :
LC50: 0.83 mg/L
Exposure time: 96 h
Species: *Oncorhynchus mykiss* (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates:
LC50: 0.66 mg/L (Exposure time: 48 h)
Species: *Daphnia magna*

Carbonate calcium:

Toxicity to fish :
LC50: > 10000 mg/l
Exposure time: 96 h
Species: *Oncorhynchus mykiss* (rainbow trout)

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Toxicity to daphnia and other aquatic invertebrates:
EC50: > 1000 mg/l (Exposure time: 48 h)
Species: Daphnia magna (Water flea)

Silica:

Toxicity to Algae and Crustacea
IC50: 440 mg/L (Exposure time: 72 Hours)
Species: Algae
EC50: 7600 mg/L (Exposure time: 48 Hours)

12.2 Persistence and degradability	Species: Daphnia No data available
12.3 Bioaccumulative potential	No data available
12.4 Mobility in soil	No data available
12.5 Other adverse effects	May release ammonium ions that are toxic to fish. Un-ionized ammonia concentrations above 0.02 mg/l are considered toxic in fresh water. May release phosphates which will result in algae growth, increased turbidity, and depleted oxygen. At extremely high concentrations, this may be hazardous to fish or other marine organisms. Release to watercourses may cause effects downstream. Fish 96 hour LC50, OECD Guidelines 203 (rainbow trout): >86mg/L.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods to employ	Recover or recycle if possible. Properly characterize all waste materials. Consult federal, state/provincial and local regulations regarding the proper disposal of this material. Prevent material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. Empty containers should be taken to an approved waste handling site for recycling or disposal.
13.2 Description of appropriate disposal containers to use	No data available
13.3 Description of the physical and chemical properties that may affect disposal activities	No data available
13.4 Language discouraging sewage disposal.	No data available
13.5 Any special precautions for landfills or incineration activities	No data available

14. TRANSPORT INFORMATION

UN Number

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UN proper shipping name

Transport hazard classes

Packing group

Environmental hazards

Guidance On transport in
bulk

Special precautions for
user

15. REGULATORY INFORMATION

National and/or regional regulatory information of the chemical or mixtures

Inventories:

US. Toxic Substances Control Act: components listed

OSHA Hazards: Carcinogen

Clean Air Act: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B). This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

16. OTHER INFORMATION

Indications on the revision

First edition: 12/18/2019

Addition of all fields as required by regulation (US) HCS 1910.1200 [HCS 2012].

Update of the classification information and update of related sections accordingly.

Abbreviations and acronyms used

ACGIH: American conference of governmental and industrial hygienist

CAS N°.: Chemical Abstract Service Number

CFR: Code of Federal Regulations

EC50: Half maximal effective concentration

HCS: Hazard communication standard

LC50: Half maximal lethal concentration

LD50: Half maximal lethal dose

OSHA: Occupational safety and health administration

STOT SE: Specific target organ toxicity Single exposure

STOT RE: Specific target organ toxicity Repeated exposure

UN N°.: United Nations Number

Methods of evaluation for the classification of mixtures

The classification of the mixture was set based on the regulation (US) HCS 1910.1200 [HCS 2012].

Other information

This information is based on our present knowledge and is provided according to the relevant national regulations. This information is intended as a characterization of the product in order to provide guidance for

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the relevant safety issues. However, this document does not provide any warranty, expressed or implied, regarding the properties of the product.