

SAFETY DATA SHEET

TERRAMASTER® 4EC

Version 1.10 Revision Date: 10/14/2015 MSDS Number: 400000004088 Country: US
Language: Z8

SECTION 1. IDENTIFICATION

Product name : TERRAMASTER® 4EC

Product code : 400000004088

Manufacturer or supplier's details

Company: MacDermid Agricultural Solutions, Inc
245 Freight St
Waterbury, CT
United States of America
06702
Telephone : +1 800 423 8569

Prepared by sds.request@arysta.com

Further information for the material safety data sheet :
sds.request@arysta.com

1.4 Emergency telephone

Emergency telephone: Agriphar Crop Solutions: +1 800 423 8569(24 hours) 800-424-9300
For additional emergency telephone numbers see section 16 of the
Safety Data Sheet.

Recommended use of the chemical and restrictions on use

Recommended use : Fungicide

Restrictions on use : Agriculture, For professional users only.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 4

Acute toxicity (Oral) : Category 4

Serious eye damage : Category 1

Carcinogenicity : Category 2

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Aspiration hazard : Category 1
Acute aquatic toxicity : Category 1
Chronic aquatic toxicity : Category 1

GHS Label element

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H227 Combustible liquid.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H318 Causes serious eye damage.
H351 Suspected of causing cancer.
H410 Very toxic 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/sparks/open flames/hot surfaces. - No smoking.
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/ eye protection/ face protection.
P281 Use personal protective equipment as required.
Response:
P301 + P310 IF SWALLOWED: 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.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391 Collect spillage.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

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None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Contains 4 lbs. of 5-Ethoxy-3-(trichloromethyl)-1,2,4-thiadiazole per U.S. Gallon at 20°C.

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (% w/w)
Petroleum distillate	64742-94-5	>= 30 - < 50
Etridiazole	2593-15-9	44.3
naphthalene	91-20-3	>= 1 - < 5

SECTION 4. FIRST AID MEASURES

If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If not breathing, give artificial respiration.
Call a physician or poison control center immediately.
If breathing is difficult, give oxygen.
Keep respiratory tract clear.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
If symptoms persist, call a physician.
Call a physician or poison control center immediately.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If eye irritation persists, consult a specialist.

If swallowed : Call a physician or poison control center immediately.
Rinse mouth with water.
If victim is fully conscious, give a cupful of water.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.
Never give anything by mouth to an unconscious person.
Do not give milk or alcoholic beverages.
Obtain medical attention.

Most important symptoms and effects, both acute and delayed : Harmful if swallowed.
May be fatal if swallowed and enters airways.
Causes serious eye damage.
Suspected of causing cancer.
corrosive effects
irritant effects
Symptoms may be delayed.

Notes to physician : The first aid procedure should be established in consultation

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with the doctor responsible for industrial medicine.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Extinguishing media - large fires
Alcohol-resistant foam
(on small fires)
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Water spray jet
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
Burning produces obnoxious and toxic fumes.
- Further information : Do not discharge extinguishing waters into streams, rivers and lakes.

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.
- Special protective equipment for fire-fighters : Wear full protective clothing and self-contained breathing apparatus.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
- Environmental precautions : Do not flush into surface water or sanitary sewer system.
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 : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.
-

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : Avoid exceeding the given occupational exposure limits (see section 8).
Avoid contact with skin and eyes.
For personal protection see section 8.
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Smoking, eating and drinking should be prohibited in the application area.
 Provide sufficient air exchange and/or exhaust in work rooms.
 Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Prevent unauthorized access.
 Keep container tightly closed in a dry and well-ventilated place.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Petroleum distillate	64742-94-5	TWA	500 ppm 2,000 mg/m ³	OSHA Z-1
		TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH
		TWA	400 ppm 1,600 mg/m ³	OSHA P0
naphthalene	91-20-3	TWA	10 ppm	ACGIH
		TWA	10 ppm 50 mg/m ³	OSHA Z-1
		TWA	10 ppm 50 mg/m ³	OSHA P0
		STEL	15 ppm 75 mg/m ³	OSHA P0
		TWA	10 ppm 50 mg/m ³	NIOSH REL
		ST	15 ppm 75 mg/m ³	NIOSH REL

Personal protective equipment

Respiratory protection : In the case of vapor formation use a respirator with an approved filter.

Hand protection

Remarks : Solvent-resistant gloves The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it. Before removing gloves clean them with soap and water.

Eye protection : Eye wash bottle with pure water
 Tightly fitting safety goggles

Skin and body protection : impervious clothing
 Choose body protection according to the amount and con-

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Hygiene measures : concentration of the dangerous substance at the work place.
: Avoid contact with skin, eyes and clothing.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : amber

Odor : solvent

Odor Threshold : No data available

pH : 4 - 6

Melting point/range : Not applicable

Boiling point/boiling range : No data available

Flash point : 65.6 °C

Evaporation rate : No data available

Upper explosion limit : No data available

Lower explosion limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : 1.104

Density : 1.11 g/cm³

Solubility(ies)

 Water solubility : insoluble

 Solubility in other solvents : soluble
 Solvent: Organic solvents

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

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Viscosity
 Viscosity, dynamic : No data available

 Viscosity, kinematic : No data available

Self-Accelerating decomposition : Method: No information available.
temperature (SADT)

Oxidizing potential : No information available.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.

Chemical stability : No decomposition if stored and applied as directed.

Possibility of hazardous reac- : No decomposition if used as directed.
tions

Conditions to avoid : No data available

Incompatible materials : None known.

Hazardous decomposition prod- : Burning produces obnoxious and toxic fumes.
ucts

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Ingestion

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, male): 1,600 mg/kg

 LD50 (Rat, female): 1,414 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 3.8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhala-
tion toxicity
Remarks: An LC50/inhalation/4h/rat could not be determined
because no mortality of rats was observed at the maximum
achievable concentration.

Acute dermal toxicity : LD50 (Rat): 3,241 mg/kg

Ingredients:

Etridiazole:

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Acute oral toxicity : LD50 (Rat): > 945 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 5.7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Product:

Species: Rabbit
Result: Moderate skin irritation

Ingredients:

Etridiazole:

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

Serious eye damage/eye irritation

Product:

Species: Rabbit
Result: Irreversible effects on the eye

Ingredients:

Etridiazole:

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

Respiratory or skin sensitization

Product:

Species: Guinea pig
Result: Did not cause sensitization on laboratory animals.

Ingredients:

Etridiazole:

Species: Guinea pig
Assessment: May cause sensitization by skin contact.
Method: OECD Test Guideline 406
Result: May cause sensitization by skin contact.

Germ cell mutagenicity

Ingredients:

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Etridiazole:

Germ cell mutagenicity - Assessment : Based on available data, the classification criteria are not met

Carcinogenicity

Ingredients:

Etridiazole:

Carcinogenicity - Assessment : Suspected of causing cancer.

IARC

Group 2B: Possibly carcinogenic to humans

naphthalene 91-20-3

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

Reasonably anticipated to be a human carcinogen

naphthalene 91-20-3

Reproductive toxicity

Ingredients:

Etridiazole:

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met

STOT-single exposure

Ingredients:

Etridiazole:

Assessment: Based on available data, the classification criteria are not met

Repeated dose toxicity

Ingredients:

Etridiazole:

Species: Rat
NOAEL: 2.7 mg/kg
Application Route: Oral
Exposure time: 91 d
Target Organs: Liver

Species: Rat
NOAEL: 20 mg/kg
Application Route: Dermal
Exposure time: 28 d

Species: Rat

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NOAEL: 0.015 mg/l
LOAEL: 0.015 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 28 d

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

Further information

Product:

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Concentrations substantially above the TLV value may cause narcotic effects.

Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Etridiazole:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.4 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.1 mg/l
Exposure time: 48 h
Test Type: flow-through test
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 0.8 mg/l
Exposure time: 48 h
- Toxicity to fish (Chronic toxicity) : NOEC: 0.12 mg/l
Exposure time: 28 d
Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.37 mg/l
Exposure time: 21 d
Test Type: flow-through test

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

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Ingredients:

Etridiazole:

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life (DT50): 92 d pH: 5
Hydrolysis: at25 °C

Degradation half life (DT50): 98 d pH: 7
Hydrolysis: at25 °C

Degradation half life (DT50): 88 d pH: 9
Hydrolysis: at25 °C

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Ingredients:

Etridiazole:

Bioaccumulation : Bioconcentration factor (BCF): 165

Partition coefficient: n-octanol/water : Pow: 289

naphthalene:

Partition coefficient: n-octanol/water : log Pow: 3.4

Mobility in soil

Product:

Mobility : Remarks: No data available

Ingredients:

Etridiazole:

Distribution among environmental compartments : Remarks: Moderately mobile in soils

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: 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).

Additional ecological informa- : An environmental hazard cannot be excluded in the event of

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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

naphthalene	91-20-3	4.9332 %
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This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

naphthalene	91-20-3	4.9332 %
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California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer.

Etridiazole	2593-15-9
naphthalene	91-20-3
ethylene oxide	75-21-8

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

ethylene oxide	75-21-8
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TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

Nonylphenol, ethoxylated, propoxylated, EO9 mol, PO10	37251-69-7
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The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

naphthalene	91-20-3
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FIFRA Hazard 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 pesticide label also includes other important information, including directions for use.

The hazard information required on the pesticide label is reproduced below.

CAUTION

Corrosive. Causes irreversible eye damage. Causes skin irritation. Harmful if swallowed. Harmful if absorbed through the skin. Do not get in eyes or on clothing. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

Etridiazole may contaminate surface water through spray drift. Under some conditions, etridiazole may have a high potential for runoff into surface water for several weeks postapplication. These conditions include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, areas with infield canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain surface water.

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Combustible. Do not use or store the product near heat or open flame.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; EC_x - Concentration associated with x% response; EL_x - Loading rate associated with x% response; EmS - Emergency Schedule; ErC_x - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; 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; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; 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; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods

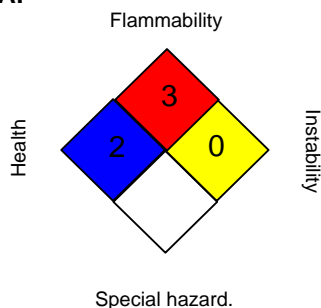
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Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
 2 = Moderate, 3 = High
 4 = Extreme, * = Chronic

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The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8

Carechem24 International Worldwide Coverage

Emergency Phone Number

<u>Europe:</u>	All European Countries	+44 (0) 1235 239 670
<u>Asia Pacific:</u>	East / South East Asia – Regional Number	+65 3158 1074
	Australia	+61 2801 44558
	New Zealand	+64 9929 1483
	China	+86 532 8388 9090
	China Taiwan	+86 10 5100 3039
	Japan	+81 345 789 341
	Indonesia	00780 3011 0293
	Malaysia	+60 3 6207 4347
	Thailand	001800 1 2066 6751
	Korea	+65 3158 1285 +82 (0)234 798 401
	Vietnam	+65 3158 1255
	India	+65 3158 1198 0800 100 7479

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	Philippines	+65 31581203
	Sri Lanka	+65 3158 1195
	Emergency Phone Number	+65 3158 1200
<u>Middle East / Africa:</u>	Arabic speaking countries	+44 (0) 1235 239 671
	South Africa	+27 21 300 2732
	All other countries	+44 (0) 1235 239 670
<u>America</u>	United States of America and Canada	+1866 928 0789 +1 215 207 0061
<u>Latin America:</u>	Brazil	+55 113 711 9144
	Mexico	+52 555 004 8763
	Chile	+56 225 829 336
	All other countries	+44 (0) 1235 239 670