

1 Identification

1.1 Product identifier

· **Trade name:** TREFLAN LIQUID EC Herbicide

· **CAS Number:**

Trifluralin (480 g/L) : 1582-09-8

Registration number PCP Registration No.: 23933

Group 3 Herbicide

· **Application of the substance / the mixture** Agricultural herbicide

1.3 Details of the supplier of the safety data sheet

· **Manufacturer/Supplier:**

Gowan Company

P.O. Box 5569

Yuma, Arizona 85366-5569

(800) 960-4318

· **Information department:** sds@gowanco.com

1.4 Emergency telephone number:

Chemtrec® Emergency Telephone 24 - Hours: (Spills, leak or fire) Inside U.S. & Canada: (800) 424-9300

Outside the U.S. & Canada: +011 (703) 527-3887

For medical emergency (Prosar®): (888) 478-0798

2 Hazard identification

2.1 Classification of the substance or mixture

· **Classification according to Regulation (EC) No 1272/2008**



GHS09 Environment

Aquatic Acute 1

H400 Very toxic to aquatic life.

Aquatic Chronic 1

H410 Very toxic to aquatic life with long lasting effects.



GHS07

Acute Toxicity (Oral) - Category 4 H302 Harmful if swallowed.

Skin Irritation - Category 2

H315 Causes skin irritation.

Skin Sensitizer - Category 1

H317 May cause an allergic skin reaction.

2.2 Label elements

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labeled according to the CLP regulation.

· **Hazard pictograms**



GHS07

GHS09

· **Signal word** Warning

· **Hazard-determining components of labeling:**

trifluralin (ISO) (containing < 0,5 ppm NPDA)

naphthalene

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- **Hazard statements**

- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H410 Very toxic to aquatic life with long lasting effects.

- **Precautionary statements**

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
- P330 Rinse mouth.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P321 Specific treatment (see on this label).
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 1
Reactivity = 1

- **2.3 Other hazards**

- PBT: Not applicable.
- vPvB: Not applicable.

3 Composition/Information on ingredients

- **3.2 Chemical characterization: Mixtures**

- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 1582-09-8	trifluralin (ISO) (containing < 0,5 ppm NPDA) ⚠ Carcinogenicity – Category 2, H351; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Sensitizer - Category 1, H317	43.24% w/w
CAS: 91-20-3	naphthalene ⚠ Carcinogenicity – Category 2, H351; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Toxicity (Oral) - Category 4, H302; Flammable Liquids - Category 4, H227	7.0% w/w

4 First aid measures

- **4.1 Description of first aid measures**

- **General information:**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

You may also contact 1-888-478-0798 for emergency medical treatment information.

- **After 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 poison control center or doctor for further treatment advice.

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- **After 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.
- **After eye contact:**
 - Hold eye open and rinse slowly and gently with water for 15-20 minutes.
 - Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes.
 - Call a poison control center or doctor for treatment advice.
- **After swallowing:**
 - 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 a poison control center or doctor.
 - Do not give anything by mouth to an unconscious person.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **5.1 Extinguishing media**
 - **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
 - **For safety reasons unsuitable extinguishing agents:** Water spray
- **5.2 Special hazards arising from the substance or mixture**
 - Nitrogen oxides (NO_x)
 - Hydrogen fluoride (HF)
 - Carbon monoxide (CO)
 - Carbon dioxide (CO₂)
- **5.3 Advice for firefighters**
 - **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Direct contamination of any body of water with this product may kill fish. Do not contaminate any body of water by direct application, cleaning of equipment or disposal of wastes. This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

· 7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.

· 7.2 Conditions for safe storage, including any incompatibilities

· Storage:

· **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.

· **Information about storage in one common storage facility:** Store away from foodstuffs.

· **Further information about storage conditions:**

Keep receptacle tightly sealed.

Active ingredient crystallization may occur at temperatures below 5°C. If stored below 5°C, check for crystals in the bottom of each container. If crystals are present, place the container in a warm area (at least 15°C) for several hours.

· 7.3 Specific end use(s) No further relevant information available.

8 Exposure controls/ Personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· 8.1 Control parameters

· **Components with limit values that require monitoring at the workplace:**

CAS: 91-20-3 naphthalene

EL	Short-term value: 15 ppm Long-term value: 10 ppm Skin; IARC 2B
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EV	Short-term value: 78 mg/m ³ , 15 ppm Long-term value: 52 mg/m ³ , 10 ppm
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· **Additional information:** The lists that were valid during the creation were used as basis.

· 8.2 Exposure controls

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



Protective gloves

· **Material of gloves** Chemical-resistant gloves.

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- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

- **Body protection:**

Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Chemical resistant gloves
- Shoes plus socks

9 Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

- **Form:** Liquid
- **Color:** Orange
- **Odor:** Solvent-like
- **Odor threshold:** Not determined.

- **pH-value at 20 °C (68 °F):** 5

- **Change in condition**

- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** 232 °C (449.6 °F)

- **Flash point:** 99 °C (210.2 °F)

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 540 °C (1,004 °F)

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not self-igniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

- **Lower:** Not determined.
- **Upper:** Not determined.

- **Vapor pressure:** Not determined.

- **Density at 20 °C (68 °F):** 1.11 g/cm³ (9.26295 lbs/gal)

- **Relative density** Not determined.
- **Vapor density** Not determined.
- **Evaporation rate** Not determined.

- **Solubility in / Miscibility with**

- **Water:** Emulsifiable.

- **Partition coefficient (n-octanol/water):** Not determined.

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- **Viscosity:**
- **Dynamic:** Not determined.
- **Kinematic:** Not determined.
- **9.2 Other information** No further relevant information available.

10 Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
 - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** Excessive heat.
- **10.5 Incompatible materials:** Strong oxidizers
- **10.6 Hazardous decomposition products:**
 - Carbon monoxide (CO)
 - Carbon dioxide
 - Hydrogen fluoride (HF)
 - Nitrogen oxides (NO_x)
 - No dangerous decomposition products known.

11 Toxicological information

- **11.1 Information on toxicological effects**
 - **Acute toxicity:** Harmful if swallowed.

- **LD/LC50 values that are relevant for classification:**

Oral	LD50	>5000 mg/kg (rat) male
	LD50	>4013 mg/kg (rat) female
Dermal	LD50	>2000 mg/kg (rabbit)
Inhalative	LC50/4 h	>7.74 mg/l (rat)

- **Primary irritant effect:**
 - **on the skin:** Causes skin irritation.
 - **on the eye:** May cause slight eye irritation. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.
- **Sensitization:** May cause an allergic skin reaction.
- **Additional toxicological information:**
 - **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
CAS: 1582-09-8	trifluralin (ISO) (containing < 0,5 ppm NPDA)	3
CAS: 91-20-3	naphthalene	2B

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· **NTP (National Toxicology Program)**

CAS: 91-20-3 naphthalene

R

12 Ecological information

· 12.1 Toxicity

Trifluralin

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 < 0.1 mg/L in the most sensitive species). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

Fish Acute & Prolonged Toxicity

LC50, *Lepomis macrochirus* (Bluegill sunfish), 96 h: 0.0084 - 0.40 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, *Daphnia magna* (Water flea), 96 h: 0.56 mg/l

EC50, mussel *Mytilus edulis*, static test, 48 h: 0.096 mg/l

Aquatic Plant Toxicity

ErC50, *Pseudokirchneriella subcapitata* (green algae), 5 d: 0.67 mg/l

EbC50, diatom *Navicula* sp., biomass growth inhibition, 5 d: 0.015 mg/l

Toxicity to Micro-organisms

EC50; activated sludge, 3 h: > 100 mg/l

Fish Chronic Toxicity Value (ChV)

Oncorhynchus mykiss (rainbow trout), static test, 48 d, growth, NOEC: 0.00114 mg/l,

LOEC: 0.00218 mg/l

Aquatic Invertebrates Chronic Toxicity Value

Daphnia magna (Water flea), semi-static test, 21 d, growth, NOEC: 0.0507 mg/l

Toxicity to Above Ground Organisms

oral LD50, *Colinus virginianus* (Bobwhite quail): > 2000 mg/kg bw/day

dietary LC50, *Colinus virginianus* (Bobwhite quail): > 5000 mg/kg diet.

oral LD50, *Apis mellifera* (bees): > 100 micrograms/bee

contact LD50, *Apis mellifera* (bees): > 100 micrograms/bee

Toxicity to Soil Dwelling Organisms

LC50, *Eisenia fetida* (earthworms), 14 d: > 1,000 mg/kg

Naphthalene

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 h: 0.11 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, *Daphnia magna* (Water flea), static test, 48 h, immobilization: 1.6 - 24.1 mg/l

· **Aquatic toxicity:** No further relevant information available.

· 12.2 Persistence and degradability No further relevant information available.

· 12.3 Bioaccumulative potential

Trifluralin:

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 5.07 Measured

Bioconcentration Factor (BCF): 2,280; *Oncorhynchus mykiss* (rainbow trout); Measured

Naphthalene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3

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and 5).

Partition coefficient, n-octanol/water (log Pow): 3.3 Measured

Bioconcentration Factor (BCF): 40 - 300; Fish; Measured

· **12.4 Mobility in soil**

Trifluralin

Mobility in soil: Potential for mobility in soil is slight (Koc between 2000 and 5000).

Partition coefficient, soil organic carbon/water (Koc): 4,400 - 31,000 Measured

Henry's Law Constant (H): 1.03E-04 atm*m3/mole; 25 °C Estimated.

Naphthalene

Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient, soil organic carbon/water (Koc): 240 - 1,300 Measured

Henry's Law Constant (H): 2.92E-04 - 5.53E-04 atm*m3/mole; 25 °C Measured

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

13 Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

14 Transport information

· **14.1 UN-Number**

· DOT/TDG, ADR, IMDG, IATA

UN3082

· **14.2 UN proper shipping name**

· DOT/TDG

TDG:

Marine Pollutants Exemption (TDG 1.45.1)

DOT:

UN 3082 ENVIRONMENTALLY HAZARDOUS
SUBSTANCES, LIQUID, N.O.S. (TRIFLURALIN (ISO)
(CONTAINING < 0,5 PPM NPDA), NAPHTHALENE,

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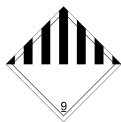
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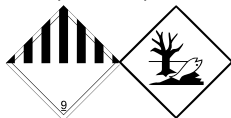
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· ADR	CRUDE), 9, III 3082 Environmentally hazardous substances, liquid, n.o.s. (trifluralin (ISO) (containing < 0,5 ppm NPDA), Naphthalene, crude)
· IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (trifluralin (ISO) (containing < 0,5 ppm NPDA), NAPHTHALENE, CRUDE), MARINE POLLUTANT
· IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (trifluralin (ISO) (containing < 0,5 ppm NPDA), NAPHTHALENE, CRUDE)

· **14.3 Transport hazard class(es)**· **14.3 DOT/TDG (Transport dangerous goods):**· **Class**

Void

· **ADR, IMDG, IATA**· **Class**

9 Miscellaneous dangerous substances and articles

· **Label**

9

· **14.4 Packing group**· **DOT/TDG**

Void

· **ADR, IMDG, IATA**

III

· **14.5 Environmental hazards:**

Product contains environmentally hazardous substances: trifluralin (ISO) (containing < 0,5 ppm NPDA), naphthalene

· **Marine pollutant:**

Symbol (fish and tree)

· **Special marking (ADR):**

Symbol (fish and tree)

· **Special marking (IATA):**

Symbol (fish and tree)

· **14.6 Special precautions for user**

Warning: Miscellaneous dangerous substances and articles

· **Danger code (Kemler):**

90

· **EMS Number:**

F-A,S-F

· **Stowage Category**

A

· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable

· **Transport/Additional information:**· **ADR**· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **IMDG**· **Limited quantities (LQ)**

5L

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· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

Canada TDG:

Marine Pollutants Exemption (TDG 1.45.1)

Others mode of transportation:

UN 3082 ENVIRONMENTALLY HAZARDOUS
SUBSTANCES, LIQUID, N.O.S. (TRIFLURALIN (ISO)
(CONTAINING < 0,5 PPM NPDA), NAPHTHALENE,
CRUDE), 9, III

15 Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **SARA Title III**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**

CAS: 91-20-3 | naphthalene

· **Canadian substance listings:**· **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

CAS: 91-20-3 | naphthalene

· **Labelling according to Regulation (EC) No 1272/2008**· **Hazard pictograms** Not applicable· **Signal word** (US EPA) CAUTION· **National regulations:**· **Additional classification according to Decree on Hazardous Materials:**

Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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· Relevant phrases

- H227 Combustible liquid.
- H302 Harmful if swallowed.
- H317 May cause an allergic skin reaction.
- H351 Suspected of causing cancer.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

· Department issuing SDS: Supply Chain**· Contact:** sds@gowanco.com**· Date of the latest revision of the safety data sheet** 07/03/2019 / 3**· Abbreviations and acronyms:**

- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative

· * Data compared to the previous version altered.

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