

Reviewed on 11/02/2016

1 Identification

- · Product identifier
 - · Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363
 - · CAS Number: Active Ingredient: Trifluralin (43.0%), CAS:1582-09-8
 - · Application of the substance / the mixture Agricultural herbicide
- · Details of the supplier of the safety data sheet
 - · Manufacturer/Supplier:

Gowan Company P.O. Box 5569 Yuma, Arizona 85366-5569

(928) 783-8844

- · Information department: sds@gowanco.com
- · 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(s) identification

· Classification of the substance or mixture



Carc. 2 H351 Suspected of causing cancer.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Eye Irrit. 2A H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

- · Label elements
 - · GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



- · Signal word Danger
- · Hazard-determining components of labeling: trifluralin (ISO) (containing < 0,5 ppm NPDA) naphthalene
- · Hazard statements

Causes serious eye irritation.

May cause an allergic skin reaction.

Suspected of causing cancer.

May be fatal if swallowed and enters airways.

(Contd. on page 2)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 1)

· Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray

IF SWALLOWED: Immediately call a POISON CENTER/doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment (see on this label).

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Hazard description:

Causes Moderate Eye Irritation • Harmful if Swallowed • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals. Avoid contact with eyes, skin, or clothing.

- · Classification system:
 - · NFPA ratings (scale 0 4)



Health = 2 Fire = 1Reactivity = 1

HAZARD INDEX:

- 4 Severe Hazard
- 3 Serious Hazard
- 2 Moderate Hazard
- 1 Slight Hazard
- 0 Minimal Hazard
- · HMIS-ratings (scale 0 4)



Health = 2Fire = 1

REACTIVITY 1 Reactivity = 1

HAZARD INDEX:

- 4 Severe Hazard
- 3 Serious Hazard
- 2 Moderate Hazard
- 1 Slight Hazard
- 0 Minimal Hazard
- · Other hazards
 - · Results of PBT and vPvB assessment
 - · **PBT**: Not applicable in US.
 - · vPvB: Not applicable in US.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
 - · Description: Mixture of the substances listed below with nonhazardous additions.
 - · Dangerous components:

1582-09-8 trifluralin (ISO) (containing < 0,5 ppm NPDA)

43.0%

♦ Carc. 2, H351; ♦ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ♦ Skin Sens. 1, H317

(Contd. on page 3)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 2)

91-20-3 naphthalene

7.0%

♦ Carc. 2, H351; **♦** Aquatic Acute 1, H400; Aquatic Chronic 1, H410; **♦** Acute Tox. 4, H302; Flam. Liq. 4, H227

4 First-aid measures

· 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.*

· 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.

· Information for doctor:

- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

This product contains an aromatic hydrocarbon and can be extremely harmful if swallowed. Aspiration of this product may produce a severe pneumonitis. Stomach lavage with a cuffed endotracheal tube in place and immediate administration of activated charcoal, 6 to 8 heaping teaspoonfuls with water, should be considered. Treatment is otherwise symptomatic and supportive.

5 Fire-fighting measures

- · 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
- · Special hazards arising from the substance or mixture

Nitrogen oxides (NOx)

Hydrogen fluoride (HF)

Carbon monoxide (CO)

Carbon dioxide (CO2)

(Contd. on page 4)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 3)

· Advice for firefighters

· Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Causes Moderate Eye Irritation • Harmful if Swallowed • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals. Avoid contact with eyes, skin, or clothing.

· Environmental precautions:

Do not allow to enter sewers/ surface or ground water.

This pesticide is extremely toxic to freshwater marine, and estuarine fish and aquatic invertebrates including shrimp and oyster. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply in a manner which will directly expose canals, lakes, streams, ponds, marshes or estuaries to aerial drift. Do not contaminate water when disposing of equipment washwaters.

· 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.

· 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.

7 Handling and storage

- · Handling:
 - · 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.
- · 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.

Avoid freezing. Store above 40°F

· 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.
- · Control parameters
 - · Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

(Contd. on page 5)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 4)

91-20-3 naphthalene

PEL Long-term value: 50 mg/m³, 10 ppm

REL Short-term value: 75 mg/m³, 15 ppm

Long-term value: 50 mg/m³, 10 ppm

TLV Long-term value: 52 mg/m³, 10 ppm

Skin; BEI

· Additional information: The lists that were valid during the creation were used as basis.

· 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.
- · 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:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Nitrile, Butyl, Neoprene, or Barrier Laminate
- Shoes plus socks
- Protective eyewear

9 Physical and chemical properties

- · Information on basic physical and chemical properties
 - · General Information
 - · Appearance:

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

(Contd. on page 6)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

		(Contd. of page
· pH-value at 20 °C (68 °F):	5	
· Change in condition		
· Melting point/Melting range:	Undetermined.	
· Boiling point/Boiling range:	232 °C (450 °F)	
· Flash point:	99 °C (210 °F)	
· Flammability (solid, gaseous):	Not applicable.	
· Ignition temperature:	540 °C (1004 °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 (9.263 lbs/gal)	
· Relative density	Not determined.	
· Vapor density	Not determined.	
· Evaporation rate	Not determined.	
· Solubility in / Miscibility with		
· Water:	Emulsifiable.	
· Partition coefficient (n-octanol/wo	ater): Not determined.	
· Viscosity:		
· Dynamic:	Not determined.	
· Kinematic:	Not determined.	
· Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
 - · Chemical stability
 - · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid Excessive heat.
- · Incompatible materials: Strong oxidizers
- · Hazardous decomposition products:

Carbon monoxide (CO)

Carbon dioxide

Hydrogen fluoride (HF)

Nitrogen oxides (NOx)

No dangerous decomposition products known.

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 6)

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· <i>LD/L</i> (· 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:

Brief contact may cause slight skin irritation with local redness.

Prolonged contact may cause skin irritation with local redness.

May cause drying and flaking of the skin.

· 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: Sensitization possible through skin contact.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Irritant

· Carcinogenic categories

	· IARC (International Agency for Research on Cancer)				
1582-09-8	trifluralin (ISO) (containing < 0.5 ppm NPDA)	3			
91-20-3	naphthalene	2 <i>B</i>			
· NTI	· NTP (National Toxicology Program)				
91-20-3 na	91-20-3 naphthalene				
· OSI	· OSHA-Ca (Occupational Safety & Health Administration)				
None of the	None of the ingredients are listed.				

12 Ecological information

· Toxicity

This pesticide is extremely toxic to freshwater marine, and estuarine fish and aquatic invertebrates including shrimp and oyster. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply in a manner which will directly expose canals, lakes, streams, ponds, marshes or estuaries to aerial drift. Do not contaminate water when disposing of equipment washwaters.

Trifluralin

Acute toxicity to fish

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

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 0.088 mg/l

LC50, Lepomis macrochirus (Bluegill sunfish), flow-through test, 96 Hour, 0.089 mg/l

(Contd. on page 8)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 7)

Acute toxicity to aquatic invertebrates

EC50, water flea Daphnia magna, static test, 48 Hour, 0.245 mg/l

EC50, mussel Mytilus edulis, static test, 48 Hour, 0.096 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.0532 mg/l

EC50, Lemna gibba, Growth inhibition, 7 d, 0.043 mg/l EbC50, diatom Navicula sp., 5 d, Biomass, 0.015 mg/l

Toxicity to bacteria

EC50, activated sludge, 3 Hour, > 100 mg/l

Chronic toxicity to fish

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

Chronic toxicity to aquatic invertebrates

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

Toxicity to Above Ground Organisms

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). oral LD50, Colinus virginianus (Bobwhite quail), > 2250mg/kg bodyweight. dietary LC50, Colinus virginianus (Bobwhite quail), 5 d, > 5000mg/kg diet. oral LD50, Apis mellifera (bees), > 100micrograms/bee contact LD50, Apis mellifera (bees), > 100micrograms/bee

Toxicity to soil-dwelling organisms

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

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
 - · Bioaccumulative potential No further relevant information available.
 - · Mobility in soil No further relevant information available.
- · 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.

- · Results of PBT and vPvB assessment
 - · **PBT**: Not applicable.
 - · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
 - · Recommendation:

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

- · Uncleaned packagings:
 - · Recommendation:

Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the (Contd. on page 9)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 8)

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. Pressure rinse as follows: Empty 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.

· UN-Number	
· DOT, ADR, IMDG, IATA	UN3082
· UN proper shipping name	
ADR	3082 Environmentally hazardous substances, liquid, n.o (trifluralin (ISO) (containing < 0,5 ppm NPDA), Naphthales crude)
· IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUI N.O.S. (trifluralin (ISO) (containing < 0,5 ppm NPDA NAPHTHALENE, CRUDE), MARINE POLLUTANT
· IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUI N.O.S. (trifluralin (ISO) (containing < 0,5 ppm NPDA NAPHTHALENE, CRUDE)
· Transport hazard class(es)	
· Class · Label	9 Miscellaneous dangerous substances and articles 9
· Packing group	
· ADR, IMDG, IATA	III
· Environmental hazards:	Product contains environmentally hazardous substances: triflura (ISO) (containing < 0,5 ppm NPDA), naphthalene
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
	Symbol (fish and tree)
· Special marking (IATA):	
· Special marking (IATA): · Special precautions for user	Warning: Miscellaneous dangerous substances and articles
· Special precautions for user · Danger code (Kemler):	90
· Special precautions for user	č č

(Contd. on page 10)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 9) · Transport/Additional information: · Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml \cdot *IMDG* · Limited quantities (LO) 5L· Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCES, · UN "Model Regulation": LIQUID, N.O.S. (TRIFLURALIN), 9, III,RQ

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture EPA /FIFRA Information:

This chemical is a pesticide product registered by the Environmental Protection Agency (EPA) 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.

· 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):

91-20-3 naphthalene

· Proposition 65

· Chemicals known to cause cancer:

91-20-3 naphthalene

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

· Carcinogenicity categories

	0 2 0			
· EPA (Environmental Protection Agency)				
1582-09-8	trifluralin (ISO) (containing < 0,5 ppm NPDA)	C		
91-20-3	naphthalene	C, CBD		
· TLV (Threshold Limit Value established by ACGIH)				

91-20-3 naphthalene

(Contd. on page 11)

A4

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 10)

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms

Not applicable

· Signal word:

(US EPA) CAUTION

· Hazard-determining components of labeling:

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

· Hazard statements

Causes serious eye irritation.

May cause an allergic skin reaction.

Suspected of causing cancer.

May be fatal if swallowed and enters airways.

· Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray

IF SWALLOWED: Immediately call a POISON CENTER/doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment (see on this label).

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· 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.

- · Department issuing SDS: Supply Chain
- · Contact: sds@gowanco.com
 - Date of preparation / last revision 11/02/2016 / 3
 - · Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

(Contd. on page 12)

Printing date 11/02/2016 Reviewed on 11/02/2016

Trade name: TREFLAN® HFP HERBICIDE EPA Registration No.: 10163-363

(Contd. of page 11)

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit

Flam. Liq. 4: Flammable liquids – Category 4
Acute Tox. 4: Acute toxicity – Category 4

Eye Irrit. 2A: Serious eye damage/eye irritation - Category 2A

Skin Sens. 1: Skin sensitisation – Category 1 Carc. 2: Carcinogenicity – Category 2 Asp. Tox. 1: Aspiration hazard – Category 1

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1 Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

- · Sources Treflan® is a registered trademark of Gowan Company LLC.
- * Data compared to the previous version altered.

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