

**1 Identification**

**1.1 Product identifier**

· **Trade name:** Ethalfuralin Manufacturing Concentrate

· **CAS Number:**

Ethalfuralin (360 g/L): 55283-68-6

Registration number PCP Registration No.: 21012

Group 3 Herbicide

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

Herbicide mixture to be use on manufacturing of blended fertilizer

**1.3 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

**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(s) identification**

**2.1 Classification of the substance or mixture**

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



GHS02 Flame

Flammable Liquids - Category 3

H226 Flammable liquid and vapour.



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.

Acute Toxicity (Dermal) – Category 4

H312 Harmful in contact with skin.

Acute Toxicity (Inhalation) - Category 4

H332 Harmful if inhaled.

Skin Irritation - Category 2

H315 Causes skin irritation.

Skin Sensitizer - Category 1

H317 May cause an allergic skin reaction.

Specific Target Organ Toxicity - Single Exposure - Category 3

H335 May cause respiratory irritation.

Eye Irritation - Category 2B

H320 Causes eye irritation.

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### · 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



GHS02   GHS07   GHS09

#### · Signal word Warning

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

Solvent naphtha (petroleum), light arom.

Ethalfuralin

cyclohexanone

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

#### · Hazard statements

- H226                      Flammable liquid and vapour.  
 H302+H312+H332      Harmful if swallowed, in contact with skin or if inhaled.  
 H315+H320              Causes skin and eye irritation.  
 H317                      May cause an allergic skin reaction.  
 H335                      May cause respiratory irritation.  
 H410                      Very toxic to aquatic life with long lasting effects.

#### · Precautionary statements

- P210                      Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P241                      Use explosion-proof [electrical/ventilating/lighting] equipment.  
 P303+P361+P353      IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P305+P351+P338      IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P405                      Store locked up.  
 P501                      Dispose of contents/container in accordance with local/regional/national/international regulations.

#### · Hazard description:

**HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH THE SKIN POTENTIAL SKIN SENSITIZER CAUSES EYE AND SKIN IRRITATION. DO NOT GET IN EYES OR ON SKIN. AVOID BREATHING DUST, SPRAY MIST AND VAPOURS**

#### · WHMIS-symbols:

B3 - Combustible liquid

D2B - Toxic material causing other toxic effects



#### · Classification system:

#### · NFPA ratings (scale 0 - 4)



Health = 2

Fire = 2

Reactivity = 0

HAZARD INDEX:

4 Severe Hazard

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- 3 Serious Hazard
- 2 Moderate Hazard
- 1 Slight Hazard
- 0 Minimal Hazard

- **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: 55283-68-6	<b>Ethalfluralin</b> ⚠ Carcinogenicity – Category 2, H351; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Irritation - Category 2, H315; Eye Irritation - Category 2A, H319; Skin Sensitizer - Category 1B, H317	360 g/L (35.4% w/w)
CAS: 1582-09-8	<b>trifluralin (ISO) (containing &lt; 0,5 ppm NPDA)</b> ⚠ Carcinogenicity – Category 2, H351; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Sensitizer - Category 1, H317	0.1% w/w
CAS: 64742-95-6	<b>Solvent naphtha (petroleum), light arom.</b> ⚠ Flammable Liquids - Category 3, H226; ⚠ Germ Cell Mutagenicity - Category 1B, H340; Carcinogenicity - Category 1B, H350; Aspiration Hazard - Category 1, H304	44.9% w/w
CAS: 108-94-1	<b>cyclohexanone</b> ⚠ Flammable Liquids - Category 3, H226; ⚠ Acute Toxicity (Inhalation) - Category 4, H332	14.8% 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.

##### · **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.

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- **After swallowing:**
  - Call a poison control center or doctor immediately for treatment advice.
  - 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.
- **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**  
This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

### 5 Fire-fighting measures

- **5.1 Extinguishing media**
  - **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**  
Nitrogen oxides (NO<sub>x</sub>)  
Hydrogen fluoride (HF)  
Hydrogen chloride (HCl)  
Carbon monoxide (CO)  
Carbon dioxide (CO<sub>2</sub>)
- **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**  
DO NOT get in eyes or on skin. Avoid contact with clothing. Avoid breathing dust, spray mist and vapours. Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during blending and repair activities, plus a respirator with a NIOSH/MSHA/BHSE approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH/MSHA/BHSE approved canister approved for pesticides while loading. Change contaminated clothing daily and wash before reuse (apart from household laundry). Do not handle product with bare hands. Do not use leather or cloth gloves.
- **6.2 Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
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.

### 7 Handling and storage

- **7.1 Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.

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· **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:**  
Store in dry conditions.  
Keep receptacle tightly sealed.

· **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: 108-94-1 cyclohexanone**

EL	Short-term value: 50 ppm Long-term value: 20 ppm Skin
----	---

EV	Short-term value: 50 ppm Long-term value: 20 ppm Skin
----	---

· **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.
- 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

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **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.

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· Eye protection:



Tightly sealed goggles

· Body protection: Protective work clothing

## 9 Physical and chemical properties

### · 9.1 Information on basic physical and chemical properties

#### · General Information

##### · Appearance:

- Form: Liquid
- Color: Orange
- Odor: Aromatic
- Odor threshold: Not determined.

· pH-value at 20 °C (68 °F): 5

#### · Change in condition

- Melting point/Melting range: Undetermined.
- Boiling point/Boiling range: 156 °C (313 °F)

· Flash point: 48 °C (118 °F)

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 420 °C (788 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not self-igniting.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

#### · Explosion limits:

- Lower: 0.7 Vol %
- Upper: 9.4 Vol %

· Vapor pressure at 20 °C (68 °F): 5 hPa (4 mm Hg)

· Density at 20 °C (68 °F): 1.017 g/cm<sup>3</sup> (8.487 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.

#### · Viscosity:

- Dynamic: Not determined.
- Kinematic: Not determined.

#### · Solvent content:

· Organic solvents: 59.7 %

· Solids content: 40.3 %

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· **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**

Avoid temperatures above 70 °C. Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.
- **10.5 Incompatible materials:** Strong oxidizers
- **10.6 Hazardous decomposition products:**

Hydrogen chloride (HCl)  
Hydrogen fluoride (HF)  
Nitrogen oxides (NOx)

## 11 Toxicological information

- **11.1 Information on toxicological effects**
  - **Acute toxicity:**  
Harmful if swallowed, in contact with skin or if inhaled.

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

Oral	LD50	>4000 mg/kg (rat) Estimated
Dermal	LD50	>5000 mg/kg (rabbit) Estimated

- **Primary irritant effect:**
  - **on the skin:**  
Causes skin and eye irritation.  
Brief contact may cause moderate skin irritation with local redness. Prolonged contact may cause skin irritation, even a burn.
  - **on the eye:** May cause severe eye irritation. May cause moderate corneal injury.
- **Sensitization:**  
May cause an allergic skin reaction.
- **Additional toxicological information:**

· **Carcinogenic categories**

· <b>IARC (International Agency for Research on Cancer)</b>		
CAS: 108-94-1	cyclohexanone	3
CAS: 1582-09-8	trifluralin (ISO) (containing < 0,5 ppm NPDA)	3

· **NTP (National Toxicology Program)**

None of the ingredients are listed.

## 12 Ecological information

- **12.1 Toxicity**  
TOXIC to aquatic organisms and non-target terrestrial plants. Do not contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

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*Data for Component: Ethalfuralin*

*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).*

*Data for Component: Cyclohexanone*

*Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).*

*Data for Component: 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).*

*Data for Component: Solvent naphtha (petroleum), light aromatic consists of:*

*Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested). 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).*

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

**· 12.2 Persistence and degradability**

*Data for Component: Ethalfuralin*

*Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.*

*Data for Component: Cyclohexanone*

*Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.*

*Data for Component: Trifluralin*

*Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.*

*Data for Component: Solvent naphtha (petroleum), light aromatic consists of:*

*For the major component(s): Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). For some component(s): Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).*

**· 12.3 Bioaccumulative potential**

*Data for Component: Ethalfuralin*

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

*Data for Component: Cyclohexanone*

*Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).*

*Data for Component: Trifluralin*

*Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).*

*Data for Component: Solvent naphtha (petroleum), light aromatic consists of:*

*Bioaccumulation: For the major component(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). For the minor component(s): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).*

**· 12.4 Mobility in soil**

*Data for Component: Ethalfuralin*

*Mobility in soil: Expected to be relatively immobile in soil (Koc > 5000).*

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Data for Component: Cyclohexanone

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).

Data for Component: Trifluralin

Mobility in soil: Expected to be relatively immobile in soil (Koc > 5000).

Data for Component: Solvent naphtha (petroleum), light aromatic consists of:

Mobility in soil: For the major component(s); Potential for mobility in soil is low (Koc between 500 and 2000).

· **Ecotoxicological effects:**

· **Remark:** Toxic for fish

· **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.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

· **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:**

product should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and information on clean up of spills, contact the manufacturer or the provincial regulatory agency.

### 14 Transport information

· **14.1 UN-Number**

· **DOT, TDG, IMDG, IATA**

UN1993

· **14.2 UN proper shipping name**

· **TDG**

1993 Flammable liquids, n.o.s. (Cyclohexanone, Solvent naphtha (petroleum), light arom.), ENVIRONMENTALLY HAZARDOUS

· **IMDG**

FLAMMABLE LIQUID, N.O.S. (CYCLOHEXANONE, Solvent naphtha (petroleum), light arom.), MARINE POLLUTANT

· **IATA**

FLAMMABLE LIQUID, N.O.S. (CYCLOHEXANONE, Solvent naphtha (petroleum), light arom.)

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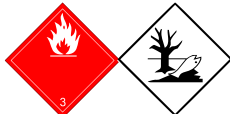
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## · 14.3 Transport hazard class(es)

## · 14.3 TDG, IMDG



· Class 3 Flammable liquids  
· Label 3

## · IATA



· Class 3 Flammable liquids  
· Label 3

## · 14.4 Packing group

· TDG, IMDG, IATA III

## · 14.5 Environmental hazards:

Product contains environmentally hazardous substances:  
Ethalfluralin, Solvent naphtha (petroleum), light arom.

· Marine pollutant: Symbol (fish and tree)  
· Special marking (TDG): Symbol (fish and tree)

## · 14.6 Special precautions for user

Warning: Flammable liquids

· Danger code (Kemler): 30  
· EMS Number: F-E,S-E  
· Stowage Category A

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

Not applicable

## · Transport/Additional information:

· Quantity limitations On passenger aircraft/rail: 60 L  
On cargo aircraft only: 220 L

## · TDG

· 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  
· Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

## · UN "Model Regulation":

UN 1993 FLAMMABLE LIQUIDS, N.O.S.  
(CYCLOHEXANONE, SOLVENT NAPHTHA  
(PETROLEUM), LIGHT AROM.), 3, III,  
ENVIRONMENTALLY HAZARDOUS

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## 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):**

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

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

CAS: 55283-68-6 | Ethalfuralin

CAS: 108-94-1 | cyclohexanone

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

CAS: 108-94-1 | cyclohexanone

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

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

CAS: 108-94-1 | cyclohexanone

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

None of the ingredients are listed.

· **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.

· **Relevant phrases**

- H226 Flammable liquid and vapour.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H340 May cause genetic defects.
- H350 May cause cancer.
- 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 preparation / last revision** 03/29/2017 / -

· **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)
- WHMIS: Workplace Hazardous Materials Information System (Canada)

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*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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