



1. IDENTIFICATION

1.1 GHS Product Identifier:	Cornbelt® Trifluralin
1.2 Alternate Name(s):	G-1239
1.3 Chemical Class:	Herbicide
1.4 Active Ingredient:	Trifluralin
1.5 Recommended Use/Restrictions:	Please see the label for specific recommendations regarding this product.
1.6 Supplier's Details:	Van Diest Supply Company 1434 220 th St. Post Office Box 610 Webster City, Iowa 50595
1.7 Emergency Phone Number:	FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

2. HAZARDS IDENTIFICATION

2.1 Health Hazards:	Aspiration hazard	Category 1
	Skin sensitization	Category 1
	Serious eye damage/eye irritation	Category 2A
	Carcinogenicity	Category 2
	2.2 Environmental Hazards:	Aquatic toxicity



Danger

Hazards:

May cause an allergic skin reaction.
May be fatal if swallowed and enters airways.
Suspected of causing cancer.
Causes serious eye irritation.

Prevention:

Obtain special instructions before use.
Avoid breathing dust/fumes/gas/mist/vapors/spray.
Wash skin thoroughly after handling
Do not handle until all safety precautions have been read and understood.
Wear eye protection/face protection.
Wear protective gloves.
Use personal protective equipment as required.
Contaminated work clothing should not be allowed out of the workplace.

Response:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Wash contaminated clothing before reuse.
IF exposed or concerned: Get medical advice/attention.
Do NOT induce vomiting.
If skin irritation or rash occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.

Disposal:

Dispose of contents and container in accordance with federal, state, and local regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Material	CAS #	% in Formulation
Trifluralin	1582-09-8	43.0%
Naphthalene	91-20-3	7.0%
Balance	NA	50.0%

This safety data sheet is not a guarantee of product specification. Specific ingredient content may be found on the product label.

4. FIRST AID MEASURES

4.1 General First Aid Recommendations are as follows:	Eye Contact:	Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.
	Skin Contact:	Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.
	Ingestion:	Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.
	Inhalation:	Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.
4.2 Most Important Symptoms/Effects (acute and delayed):	Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11 – Toxicology Information.	
4.3 Indication of Need for Immediate Medical Attention:	Skin contact may aggravate preexisting dermatitis. Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.	

5. FIREFIGHTING MEASURES

5.1 Suitable Extinguishing Media:	Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Unsuitable Extinguishing Media:	Do not use direct water stream. May spread fire.

5. FIREFIGHTING MEASURES, continued

5.2 Specific Hazards Arising from the Chemical:	During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: nitrogen oxides, fluorinated hydrocarbons, carbon monoxide, and/or carbon dioxide.
5.3 Unusual Fire and Explosion Hazards:	Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.
5.4 Firefighting Procedures:	Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.
5.5 Special Protective Equipment and Precautions for Firefighters:	Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with a self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with a self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures:	Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7 – Handling and Storage for additional precautionary measures. Keep personnel out of low areas. Use appropriate safety equipment. For additional information, refer to Section 8 – Exposure Controls and Personal Protection.
6.2 Environmental Precautions:	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12 – Ecological Information.
6.3 Methods and Material for Containment and Cleanup:	Contain spilled material if possible. For small spills: Absorb with materials such as: clay, dirt, sand. Sweep up. Collect in suitable and properly labeled containers.

7. HANDLING AND STORAGE

7.1 Conditions for Safe Handling:	Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not swallow. Keep out of reach of children. Avoid breathing vapor or mist. Use with adequate ventilation. See Section 8 – Exposure Controls And Personal Protection.
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7. HANDLING AND STORAGE, continued

7.2 Conditions for Safe Storage:	Store this product in a well-ventilated area, in the original container. Secure material from access by children or domestic animals. Do not store this product near potable water supplies, food, beverages, or tobacco products.
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8. EXPOSURE CONTROL/PERSONAL PROTECTION**8.1 Occupational Exposure Limits:**

Material	CAS #	OSHA PEL	ACGIH TLV	Carcinogen		
				NTP	IARC	ACGIH
Naphthalene	91-20-3	50 mg/m ³ 10 ppm skin	10 ppm skin	Reasonably Anticipated	2B	A3

8.2 Engineering Controls:

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

8.3 Personal Protective Equipment:

Recommendations in this section are for manufacturing, commercial blending and packaging workers. Applicators and handlers should see the product label for proper personal protective equipment and clothing.

Eye/Face Protection:	Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.
Skin Contact:	<p>Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: chlorinated polyethylene, neoprene, nitrile/butadiene rubber (“nitrile” or “NBR”), polyethylene, ethyl vinyl alcohol laminate (“EVAL”), polyvinyl chloride (“PVC” or “vinyl”), Viton. Examples of acceptable glove barrier materials include: butyl rubber, natural rubber (“latex”). Avoid gloves made of: polyvinyl alcohol (“PVA”). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.</p> <p>Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.</p>
Ingestion:	Do not allow eating, drinking, tobacco use, or cosmetic application in areas where there is a potential for exposure to this material.
Inhalation:	Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Orange liquid	Upper/Lower Explosive Limit:	11.8% / 1.8% estimated
Odor:	Solvent	Vapor Pressure:	<1 hPa @ 68°F
Odor Threshold:	ND	Vapor Density:	4.7
pH:	5.0 (50/50)	Relative Density:	1.117 @ 68°F
Melting Point:	ND	Solubility:	Emulsifies in water
Boiling Point:	450 - 527°F	Partition Coefficient (<i>n</i>-Octanol/Water):	ND
Flash Point:	210°F PMCC	Auto-Ignition Temperature:	ND
Evaporation Rate:	ND	Decomposition Temperature:	ND
Flammability:	NA	Viscosity:	ND

ND=No Data; NA=Not Applicable

The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY**10.1 Reactivity:**

No Data.

10.2 Chemical Stability:

Unstable at elevated temperatures.

10.3 Possibility of Hazardous Reactions:

Will not occur.

10.4 Conditions to Avoid:

Exposure to elevated temperatures can cause product to decompose.

Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid static discharge.

Oxidizers.

10.5 Incompatible Materials:**10.6 Hazardous Decomposition Products:**

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: carbon monoxide, carbon dioxide, fluorinated hydrocarbons, hydrogen fluoride, nitrogen oxides. Toxic flammable gases can be released during decomposition.

11. TOXICOLOGICAL INFORMATION**11.1 Likely Routes of Exposure:**

Overexposure may occur by inhalation, ingestion, and absorption.

11.2 Skin Corrosion/Irritation:

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.

11.3 Serious Eye Damage/Irritation:

May cause slight eye irritation. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

11.4 Respiratory or Skin Sensitization:

Skin contact may cause an allergic skin reaction. For respiratory sensitization, no relevant data found.

11.5 Germ Cell Mutagenicity:

For the active ingredient(s): Trifluralin. In vitro genetic toxicity studies were predominantly negative. For the solvent(s): In vitro genetic toxicity studies were negative. For the major component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

11. TOXICOLOGICAL INFORMATION, continued**11.6 Carcinogenicity:**

For the active ingredient(s): A low incidence of urinary tract tumors was seen in only 1 of 5 chronic studies in rats with trifluralin. Trifluralin is not anticipated to be a carcinogenic risk to man. For the major component(s): Naphthalene. Has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

Material	Carcinogen		
	NTP	IARC	OSHA
Naphthalene	Reasonably Anticipated	2B	A3

11.7 Reproductive Toxicity:

For the active ingredient: Trifluralin. In animal studies, did not interfere with reproduction.

11.8 STOT-Single Exposure:

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

11.9 STOT-Long Term Exposure:

For the active ingredient(s): Trifluralin

In animals, effects have been reported on the following organs:

Liver
Kidney
Blood

For the solvent(s):

Lung
Gastrointestinal tract
Thyroid
Urinary tract

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

For the major component(s): Naphthalene.

Observations in animals include:

Respiratory effects.

Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.

Ingestion of naphthalene by humans has caused hemolytic anemia.

Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen.

11.10 Aspiration Hazard:

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

11. TOXICOLOGICAL INFORMATION, continued**11.11 Acute Toxicology:**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Prolonged skin contact is unlikely to result in absorption of harmful amounts. No adverse effects are anticipated from single exposure to mist.

Ingestion:	Oral LD ₅₀ (rat, male)	>5,000 mg/kg
Ingestion:	Oral LD ₅₀ (rat, female)	>4,013 mg/kg
Skin Contact:	Dermal LD ₅₀ (rabbit)	>2,000 mg/kg
Inhalation:	Inhalation LC ₅₀ (mist)	>7.74 mg/L

12. ECOLOGICAL INFORMATION**12.1 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

Acute toxicity to aquatic invertebrates

EC₅₀, *Daphnia magna* (water flea), static test, 48 Hour, 0.245 mg/L

EC₅₀, *Mytilus edulis* (mussel), 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, *Navicula sp.* (diatom), 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), > 100 mg/bee

Contact LD₅₀, *Apis mellifera* (bees), > 100 mg/bee

Toxicity to soil-dwelling organisms

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

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

10-day Window: Fail

Biodegradation: 5 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

12. ECOLOGICAL INFORMATION, continued**Trifluralin, continued****Chemical Oxygen Demand:** 1.37 mg/mg**Stability in Water (1/2-life)**

Hydrolysis, half-life, > 1 year, pH 3 - 9, Measured

Photolysis, half-life, 0.19 - 3.08 Hour, Measured

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH (hydroxyl) radicals**Atmospheric half-life:** 5.347 Hour**Method:** Estimated.**Bioaccumulation****Bioconcentration** potential is high (BCF > 3000 or Log P_{ow} between 5 and 7).**Partition coefficient:** *n*-octanol/water(log P_{ow}): 5.27**Bioconcentration factor (BCF):** 1,060 - 6,000 *Pimephales promelas* (fathead minnow)**Mobility in soil:** No relevant data found.**Method:** Estimated.**12.2 Naphthalene****Acute toxicity to fish**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).LC₅₀, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, 0.11 mg/L**Acute toxicity to aquatic invertebrates**EC₅₀, *Daphnia magna* (Water flea), static test, 48 Hour, 1.6 - 24.1 mg/L**Chronic toxicity to fish**

NOEC, Other, flow-through, 40 d, mortality, 0.37 mg/L

Biodegradability: Biodegradation under aerobic static laboratory conditions is high. (BOD₂₀ or BOD₂₈/ThOD > 40%).**Theoretical Oxygen Demand:** 3.00 mg/mg**Biological oxygen demand (BOD)**

IncubationTime	BOD
5 days	57%
10 days	71%
20 days	71%

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH (hydroxyl) radicals**Atmospheric half-life:** 5.9 Hour**Method:** Estimated

12. ECOLOGICAL INFORMATION, continued**Naphthalene, continued****Bioaccumulation:**

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log P_{ow} between 3 and 5).

Partition coefficient: *n*-octanol/water (log P_{ow}): 3.3 Measured

Bioconcentration factor (BCF): 40 - 300 Fish. 28 d Measured

Mobility in soil:

Potential for mobility in soil is medium (K_{oc} between 150 and 500). Partition coefficient(K_{oc}): 240 - 1300 Measured

13. DISPOSAL CONSIDERATIONS

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION**14.1 DOT Classification**

The material is classified as follows, when shipped in containers at or above the regulated container size:

ID: **UN 3082**

Proper Shipping Name: **UN 3082 Environmentally hazardous substance, liquid, n.o.s. (Trifluralin, Naphthalene)**

Hazard Class: **9**

Packing Group: **III**

Reportable Quantity Trifluralin, Naphthalene

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION**15.1 EPCRA SARA Title III Classifications**

Section 311/312 Hazard Classes:

Acute Health, Chronic Health

SARA 313:

Naphthalene CAS#: 91-20-3

California Proposition 65:

Naphthalene

PA Right to Know:

Trifluralin 1582-09-8, Naphthalene 91-20-3

FIFRA:

EPA registration number: 62719-250

16. OTHER INFORMATION

SDS Version: 10/25/2016

NFPA: 2, 1, 1

The information and recommendations contained in this safety data sheet are understood to be correct by Van Diest Supply Company. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Information in this SDS follows different criteria from, and serves a different purpose than the product labeling.