

1. Identification

Product identifier

Product Name Total® TNV

EPA Reg. No. 1381-270

Recommended use of the chemical and restrictions on use

Recommended use Herbicide

Restrictions on use See product label for use restrictions

Details of the supplier of the safety data sheet

Supplier Address

Winfield Solutions, LLC
P.O. Box 64589
St. Paul, MN 55164-0589

For Non-Emergency Business Inquiries:
1-855-494-6343 (Mon - Fri 8am - 5pm CST)

Emergency telephone number FOR MEDICAL EMERGENCY: 1-877-424-7452 (24 hrs)

Emergency Telephone FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL:
CHEMTREC 1-800-424-9300 (24 hrs)

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Dermal	Category 4
Serious eye damage/eye irritation	Category 2B
Reproductive toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 2

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word

Danger

Hazard statements

Harmful in contact with skin.
Causes eye irritation.
May damage fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Pictograms**Precautionary Statements - Prevention**

Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Wear protective gloves/protective clothing/eye protection/face protection.
 Wash face, hands and any exposed skin thoroughly after handling.
 Do not breathe mist, vapor or spray.

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention.
 IF IN EYES: Rinse cautiously with water for 15-20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical attention.
 IF ON SKIN: Wash with plenty of water and soap. Call a poison control center or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse.

Precautionary Statements - Storage

Store locked up. See Section 7 and the product label for further information on storage conditions.

Precautionary Statements - Disposal

Dispose of contents/container in accordance with Federal, state and local regulations. See Section 10 and the product label for further information on disposal considerations.

Unknown acute toxicity 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No	Weight-%	Trade secret
Glufosinate-ammonium	77182-82-2	24.5	
Trade Secret Surfactant	N/A	15-40	*
Glycerol (Glycerin)	56-81-5	10-30	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur. If breathing has stopped, give artificial respiration. Get medical attention immediately.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 -20 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if you feel unwell or if irritation develops and persists.
Ingestion	Do NOT induce vomiting unless directed to do so by a physician or poison control center. Clean mouth with water and give water in small sips to drink. Never give anything by mouth to an unconscious person. Get medical attention.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid breathing vapors or mists. Use personal protective equipment as required. See Section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms	Irritation
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Indication of any immediate medical attention and special treatment needed

Note to physicians:	Glufosinate-ammonium is a glutamine synthetase inhibitor and can interfere with neurotransmitter function. Symptoms may be delayed by up to 48 hours following ingestion. There is no specific antidote. If ingested, endotracheal intubation and gastric lavage should be performed as soon as possible followed by charcoal and sodium sulfate administration.
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5. Fire-fighting measures

Suitable Extinguishing Media	Carbon dioxide, Dry powder, Foam, Water spray
Unsuitable extinguishing media	High volume water jet
Specific hazards arising from the chemical	Dangerous gases are evolved in the event of a fire.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing. Avoid breathing vapors or mists.
Other information	Refer to protective measures listed in Section 7 and Section 8.

Methods and material for containment and cleaning up

Method for containment/cleaning up Prevent further leakage or spillage if safe to do so. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.

7. Handling and storage**Precautions for safe handling**

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Avoid breathing vapors or mists. In case of insufficient ventilation, wear suitable respiratory equipment.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store in a locked area in manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container. Do not use or store near heat or open flame. Storage temperature must not exceed 125°F. If storage temperature for bulk Total® TNV is below 32°F, the material must not be pumped until its temperature exceeds 32° F. Protect against direct sunlight.

8. Exposure controls/personal protection**Control parameters**

Exposure Limits The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Glycerol (Glycerin)	-	TWA: 15 mg/m ³ mist, total particulate TWA: 5 mg/m ³ mist, respirable fraction (vacated) TWA: 10 mg/m ³ mist, total particulate (vacated) TWA: 5 mg/m ³ mist, respirable fraction	-
Trade Secret Surfactant	STEL: 100 ppm TWA: 50 ppm	-	STEL: 540 mg/m ³ , 150 ppm TWA: 360 mg/m ³ , 100 ppm

TWA (Time-weighted Average)
Ceiling Maximum Limit Value

STEL (Short Term Exposure Limit)
* Skin Designation

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Goggles, face shield or safety glasses

Hand protection Chemical-resistant gloves including barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, polyvinyl chloride (PVC) ≥ 14 mils, or viton ≥ 14 mils

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
General hygiene considerations	Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes, or clothing. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Clear
Physical state	Liquid
Color	Amber
Odor	Bitter Ammonia-like
Odor threshold	No data available
<u>Property</u>	<u>Values</u>
pH	5.5 - 7.0
Melting point / freezing point	No data available
Boiling point / boiling range	No data available
Flash point	>110°C (>230°F)
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Flammability Limit in Air	
Upper flammability or explosive limits	No data available
Lower flammability or explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	1.144 - 1.156
Water solubility	No data available
Solubility(ies)	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	36.4 centipoise at 25°C 19.0 centipoise at 40°C
Dynamic viscosity	No data available
<u>Other information</u>	
Explosive properties	No information available.
Oxidizing properties	No information available.
Softening point	No information available.
Molecular weight	No information available
VOC Content (%)	No information available
Liquid Density	9.55 - 9.65 pounds/gallon
Bulk density	Not Applicable

10. Stability and reactivity

Reactivity	None under normal use conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Excessive heat.
Incompatible materials	Strong acids. Strong bases. Do not mix with or allow coming in contact with oxidizing agents. Hazardous chemical reaction may occur.

Hazardous decomposition products Thermal decomposition can lead to the release of irritating and toxic gases and vapors.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation	May cause mild irritation.
Eye contact	Causes eye irritation.
Skin contact	May cause mild skin irritation. Harmful if absorbed through skin.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. May cause redness and tearing of the eyes. Coughing and/or wheezing.

Acute toxicity

Numerical measures of acute toxicity (Values based on formulated product)

Acute Oral Toxicity (rat): LD₅₀ > 5,000 mg/kg

Acute Dermal Toxicity (rat): LD₅₀ 2,020 - 5,050 mg/kg.

Acute Inhalation Toxicity (rat): LC₅₀ > 5.04 mg/L

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Based on animal test data this product was rated non-irritating. Therefore, the classification criteria are not met. However, sensitive individuals may experience irritation.
Eye damage/eye irritation	Based on animal test data this product is mildly irritating to eyes. No irritation was observed in any eye after 7 days.
Respiratory or skin sensitization	Not anticipated to cause respiratory sensitization based on information on the components. Animal test data indicates that this product is not a skin sensitizer.
Assessment mutagenicity	No data available for the formulated product. Glufosinate-ammonium was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Carcinogenicity	Contains no ingredients above reportable quantities listed as a carcinogen.
Reproductive toxicity	No data available for the formulated product. Implantation loss occurred in a rat multigeneration study with Glufosinate-ammonium. There were no effects on male fertility.
Assessment developmental toxicity	No data available for the formulated product. Glufosinate-ammonium caused developmental toxicity only at dose levels toxic to the dams. Glufosinate-ammonium caused an increased incidence of post implantation losses.
STOT - repeat exposure	No data available for the formulated product. Glufosinate-ammonium caused neurobehavioral effects and/or neuropathological changes in animal studies. Glufosinate-ammonium was well tolerated in rats and mice but less well tolerated in the dog in subchronic studies.

Aspiration hazard	Not anticipated to be an aspirational hazard based on information the components.
Other adverse effects	No information available.
Interactive effects	No information available.

12. Ecological information

DO NOT apply directly to water or to areas where surface water is present. DO NOT apply to intertidal areas below the mean high water mark. DO NOT contaminate water by cleaning of equipment or disposal of equipment washwater or rinsate. This pesticide is toxic to vascular plants and must be used strictly in accordance with the drift and run-off precautions on the product label.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products

Open dumping is prohibited. Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide, spray mixture, or rinsate is a violation of federal law. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office.

Contaminated packaging

Clean container promptly after emptying. Triple rise containers. Follow rinsing instructions on the product label. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

14. Transport information

DOT

Not regulated for Domestic Surface Transportation

15. Regulatory information

International Inventories

TSCA

Exempt (Pesticide product)

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Glycerol (Glycerin)	X	X	X

U.S. EPA Label Information**EPA Pesticide Registration Number** 1381-270

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal Word: Caution

Hazard Statements: Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Do not mix with or allow coming in contact with oxidizing agents. Hazardous chemical reaction may occur.

16. Other information

NFPA	Health hazards 2	Flammability 1	Instability 0	Physical and chemical properties -
HMIS	Health hazards 2 *	Flammability 1	Physical hazards 0	Personal protection X

Chronic Hazard Star Legend * = Chronic Health Hazard

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency) Acute Exposure Guideline Level(s) (AEG L(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume
 Chemicals Food Research Journal Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 Japan GHS Classification
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 World Health Organization

Issue Date

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Disclaimer

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

End of Safety Data Sheet