



SAFETY DATA SHEET

FOR EMERGENCY CALL: 1 800-424-9300 (CHEMTREC)
COMPANY PHONE NUMBER: 703-527-3887
POISON CONTROL CENTER: 800-222-1222

1. IDENTIFICATION

PRODUCT NAME: Crop Protect Direct Glufosinate 280SL
DESCRIPTION: Liquid Herbicide
EPA REG. NO.: 101458-7
MANUFACTURER ADDRESS: JABCO, LLC
550 W. Pioneer Blvd. Suite 140
Mesquite, NV 89027

2. HAZARD IDENTIFICATION

DANGER

Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May damage fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure



HAZARD CLASSIFICATION

OSHA Regulatory Status

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

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

APPEARANCE	PHYSICAL STATE	ODOR
Aqueous solution	Liquid	Slight

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC)

Not applicable

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 eat, drink or smoke when using this product.
Do not breathe dust/fume/gas/mist/vapors/spray.



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PRECAUTIONARY STATEMENTS RESPONSE

IF exposed or concerned: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.

PRECAUTIONARY STATEMENTS - STORAGE

Store locked up.

PRECAUTIONARY STATEMENTS - DISPOSAL

Dispose of contents/container to an approved waste disposal plant.

OTHER INFORMATION

May be harmful in contact with skin. Harmful to aquatic life with long lasting effects.

UNKNOWN ACUTE TOXICITY

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Other ingredients *	Proprietary	60 - 80
Glufosinate ammonium *	77182-82-2	24.5
2,4-Pentanediol, 2-methyl- *	107-41-5	7 - 13

*The exact percentage (concentration) of composition has been withheld as a trade secret. If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice: Call a poison control center or doctor for treatment advice. Have the product containers or label with you when calling a poison control center or doctor, or going for treatment.
Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and

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easy to do. Continue rinsing. Call a poison control center or doctor for treatment advice.

Skin contact: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician. Call a poison control center or doctor for treatment advice.

Inhalation: Move victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician or poison control center immediately. Administer oxygen if breathing is difficult.

Ingestion: Call a physician or poison control center immediately. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Self-protection of the first aider: Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms: May cause redness and tearing of the eyes. May cause skin irritation.

Indication of any immediate medical attention and special treatment needed

Note to physicians: Treat symptomatically. If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible followed by charcoal and sodium sulfate administration.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Dry chemical, CO₂, water spray or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal. Water spray, fog or regular foam.

Unsuitable extinguishing media: None.

Specific hazards arising from the chemical: Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Hazardous combustion products: Carbon oxides. Nitrogen oxides (NO_x).

Explosion data

Sensitivity to Mechanical Impact: None.

Sensitivity to Static Discharge: None..

Protective equipment and precautions for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Avoid runoff to waterways and sewers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions: Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

For emergency responders: Use personal protection recommended in Section 8. Ventilate the area.

Environmental precautions: Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment: Prevent further leakage or spillage if safe to do so.

Methods for cleaning up: Cover liquid spill with sand, earth or other non-combustible absorbent material. Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling: Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment as required. Wash thoroughly after handling. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing.

Conditions for safe storage, including any incompatibilities

Storage Conditions: Keep out of the reach of children. Keep/store only in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from food, drink and animal feeding stuffs.

Packaging materials: Do not reuse container.

Incompatible materials: Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
2,4-Pentanediol, 2-methyl-107-41-5	STEL: 50 ppm vapor fraction STEL: 10 mg/m ³ inhalable particulate matter, aerosol only TWA: 25 ppm vapor fraction	-	Ceiling: 25 ppm Ceiling: 125 mg/m ³

NIOSH IDLH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Controls: Ensure adequate ventilation, especially in confined areas. And. Showers. Eyewash stations. Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin and body protection: Wear suitable protective clothing. Wear protective butyl rubber gloves. Protective shoes or boots.

Respiratory protection: Ensure adequate ventilation, especially in confined areas. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations: When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is



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recommended. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid
Appearance	aqueous solution
Color	Blue
Odor	Slight
Odor threshold	No information available
Property	
pH	7.28 solution (1 %)
Melting point / freezing point	No information available
Boiling point / boiling range	No information available
Flash point	>110°C / >230°F Seta Closed Cup
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	~17 mmHg @ 25 °C
Vapor density	No information available
Relative density	1.14
Water solubility	Miscible in water
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Explosive properties	Not an explosive
Oxidizing properties	Not applicable
Other Information	
Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity: No data available.

Chemical stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: None under normal processing.

Conditions to avoid: Elevated Temperature. Storage near to reactive materials.

Incompatible materials: Strong oxidizing agents.

Hazardous Decomposition Products: Thermal decomposition can lead to release of irritating and toxic gases and vapors. Nitrogen oxides (NO_x). Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information



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Inhalation	Based on available data, the classification criteria are not met.
Eye contact	Irritating to eyes.
Skin contact	Irritating to skin.
Ingestion	Harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Glufosinate ammonium 77182-82-2	= 1510 mg/kg (Rat) = 1620 mg/kg (Rat)	= 1380 mg/kg (Rat) > 4000 mg/kg (Rat)	= 1.26 mg/L (Rat) 4 h > 0.62 mg/L (Rat) 4 h
2,4-Pentanediol, 2-methyl- 107-41-5	= 3700 mg/kg (Rat)	= 12300 mg/ kg (Rabbit) = 8560 µL/kg (Rabbit)	310 mg/m ³ (Rat) 1 h

Information on toxicological effects

Symptoms: May cause redness and tearing of the eyes. May cause skin irritation.

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

Sensitization: Based on available data, the classification criteria are not met.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Product is or contains a chemical which is a known or suspected reproductive hazard.

STOT - single exposure: Based on available data, the classification criteria are not met.

STOT - repeated exposure: Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard: Based on available data, the classification criteria are not met.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 1,083.00 mg/kg

ATEmix (dermal) 2,514.00 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity: Harmful to aquatic life with long lasting effects

0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
2,4-Pentanediol, 2-methyl-107-41-5	-	10500 - 11000: 96 h Pimephales promelas mg/L LC50 flow-through 8690: 96 h Pimephales promelas mg/L LC50 flow-through 10700: 96 h Pimephales promelas mg/L LC50 static 10000: 96 h Lepomis macrochirus mg/L LC50 static	2700 - 3700: 48 h Daphnia magna mg/L EC50

Persistence and degradability: Not readily biodegradable.
Bioaccumulation: Not likely to bioaccumulate.

Chemical Name	Partition coefficient
2,4-Pentanediol, 2-methyl-107-41-5	<0.14

Other adverse effects: This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes: Pesticide wastes may be acutely hazardous. Improper disposal is a violation of federal law. Disposal should be in accordance with applicable regional, national and local laws and regulations. Contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance on proper disposal of waste product.

Contaminated packaging: Disposal should be in accordance with applicable regional, national and local laws and regulations. Consult product label for additional information. Do not reuse container.

14. TRANSPORT INFORMATION

DOT: Not regulated
 TDG: Not regulated
 IATA: Not regulated
 IMDG: Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA: Complies
 DSL/NDSL: Complies
 EINECS/ELINCS: Complies
 IECSC: Complies
 KECL: Complies
 PICCS: Complies
 AICS: Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
 EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
 ENCS - Japan Existing and New Chemical Substances
 IECSC - China Inventory of Existing Chemical Substances
 KECL - Korean Existing and Evaluated Chemical Substances
 PICCS - Philippines Inventory of Chemicals and Chemical Substances
 AICS - Australian Inventory of Chemical Substances

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

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

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

US State Regulations

California Proposition 65: This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Water 7732-18-5	-	-	X
2,4-Pentanediol, 2-methyl-107-41-5	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number: 101458-7

EPA Statement: 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



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for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Difference between SDS and EPA Pesticide label: WARNING: Causes substantial but temporary eye injury. Harmful if absorbed through skin. Harmful if swallowed. DO NOT get in eyes or on clothing. Avoid contact with skin.

16. OTHER INFORMATION

NFPA

Health hazards	2
Flammability	0
Instability	0
Physical and Chemical Properties	-

HMIS

Health hazards	2*
Flammability	0
Physical hazards	0
Personal protection	X

Chronic Hazard Star Legend

* = Chronic Health Hazard

Disclaimer

The information provided in this Material 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.

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Revision Note: No information available

END OF SAFETY DATA SHEET



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