

Tenkoz Inc.
Material Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

Deal Glyphosate Herbicide

EPA Reg. No.

55467-10

Product use

Herbicide

Chemical name

Not applicable.

Synonyms

None.

Company

Tenkoz Inc., 100 North Point Center East, Suite 330, Alpharetta, GA, 30022

Telephone: (800) 424-9300

Emergency numbers

FOR MEDICAL EMERGENCY - Day or Night: (800) 424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	41
Other ingredients		59

Trade secret composition.

OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

Emergency overview

Appearance and odor (color/form/odor): Yellow - Amber / Liquid / Slight

WARNING!

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY

HARMFUL IF SWALLOWED

HARMFUL IF INHALED

Potential health effects

Likely routes of exposure

Skin contact, eye contact

Eye contact, short term

May cause temporary eye irritation.

Skin contact, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Refer to section 11 for toxicological and section 12 for environmental information.

4. FIRST AID MEASURES

Eye contact

Immediately flush with plenty of water.
Continue for at least 15 minutes.
If easy to do, remove contact lenses.
If there are persistent symptoms, obtain medical advice.

Skin contact

Wash affected skin with plenty of water.
Wash clothes and clean shoes before re-use.
Take off contaminated clothing, wristwatch, and jewelry.

Inhalation

Remove to fresh air.

Ingestion

Immediately offer water to drink.
Do NOT induce vomiting unless directed by medical personnel.
If symptoms occur, get medical attention.

Advice to doctors

This product is not an inhibitor of cholinesterase.

Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

Flash point

Does not flash.

Extinguishing media

Recommended: Water, dry chemical, carbon dioxide (CO₂), foam

Unusual fire and explosion hazards

None.
Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), nitrogen oxides (NO_x), phosphorus oxides (P_xO_y)

Fire fighting equipment

Self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protection recommended in section 8.

Environmental precautions

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimize spread.

Keep out of drains, sewers, ditches and water ways.

Methods for cleaning up

SMALL QUANTITIES:

Flush spill area with water.

LARGE QUANTITIES:

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush residues with small quantities of water.

Minimize use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

Handling

Avoid contact with skin and eyes.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Thoroughly clean equipment after use.

Emptied containers retain vapor and product residue.

Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Storage

Minimum storage temperature: 10 °F

Compatible materials for storage: stainless steel, aluminum, plastic, fiberglass, glass lining

Incompatible materials for storage: galvanized steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Partial crystallization may occur on prolonged storage below the minimum storage temperature.

If frozen, place in warm room and shake frequently to put back into solution.

Minimum shelf life: 5 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Other ingredients	No specific occupational exposure limit has been established.

Engineering controls

Have eye wash facilities immediately available at locations where eye contact can occur.

Eye protection

If there is potential for contact:

Wear chemical goggles.

Skin protection

If repeated or prolonged contact:

Wear chemical resistant gloves.

Respiratory protection

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample.

Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Color/color range:	Yellow - Amber
Form:	Liquid
Odor:	Slight
Flash point:	Does not flash.
Specific gravity:	1.1655 @ 20 °C / 15.6 °C
Vapor pressure:	22 mmHg 22 °C
pH:	4.4 - 5.0
Partition coefficient (log Pow):	< 0.000 (active ingredient)

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of handling and storage.

Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

Materials to avoid/Reactivity

Reacts with galvanized steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

Hazardous polymerization

Does not occur.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product and components are summarized below.

Acute oral toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight

Other effects: breathing difficulty, decreased activity, soft stools

Practically non-toxic.

FIFRA category IV.

No mortality.

Acute dermal toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight

Target organs/systems: none

Other effects: none

Practically non-toxic.

FIFRA category IV.

No mortality.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: 2.6 mg/L

Target organs/systems: none

Other effects: breathing difficulty, decreased activity, local effects

Practically non-toxic.

FIFRA category IV.

Skin irritation

Rabbit, 6 animals, OECD 404 test:

Days to heal: 1

Primary Irritation Index (PII): 0.4/8.0

Other effects: none

Essentially non irritating.

FIFRA category IV.

Eye irritation

Rabbit, 6 animals, OECD 405 test:

Days to heal: 10

Moderate irritation.

FIFRA category II.

Skin sensitization

Guinea pig, Buehler test:

Positive incidence: 0 %

EXPERIENCE WITH HUMAN EXPOSURE

Ingestion, short term, case report(s):

Gastro-intestinal effects: irritation, nausea/vomiting, diarrhea

Ingestion, short term :

Respiratory effects: increased fluid in lungs (lung/pulmonary edema)

Cardiovascular effects: decreased blood pressure (hypotension)

N-(phosphonomethyl)glycine; {glyphosate}

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic.

Repeated dose toxicity

Rabbit, dermal, 21 days:

NOAEL toxicity: > 5,000 mg/kg body weight/day

Target organs/systems: none

Other effects: none

Rat, oral, 3 months:

NOAEL toxicity: > 20,000 mg/kg diet

Target organs/systems: none

Other effects: none

Chronic effects/carcinogenicity

Mouse, oral, 24 months:

NOEL tumor: > 30,000 mg/kg diet

NOAEL toxicity: ~ 5,000 mg/kg diet

Tumors: none

Target organs/systems: liver

Other effects: decrease of body weight gain, histopathologic effects

Rat, oral, 24 months:

NOEL tumor: > 20,000 mg/kg diet
NOAEL toxicity: ~ 8,000 mg/kg diet
Tumors: none
Target organs/systems: eyes
Other effects: decrease of body weight gain, histopathologic effects

Toxicity to reproduction/fertility

Rat, oral, 3 generations:

NOAEL toxicity: > 30 mg/kg body weight
NOAEL reproduction: > 30 mg/kg body weight
Target organs/systems in parents: none
Other effects in parents: none
Target organs/systems in pups: none
Other effects in pups: none

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight
NOAEL development: 1,000 mg/kg body weight
Other effects in mother animal: decrease of body weight gain, decrease of survival
Developmental effects: weight loss, post-implantation loss, delayed ossification
Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:

NOAEL toxicity: 175 mg/kg body weight
NOAEL development: 175 mg/kg body weight
Target organs/systems in mother animal: none
Other effects in mother animal: decrease of survival
Developmental effects: none

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.
Data obtained on similar products are summarized below.

Similar formulation

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, flowthrough, LC50: 5.8 mg/L
Moderately toxic.

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, flowthrough, LC50: 8.2 mg/L
Moderately toxic.

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 11 mg/L
Slightly toxic.

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 96 hours, static, EC50: 2.6 mg/L
Moderately toxic.

Duckweed (*Lemna minor*):

Acute toxicity, 7 days, static, EC50: > 6 mg/L

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral/contact, 48 hours, LD50: > 326 µg/bee
Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil
Practically non-toxic.

N-(phosphonomethyl)glycine; {glyphosate}

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: < 1
No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days
Koc: 884 - 60,000 L/kg
Adsorbs strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS

Product

Dispose of as hazardous industrial waste.
Recycle if appropriate facilities/equipment available.
Burn in special, controlled high temperature incinerator.
Keep out of drains, sewers, ditches and water ways.
Follow all local/regional/national/international regulations.

Container

Triple or pressure rinse empty containers.
Pour rinse water into spray tank.
Store for collection by approved waste disposal service.
Dispose of as hazardous industrial waste.
Do NOT re-use containers.
Follow all local/regional/national/international regulations.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.
Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

TSCA Inventory

All components are on the US EPA's TSCA Inventory

OSHA Hazardous Components

Surfactant(s)

SARA Title III Rules

Section 311/312 Hazard Categories

Immediate

Section 302 Extremely Hazardous Substances

Not applicable.

Section 313 Toxic Chemical(s)

Not applicable.

CERCLA Reportable quantity

Not applicable.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

	Health	Flammability	Instability	Additional Markings
NFPA	2	1	1	

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

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the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

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