Tenkoz Inc.
Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Buccaneer® Plus Glyphosate Herbicide

1.1.1. Chemical name
Not applicable.
1.1.2. Synonyms
None.
1.1.3. EPA Reg. No.
55467-9

1.2. Product use
Herbicide

1.3. Company
Tenkoz Inc., 1725 Windward Concourse, Suite 410, Alpharetta, GA, 30005
Telephone: (770) 343-8509
E-mail:

1.4. Emergency numbers

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

2. HAZARDS IDENTIFICATION

2.1. Classification
OSHA Hazard Communication Standard, 29 CFR 1910.1200 (2012)
Acute toxicity, inhalation - Category 4
Eye damage/irritation - Category 2A
STOT RE - Category 2

2.2. Label elements
2.2.1. Signal word
WARNING!
2.2.2. Hazard pictogram/pictograms

2.2.3. Hazard statement/statements
Causes serious eye irritation.
Harmful if inhaled.
May cause damage to kidney, liver or bladder.
May cause damage to kidney, liver or bladder through prolonged or repeated exposure.
2.2.4. Precautionary statement/statements
Do not breathe mist/vapours/spray.
Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective eye/face protection.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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 exposed: Call a POISON CENTER or doctor/physician.
Store locked up.
Dispose of contents/container in accordance with local, regaional, national and international regulations.

2.3. Appearance and odour (colour/form/odour)
Amber-Brown /Liquid / Slight

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

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

3. 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.

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

4.1. Description of first aid measures
- **4.1.1. Eye contact:** If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
- **4.1.2. 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.
- **4.1.3. Inhalation:** If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- **4.1.4. Ingestion:** Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison center or doctor. Do not give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed
- **4.2.1. Eye contact, short term:** May cause temporary eye irritation.
- **4.2.2. Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- **4.2.3. Inhalation, short term:** Harmful by inhalation.
- **4.2.4. Single ingestion:** Harmful if swallowed.
  Causes gastrointestinal tract irritation.

4.3. Indication of any immediate medical attention and special treatment needed
4.3.1. Advice to doctors: This product is not an inhibitor of cholinesterase.
4.3.2. Antidote: Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media
5.1.1. Recommended: Water, dry chemical, foam, carbon dioxide (CO2)

5.2. Special hazards
5.2.1. Unusual fire and explosion hazards
Minimise use of water to prevent environmental contamination.
Environmental precautions: see section 6.
5.2.2. Hazardous products of combustion
Carbon monoxide (CO), nitrogen oxides (NOx), phosphorus oxides (PxOy)

5.3. Fire fighting equipment: Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

5.4. Flash point
Does not flash.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions
Use personal protection recommended in section 8.

6.2. Environmental precautions
SMALL QUANTITIES:
Low environmental hazard.
LARGE QUANTITIES:
Minimise spread.
Contain spillage with sand bags or other means.
Keep out of drains, sewers, ditches and water ways.

6.3. 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.
Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.
Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

7. HANDLING AND STORAGE

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

7.1. Precautions for safe handling

Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Wash hands thoroughly after handling or contact. Wash contaminated clothing before re-use. Thoroughly clean equipment after use. Do not contaminate drains, sewers and water ways when disposing of equipment rinse water. Emptied containers retain vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

7.2. Conditions for safe storage

Compatible materials for storage: stainless steel, fibreglass, plastic, glass lining
Incompatible materials for storage: galvanised 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.
Keep container tightly closed in a cool, well-ventilated place.
Minimum shelf life: 5 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. 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.

8.2. Engineering controls: Have eye wash facilities immediately available at locations where eye contact can occur.

8.3. Recommendations for personal protective equipment

8.3.1. Eye protection: If there is potential for contact: Wear chemical goggles. Applicators and other handlers must wear eye protection.

8.3.2. Skin protection: No special requirement when used as recommended. If repeated or prolonged contact: Wear chemical resistant gloves. Chemical resistant gloves include those made of waterproof materials such as nitrile, butyl, neoprene, polyvinyl chloride (PVC), natural rubber and/or barrier laminate. Applicators and other handlers must wear: Wear long sleeved shirt, long pants and shoes with socks. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment. If no such instructions for washables, use detergent and hot water. Keep and wash personal protective equipment separately from other laundry.

8.3.3. Respiratory protection: If airborne exposure is excessive:
Wear respirator.
Full facepiece/hood/helmet respirator replaces need for chemical goggles.
Respiratory protection programs must comply with all local/regional/national regulations.

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.

Colour/colour range:	Amber - Brown
Odour:	Slight
Form:	Liquid
Physical form changes (melting, boiling, etc.):	

Melting point:	Not applicable.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	No explosive properties
Auto ignition temperature:	443 °C
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	1.1655 20 °C / 20 °C
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	No data.
Kinematic viscosity:	No data.
Density:	1.1655 g/cm3 @ 20 °C
Solubility:	Water: Soluble
pH:	4.7
Partition coefficient:	log Pow: < -3.2 @ 25 °C (glyphosate)

10. STABILITY AND REACTIVITY

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

10.2. Stability
Stable under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions
Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

10.4. Incompatible materials
galvanised steel;unlined mild steel;see section 10.;
Compatible materials for storage: see section 7.2.

11. TOXICOLOGICAL INFORMATION

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

Likely routes of exposure: Skin contact, eye contact, inhalation

Potential health effects
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: Harmful by inhalation.
Single ingestion: Harmful if swallowed.
Causes gastrointestinal tract irritation.

Similar formulation

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

Practically non-toxic.

Acute dermal toxicity

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

Practically non-toxic. No mortality.

Skin irritation

Rabbit, 6 animals, OECD 404 test:

Days to heal: 7

Primary Irritation Index (PII): 0.8/8.0

Slight irritation.

Acute inhalation toxicity

Rat, male, LC50, 4 hours, aerosol: 1.6 mg/L

Practically non-toxic. Aerosol particle size (< 10 micron) much lower than the droplet size (> 100 micron) normally achieved during spraying operations.

Skin sensitization

Guinea pig, 3-induction Buehler test:

Positive incidence: 0 %

Negative.

N-(phosphonomethyl)glycine; {glyphosate acid}

Genotoxicity

Not genotoxic.

Carcinogenicity

Not carcinogenic in rats or mice.

Reproductive/Developmental Toxicity

Reproductive effects in rats only in the presence of significant maternal toxicity.

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on product, similar products and on components are summarized below.

Aquatic toxicity, fish

Bluegill sunfish (Lepomis macrochirus):

Acute toxicity, 96 hours, static, LC50: 24 mg/L

Slightly toxic.

Rainbow trout (Oncorhynchus mykiss):

Acute toxicity, 96 hours, static, LC50: 42 mg/L

Slightly toxic.

Aquatic toxicity, invertebrates

Water flea (Daphnia magna):

Acute toxicity, 48 hours2, static, EC50: 160 mg/L

Practically non-toxic.

Similar formulation

Aquatic toxicity, algae/aquatic plants

Green algae (Selenastrum capricornutum):

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

Moderately toxic.

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, 48 hours, LD50: > 395 µg/bee
Practically non-toxic.

Honey bee (Apis mellifera):
Contact, 48 hours, LD50: > 338 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.

Soil organism toxicity, microorganisms

Nitrogen transformation test:
24.45 kg/ha, 28 days: No effect on nitrogen transformation. No effect on soil microorganisms.

N-(phosphonomethyl)glycine; {glyphosate acid}

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

13.1. Waste treatment methods

13.1.1. Product

Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Burn in proper incinerator. Follow all local/regional/national/international regulations.

13.1.2. Container

See the individual container label for disposal information. Emptied containers retain vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Empty packaging completely. Do NOT contaminate water when disposing of rinse waters. Do NOT re-use containers for any purpose other than for the storage of pesticides, if allowed by label. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Follow all local/regional/national/international regulations. Triple or pressure rinse (or equivalent) empty containers. Ensure packaging cannot be reused prior to disposal.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

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.

14.1. US Dept. of Transportation (DOT) Hazardous Materials Regulations (49 CFR Parts 105-180)

Proper Shipping Name (Technical Name if required):	Not regulated for domestic ground transportation. ()

14.2. IMDG Code

Proper Shipping Name (Technical Name if required):	Not regulated for transport under IMO Regulations ()

14.3. IATA/ICAO

Proper Shipping Name (Technical Name if required):	Not regulated for transport under IATA/ICAO Regulations ()

15. REGULATORY INFORMATION

15.1. Environmental Protection Agency

15.1.1. TSCA Inventory

Exempt

15.1.2. SARA Title III Rules

Section 311/312 Hazard Categories: Immediate
Section 302 Extremely Hazardous Substances: Not applicable.
Section 313 Toxic Chemical(s): Not applicable.

15.1.3. CERCLA Reportable quantity

Not applicable.

15.1.4. Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)

This chemical is a pesticide product registered by the United States 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 (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

WARNING!
CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY, HARMFUL IF SWALLOWED, HARMFUL IF INHALED

Acute oral toxicity: FIFRA category IV.
Acute dermal toxicity: FIFRA category IV.
Acute inhalation toxicity: FIFRA category III.
Skin irritation: FIFRA category IV.

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	3	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)

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by 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.