



Safety Data Sheet

Section 1: Product and Company Identification

1.1 Product Identifiers:

Product Name: ABRAKIS® Glufosinate ELISA 96-test Kit & Derivation Kit

Product Code: 500060

1.2 Identified Use: Determination of Glufosinate in samples. **Restrictions on Use:** For research use only.

1.3 Company: Gold Standard Diagnostics, 795 Horsham Road, Horsham, PA 19044 USA, info.abraxis@us.goldstandarddiagnostics.com
+1(215) 357-3911, FAX +1(215) 357-5232

1.4 Emergency Telephone Number: +1(215) 357-3911

Section 2: Hazard(s) Identification

2.1 Classification of the mixture:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Glufosinate: Acute toxicity (Category 4), Acute toxicity (Category 4), Acute toxicity (Category 4), Reproductive toxicity (Category 1B), Specific target organ toxicity – repeated exposure (Category 2)

Dimethyl sulfoxide: Flammable liquids (Category 4)

Succinic anhydride: Acute oral toxicity (Category 4), Skin corrosion/irritation (Category 1B), Serious eye damage/eye irritation (Category 1), Respiratory sensitization (Category 1), Skin sensitization (Category 1)

2.2 GHS Label elements, including precautionary statements:

Pictogram(s):



Signal word(s): Danger/Warning

Hazard statement(s):

H227 Combustible liquid.

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H350 May cause cancer.

H360Fd May damage fertility. Suspected of damaging the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s):

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P260 Do not breathe dust.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/eye protection/face protection.

P285 In case of inadequate ventilation wear respiratory protection.

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do not induce vomiting.

P302 + P312 + P352 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing. Immediately call a POISON CENTER/ doctor.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P310 Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical, or alcohol-resistant foam to extinguish.

P391 Collect spillage.

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS: Readily absorbed through skin

Section 3: Composition / Information on Ingredients

3.2 Mixtures: Mixture(s) of the hazardous substance(s) listed below, with nonhazardous additions.

Hazardous component(s):

Name and Synonym(s): Glufosinate Formula: C₃H₁₅N₂O₄P Molecular weight: 198.16 g/mol
CAS No.: 77182-82-2 EC-No.: 278-636-5

Amount in Kit: 105 ppb

Name and Synonym(s): DMSO, Dimethyl sulfoxide, Methyl sulfoxide Formula: C₂H₆OS Molecular weight: 78.13 g/mol
CAS No.: 67-68-5 EC-No.: 200-664-3

Amount in Kit: 2.2 mL

Name and Synonym(s): Succinic anhydride Formula: C₄H₆O₃ Molecular weight: 100.07 g/mol
CAS No.: 108-30-5 EC-No.: 203-570-0

Amount in Kit: 171.6 mg/kit

For full text of H-Statements mentioned in this Section, see Section 2.

Section 4: First Aid Measures

4.1 Description of first aid measures: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration, if necessary, give oxygen. Consult a physician.

In case of skin contact: Take off immediately all contaminated clothing. Wash off with soap and plenty of water/shower. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water as a precaution. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Drink two cups of water. Consult a physician. Do not attempt to neutralize.

4.2 Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed: No data available. Treat symptomatically.

Section 5: Fire-fighting Measures

5.1 Suitable extinguishing media: Water foam, dry chemical, or carbon dioxide

5.2 Special hazards arising from the substance or mixture: Carbon oxides, Nitrogen oxides, Oxides of phosphorus, Sulfur oxides, Combustible, Development of hazardous combustion gases or vapors possible in the event of fire.

5.3 Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information: Suppress gases/vapors/mists with water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water systems.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment, and emergency procedures: Use personal protective equipment (see section 8). Avoid dust formation. Avoid breathing vapors, mist, dust, or gas. Ensure adequate ventilation. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Remove all sources of ignition. Evacuate personnel to safe areas.

6.2 Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections: For information on safe handling see section 7. For information on personal protection see section 8. For information on disposal see section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling: See section 2. Work under hood. Avoid inhalation of vapor or mist. Keep away from sources of ignition. No smoking. Take measures to prevent the buildup of electrostatic charge.

7.2 Precautions for safe storage: Keep container(s) tightly closed in a dry, well-ventilated place. Store under inert gas. Hygroscopic. See label or product insert for appropriate storage temperature and additional specific information. Storage class (TRGS 510): Combustible liquids.

7.3 Specific end use(s): Other than use(s) specified in section 1, no other uses are stipulated.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

Component(s) with workplace control parameters

Glufonsinate, CAS No. 77182-82-2

Value	Control parameters	Basis
TWA	0.33 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)

Dimethyl sulfoxide, CAS No. 67-68-5

Value	Control parameters	Basis
TWA	250 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

Succinic anhydride, CAS No. 108-30-5

Value	Control parameters	Basis
PAC-1	4.5 mg/m ³	CAMEO Chemicals database, the Protective Action Criteria (PAC)

8.2 Exposure controls:

Appropriate engineering controls: Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. Provide adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Keep away from food and beverages.

Personal protective equipment

Eye protection: Use equipment for eye protection with side shields tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection: Handle with chemical resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection: Do not breathe vapors. Use a chemical fume hood or approved respiratory protection equipment.

Body protection: Lightweight, protective clothing to prevent skin exposure.

Control of environmental exposure: Do not let product enter drains.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties of mixture

Appearance: Multiple

Odor: Characteristic

Odor Threshold: No data available

pH: Multiple

Melting point/freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point: No data available

Evaporation rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits No data available

Vapor pressure: No data available

Vapor density: No data available

Relative density: No data available

Water solubility: Various

Partition coefficient: n-octanol/water: No data available

Auto-ignition temperature: Not applicable

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing properties: No data available

9.2 Other information: No data available

Section 10: Stability and Reactivity

10.1 Reactivity: No data available

10.2 Chemical stability: Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions: Violent reactions possible with: Strong oxidizing agents, Metals, Bases

10.4 Conditions to avoid: Keep away from open flame, hot surfaces, heat sources, and sources of ignition.

10.5 Incompatible materials: Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents

10.6 Hazardous decomposition products: No data available. In the event of fire: see section 5.

Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity (*Glufosinate, CAS No. 77182-82-2*):

LD50 Oral - Rat - 1.620 mg/kg

LC50 Inhalation - Rat - 4 h - 1.260 mg/m³ – dust/mist

LD50 Dermal - Rat - 1.380 mg/kg

Skin contact: No irritation

Serious Eye contact/eye irritation: No irritation

Respiratory or skin sensitization: No data available

Carcinogenicity: No data available

Reproductive/fertility toxicity: Presumed human reproductive toxicant.

Specific target organ toxicity, single exposure: No data available

Specific target organ toxicity, repeated exposure: May cause damage to organs through prolonged or repeated exposure.

Additional information: RTECS: MC1075000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Acute toxicity (*Dimethyl sulfoxide, CAS No. 67-68-5*):

Inhalation LC50 Inhalation - Rat - 4 h - 40250 ppm

Ingestion LD50 Oral - Rat - 14,500 mg/kg

Skin contact LD50 Dermal - Rabbit - > 5,000 mg/kg; mild skin irritation

Eye contact No data available

Respiratory or skin sensitization No data available

Aspiration hazard No data available

Mutagenicity: Cytogenetic analysis (Mouse lymphocyte, Rat)--Result: mutation, DNA damage in mammalian somatic cells

Carcinogenicity:

Rat (oral)–Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors. Mouse (oral)–Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukemia Skin and Appendages: Other: Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Teratogenicity: No data available

Reproductive/fertility toxicity:

Reproductive toxicity (Rat, intraperitoneal and subcutaneous)-Effects on Fertility: Abortion; post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants); litter size (e.g.; # fetuses per litter; measured before birth).

Reproductive toxicity (Mouse, oral) -- Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Developmental Toxicity (Mouse, intraperitoneal) -- Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Specific target organ toxicity, single exposure: No data available

Specific target organ toxicity, repeated exposure: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Additional information: RTECS: PV6210000 Exposure to large amounts can cause redness of skin, itching, burning, sedation, headache, nausea, dizziness. Eyes - Eye disease - Based on Human Evidence

Acute toxicity (Succinic anhydride, CAS No. 108-30-5):

LD50 Oral - Rat – 1794.9 mg/kg

LD50 Dermal – Rat – 2,000 mg/kg

Skin contact: Corrosive

Serious Eye contact/eye irritation: Corrosive

Respiratory or skin sensitization: may cause sensitization by skin contact.

Carcinogenicity: No data available.

Reproductive/fertility toxicity: No data available.

Specific target organ toxicity, single exposure: No data available

Specific target organ toxicity, repeated exposure: May cause damage to organs through prolonged or repeated exposure.

Additional information: RTECS: MC1075000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12: Ecological Information

12.1 Toxicity:

(Glufosinate, CAS No. 77182-82-2) Toxicity to fish LC50 – Oncorhynchus mykiss (rainbow trout) – 710 mg/l - 96 h. Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) – 560 mg/l - 48 h (OECD Test Guideline 202).

(Dimethyl sulfoxide, CAS No. 67-68-5) Toxicity to fish LC50 – Danio rerio (zebra fish) – 25,000 mg/l - 96 h (OECD Test Guideline 203); Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 24,600 mg/l - 48 h (OECD Test Guideline 202). Toxicity to algae EC50 - Pseudokirchneriella subcapitata (green algae) - 17,000 mg/l - 72 h (OECD Test Guideline 201). Toxicity to bacteria EC50 - activated sludge - 10 - 100 mg/l - 30 min (ISO 8192).

(Succinic anhydride, CAS No. 108-30-5) Toxicity to fish LC50 – Danio rerio (zebra fish) – 100 mg/l - 96 h (OECD Test Guideline 203). Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) – 102 mg/l - 48 h (OECD Test Guideline 202). Toxicity to algae EC50 - Pseudokirchneriella subcapitata (green algae) - 1000 mg/l - 72 h (OECD Test Guideline 201). Toxicity to bacteria static test EC50 - activated sludge - > 300 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability: Dimethyl sulfoxide result: 31 %, not readily biodegradable (OECD Test Guideline 301D)

12.3 Bioaccumulative potential: No data available

12.4 Mobility in soil: No data available

12.5 Results of PBT and vPvB assessment: No data available

12.6 Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13: Disposal Considerations

13.1 Waste treatment methods

Product: All waste must be handled and disposed according to local, state, and federal regulations. Avoid disposing large volumes in sewer.

Contaminated packaging: All waste must be handled and disposed according to local, state, and federal regulations.

Refer to sections 7 and 8 for safe handling guidance.

Section 14: Transport Information

DOT, Land Transport ADR/RID (cross-border), Maritime Transport IMDG, Air Transport ICAO-TI and IATA-DGR

UN Number: 3316, 3261

UN Proper shipping name: Chemical Kit, (contains DMSO), Corrosive solid, acidic, organic, n.o.s. (contains Succinic anhydride)

Transport hazard class(es): 9, 8

Packing group: III, II

Environmental hazard: See section 12

Bulk transport: Excepted/Limited quantity

Special considerations: See section 7 for handling

Section 15: Regulatory Information

EU Regulations, Hazard Symbol(s): Dimethyl sulfoxide: Xi (Irritant)

Safety Phrases: Dimethyl sulfoxide: S 24/25 Avoid contact with skin and eyes

SARA Title III, Section 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA Title III, Section 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (DeMinimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Dimethyl sulfoxide, CAS No. 67-68-5: Fire Hazard, Acute Health Hazard; Chronic Health Hazard

State Right-to-Know

Massachusetts: No components are subject to the Massachusetts Right to Know Act.

Pennsylvania: Dimethyl sulfoxide, CAS No. 67-68-5

New Jersey: Dimethyl sulfoxide, CAS No. 67-68-5

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

United Nations

According to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Section 1.5.3.1.1, "an SDS should be provided based on the generic cut-off values/concentration limits indicated in" the following table:

Hazard class	Cut-off value/concentration limit
Acute toxicity	≥ 1.0%
Skin corrosion/irritation	≥ 1.0%
Serious eye damage/eye irritation	≥ 1.0%
Respiratory/Skin sensitization	≥ 0.1%
Germ cell mutagenicity (Category 1)	≥ 0.1%
Germ Cell mutagenicity (Category 2)	≥ 1.0%
Carcinogenicity	≥ 0.1%
Reproductive toxicity	≥ 0.1%
Specific target organ toxicity (single exposure)	≥ 1.0%
Specific target organ toxicity (repeated exposure)	≥ 1.0%
Aspiration hazard (Category 1)	≥ 10% of Category 1 ingredient(s) and kinematic viscosity ≤ 20.5 mm ² /s at 40°C
Aspiration hazard (Category 2)	≥ 10% of Category 2 ingredient(s) and kinematic viscosity ≤ 14 mm ² /s at 40°C
Hazardous to the aquatic environment	≥ 1.0%

Unless otherwise specified, if the concentration of a specific material of this kit is not declared by this SDS, it is at a concentration that is below the cut-off for its specific hazard class(es).

Section 16: Other information

This information is based on our present knowledge. While Gold Standard Diagnostics believes that the data contained herein are factual and the opinions expressed represent a best effort to present accurate information, the data are not to be taken as a warranty or representation for which Gold Standard Diagnostics assumes legal responsibility. The information shall not be taken as being all-inclusive and is to be used only as a guide. The data are offered solely for the user's consideration, investigation, and verification. These suggestions should not be confused with either state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.

All materials and mixtures may present unknown hazards and should be used with caution. Since Gold Standard Diagnostics cannot control the methods, volumes, or conditions of use of this product, Gold Standard Diagnostics shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. An individual technically qualified to handle potentially hazardous chemicals must supervise the use of this material. This product is sold for research use only. It is not for any human or animal therapeutic or clinical diagnostic use.

Date this SDS is effective: 03/27/2025

Version: 01