# Crucial Herbicide
# Safety Data Sheet

Issue Date: 2017-12-17 Supersedes Date: 2017-05-17 {Reserved}

## 1. Identification

**Product Name:** **Crucial Herbicide**
**PCP Registration No.:** **32532**
Refer to the approved product label for handling and use instructions.
**Product Type:** **Herbicide**

**Supplier:** Nufarm Agriculture Inc.
Suite 350, 2618 Hopewell Place NE
Calgary, Alberta, T1Y 7J7, Canada
1-800-868-5444

**Telephone Numbers:** 24 Hour Emergency Response Number, Chemtrec, 1-800-424-9300.
For medical emergencies, ProPharma Group, 1-877-325-1840.
For product and use information, Nufarm Agriculture Inc.,
1-800-868-5444.

## 2. Hazard Identification

Classified according to UN GHS Version 5.

**Physical Hazards:**
None
**Health Hazards:**
Acute toxicity (Inhalation) Category 4
Eye irritation Category 2B
**Environmental Hazards:**
Hazardous to aquatic environment, acute Category 2
**Signal Word:**
WARNING
**Hazard Statements:**
Harmful if inhaled. Causes eye irritation. Toxic to aquatic life.

**Precautionary Statements:**
Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wear a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves

before removal. After use, wash hands and other exposed skin. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Use only outdoors or in a well-ventilated area.

## 3. Composition / Information on Ingredients

| Hazardous Components | CAS No. | Wt. % |
|---|---|---|
| glyphosate-isopropylammonium | 38641-94-0 | 30-32 |
| Chemical Synonyms: glyphosate IPA salt; N-(phosphonomethyl)glycine isopropylamine salt | | |
| glyphosate-potassium | 70901-12-1 | 22-24 |
| Chemical Synonyms: glyphosate K salt; N-(phosphonomethyl)glycine potassium salt | | |
| Formulation is best described as a blend of glyphosate IPA and K+ salts, with a concentration of 540 g/L glyphosate acid. | | |

Other ingredients are considered non-hazardous.

| Content as Expressed on Product Label |
|---|
| Glyphosate, present as isopropylamine and potassium salts … 540 g a.e./L |

## 4. First Aid Measures

**If swallowed**, **c**all a poison control centre 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 a poison control centre or doctor. Do not give anything by mouth to an unconscious person.
**If on skin or clothing**, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.
**In case of eye contact**, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.
**If inhaled**, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you, when seeking medical attention.

## 5. Fire-fighting Measures

**Extinguishing Media:** Water fog, alcohol foam, carbon dioxide, dry chemical.
**Special Firefighting Procedures:** Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Minimize and contain water runoff.
**Flash Point:**..... Not determined (aqueous solution)
**Conditions of Flammability:** ..... None

**Hazardous Decomposition Products:** ... This product reacts with galvanized steel or unlined steel (except stainless steel) to produce hydrogen gas that may form a highly combustible gas mixture which could flash or explode. Decomposition under fire conditions may produce gases such as oxides of carbon, nitrogen and phosphorous.

**National Fire Protection Association (NFPA) Hazard Rating:**

**Rating for this product: Health: 2 Flammability: 1 Reactivity: 0**

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

## 6. Accidental Release Measures

Use safety equipment and procedures appropriate to the size of the spill. Keep unnecessary people away. Avoid runoff to natural waters and sewers. Surround and absorb spills with inert material such as perlite, sawdust, clay granules, vermiculite, sand or dirt. Contain all affected material in a closed, labeled container for proper disposal. Isolate from other waste materials. Clean contaminated area such as hard surfaces with detergent and water, collecting cleaning solution for proper disposal. Large spills to soil or similar surfaces may necessitate removal of top soil.

## 7. Handling and Storage

**Handling:** Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wear a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. After use, wash hands and other exposed skin. Remove and wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Avoid breathing spray mist. Use only outdoors or in a well-ventilated area.
**Storage:** Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. May be stored at any temperature.

## 8. Exposure Controls / Personal Protection

**Engineering Controls:** Use only outdoors or in a well-ventilated area.
**Personal Protective Equipment:** Goggles or face shield, long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal.
**Exposure Guidelines:**

| Component | TWA* | STEL** | Reference/Note |
|---|---|---|---|
| glyphosate-isopropylammonium | N/E | N/E | None found |
| glyphosate-potassium | N/E | N/E | None found |

*Time-weighted Average, 8-hour unless otherwise noted.
**Short Term Exposure Limit
NE = Not Established
Refer to approved product label for additional exposure control guidance.

## 9. Physical and Chemical Properties

**NOTE:** Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification. If no value is determined for the formulation, the value listed is the most relevant value of the predominant ingredient(s).

**Appearance (physical state, colour, etc.)** ..... clear, green-coloured to amber liquid
**Odour** ..... faint amine-like odour
**Odour threshold** ..... not available
**pH** ..... 4.9 (1% dilution)
**Melting point / Freezing point** ..... not available
**Initial boiling point and boiling range** ..... not available
**Flash point** ..... not available (aqueous solution)
**Evaporation rate** ..... not available
**Flammability (solids, gases)** ..... not applicable
**Upper / Lower flammability or explosive limits** ... not available
**Vapour pressure** ..... not available
**Vapour density** ..... not available
**Relative density** ..... 1.295 @ 20C
**Solubility(ies)** ..... soluble in water
**Partition coefficient: n-octanol/water** ..... not available
**Autoignition temperature** ..... not available
**Decomposition temperature** ..... ~220C (glyphosate)
**Viscosity (kinematic)** ..... 614 cSt @ 20C

## 10. Stability and Reactivity

**Reactivity:** This product reacts with galvanized steel or unlined steel (except stainless steel) to produce hydrogen gas that may form a highly combustible gas mixture which could flash or explode.
**Chemical Stability:** Stable under normal handling and storage conditions.
**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur. This product can react with caustic (basic) materials to liberate heat. This is not a polymerization but rather a chemical neutralization in an acid base reaction.
**Conditions to Avoid:** Excessive heat. Do not store near heat or flame.
**Incompatible Materials:** Avoid contact with strong acidic, basic or oxidizing agents. This product reacts with galvanized steel or unlined steel (except stainless steel) to produce hydrogen gas that may form a highly combustible gas mixture which could flash or explode.
**Hazardous Decomposition Products:** Under fire conditions, may produce gases such as oxides of carbon, nitrogen and phosphorous.

## 11. Toxicological Information

**Likely routes of exposure:** Inhalation, ingestion, skin and eye contact.
**Eye contact:** Causes eye irritation.
**Skin contact:** May cause skin irritation, generally of minimal degree.

**Ingestion:** May be harmful if swallowed. No significant adverse health effects are expected if only small amounts are swallowed.
**Inhalation:** May be harmful if inhaled.
**Medical Conditions Aggravated by Exposure:** Skin exposure may aggravate preexisting skin conditions. Inhalation of mist may aggravate preexisting respiratory conditions.
**Toxicological Data:**

**Acute oral $LD_{50}$ (mg/kg)** ..... >5000 (Rat, female)
**Acute dermal $LD_{50}$ (mg/kg)** ..... >5000 (Rat, male & female)
**Acute inhalation $LC_{50}$ (mg/l)** ..... >2.07 (Rat, male & female, 4-hour, nose-only exposure)
**Skin corrosion/irritation** ..... Slightly irritating to skin (Rabbit)
**Serious eye damage/irritation** ..... Mildly irritating to the eye (Rabbit)
**Respiratory or skin sensitization** ... Not considered as a contact dermal sensitizer (Guinea pig)
**Germ cell mutagenicity** ..... Glyphosate shows no evidence of genotoxicity.
**Carcinogenicity** ..... The International Agency for Research on Cancer (IARC) lists exposure to glyphosate as probably carcinogenic to humans (Group 2A), on the basis of limited evidence in humans and some evidence in animals (2015). Other regulatory agencies classify glyphosate as non-carcinogenic.
**Reproductive toxicity** ..... Animal reproduction studies with glyphosate indicate there is no increased sensitivity of the young relative to maternal animals.

## 12. Ecological Information

**Ecotoxicity:**
Data are from laboratory studies conducted on glyphosate IPA salt[A] or glyphosate K salt[B] unless otherwise noted.
**Aquatic Invertebrate:** 48-Hour $EC_{50}$ (mg/L) ..... 930[A] to >1227[B] (*Daphnia*)
**Fish:** 96-Hour $LC_{50}$ (mg/L) ..... >1000[A] to >1227[B] (Rainbow Trout), >1000[A] (Bluegill Sunfish), 97[A] (Fathead minnow), 130[A] (Channel catfish)
**Algae:** 72-Hour $EC_{50}$ (mg/L) ..... 73-166 (*Scenedesmus*)[A], 35-54 (*Selenastrum*)[B]
**Birds:** Oral $LD_{50}$ (mg ae/kg) ..... >2241[B] (Bobwhite Quail); 5-Day Dietary $LC_{50}$ >4640 mg/kg diet (quail and ducks) (glyphosate acid)
**Bees:** Oral and Contact $LD_{50}$ ..... >100 µg/bee (glyphosate acid)

**Persistence and Degradability:** Glyphosate is degraded microbially to aminomethyl phosphonic acid (AMPA), which is further degraded to simpler molecules. Representative field soil half-lives range from 1 to 130 days depending on soil and climatic conditions.
**Mobility in Soil:** Glyphosate and AMPA are strongly adsorbed to soil. Essentially immobile.
**Bioaccumulation Potential:** Negligible.

## 13. Disposal Considerations

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Disposal should be made in accordance with federal, provincial and local regulations.

Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site, triple or pressure rinse the empty container adding rinsings to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

## 14. Transport Information

**Canadian TDG Description (Road & Rail):** Not regulated for transport by road/rail.
**United States:**
**DOT Description:**
Non Regulated

**IMDG**
Non Regulated

**IATA**
**Non Regulated**

## 15. Regulatory Information

*Pest Control Products Act* Registration Number: ..... 32532

OPAC Classification: 4

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control product label:

CAUTION – EYE IRRITANT

WHMIS exempt.

## 16. Other Information

This Safety Data Sheet (SDS) is designed to comply with the Globally Harmonized System (GHS) of classification, and the *Hazardous Products Regulations*.

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. The product labeling provides that information specifically for product use as intended.

Company and published information is used in the development of this SDS. The information herein is presented in good faith and believed accurate at the date of publication. However, no warranty, expressed or implied, is given.

Revisions to the last issue: Reformatted for GHS compliance.

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