CropSmart, LLC
PO Box 6919
Chesapeake, VA 23323

Crop$mart™ Glyphosate 41% Extra
SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT NAME: Crop$mart Glyphosate 41% Extra
CHEMICAL NAME: Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt
PRODUCT USE: Herbicide
PRODUCT CODE: EPA Reg. No 85945-1
COMPANY: CropSmart, LLC
PO Box 6919
Chesapeake, VA 23323
866-459-7467

EMERGENCY TELEPHONE NUMBERS: 866-459-7467

SECTION 2. HAZARDS IDENTIFICATION:

OSHA Status: This product is hazardous according to the OSHA Hazard Communication Standard, CFR 1910.1200 (As defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200)

APPEARANCE, COLOR AND ODOR: Liquid, Clear-amber liquid, Slight-amine-like odor

HEALTH HAZARDS: CAUTION. Causes moderate eye irritation.

PHYSICAL HAZARDS: DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ENVIRONMENTAL HAZARDS: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.

Refer to Sections 11 and 12 for Toxicological and Ecological Information.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS:

ACTIVE INGREDIENT: Isopropylamine salt of N-(phosphonomethyl)glycine
(Isopropylamine salt of glyphosate

COMPOSITION:

COMPONENT	PERCENTAGE	CAS NUMBER
Glyphosate, Iso-propylamine Salt	41%	38641-94-0
Other Ingredients*	59%	Proprietary

*Trade Secret Composition

SECTION 4. FIRST AID MEASURES:

First Aid responders should use protective equipment in Section 8 if there is a potential for exposure to product.

IF IN EYES: 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 center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: 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.

IF INHALED: 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.

IF SWALLOWED: Call a 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 control center or doctor. Do not give anything by mouth to an unconscious person.

Have a product container or label with you when calling a poison control center or doctor, or going for treatment.

Advice to Doctors: This product is not an inhibitor of cholinesterase
Antidote: Treatment with atropine and oximes is not indicated

SECTION 5. FIRE FIGHTING MEASURES:

Fire and explosion

Flash Point (Test Method): None.
Flammable Limits (% in Air): Not established.
Autoignition Temperature: Not established.

Hazardous combustion products: Noxious fumes produced under fire conditions may include carbon monoxide (CO), , phosphorus oxides (PxOy), and nitrogen oxides (NOx).
Extinguishing media: Water, foam, or dry chemical, carbon dioxide (CO_2).
Unusual fire and explosion hazards Fire fighting instructions: Minimize use of water to prevent environmental contamination. Environmental precautions. See Section 6.

Protective equipment for fire fighters:
Emergency personnel should:

- wear full face, self-contained breathing apparatus
- wear full firefighting turnout gear
- decontaminate equipment thoroughly after use

	Health	Flammability	Instability	Additional Markings
NFPA	1	1	1	
0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard				

SECTION 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.

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

SECTION 7. HANDLING AND STORAGE
Good industrial practice in housekeeping and personal hygiene should be followed.

Handling
- Avoid contact with eyes.
- When using, do not eat, drink or smoke.
- 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.
- Refer to section 13 of the safety data sheet for disposal of rinse water.
- Emptied containers retain vapor and product residue.
- FOLLOW LABELED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

Storage
- Minimum storage temperature: -15°C
- Maximum storage temperature: 50°C
- Compatible materials for storage: stainless steel, fiberglass, plastic, 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
- Keep container tightly closed in a cool, well-ventilated place
- 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

SECTION 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: No special requirement when used as recommended.

Eye protection: If there is significant potential for contact: Wear chemical goggles.

Skin protection: If repeated or prolonged contact: Wear chemical resistant gloves.
Applicators and other handlers must wear: Wear long sleeved shirt, long pants and shoes with socks.

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.

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

SECTION 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.

Appearance:	Clear yellow
Odor:	Slight
Form:	Liquid
Melting Point:	Not applicable
Boiling Point:	No data
Flash Point:	>113° C, >235° F (Pensky Martens closed tester)
Explosive Properties:	No explosive properties
Auto-Ignition Temperature:	452^{o} C
Specific Gravity/Density:	1.18 g/cm^{3}@ 20^{o} C
Vapor pressure:	25 mmHg 24^{o} C
Vapor density:	Not applicable
Evaporation Rate:	No data
Dynamic Viscosity:	73.2 mPa·s
Density:	1.18 g/cm^{3} @ 20^{o} C
Solubility:	Water: Completely miscible
pH:	4.4-5
Partition coefficient: n-octanol/water; log POW:	Log Pow: < 3.2@ 25^{o} C (glyphosate)

SECTION 10. STABILITY AND REACTIVITY:

Stability: Stable under normal conditions of handling and storage.
Oxidizing properties: No data.
Materials to avoid/Reactivity: Reacts with galvanized steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.
Hazardous decomposition: Thermal decomposition: Hazardous products of combustion: see section 5.
Self-accelerating decomposition temperature (SADT): No data.

SECTION 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: 5,108 mg/kg body weight
Practically non-toxic
FIFRA category IV

ACUTE DERMAL TOXICITY: Rat, LD50 (limit test): > 5,000 mg/kg body weight
Practically non-toxic
FIFRA category IV
No mortality.

ACUTE INHALATION TOXICITY
Rat, LC50, 4 hours, aerosol: 2.9 mg/L
Other effects: weight loss, breathing difficulty
Practically non-toxic
FIFRA category IV

SKIN IRRITATION
Rabbit, 6 animals, OECD 404 test:
Days to heal: 3
Primary Irritation Index (PII): 0.5/8.0
Essentially non irritating
FIFRA category IV

EYE IRRITATION
Rabbit, 6 animals, OECD 405 test:
Days to heal: 3
Slight irritation.
FIFRA category III

SKIN SENSITIZATION
Guinea pig, 3-induction Buehler test:
Positive incidence: 0 %

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:
NOAEL toxicity: ~ 5,000 mg/kg diet
Target organs/systems: liver
Other effects: decrease of body weight gain, histopathologic effects
NOEL tumor: > 30,000 mg/kg diet
Tumors: none

Rat, oral, 24 months:
NOAEL toxicity: ~ 8,000 mg/kg diet
Target organs/systems: eyes
Other effects: decrease of body weight gain, histopathologic effects
NOEL tumor: > 20,000 mg/kg diet
Tumors: none

TOXICITY TO REPRODUCTION/FERTILITY
Rat, oral, 2 generations:
NOAEL toxicity: 10,000 mg/kg diet
NOAEL reproduction: > 30,000 mg/kg diet
Target organs/systems in parents: none
Other effects in parents: decrease of body weight gain
Target organs/systems in pups: none
Other effects in pups: decrease of body weight gain
Effects on offspring only observed with maternal toxicity.

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

SECTION 12. ECOLOGICAL INFORMATION:

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

AQUATIC TOXICITY, FISH

Rainbow trout (*Oncorhynchus mykiss*):
Acute toxicity, 96 hours, static, LC50: 5.4 mg/L
Moderately toxic
Bluegill sunfish (*Lepomis macrochirus*):
Acute toxicity, 96 hours, static, LC50: 7.3 mg/L
Moderately toxic

AQUATIC TOXICITY, INVERTEBRATES

Water flea (*Daphnia magna*):
Acute toxicity, 48 hours, static, EC50: 11 mg/L
Slightly toxic

AVIAN TOXICITY

Mallard duck (*Anas platyrhynchos*):
Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic
Bobwhite quail (*Colinus virginianus*):
Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic

ARTHROPOD TOXICITY
Honey bee (*Apis mellifera*):
Oral contact, 48 hours, LD50: > 100 µg/bee
Practically non-toxic.

SOIL ORGANISM TOXICITY, INVERTEBRATES
Earthworm (*Eisenia foetida*):
Acute toxicity, 14 days, LC50: > 1,250 mg/kg soil
Practically non-toxic

Similar formulation

AQUATIC TOXICITY, ALGAE/AQUATIC PLANTS
Green algae (*Selenastrum capricornutum*):
Acute toxicity, 72 hours, static, EbC50 (biomass): 12.4 mg/L
Slightly toxic.

Similar formulation

SOIL ORGANISM TOXICITY, MICROORGANISMS
Nitrogen and carbon transformation test:
30 L/ha, 28 days: Less than 25% effect on nitrogen or carbon transformation processes in soil.

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

SECTION 13. DISPOSAL CONSIDERATIONS:

Do not contaminate water, food or feed by storage or disposal.

WASTE: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed.

CONTAINER: Non-refillable container: Non-refillable containers: Do not reuse or refill this container. Offer for recycling, if available. **Refer to container label for complete cleaning and disposal instructions.**

Refillable container: Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.
Refer to the container label to determine if it is refillable and for complete cleaning and disposal instructions.

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

SECTION 14. TRANSPORTATION 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.

SECTION 15. REGULATORY INFORMATION:

TSCA INVENTORY
All components are on the US EPA's TSCA Inventory

OSHA HAZARDOUS COMPONENTS
Surfactant

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
Not applicable.

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for his own particular use.

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED 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-accepted label.

SECTION 16. OTHER INFORMATION:

Abbreviations:
ACGIH - American Conference of Governmental Industrial Hygienists; BEI - Biological Exposure Index; BCF - Bioconcentration Factor; BOD - Biochemical Oxygen Demand; CERCLA - Comprehensive Environmental Response; Compensation; and Liability Act; COD - Chemical Oxygen Demand; EC50 - 50% effect concentration; ED50 - 50% effect dose; EPA - Environmental Protection Agency; FIFRA - Federal Insecticide; Fungicide; and Rodenticide Act; I.M. - intramuscular; I.P. - intraperitoneal; I.V. - intravenous; IARC - International Agency for Research on Cancer; 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; NFPA - National Fire Protection; NOAEC - No Observed Adverse Effect Concentration; NOAEL - No Observed Adverse Effect Level; NOEC - No Observed Effect Concentration; NOEL - No Observed Effect Level; NTP - National Toxicology Program; OEL - Occupational Exposure Limit; OSHA - Occupational Safety and Health Agency; PEL - Permissible Exposure Limit; PH - Primary Irritation Index; Pow - Partition coefficient n-octanol/water; S.C. - subcutaneous; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-Term Exposure TLV-C - Threshold Limit Value-Ceiling; TLV-TWA - Threshold Limit Value - Time Weighted Average; TSCA - Toxic Substances Control Act; UEL - Upper Explosion Limit

REVISED DATE: June 2016
REFERENCE: Revised for GHS compliance