

SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards



Canopy Crop Management

Phosphoric Acid Solution 50-65%

SDS No: 70785

Revision Date: January 17, 2023

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME (AS LABELED): Phosphoric Acid Solution, 50-65%

CHEMICAL NAME/CLASS: Phosphoric Acid

PRODUCT USE:

SUPPLIER/MANUFACTURER'S NAME: Canopy Crop Management
ADDRESS: 5619 DTC Parkway
Suite 900
Greenwood Villiage, CO 80111

BUSINESS PHONE: (415) 460-7295

EMERGENCY PHONE: (415) 460-7295

DATE OF PREPARATION: January 17, 2023

Si usted no entiende las Hojas de Informacion de Seguridad sobre Materials, busque a alguien para que se la explique a usted en detalle.

(If you do not understand the Safety Data Sheet, find someone to explain it to you in detail.)

2. HAZARD IDENTIFICATION

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/irritation	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

LABEL ELEMENTS:

Signal Word: DANGER



skin corrosion and burns
eye damage
corrosive to metals



skin and eye irritant

Hazard Statement: May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory irritation.

Precautionary Statement:

- Prevention:** Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Avoid release to the environment.
- Response:**
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
IF ON SKIN: Immediately take off all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call POISON CENTER or doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Collect spillage.
- Storage:** Store in a well ventilated place. Store locked up. Keep container tightly closed.
- Disposal:** Dispose of contents/container in accordance with local/regional/national/international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration
Water	7732-18-5	15-99 %
Phosphoric Acid	7664-38-2	1-85 %

4. FIRST-AID MEASURES

- Inhalation** Remove to fresh air. Get immediate medical attention.
- Skin Contact** Rinse skin immediately with plenty of water for 15-20 minutes. Take off contaminated clothing, taking care not to contaminate eyes. Washing with large amounts of clean water should continue until affected skin surface no longer feels slippery. Get immediate medical attention.
- Eye contact** If this product enters the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Do not attempt to neutralize. Get immediate medical attention.

4. FIRST-AID MEASURES (CONTINUED)

Ingestion	DO NOT INDUCE VOMITING. Have person sip a glass of water if able to swallow. Never induce vomiting or give diluents (milk or water) to someone who is <u>unconscious, having convulsions, or unable to swallow</u> . If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water.
General Information:	Victims of chemical exposure must be taken for medical attention. Rescue personnel must wear appropriate protective equipment during removal of victims from contaminated areas. Take a copy of label and SDS to health professional with victim.
Note to Physicians:	Treat symptomatically and provide supportive therapy as indicated.

5. FIRE-FIGHTING MEASURES

FLASH POINT, °C (method):	Not flammable.
Suitable extinguishing media:	Water fog, foam, dry chemical, carbon dioxide. Use extinguishing agent suitable for type of surrounding fire.
Specific hazards arising from the chemical:	Gases hazardous to health may be formed during fire. This product may decompose upon heating to produce corrosive and/or toxic fumes, including oxides of phosphorus.
Special protective equipment and Precautions for fire-fighters:	Fire fighters should wear appropriate protective equipment to protect from contact with the product. No skin surface should be exposed.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective Equipment and emergency procedures:	Restrict access to keep out unauthorized or unprotected personnel. Stay upwind of spilled material. Wear appropriate personal protective equipment during all spill clean up activities. Avoid inhalation and direct contact.
Environmental precautions:	Keep spilled material away from sewage/drainage systems and waterways. This product contains a U.S. EPA Reportable Quantity (RQ) substance. If the amount spilled exceeds the Reportable Quantity, then notification of the National Response Center at (800) 424-8802 is required. See section 15 for more information.
Methods and materials for containment and cleaning up:	Clean up personnel must be properly trained. Confine the spill and remove incompatible materials. For large spills, attempt to stop the flow if it can be done safely, and dike the material where possible. Contain and neutralize spilled liquid with sodium bicarbonate powder, then collect using an appropriate material such as clay or vermiculite. If necessary, use suitable absorbent materials to absorb liquid. Place waste in an appropriate container for disposal. Use care during clean-up to avoid exposure to the material.

7. HANDLING and STORAGE

Precautions for safe handling:

Wear appropriate personal protective equipment. Use caution when combining with water. DO NOT add water to caustic; ALWAYS add caustic to water. Do not get in eyes, on skin or on clothing. Wash hands after handling this product. Do not eat or drink while handling this material. Remove contaminated clothing immediately. Discard contaminated clothing items, or launder before re-use. Inform anyone handling such contaminated laundry of the hazards associated with this product. Use ventilation and other engineering controls to minimize potential exposure to this product.

All employees who handle this material should be trained to handle it safely. Avoid breathing mists or sprays generated by this product. Use in a well-ventilated location.

7. HANDLING and STORAGE (continued)

For Non-Bulk Containers: Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers, or in a diked area, as appropriate. Store containers away from incompatible chemicals. Keep container tightly closed when not in use. Wash thoroughly after using this material. Storage areas should be made of fire-resistant materials. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid, therefore, empty containers should be handled with care.

Bulk Containers: All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

Tank Car Shipments: Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals, prior to connection to the tank car or vessel. Valves and hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

Protective Practices During Maintenance of Contaminated Equipment: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment before maintenance begins by a triple-rinse with water followed, if necessary, by using sodium bicarbonate and an additional rinse. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Store in a corrosion resistant container suitable for this product and away from incompatible materials such as alkalis.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Occupational exposure limits

US OSHA Table Z-1 Limit for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	TWA	1 mg/m ³

US ACGIH Threshold Limit Values

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL / TWA	3 mg/m ³ / 1 mg/m ³

US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL / TWA	3 mg/m ³ / 1 mg/m ³

Engineering Controls: Provide good ventilation. Ensure eyewash/safety shower stations are available near areas where this product is used.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (continued)

Individual protection measures, such as personal protective equipment

Eye/Face Protection:	Wear goggles and a face shield.
Skin Protection:	Wear appropriate chemical resistant gloves, chemical protective clothing and chemical resistant footwear. Cover-all, rubber aprons, or chemical protective clothing made from natural rubber are generally acceptable, depending upon the task.
Respiratory Protection:	Maintain airborne contaminant concentrations below exposure limits. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. If adequate ventilation is not available or if there is potential for airborne exposure above the exposure limits a respirator may be worn up to respirator exposure limitations, check with respirator equipment manufactures recommendations/limitations.

9. PHYSICAL and CHEMICAL PROPERTIES

Appearance and Color:	liquid, colorless
Odor:	no distinct odor
Melting/freezing point:	-3.9°C (25°F) for 36% solution; -17°C (1.4°F) for 75% solution; 21°C (70°F) for 85% solution;
Boiling point:	104°C (219°F) for 36% solution; 130°C (266°F) for 75% solution; 158°C (316°F) for 85% solution
Flash point:	not flammable
Evaporation rate (n-BuAc=1):	not applicable
Vapor pressure (mm Hg @ 21 °C):	5 - 8 mmHg at 77°F for 75% solution
Viscosity (cP at 20 deg C):	21.5 for 75% solution; 43.5 for 85% solution
Relative density (specific gravity):	1.22 (at 20°C) for 36% solution; 1.61 (at 20°C) for 75% solution; 1.81 (at 20°C) for 85% solution
Solubility in water:	completely soluble.

10. STABILITY and REACTIVITY

Reactivity:	This product is non-reactive at under recommended storage conditions.
Chemical stability:	Stable at room temperature.
Possibility of hazardous reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	Avoid exposure or contact to extreme temperatures and incompatible chemicals.
Incompatible materials:	Avoid contact with strong oxidizing agents, fluorine, strong reducing agents, alkalis, metals, sulfur trioxide and phosphorus pentoxide.
Hazardous decomposition products:	Phosphorus oxides

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion	May be harmful if swallowed. Ingestion may cause chemical burns, pain, vomiting, difficulty breathing and other gastrointestinal effects.
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Inhalation: Causes respiratory irritation.
Skin Contact: Causes skin burns. Symptoms may be delayed after exposure.
Eye Contact: Causes severe eye damage. Permanent eye damage could result.

11. TOXICOLOGICAL INFORMATION (continued)

Information on toxicological effects

Carcinogenicity: The major components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA; and are therefore not considered to be, nor suspected to be, cancer-causing agents by these agencies.
Sensitization: No data available.
Reproductive Toxicity: No data available.
Mutagenicity: Not mutagenic

Toxicity Data:

LD₅₀ (ingestion, rat) = 1530 mg/kg LD₅₀ (dermal, rabbit) > 2740 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity This product is harmful or fatal to plant and animal life if this product is released into the environment. This product can substantially raise the pH of an aquatic environment and can be extremely toxic to fish and aquatic plants. As with all chemicals, work practices should be aimed at eliminating environmental releases.

Product	Species	Test Results
Aquatic – Fish	LC50 (96 hr) mosquitofish	138 mg/L

Bioaccumulative potential: The components of this product are relatively stable in the environment; they may degrade, after time, into other organic and inorganic constituents.

13. DISPOSAL CONSIDERATIONS

Disposal Instructions: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. Discarded materials may be considered hazardous waste due to pH/corrosivity.

14. TRANSPORTATION INFORMATION

This material is hazardous as defined by 49 CFR 172.101 by the U.S. Department of Transportation.

DOT

Proper Shipping Name	Phosphoric Acid solution
Hazard Class Number and Description	8 (corrosive material)
UN Identification Number	UN 1805
Packing Group and Description	III (least danger among regulated goods)
DOT Labels/Placards Required	Corrosive
North American Emergency Response Guide Book (2012)	Guide 154

Marine Pollutant:

This product does not contain any components which are designated by the Department of Transportation to be Marine Pollutants. (49 CFR 172.101, Appendix B).

15. REGULATORY INFORMATION

This product is considered a Hazardous Chemical by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

SARA Reporting Requirements: The components of this product subject to the reporting requirements of Section 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act are as follows.

COMPONENT	SARA 302 Extremely Hazardous Substance	SARA 304	SARA 311/312 Hazardous Chemical	SARA 313 TRI Reporting
Sodium Hydroxide	No	Yes	Yes	No

SARA Threshold Planning Quantity: Not applicable.

TSCA Inventory Status: The components of this product are listed on the TSCA Inventory.

CERCLA Reportable Quantity (RQ): 5,000 lbs

Other Federal Regulations: Not applicable.

State Regulatory Information: Components of this product are covered under specific State regulations, as denoted below:

Massachusetts – Right to Know Substance List: Sodium Hydroxide

Pennsylvania - Right to Know Hazardous Substance List: Sodium Hydroxide

Rhode Island – Right to Know Hazardous Substance List: Sodium Hydroxide

Canadian Regulatory Information:

WHMIS Category:

Class E Corrosive Material

Ingredient Disclosure List:

Listed

Domestic Substances List (DSL):

Listed

Corrosive Material



NFPA 704 Rating:



- 0 (Minimal)
- 1 (Slight)
- 2 (Moderate)
- 3 (Serious)
- 4 (Severe)

16. OTHER INFORMATION

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a Safety Data Sheet. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

TLV - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour **Time Weighted Average (TWA)**, the 15-minute **Short Term Exposure Limit**, and the instantaneous **Ceiling Level**. Skin adsorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called **Recommended Exposure Levels (RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime over-exposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime over-exposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the **National Fire Protection Association (NFPA)**. Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause death. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Other acronyms used are: **Superfund Amendments and Reauthorization Act (SARA)**; the **Toxic Substance Control Act (TSCA)**; Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)**; and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.